

Society of Consumer Psychology 2018 Winter Conference
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Dallas, TX

CONFERENCE PROCEEDINGS

Thursday, 15 February 2018

Opening Reception and Poster Session

I'm So Happy (for Your Loss): Consumer Schadenfreude Increases Choice Satisfaction

Dmytro Moisieiev, Cranfield University, UK*
Radu Dimitriu, Cranfield University, UK
Shailendra P. Jain, University of Washington

We examine the effect of schadenfreude, or pleasure over misfortune of another, on consumers' satisfaction with choices they have made. We posit that consumers may take their positive feelings from schadenfreude over another's unrelated bad purchase as positive information about their own choices. In three experiments, we show that feeling schadenfreude over another's bad purchase makes consumers more satisfied with their own choices (Study 1), regardless of whether the other's bad purchase is in the same or different product category (Study 2), but only as long as consumers are not aware of such misattribution (Study 3).

Emotional Intensity Creates Increased Desire for Closeness

Gizem Ceylan-Hopper, University of Southern California, USA*
Stephanie Tully, University of Southern California, USA
Debbie MacInnis, University of Southern California, USA

Using an evolutionary theory of emotions, we predict that intense emotions evoke a desire to be close to others, thus prompting behaviors that nurture close relationships. We test this prediction in a longitudinal field study that linked the intensity of consumers' emotions from the 2016 United States presidential election and subsequent spending on others during the subsequent Black Friday weekend. We find that voters of major candidates (compared to non-voters or voters of third party candidates) experienced more intense emotions (though of differing valence) following the election, and they spent more money on others (but not more money on themselves) during the subsequent Black Friday weekend. The results suggest that additional work on the effect of emotional intensity on consumer behavior is warranted.

Perspective Taking and Self-Persuasion: Why "Putting Yourself in Their Shoes" Reduces Openness to Attitude Change

Rhia Catapano, Stanford University, USA*
Zakary Tormala, Stanford University, USA
Derek Rucker, Northwestern University, USA

We find that when people take the perspective of others who endorse a counterattitudinal view, they become less receptive to that view and show reduced attitude change following a counterattitudinal argument generation task. This effect is mediated by value-congruence: Individuals who take the opposition's perspective generate arguments that are less congruent with their own values, which undermines receptiveness and attitude change. This backfire effect

is attenuated when people take the perspective of someone who holds the counterattitudinal view yet has similar overall values.

Finding Happiness in Meaning: Where, When, and for Whom Happiness and Meaning Converge

Rhia Catapano, Stanford University, USA*

Jordi Quoidbach, ESADE Business School, Spain

Cassie Mogilner, University of California Los Angeles, USA

Jennifer Aaker, Stanford University, USA

We assessed the correlation between meaning and happiness for over 800,000 individuals across 151 countries to determine where, when, and for whom these desired aspects of human existence converge or diverge. Overall and across countries, meaning and happiness are positively related; however, the degree of convergence varies by age, income, and education level. The greatest convergence is exhibited among people who are old, poor, and uneducated. These results suggest that it is in circumstances when extrinsic sources of happiness are scarce that people derive more happiness from an intrinsic sense of purpose and meaning.

Self-Construal and Anticipated Personal Happiness in Charitable Donations of Time versus Money

Rhiannon MacDonnell, University of Lethbridge, Canada

Bonnie Simpson, Western University, Canada*

Across three studies, we find that independents (individuals who view the self as more separate from others) and interdependents (those who view the self as interconnected with others) differentially respond to charitable donation requests of time versus money. Independents (but not interdependents) prefer to donate money when the target's affect in an appeal was sad, and time when the target's affect was happy; interdependents did not differ. The effect for independents only is mediated by whether contributing will lead to personal happiness. The theoretical and practical implications will be discussed.

Interpersonal Emotion Regulation: Consequences for Brands in Customer Service Interactions

Nur Onuklu, Temple University, USA*

Crystal Reeck, Temple University, USA

Interpersonal emotion regulation - purposeful attempts to manage others' feelings - is one of the important aspects of social life. Whereas previous research on interpersonal emotion regulation has often focused on employee outcomes, the present research investigates how interpersonal emotion regulation alters consumer perceptions of brands and service interactions. In our first experiment, we found that antecedent-focused strategies produced more positive perceptions of a service interaction, as well as enhanced brand loyalty. These findings support the process theory of interpersonal emotion regulation and generate important insights for both theory and practice.

I Am So Proud of You! The Effect of Vicarious Pride on Preferences for Self-Improvement Product

Na Ri Yoon, Indiana University, USA*

H. Shanker Krishnan, Indiana University, USA

Extant literature on pride has generally conceptualized pride as emanating from one's own achievement. The current research suggests that pride from another person's achievement can also result in interesting behavioral responses in a consumption context. In specific, we propose that vicarious pride – feeling pride from another person's achievement – will increase consumers' desire to improve themselves and thereby increase their preference for products which have self-improvement features. Further, because experiencing vicarious pride involves others, the underlying mechanism is postulated to be consumers' need to belong. We expect that self-theory and domain-relevance are important moderators of this effect. *The first author is a PhD student.

The Merits of Happy Consumption: Positive Affect and Psychological Ownership

Carina Thürridl, Wirtschafts University, Austria*

Bernadette Kamleitner, Wirtschafts University, Austria

Ruta Ruzeviciute, Wirtschafts University, Austria

Sophie Süssenbach, Wirtschafts University, Austria

Stephan Dickert, Queen Mary University of London, UK

The feelings consumers experience during consumption can have powerful effects, but can they also influence how possessive one feels towards products? In this paper, we examine whether the positive affect experienced during product consumption can instill a sense of ownership for the consumed product, subsequently leading to intended repeat consumption. Across multiple correlational and experimental studies with a total of 6 product categories, 2 brand types, imagined and real consumption, we consistently find that positive affect elicits PO for the consumed brand, which, in turn, predicts intended repeat consumption.

Smiling vs. A Smiley Face Emoji: The Effect of Emojis on Perceived Emotional Arousal of Online Consumer Reviews

Grace Yu, University of Utah, USA*

Arul Mishra, University of Utah, USA

Himanshu Mishra, University of Utah, USA

Based on the literature about emotional contagion and how people process emotions through pictures, words, and facial expressions, we propose that consumers perceive a higher level of emotional arousal from word-plus-emoji reviews than from word-only consumer reviews. The difference between the levels of emotional arousal from the two types of reviews is greater when the valence of the review is positive. We conducted three studies to provide evidence about the

research propositions. We also conducted one study to explore whether construal level theory can be used as the alternative account of the effect of emojis on the emotional arousal.

Revealing and Erasing Consumers' Preferences for Affectively-Charged Attributes

Alexander DePaoli, Northeastern University, USA*
Itamar Simonson, Stanford University, USA

When making a purchase, consumers must weight and evaluate the features of products, and the questions with which preferences are elicited (the response modes) can influence what features consumers appear to prefer. We find that consumers greatly value affectively-charged features (which appeal to ethical, identity-based, or emotional considerations) in comparison-based response modes (such as choice or strength-of-preference tasks), but do not value them in calculation-based response modes (such as willingness-to-pay, willingness-to-buy, or rating tasks). We argue that this pattern is a function of such features being useful for comparisons but difficult to assimilate into calculations.

Induction of Construal-Level Mindset via Experience of Surprise and the Follow-up Effect on Consumer Evaluations and Judgments

Atul Kulkarni, University of Missouri-KC, USA*
Joëlle Vanhamme, EDHEC Business School, France

We find that an experience of surprise may induce a construal-level mindset, such that a positive surprise may lead to an abstract mindset whereas a negative surprise may lead to a concrete mindset. Consequently, the induced mindset may influence evaluations and judgments of subsequently presented stimuli in the same fashion as abstract/concrete processing of the stimuli would do. Results from three studies show that when primed with positive (negative) surprise, participants evaluated promotionally (preventionally) framed ad messages more favorably and leaned toward desirability (feasibility) laden shopping options.

Risky Business: The Risk-Reward Trade-off is different for Nonprofits

Rachel Gershon, Washington University, USA*
Cynthia Cryder, Washington University, USA

Though experts argue that risk taking is crucial for innovation, little research examines consumer responses to organizational risk taking. This project finds that consumers judge risk taking by nonprofit organizations less favorably than identical risk taking by for-profit organizations. Our studies find that consumers penalize a nonprofit that chooses a risky (but high expected value) option over a certain (but low expected value) option, however, they do not penalize a for-profit company that chooses the same risk. This research suggests that consumers exhibit different risk tolerances for nonprofit versus for-profit organizations in ways that may impact investment, donation, and consumption.

Show Me More! Powerlessness Drives Variety Seeking

Wangshuai Wang, Shanghai Jiao Tong University, China*
Raj Raghunathan, University of Texas at Austin, USA

This research investigates the impact of power on variety seeking behavior. Results from four studies provide convergent support that feeling powerless, relative to feeling powerful, nudges individuals toward variety seeking. Additionally, we reveal that perceived autonomy mediates this relationship. This work contributes to the power literature by taking an intrapersonal perspective to examine its downstream consequences. This work also contributes to the consumer variety seeking literature by showing power as a new psychological catalyst for variety seeking behavior.

Presence of alignable attributes enhances perceived variety

Sudipta Mukherjee, Virginia Tech, USA*
Mario Pandelaere, Virginia Tech, USA

Based on theory of alignable differences, this research predicts that presence of alignable attributes will enhance perceived variety. Three studies involving diverse product assortments (two different product categories, and category sizes ranging from 3 to 25) show that presence of alignable attributes significantly enhances perceived variety. Potential mechanisms are discussed and outlined for follow-up research.

The Effect of Volume and the Valence of Online Reviews when Choosing a Service: The Role of Perceived Risk and Service Type

Kyu Ree Kim, Seoul National University, South Korea*
Wujin Chu, Seoul National University, South Korea

Online reviews are a great source of information when purchasing a product online. The effect of online reviews is greater when purchasing a service product because quality cannot be judged unless experienced. The success of online review websites such as Yelp or Trip Advisor attests to the importance of online reviews. The effect of number of reviews (volume) and average ratings (valence) on attitude and purchase intention were widely studied in previous literature. In this paper, we focus on the mediating role of perceived risk and the moderating effect of service type (i.e., hedonic or utilitarian). We show that the effect of volume and valence is mediated by perceived risk (i.e., volume and valence reduces perceived risk of the service). Also, we show that utilitarian products show greater indirect effect through perceived risk than hedonic products.

Donate at Your Own Risk: The Effect of Altruism on Risky Behavior

Benjamin Borenstein, University of Miami, USA*
Caglar Irmak, University of Miami, USA

Prior research finds that altruistic acts induce feelings of happiness. The current work expands upon the consequences of prosocial behavior, through an examination of how altruism influences risky decision making. One pilot study and two experimental studies provide evidence that prosociality increases risk taking propensity. Additionally, this research demonstrates how post donation perceptions of deservingness may mediate the relationship between altruism and risk proclivity. Lastly, consumers' just-world beliefs are shown to moderate perceptions of deservingness, and in turn impact risk seeking behavior. A donation recipient's principles must align with a consumer's belief system, in order for risk taking to ensue.

Pain of Gain: Can Loss Aversion Over Foregone Options Drive Variety-Seeking in the Simultaneous Multiple Choice?

Jihye Park, Hankuk University of Foreign Studies, South Korea*

This study focused on the appeal of forgone options and examined if loss aversion over forgone options drives variety-seeking in the multiple simultaneous choice. A series of experiments showed that consumers tended to make choices from the remaining options to reduce feelings of loss over forgone options.

Bigger or Better? Resource Scarcity Shapes the Preference for Quality Versus Quantity

Andrew Long, University of Colorado, USA*

Lawrence Williams, University of Colorado, USA

Consumers often decide whether to get a bigger bang for their buck or better bang for their buck – trading off between the quantity versus quality of goods. We show that preferences for quality and quantity are affected by consumers' financial resource perceptions. When feeling financially constrained, consumers tend to prefer options that offer more quantity rather than more quality, even when costs are equated. These preferences have implications for both consumer well-being (e.g. obesity) and marketing strategy (e.g. brand loyalty).

Effect of Asymmetric vs. Symmetric Control on Consumer Satisfaction with Product Categorization

Arezou Ghiassaleh, University of Lausanne, Switzerland*

Bruno Kocher, University of Lausanne, Switzerland

Asymmetric control is an interpersonal construct involving control over other individuals whereas symmetric control is an intrapersonal construct that concerns the ability to control the environment. Although these two constructs share common foundations, there has been no research directly comparing their effects on consumer behavior. We examine the moderating role of asymmetric and symmetric control on consumer preference for product categorization. We show that categorization facilitates the choice process for consumers with high asymmetric control by increasing the confidence in choosing and for consumers with low asymmetric control by increasing the perceived helpfulness of the information.

Helpful Mental Shortcuts or a Shortcut to Bias? Two Perspectives on Heuristics and One New Direction for Consumer Research

Carly Drake, University of Calgary, Canada*
Mehdi Mourali, University of Calgary, Canada

Heuristics, colloquially defined as mental shortcuts that allow individuals to solve problems and make decisions quickly (Cherry 2016), are among the tools consumers use to navigate an increasingly complex marketplace. In psychology, one view of heuristics argues that heuristics may mislead and bias those who use them. Another view argues that heuristics may be more efficient and accurate than complex computations, despite using less information. While debate surrounding the merits of each perspective spans several decades and disciplines, in this review paper we aim to contribute to consumer research by (a) bringing attention to one perspective's dominance in the field; and (b) determining how the other offers new avenues for understanding consumer behavior.

Unmake up Your Mind: Why Some Reversible Decisions Impact Satisfaction More Positively than Others

Dmytro Moisieiev, Cranfield University, UK*
Radu Dimitriu, Cranfield University, UK

Reversible decisions (when consumers have an option to change their choices after having made them) are believed to decrease choice satisfaction by triggering post-choice comparisons between chosen and non-chosen options. We posit that there are two different decision reversibility options: being able to remake a choice (exchange the chosen option for a foregone one) and being able to unmake a choice (cancel order or return it for a refund). The latter kind generates fewer post-choice comparisons and increases choice satisfaction compared to the former (Study 1), but only as long as consumers are not cognitively depleted (Study 2).

When Reasons Don't Matter: Differential Impacts of Consumer Reasoning on Post-Decisional Satisfaction and Choice

Alexander DePaoli, Northeastern University, USA*

The current research demonstrates that deliberative pre-decisional reasoning about one's options can simultaneously lead to lower post-decisional satisfaction of a chosen product while also increasing commitment to that same product. This reversal is driven by the fact that the reasons used to make the initial choice are uninformative for making subsequent ratings evaluations of the chosen option, but are central to making subsequent comparative evaluations among multiple options. Demonstrating this reversal emphasizes the importance of the response mode used to assess satisfaction, and expands on past research which has argued that reasoning tends to lead to less satisfying choices.

The Discount Rounding Effect: How Numerical Discount Affects Consumer Judgment

Mengmeng Liu, The Chinese University of Hong Kong*
Ruomeng Wu, University of Cincinnati

In two studies, we show that consumers perceive greater product value when they receive 19% off (vs. 21% off) discount. We demonstrate that this effect is driven by greater motivation to process numerical information when the discount can be easily rounded up, i.e., 19% off, compared to the one that needs to be rounded down, i.e., 21% off, and further easiness of saving calculation leads to perceived greater product value. We further manipulate saving calculation by removing a product's original price and find the effect only exists when the discount is provided along with a specific price.

Are Busy Consumers More Satisfied Consumers? It Depends! The Effect of Perceived Busyness on Satisfaction

In-Hye Kang, University of Maryland, USA*
Yuechen Wu, University of Maryland, USA*
Rosellina Ferraro, University of Maryland, USA

This research examines when and how perceived busyness influences satisfaction. We propose and demonstrate that when the objective product performance is low, high (vs. low) perceived busyness leads consumers to perceive that they used their time less efficiently in obtaining or consuming the product, reducing satisfaction with the product. Conversely, when the objective product performance is high, high (vs. low) perceived busyness increased the perception of time usage efficiency, enhancing satisfaction with the product. We also demonstrate several downstream consequences of the observed effects, including recommendation intention, willingness to search, and willingness to revisit the store.

The Meaning in Itself: Autotelic Choice, Maximizing and Consumer Satisfaction

Michail Kokkoris, WU Vienna University of Economics and Business, Austria*

Does the quest for the best undermine consumer satisfaction? This research revisits this question by arguing that it depends on consumer goals. Maximizers (vs. satisficers) experience higher choice satisfaction when choice is a goal in itself (autotelic) as opposed to a means to achieve other goals (instrumental). In Study 1, maximizers assigned higher importance to autotelic experiences and life goals than satisficers. In Study 2, maximizers experienced higher choice satisfaction when making a choice with an autotelic rather than an instrumental goal. These findings suggest that maximizers might be better understood as consumers actively seeking self-contained meaning in choice.

Advancing a Slack-Based Theory of the Pain of Payment

Justin Pomerance, University of Colorado, USA*
Nicholas Reinholtz, University of Colorado, USA

In this paper, we offer a new conceptualization of the pain of payment grounded in slack theory (Zauberman and Lynch 2005). We suggest that pain of payment is an emotional response to a perceived decrease in financial slack. This perspective helps integrate previous findings (e.g., decoupling and transparency), while generating new predictions that map onto real world behaviors which are difficult to account for under previous theoretical frameworks. Three studies—two experiments and one analysis of secondary data—are presented in support of the slack-based theory of the pain of payment.

Framing Effects in Tipping Behavior

Shirly Bluvstein, PhD student, Stern School of Business, New York University*
Priya Raghubir, Professor, Stern School of Business, New York University

Four studies show that framing tip options as absolute \$ amounts leads to higher tipping intentions and behavior than framing them as a % and this is particularly true for lower bill amounts. Study 1 shows the main effect. Study 2 shows that the effect is attenuated for higher bill amounts. Study 3 replicates the effect controlling for response scale formats. Analysis of secondary data (n=51,825 transactions) shows that for bills \leq \$10, where tip options are presented as \$1-\$2-\$3, consumers leave a higher tip percentage compared to bills $>$ \$10 when tip options are presented as 15%-20%-25%.

Sooner or Later: New Product Pre-announcement Timing And Shareholders' Judgement

Sina Aghaie, University of South Carolina, USA*
Mehdi Nezami, University of Illinois at Urbana-Champaign, USA

Some firms pre-announce new products long before they are actually available on the market. Previous research has investigated the effects of such new product pre-announcements (NPPAs) on consumers, competitors and investors responses. This paper examines how NPPAs timing affect investors' evaluation of the new product and, in turn, how these evaluations influence their preferences for investing in announcer firm. In other words, this study aim to investigate the moderating role of NPPAs timing on NPPA-Investor response link. Our experimental study revealed that the timing of NPPA can shift investor's evaluation of forthcoming products. The direction of this shift (Positive vs. Negative) depends on type of product innovation (radical vs. incremental). For example, for "radical" new products investors will react more favorably to late NPPA (pre-announcement and launch time are close together), whereas for "incremental" new products firms will better off if they pre-announce early (pre-announcement and launch time are distant). The research has important implications for managers regarding how and when to use NPPAs to influence investor's evaluations of the new products.

Parts in the Whole: Consumer Inference-Making Process in Product Bundling Context

Jennifer Hong, New York University, USA*
Andrea Bonezzi, New York University, USA
Tom Meyvis, New York University, USA

Prior research has shown that when two or more items are grouped together, consumers find them similar to (rather than different from) each other. Consistent with the finding, a product is evaluated less favorably when it is bundled with an inferior product, due to spill-over of that product's negative evaluation. Our research demonstrates a novel, counterintuitive effect; that bundling can actually reduce the negative impact of unfavorable information about a similar product, and as a result, the product is evaluated more favorably when bundled with an inferior product – provided that the products are substitutes.

An Extension and Refinement of Offer Framing Effects

Jongwon Park, Korea University, Korea*
Jungkeun Kim, Auckland University of Technology, New Zealand

This paper provides a refinement to the theoretical process underlying the offer framing effect and suggests the boundary condition for the effect, in that introducing non-essential variations (e.g., different [vs. the same] decision task or payment methods) across simultaneously repeated rounds of choice decreases the level of variety seeking.

Seeing Death-Related Media Information Decreases Price Sensitivity

Zhongqiang (Tak) Huang, University of Hong Kong*
Xun (Irene) Huang, Nanyang Technological University, Singapore
Yuwei Jiang, Hong Kong Polytechnic University

This research examines how incidental exposure to death-related information in media affects consumers' price sensitivity. We demonstrate that seeing death-related information in media leads consumers to focus on intrinsic rather than extrinsic values, resulting in lower sensitivity to prices of products and services which are generally associated with extrinsic values.

What's Lux got to do with it: Price Image & Discounting Luxury

Karen Wallach, Emory University, USA*
Ryan Hamilton, Emory University, USA
Morgan Ward, Emory University, USA

This research presents evidence that discounting luxury goods and services can create a lower price image for a retailer than discounting non-luxury offerings by the same amount. We attributed these findings to consumers' perceptions of the retailer's brand personality as being less competent and thus inept at setting appropriate price levels. Five experiments support these conclusions.

Grotesque Imagery Enhancing Persuasiveness of Luxury Brand Advertising

Donhwy An, Department of Arts and Cultural Management, Hongik University, Republic of Korea*

Chulsung Lee, Department of Policy Research at Small Enterprise and Market Service, Republic of Korea

Janghyun Kim, Department of Business Administration, Korea Christian University, Republic of Korea

Nara Youn, Department of Marketing, Hongik University, Republic of Korea

The current research examines consumers' perceived fit between grotesque imagery and luxury branding. We showed that the fit between grotesque imagery and luxury brand advertising facilitates transportation, which in turn enriches brand experience and increases purchase intention of the featured product.

In the World of Plastics: How Thinking Style Influences Preference for Cosmetic Surgery

Sarah Mittal, Texas State University, USA*

David H. Silvera, University of Texas at San Antonio, USA

From the top of your forehead down to your feet, the world of plastic surgery offers a variety of “enhancement” procedures. But, what type of consumer is most likely to undergo such cosmetic procedures? The current research examines whether individual differences in holistic and analytic thinking affect preferences for cosmetic procedures such as breast augmentation and penis enlargement. Across 3 studies, we find that analytical thinking increases openness to cosmetic procedures and examine a “focusing effect” as the underlying mechanism driving dissatisfaction with certain body parts—therefore increasing the likelihood of undergoing procedures to alter that particular body part.

The Effects of Bariatric Surgery on Delay Discounting Modeling in Obesity

Ratnalekha Viswanadham, INSEAD, France*

Yann Cornil, University of British Columbia, Canada

Liane Schmidt, Sorbonne-Universités INSEAD Behavioral Lab, France

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Pierre Chandon, INSEAD, France

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We investigated in two studies whether bariatric surgery impacts patients' self-control abilities that may contribute to the success of this weight loss intervention beyond modifying the digestive tract. Lean controls and bariatric surgery obese candidates perform an indifference point task and a delay-discounting task (under functional MRI) with incentive-compatible food and monetary rewards. Results show that pre-bariatric obese patients exhibit more discounting behavior for food than lean controls but no difference in monetary rewards, and the discounting behavior differences diminish six months after surgery. Results by the conference will include mediating effects of biological markers and fMRI results.

From mindless eating to mindful decision-making

Katrien Cooremans, Ghent University, Belgium*
 Maggie Geuens, Ghent University, Belgium
 Mario Pandelaere, Virginia Tech, USA

Consumers have the tendency to categorize food-related information according to a good/bad dichotomy of healthy vs. unhealthy. This good versus bad message that we have internalized may be contributing to the worldwide obesity prevalence. It also results in a tendency to believe that unhealthy food is tastier. In the present study we investigate the link between mindfulness and the unhealthy = tasty intuition. Our results indicate that a higher dispositional mindfulness decreases dichotomous thinking and in turn leads to a lower belief that unhealthy food is tastier. Further, we explore the possibility of increasing state mindfulness through a short exercise.

Rejecting a Moralizing Product: the Moderating Effect of Moral Identity

Rishad Habib, University of British Columbia, Canada*
 Yann Cornil, University of British Columbia, Canada
 Karl Aquino, University of British Columbia, Canada

Marketing often aims to appeal to consumers' ideals, for instance when proposing a carbon donation in the price of flight tickets, or when labeling a food product as suitable for vegetarians. However, such marketing appeals may pressure consumers to categorize themselves depending on whether or not they subscribe to the ideal, and can lead to product rejection. We demonstrate across three studies that this rejection has moral underpinnings: people with a higher (versus a lower) "moral identity" are more likely to reject a product, when they do not self-associate with the category induced by the marketing appeal.

Open Innovation: Is It also a Good Strategy in the Eyes of Consumers?

Xuefeng Liu, Loyola University Maryland*
 Eric Fang, University of Illinois at Urbana-Champaign, USA

We find that consumers use lay theories such as "two heads are better than one" to infer reliability and technological newness of a product developed via open innovation, and accordingly evaluate it more favorably than if it is developed via closed innovation.

Anthropomorphism Can Save the Food: The Effect of Anthropomorphism on Consumer Evaluation of Old Produce

Hyewon Oh, University of Illinois at Urbana-Champaign, USA*
 Minkyung Koo, University of Illinois at Urbana-Champaign, USA

Food waste, especially fruits and vegetables, has been a serious problem to grocery stores as well as our society. One of the best ways to reduce food waste would be to make imperfectly looking produce more appealing to consumers. What can grocery stores do? The present research

examined this question and found that anthropomorphizing old but still perfectly safe and tasty produce enhances consumer evaluation by increasing (decreasing) positive (negative) emotions reflected by it. We also found the lay theory of aging as an important boundary condition for this beneficial impact of anthropomorphism.

Linguistic antecedents of anthropomorphism: Cultural differences in attributing humanlike states to non-human agents

N. Alican Mecit, HEC Paris, France*
 Tina M. Lowrey, HEC Paris, France
 L. J. Shrum, HEC Paris, France

Our research proposes that there are stable cultural differences in the tendency to anthropomorphize and that these differences arise mainly from crosslinguistic differences in grammar. We first show that native speakers of languages that do not grammatically separate humans from non-humans, such as French and Turkish, have a higher tendency to anthropomorphize compared to native speakers of languages that draw a line between humans and non-humans, such as English. Holding cultural elements constant and using a learning task, we also show that when native English speakers start using pronouns like a native French speaker does, the former group's tendency to anthropomorphize increases.

Perceptions of People with Disabilities in the Consumption Environment

Helen van der Sluis, Arizona State University, USA*
 Adriana Samper, Arizona State University, USA
 Kirk Kristofferson, Arizona State University, USA

Despite increasing advocacy for people with disabilities, little marketing research has examined how perceptions of them might impact the consumption environment. In terms of broad perceptions, we find that people view disabled individuals higher in moral character until they engage in moral violations and are then viewed the same as others. Applying these effects to a persuasion context, even when a salesperson gives them a clothing item irrelevant to their purpose for shopping, participants report higher purchase satisfaction when the salesperson is disabled compared with not disabled.

Beliefs About Change and Health Decision Making

Summer Hyoyeon Kim, University of Kansas, USA*

This study examined the role of beliefs about change in perceptions of disease susceptibility and intentions to get vaccinated. Among individuals with a recent flu history, priming cyclical beliefs, or the belief that things are in a constant flux, led to greater likelihood predictions for exposure and contraction of the flu. However, individuals with linear beliefs, who were primed to believe things will continue in the same direction as the status quo, indicated a greater intent to receive a flu vaccine. Cyclical beliefs seem to activate cautionary behaviors or pessimistic biases and linear beliefs seem to prompt action taking.

Are Connoisseurs Less Likely to Buy? When Quality and Taste Differentiation Matters

Farnoush Reshadi, West Virginia University, USA*
Stephen He, West Virginia University, USA

This research investigates one aspect of consumer expertise, perceived knowledge, and how it affects purchase decisions based on product reviews. We argue and demonstrate that the influence of knowledge on purchase intentions is determined by two underlying processes: perceived match of taste and perceived quality. Results indicate that connoisseurs tend to favor a product more than novices because of a match of taste. This effect is strongest for products differentiated by taste, and is attenuated for products differentiated by quality because connoisseurs also tend to be more critical of perceived quality.

Consumer Understanding, Extremity, and Opposition to Genetically Modified Foods

Philip Fernbach, Leeds School of Business, University of Colorado, Boulder, USA
Nick Light, Leeds School of Business, University of Colorado, Boulder, USA*
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A common approach in attempting to sway consumers who have positions opposing those supported by facts is to educate them. This strategy usually fails, particularly in the context of contentious scientific issues. In this paper we show why a one-size-fits-all approach to mitigating opposition to fact-based scientific positions is problematic by exploring the complex psychological constructs underpinning opposition to genetically modified organisms (GMOs). We also show that, among consumers who hold the most extreme anti-GMO views, there is a significant discrepancy between objective and perceived understanding of scientific facts related to genetic modification.

The Effect of Socioeconomic Status on Prosocial Behavior

John Bullock *PhD Student, Indiana University, USA*
Adam Duhachek, Indiana University, USA
Vishal Singh, New York University, USA

The present research challenges recent psychological research that posits that higher socioeconomic status (SES; measured by education and income) has a negative effect on prosocial behavior (donation and volunteer behavior), and that this effect is amplified by economic inequality. Using a variety of large-scale global datasets, we consistently show that there is no support for the negative relationship, and instead find strong support for a positive relationship between SES and prosocial behavior, with no moderating effect of economic inequality. This relationship holds even while controlling for within-state and within-country effects, age, gender, and religiosity.

Art Appreciation Opens Affirmed Minds To Cultural Diversity

Donghyw An, Department of Arts and Cultural Management, Hongik University, South Korea
 Boram Lee, Department of Arts and Cultural Management, Hongik University, South Korea*
 Nara Youn, Department of Marketing, Hongik University, South Korea

Appreciating artworks enhanced endorsement of cultural diversity for individuals with high self-affirmation (Study 1) and for those with authentic pride, but not for those with hubristic pride (Study 2). The effect of art appreciation was significant for narcissistic individuals only when their openness to cultural diversity was publicized (Study 2).

The Interactive Effect of Workspace, Risk, and Moral Identity Internalization on Ethical Investment Decision Making

Gady Jacoby, University of Manitoba, Canada
 Huijing Li, University of Manitoba, Canada
 Fang Wan, University of Manitoba, Canada
 Jun (Wendy) Yan, University of Manitoba, Canada*

This experimental study examines how moral identity internalization (MII) affects individuals when they make financial decisions in different office layouts. Results show that when portfolio risk is low, participants who are low in MII are more likely to choose an immoral (vs. moral) portfolio when they work in a cubicle (vs. open space) work environment. In contrast, for high MII participants ethical investment decision-making is not affected by the type of workspace or portfolio risk.

Mixing Markets and Morals

Serena Hagerty, Harvard Business School, USA*
 Mike Norton, Harvard Business School, USA

In our society it is considered immoral, or “taboo”, to monetize certain sacred goods. The present research demonstrates that while there is initial moral aversion to monetization of sacred goods, there is a ‘slippery slope’ to these moral judgments. When exposed to existing monetization of sacred goods, individuals are more morally accepting of monetization of similar goods. This effect holds even when controlling for initial moral reactions and political affiliation. We demonstrate that while we may be initially averse to monetization of new goods, exposure to such transactions can lead to subsequent moral acceptance.

But They’re Our Star! The Moderating Effect of Centrality to Team Success on Moral Decoupling in Response to Athletes’ Moral Transgressions

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We explore consumers' reactions to athletes' moral transgressions within a team sport context. When consumers engage in moral decoupling in response to a transgression by a team's player, we find that consumers' expectations about the team's success and the player's centrality to that success moderate the mediating effect of moral decoupling on player attitudes so that as expectations for team success increase and players are seen as more central, consumers are less forgiving of on-field transgressions relative to off-field transgressions.

Are the Eyes the Mirror to the Soul?: The Influence of Eye Gaze Direction on Narrative Transportation and Self-brand Connection

Ngoc (Rita) To, University of Houston, USA*
Vanessa Patrick, University of Houston, USA*

We aim to demonstrate the influence of ad model's gaze direction (direct versus averted) on consumer self-brand connection. With two studies, we demonstrate that averted (versus direct) gaze enhances narrative transportation, which drives self-brand connection. We also examine the moderating role of rational (vs. emotional) appeals on this relationship.

When Ignorance is No Longer Bliss: Seeking Threatening Information About Self-Relevant Brands

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Jennifer Savary, University of Arizona, USA
Jesper H. Nielsen, University of Arizona, USA

Prior research shows that people often avoid negative information especially when it threatens their mood or self-beliefs. In three studies, we demonstrate the opposite: when negative information is about a self-relevant brand (i.e. brands with high self-brand connections) consumers tend to seek, instead of avoid, negative information about the brand. This occurs because addressing the potential identity threat, created by negative information about a self-relevant brand, overrides other considerations. When consumers seek negative information about self-connected brands, they are more likely to then defend against the information by counterarguing.

Do Incongruent CSR Activities Always Alter Brand Perceptions? The Effects of Dialectical Thinking

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Vanitha Swaminathan, University of Pittsburgh, USA
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We find that dialectical thinking influences responses to incongruities in a brand's corporate social responsibility (CSR). Non-dialectical thinkers respond less favorably to such incongruities than dialectical thinkers. Further, we find that when the brand's CSR statement preceding an incongruent behavior is ambiguous, dialectical thinkers have more favorable brand perceptions

than non-dialectical thinkers. However, when the CSR statement is unambiguous, dialectical thinkers have less favorable brand perceptions than non-dialectical thinkers.

Role of Anthropomorphism on Consumers' Brand Evaluation: An Examining under Negative Publicity

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 Ashish Sadh, Indian Institute of Management Indore, India
 Aditya Billore, Indian Institute of Management Indore, India
 Abhishek Mishra, Indian Institute of Management Indore, India

Extant literature on consumer-brand relationship identifies effectiveness of anthropomorphized brands in generating positive perception of consumers' towards a brand, leading to improved brand performance. The present paper investigates the negative side by exploring the influence of negative publicity on consumers' evaluation of anthropomorphized brand. Further, the study identifies the role of consumer's thinking style (holistic vs. analytic) in moderating the effect of negative publicity towards anthropomorphized brand. The study states the contribution to the existing body of knowledge in exploring consumer-brand relationship and anthropomorphized branding.

Implicit Ambivalence Toward Brands—Implications for Attitude Processes and Measurement

Geoffrey Durso, The Ohio State University, USA*
 Richard Petty, The Ohio State University, USA

Ambivalence—evaluating something as both positive and negative—is a pervasive and consequential aspect of consumer behavior. Past work has suggested that people who report explicit attitudes that differ from their more “implicit” or automatic evaluations (termed implicit ambivalence) cannot deliberately access or attribute this ambivalence to the attitude object. We report an experiment showing that manipulated implicit ambivalence toward a novel consumer brand influences (1) an explicit bivariate measure of attitude, and (2) an objective measure of ambivalence. Importantly, these findings were independent of any effects on traditional explicit measures of attitude and subjective ambivalence.

How to Recover a Brand after a Crisis?: The Effects of Apology Advertising Types and Relationship Norms on Consumer Responses in a Brand Crisis

So Young Lee, The University of Texas at Austin, USA*
 Taemin Kim, Fayetteville State University, USA

The study examines how consumer-brand relationship norms impact the effectiveness of corporate apology advertising messages framed by two different appeals (rational vs. emotional). A 2 (Relationship norm types: communal vs. exchange norm type) × 2 (Apology message types: rational vs. emotional) factorial design will be employed. By investigating the relationship between corporate apology ad type and relationship norms, the current study will show how

consumer-brand relationships are applied to brand crisis research and provide empirical implications such as a guideline for message strategies in crisis communication.

Looking in the Mirror – I’m the Brand. When am I Entitled to More?

Svetlana Davis, Bishop's University, Canada*

While existing research on customer entitlement provides a psychological profile of entitled individuals (i.e., how they think and feel, e.g. Boyd and Helms, 2005; Butori, 2010), it has not yet examined customer entitlement as a reaction triggered in response to customer prioritization (CP) strategies in the business-to-consumer (B2C) context. We explore this by addressing three research questions. First, we examine whether customer entitlement can arise as a result of CP strategies implementation. Next, we consider different customer-brand relationships (self-relevant vs. self-neutral) as triggers for increased customer entitlement in the context of CP strategies. Finally, we look at how the fact that some customers may voice their opinions against CP strategy implementation may affect their entitlement if the company implements these strategies anyways.

A Sign of Inequality: The Distinct Role of Visual (A)symmetry in Consumer Donations

Ngoc (Rita) To, University of Houston, USA*
Vanessa Patrick, University of Houston, USA

The current research proposes to examine how the presence of symmetrical (vs. asymmetrical) visual cues influences consumer response to donation appeals. Drawing on the anthropological perspective of symmetry, we first propose that people form a strong association between visual symmetry and the state of equality, such that asymmetry is associated with a state of inequality while symmetry is associated with a state of equality. Further, we hypothesize that because of these equality associations, symmetrical (vs. asymmetrical) visual cues can enhance the effectiveness of gain-framed (vs. loss-framed) donation appeals respectively.

The Effect of Textual Paralanguage on Brand Warmth

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Sarah Moore, University of Alberta, Canada
Jennifer Argo, University of Alberta, Canada

Textual paralanguage (TPL) refers to the nonverbal, emotion-laden elements of speech that are conveyed in writing (e.g., emojis and emoticons). Two experiments provide evidence that consumers perceive brands to be warmer when brands use TPL in online interactions with consumers, but only when consumer-brand communication is positive (e.g., expressing satisfaction); brands’ use of TPL has no effect on perceived warmth when consumer-brand communication is negative (e.g., complaints). We propose these effects are due to mood maintenance, which leads to deactivation of persuasion knowledge in the positive case, and activation of persuasion knowledge in the negative case.

Color Temperature of Environmental Lighting and Conformity

Seo Yoon Kang, Department of Arts and Cultural Management, Hongik University, Republic of Korea

Nara Youn, Department of Marketing, Hongik University, Republic of Korea*

This research investigates the effect of color temperature on preferences for conformity. Through three studies, we show that exposures to cool (vs. warm) color temperature of environmental lighting increase perceived environmental threat and feelings of powerlessness, which in turn elevated preferences for conformity.

The Self-regulatory Power of Environmental Lighting

Seo Yoon Kang, Department of Arts and Cultural Management, Hongik University, South Korea*

Nara Youn, Marketing Department, Hongik University, Republic of Korea

Heakyung Yoon, School of Architecture, Hongik University, Republic of Korea

The current research investigates the impacts of color temperature and its interaction with brightness on consumer's self-control. The interaction of brightness and color temperature creates fluent (vs. disfluent) lighting condition that leads to less (vs. more) cognitively depleted mental state and consequentially enhances self-control.

The Effect of Matte Packaging on the Perceived Naturalness of a Product

Eva Marckhgott, WU Vienna University of Economics and Business, Austria*

Bernadette Kamleitner, WU Vienna University of Economics and Business, Austria

In two experiments we show that the surface structure of packaging can be used as an external cue for the naturalness of the product. Products in matte packages are perceived to be more natural than products in glossy packages. The effect is particularly strong among products low in inherent naturalness. Package-induced perceptions of product naturalness, in turn, increase expected tastiness and purchase intentions. Our findings draw attention to the importance of packaging surface as a subtle cue for the product. They address the lack of research on structural packaging dimensions and their perceptions and are relevant for customer-centric marketing practice.

Role of Touch in Choice Overload Caused by Large Assortments

Nguyen Thai, The University of Sydney Business School, Australia*

Ulku Yuksel, The University of Sydney Business School, Australia*

This paper investigates the effects of haptic inputs on consumers' preference for large assortments after selecting an option from different assortment sizes. Our experiments reveal that physically touching and imagining touching (i.e., haptic imagery), compared to the control (i.e., no-touch) condition, eliminate adverse effects caused by large assortments. A moderate, but not

high, level of touch frequency is required to reduce perceived difficulty and increase preference for large assortments when being exposed to large (vs. small) assortments. These findings expand our current understanding of the literature on haptic and choice overload.

Warm or cold? The Effect of color temperature of logo on evaluation of for-profits and nonprofits

Eunmi Jeon, Sungkyunkwan University, Rep of Korea*
Myungwoo Nam, Sungkyunkwan University, Rep of Korea*

The current research examines the fit effect between color temperature and organization type and how it influences product evaluations. Thus, we demonstrate that the color temperature influences the effectiveness of logo on nonprofits versus for-profits.

Not All Change is Created Equal: How Qualitative Shifts Increase Perceptions of Change

Christopher Bechler, Stanford University, USA*
Zakary Tormala, Stanford University, USA
Derek Rucker, Northwestern University, USA

Prior research on attitude change treats change as a quantitative construct. Attitudes are measured before and after some treatment, and the extent of change is assumed to be conveyed by the degree of difference between Time 1 and Time 2 attitudes. This approach overlooks the possibility that qualitative shifts can also influence the perceived magnitude of change. In four studies, we find that changes of valence (i.e., qualitative changes; say, from negative to positive) are viewed as substantially greater than mathematically identical changes within valence (e.g., from positive to more positive). Implications for attitude change and persuasion are discussed.

Neurological Evidence for an Interrelation Between Imagery, Psychological Distance, and Construal

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Xiaoyan Deng, The Ohio State University, USA
Rao Unnava, University of California Davis, USA
Kentaro Fujita, The Ohio State University, USA

Drawing from construal level theory, we propose that consumer's visualization of distant (vs. near) future events is increasingly monochrome (vs. colorful). Using fMRI, we find that imagining distant (vs. near) future events activates similar neural regions as those involved in forming black-and-white (vs. color) mental imagery. We further provide more direct evidence for construal level as the underlying mechanism of this effect, showing common regions of activation for imagining distant future events, engaging in high-level construal, and forming black-and-white mental imagery.

Product Search on Crowded Shelves: Location Based Effects

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A. Selin Atalay, Frankfurt School of Finance and Management, Germany*

Cathy Liu Yang, HEC Paris, France

Peter Ebbes, HEC Paris, France

The current work investigates how the vertical location of a product on a shelf affects product search. We focus on the impact of crowding on the shelf as a predictor of search outcomes. Crowding reduces individuals' ability to distinguish the objects in a scene, from one another. We provide initial evidence that, when the task is to find a target product on a crowded retail shelf, the middle shelf is a position of disadvantage, when compared to both top and bottom shelves.

It Feels Softer Than It Looked Online: Contrast-Priming Effects of Touch-Screen Users in Multi-Channel Shopping

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Cecile K. Cho, Korea University, South Korea

Amitav Chakravarti, London School of Economics & Political Science, UK

In multi-channel retailing, very little research has examined the impacts of webrooming (researching product options online) on subsequent offline retail experiences. In this study, we examined (1) whether multi-channel shoppers (webroomers) evaluate physical products differently from single-channel shoppers, (2) whether and how computer device types moderate the effect of webrooming on product evaluations.

The Color-Hierarchy Congruency Effect, and Its Influence on Consumer Choice

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Ritesh Saini, Associate Professor, Marketing Department, University of Texas at Arlington

Five studies demonstrate that color lightness is schematically associated with inter-item hierarchy. Specifically, consumers associate higher (lower) hierarchy items with darker (lighter) colors. This leads to greater preference for product bundles that exhibit this color-hierarchy congruency. This is not an automatic perceptual response. In contrast, consumer's need-for-structure drives this effect. As a result, consumers (i) prefer congruent product bundles where primary products are darker, and secondary products are lighter, and (ii) associate higher (lower) hierarchy items with darker (lighter) color. These effects are even more pronounced in consumers with high need-for-structure.

The Effects of Self-Construal on Evaluations of Brand Logo Colors

Eunmi Jeon, Sungkyunkwan University, South Korea*

Myungwoo Nam, Sungkyunkwan University, South Korea*

The present research investigates the effectiveness of different types of color combinations on brand evaluations. Broadly, there are two different types of color combinations: analogous colors and complementary colors. Moreover, we propose that consumers' self-view influences the effectiveness of analogous versus complementary color combinations.

How the Uniqueness of Goods Influences Consumers' Willingness to Accept Price Increase for Experiences versus Objects

Wilson Bastos, CATÓLICA-LISBON School of Business & Economics, Portugal*

This research shows that consumers react more favorably to a price increase when it is associated with an experiential good than a material one. Further, it examines five potential mediators: closeness to the self, conversational value, impression management, social relatedness, and uniqueness. Results reveal uniqueness as the primary mechanism. To gain a more nuanced understanding of the mechanism via uniqueness, this work examines four facets of the construct: unique opportunity, unique good, unique identity, and counterconformity. Findings support unique opportunity as the most relevant facet of uniqueness for the model.

Embossed vs. Debossed Designs: How Gender Influences Perceptions of Visual Distinctiveness and Consumer Evaluation

Zhe Zhang, University of Houston, USA*

Ngoc (Rita) To, University of Houston, USA

Vanessa Patrick, University of Houston, USA

In the current research we examine how embossed (raised) vs. debossed (engraved) designs influence the perceived visual distinctiveness and purchase intentions of the target object. We propose a distinct gender difference in perception of visual distinctiveness. Specifically, males perceive debossed design as more visually distinctive while females perceived embossed design as more visually distinctive. Further, these gender differences influence purchase intentions.

Old William on the Left and Little Billy on the Right? The Recipient Effect on Consumers' Preference for Products Displayed in Different Horizontal Locations

Sheng Bi, Washington State University, USA*

Nik Nikolov, Washington State University, USA

This research proposes how buying for different recipients influences consumers' preference for products displayed in different horizontal locations (i.e. left vs. right). Across three studies we show that consumers prefer products positioned on the left side when buying for the elderly, but prefer products on the right side when buying for children. In addition, we find that this effect is mitigated by making consumers conceptualize time vertically (vs. horizontally), or by changing purchasing scenarios from buying for others to buying for themselves. Theoretical and managerial contributions are discussed.

Does Price Saving Make You Seem Competent? Well, It Depends on Where You Are from

Ryan Wang, University of Minnesota, USA*
Barbara Loken, University of Minnesota, USA

Price discounts achieved by searching and redeeming coupons can provide ego-expressive benefits for the shoppers, leading to their repeated purchases and word-of-mouth. To understand how price discounts affect brands, this research drew on signaling and social class, and showed that price-saving behaviors (e.g., actively searching for promotions) help shoppers signal their competence, which could subsequently transfer to the brands purchased and thus enhance brand attitude by other consumers. Importantly, the benefits restrict to higher-class consumers only because of the commonly-accepted association between higher-class and competence. In other words, price-saving behaviors further magnify their positive stereotypical trait (i.e., competence).

You Are What You Own: Visuo-Perceptual Unitization Effects in Consumer's Extended Self

Dan King, University of Texas RGV*
Sumitra Auschaitrakul, University of the Thai Chamber of Commerce

Belk's (1988) seminal "extended self" concept has long been assumed as a conceptual phenomenon. In two studies with mediational evidence, we show that when a possession is perceptually unitized with the consumer, Belk's (1988) "extended self" is in fact, a visuo-perceptual phenomenon, not merely a metaphor or conceptual phenomenon. Controlling for both brand effects and perceptions of the price of the automobile, we show that an automobile's physical attributes (i.e., physical design language) are misperceived as the consumer's physical attributes, giving a real, visually-based physical dimension to the previously assumed figure of speech "you are what you drive."

When Compensatory Consumption Backfires: The Pain and Pleasure of Experiential Purchases

Zichuan Mo, Peking University, China*
Jingjing Ma, Peking University, China

Prior research has shown that self-threats can evoke consumption that signals accomplishments in the domain of the threat. However, we show that this within-domain compensation is likely to backfire, leading to decreased satisfaction, especially when consumers compensate with experiential rather than material purchases. Because experiential purchases are more likely to induce rumination about one's self-identity when compared with material purchases. Engaging in within-domain experiential compensation can trigger rumination about the threatened self-identity, which in turn undermines consumption satisfaction.

Buying You Used: How Previous Use Imparts Value in Resold Products

Kara Bentley, Chapman University
 Kirsten Cowan, NEOMA Business School, France*
 Katina Kulow, University of Louisville, USA

The popularity of buying pre-used products contrasts with research in contagion, suggesting these contaminated products, embodying properties of their users, decrease product desirability. However, little is known about how prior use (rented vs. owned) influences essence transfer or product desirability; this research contributes in this fashion. The findings demonstrate that individuals more sensitive to residue transfer experience reduced satisfaction in pre-used (vs. – owned) products (study 1). Given that product desirability is influenced by user information, we show that for a professional (vs. amateur), the previous user information can attenuate the influence of pre-rented products (study 2).

Inviting Customers to Responsible Consumption Choices: Perceived Consumer Effectiveness and Cause Relevance are more malleable than we think!

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In this paper, we introduce a communication tool “invite”, which signals a transparent process for brands that claim being environmentally or socially responsible. We demonstrate the efficacy of such tools in improving purchase intentions by affecting consumers in two ways – (i) they improve a consumer’s perceived belief in their own ability to contribute to the cause by making a responsible choice and (ii) they increase the importance of the related cause to consumers, thus in turn improving their interest in the brand. We also showcase some interrelations among critical variables that govern adoption behavior of environmentally and socially responsible brands.

“I don’t Like If They Criticize Me But I Don’t Like If They Praise Someone Else Either”: The Effect of Self-Esteem and Other’s Comments on Regret

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 Sandra Marques, Universidade de Sao Paulo, Brazil
 José Mauro Hernandez, Centro Universitario FEI/Universidade de São Paulo, Brazil*

This study examined the effect of self-esteem and other’s comments on regret. Across two studies, the results revealed that in low-risk situations, low self-esteem individuals (LSEs) reported more regret when they were criticized than when they were not praised but no difference was observed for high self-esteem individuals (HSEs). On the other hand, in high-risk situations, HSEs reported more regret when they were not praised than when they were criticized but no difference was observed for LSEs. Furthermore, self-reinforcement thoughts were more effective to reduce regret in HSEs than in LSEs.

Social Norms, Self-enhancement, and Genes; The Role of Dopaminergic, Serotonergic, and Oxytocinergic Genes in Self-Construal

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Meng Du, Department of Psychology, University of Michigan, Ann Arbor, USA

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Variation along independent and interdependent self-construal is well documented both within- and across-cultures (Markus & Kitayama, 1991). Previous research within Chinese agricultural regions suggests that Northern, wheat-growing regions, are more independent than Southern, rice-growing regions, which are relatively interdependent (Talhelm et al., 2014). We investigate genetic influences of self-construal using variation across Chinese agricultural regions. We combine standard measures of independence and interdependence with genetic pathway approaches, to investigate associations between self-construal and single nucleotide polymorphisms involved in dopaminergic, serotonergic, and oxytocinergic neural pathways. Within pathway permutation testing (to correct for multiple testing) and post-hoc power analyses were also conducted.

Facial Cues in Anthropomorphizing Products

Ganga Urumutta Hewage, University of Central Florida, USA*

Yue Liu, University of Central Florida, USA

Ze Wang, University of Central Florida, USA

This research examines the effect of level of asymmetry in facial features of an emoji on consumer evaluations. In three studies, we found evidence that participants evaluated the emoji with asymmetric facial features more favorably than the symmetric emoji. This effect was driven through anthropomorphism and vicariously experienced emotions. Our findings add to the facial processing and anthropomorphism literature in marketing. For practitioners, findings help to adapt more effective advertising and product design strategies.

To Sell or to Donate: Why Special Possessions Are Donated and Not Sold?

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Robert Fisher, University of Alberta, Canada

Jennifer Argo, University of Alberta, Canada

Why do consumers donate rather than sell their special possessions? Although it seems logical that consumers should tend to seek financial compensation when they dispose of possessions that they consider special, we find that as selling a special possession is a threat to the owner's self-concept, special possessions are less likely to be sold (or more likely to be donated) than non-special possessions.

Religiosity and New Product Adoption

Derek Theriault, Concordia University, Canada*
Gad Saad, Concordia University, Canada

Are religious people more innovative? We examine extrinsic and intrinsic religious motivations and show that extrinsically motivated religious individuals are more dispositionally (study 1) and behaviorally (study 2) innovative toward new products. This relationship is mediated by both cognitive and motivational factors. Higher (lower) religiosity is associated, independently, with more intuitive (analytic) thinking and more (less) self-enhancement motivation, leading to higher dispositional and behavioral new product innovation and ownership.

The Impact of Social Exclusion on Consumers' Attitudes toward Probabilistic Selling

Linying Fan, Hong Kong Polytechnic University, Hong Kong*
Yuwei Jiang, Hong Kong Polytechnic University, Hong Kong

Although probabilistic selling has been widely used as a tool for retailing and sales promotion, when and how it should be used has seldom been investigated. Contributing to our knowledge on this important topic, the current research examines how and why consumers' social relationships influence their attitudes toward probabilistic selling. Four experiments demonstrate that socially-excluded consumers exhibit less favorable attitudes toward probabilistic selling than their peers who do not feel excluded. This effect is mediated by a thwarted sense of personal control, and moderated by control restoration and information vividness.

The Effortful-Aloof Effect: Why Personal Effort Decreases Word-of-Mouth?

Jiexian (Chloe) Huang, Hong Kong Polytechnic University*
Yuwei Jiang, Hong Kong Polytechnic University

Three experiments revealed that consumers were less likely to share a positive achievement to others through word-of-mouth (WOM) if they spent personal effort in pursuing it, than if no effort was involved in the pursuit. This effect is proposed to be driven by consumers' lay belief that personal effort in goal pursuit leads to an interpersonal perception of aloofness, which may lead to a negative social impression. We further found that the effect was dismissed when consumers' interpersonal warmth was assured by other contextual cues.

When Not Having Enough Prompts Consumers to Show Off: Reminders of Resource Scarcity Prompt Narcissism

Laura Goodyear, Concordia University, Canada*
Ali Tezer, HEC Montreal, Canada
Caroline Roux, Concordia University, Canada
Kelly Goldsmith, Vanderbilt University, USA

We propose that reminders of resource scarcity prompt consumers to become more narcissistic, which in turn shifts their product preferences towards products that confer greater status signaling. Across three experiments, we show that reminders of resource scarcity increase narcissistic tendencies, and that narcissism mediates the effect of resource scarcity on selfishness. We further show that reminders of resource scarcity prompt consumers to prefer products with more prominent brand logos (or greater brand prominence) as a result.

“Work With/For You!” How Framing Health-Related Products as Partners Versus Servants Impacts The Consumption of Indulgences

Caroline Roux, Concordia University, Canada
 Kamila Sobol, Concordia University, Canada
 Laura Goodyear, Concordia University, Canada*
 Kelly Goldsmith, Vanderbilt University, USA

Consumers often assign specific roles to brands, which can then influence their behavior. Among these, two specific roles may be assigned to brands: the role of a partner (co-producer of the benefit) or the role of a servant (outsourced provider of the benefit). We investigate whether and how engaging with health-related products framed as either a partner or a servant impacts goal-conflicting behavior. Across three experiments, we show that framing a health-related product as a servant (vs. partner) increases enjoyment of indulgences, in hypothetical and actual consumption scenarios, and increases purchase intentions of indulgences.

How Purging Influences Self-Control: The Role of the “Simplification” Mindset

Lei Jia, The Ohio State University, USA*
 Xiaoyan Deng, The Ohio State University, USA
 Xiaojing Yang, University of Wisconsin - Milwaukee, USA

We propose that purging can activate a simplification mindset that features a mental process of simplifying, prioritizing, and abstracting. Such a mindset can carry-over to a subsequent, unrelated context with decision outcomes that involve self-control.

Bloggers’ paradise: Accepting incentives in return for product reviews without ramifications.

Bryan Usrey, University of East Anglia, United Kingdom*
 Maximilian Gerrath, Leeds University Business School, United Kingdom

Despite the commonality of incentivized product reviews, research widely neglected its impact on product review blogs. Specifically, there exists a dearth of research that has explored the role of motivation for accepting incentivizes. In three experiments, we show that blog loyalty reduces as the valence of the review becomes more positive, but that this is mitigated when a blogger presents intrinsic incentivization acceptance motivations in the disclosure statement. Furthermore, we show blog loyalty is maintained if consumers are attached to the blog, regardless of review valence or incentivization acceptance motivations.

When People Stop Being Nice and Start Getting "Real": Identity Labels for Stigmatized Groups

Esther Uduehi, University of Pennsylvania, USA*
Americus Reed, University of Pennsylvania, USA

People often make subtle language choices to describe stigmatized groups by either placing the person first in the description (e.g., person with obesity) or describing the condition first (e.g., obese person). We find that placing a person first in the description is the more acceptable way to address stigmatized groups, but how people actually address stigmatized groups varies based on the specific disorder or condition. When people believe a stigmatized trait is controllable, they prefer to use condition-first language, and not person-first language.

Alone together: Does Crowding Magnify Loneliness?

Qingqing Guo, Shanghai Jiao Tong University*
Liangyan Wang, Shanghai Jiao Tong University

Six studies (932 participants) explore the psychology underlying the crowd magnifier effect—crowding increase loneliness. Study 1 reveals that individuals' manipulated loneliness increased in crowding context. Studies 2A and 2B demonstrate that individuals' measured loneliness increased in a natural and a visual prime crowding context. Study 3 further investigates a moderator: the composition of the crowd (out-group vs. in-group). Study 4A shows that the mediator—fundamental human needs (belonging, control, self-esteem, meaningful existence)—which threatened by crowding thus mediate the crowding magnifies loneliness. Study 4B demonstrates that the effect is mediated by avoidance activation and fundamental human needs in serial.

"With or Without You": Emotional Expressiveness as a Determinant of the Appeal of a Potential Consumption Partner

Wilson Bastos, CATÓLICA-LISBON School of Business & Economics, Portugal*

Choosing a companion is an important decision in the consumption of experiences. What drives this decision? This work investigates emotional expressiveness (EE) as one determinant. Results show that individuals expected to display an average level of EE during the experience are the preferred companion. However high-EEs and low-EEs are not equally desirable—high-EEs are preferred over low-EEs. Two distinct sequential-mediation paths explain these differences. Compared to average-EEs, high-EEs are less preferred because they exert pressure on the partner to 'tune up' his/her emotions, which is distracting. Low-EEs are less desirable because they fail to provide feedback, which hinders social connection.

Dual Influences of Descriptive Social Norms on Creative People's Unethical Behavior.

Myo-Joong Kim, Korea University, Korea*
Jong-Won Park, Korea University, Korea

Creative people are shown to be more likely than non-creative people to commit unethical behaviors. We investigate how the availability of a descriptive norm (e.g., "many people do the same bad thing") and creativity can interact to influence individuals' ethical decisions. Three experiments demonstrate that descriptive norm information reduces creative individuals' unethical act, but the effect disappears for unethical acts involving no financial benefit. Further, the descriptive norm can backfire (i.e., can increase unethical behaviors) if the benefit involved is substantial and the act is difficult to justify. These suggest the dual roles of descriptive social norms for creative individuals.

To Fit or Not to Fit: Contagious Beliefs Decrease Cause-Marketing Effectiveness

Kirsten Cowan, NEOMA Business School, France*
Katina Kulow, University of Louisville, USA
Mina Kwon, University of Louisville, USA

This research examines a novel way in which consumers' lay associations with seemingly innocuous cause marketing (CM) partnerships can negatively impact product desirability. Our findings support that such CM logos result in decreased evaluations due to a transfer of negative essence to the product, especially for high contagion sensitive consumers.

Who's Watching on Social Media? Asymmetry in Vigilance Towards "Fake News" When the Felt Presence of Others is In- Versus Out-Group

Hyerin Han, University of Minnesota, USA*
Akshay Rao, University of Minnesota, USA

Our research aims to explore why the market for fake news is more lucrative on the political right than the left. We demonstrate that asymmetric relational motivation and vigilance can lead to different levels of receptiveness to fake news among Republicans and Democrats on social media. Specifically, Republicans are more likely to accept pro-republican statements as true when they feel they are evaluating them in the presence of other Republicans, and Republicans tend to be more vigilant under the felt presence of Democrats, leading to an increase in fact-checking.

Gender Biases in Online Word of Mouth

Georgiana Craciun, Duquesne University, USA*
Kelly Moore, Duquesne University, USA

This paper demonstrates that the reviewer's gender has a moderating effect on the relationship between review characteristics and perceptions of reviewer credibility in eWOM. In an online

experiment about purchasing a laptop, female (but not male) reviewers were perceived as more rational, trustworthy and knowledgeable when they wrote a non-emotional review rather than an emotional one in the negative valence condition, but not in the positive valence condition. Future studies may extend these findings to other product categories. Implications for consumers and e-retailers are presented.

Secret Consumption in Close Relationships

Kelley Gullo, Duke University, USA*
 Danielle J. Brick, University of New Hampshire, USA
 Gavan J. Fitzsimons, Duke University, USA

Are secrets always bad? Might certain secrets from close others function to benefit the relationship? This research begins to examine the effect of keeping consumption secret from close others on the relationship. Two studies, including an experiment with dyadic couples data, demonstrate that people do, in fact, engage in secret consumption and that the effects of secret consumption on the relationship depends on both the secret keeper's feelings of guilt and motivation for the secret in the first place.

The Effect of Social Comparison and Social Density on Consumer Purchase Quantity

Bingyan Hu, University of Iowa, USA*
 Jing Wang, University of Iowa, USA

We examine how social comparison and social density jointly influence consumer purchase quantity, and how the effect is mediated by consumers' perceived control. We find that when consumers make downward comparisons, high (vs. low) social density leads to reduced perceived control, which in turn increases consumers' purchase quantity. The effect disappears when consumers make upward comparisons. We have conducted 2 studies to test our predictions. Study 1 demonstrates the joint effect of social density and social comparison on purchase quantity. Study 2 replicates findings of study 1 and shows the mediating role of perceived control.

Purchase Propensity of Immoral Consumer: A Coping Perspective

Bingyan Hu, University of Iowa, USA*
 Jing Wang, University of Iowa, USA
 Jinfeng Jiao, Binghamton University, USA

We examine how money related moral transgressions affect consumer purchase propensity and how the effect is moderated by consumer private self-consciousness. Across two completed studies and one working study, we show that high private self-consciousness leads to higher consumer purchase propensity and that the effect only exists when consumers engage in immoral behaviors. We propose that people adopt a distraction coping strategy to mitigate themselves from the negative outcomes of immoral behaviors.

Impression Management Considerations in Descriptions of Negative and Positive Consumption Experiences

Uri Barnea, University of Pennsylvania, USA*
Jonah Berger, University of Pennsylvania, USA
Alixandra Barasch, New York University, USA

We explore how impression management motivations affect people's descriptions of good and bad products that they have consumed. We find that caring about making a good impression leads to less negative descriptions of bad consumption experiences, but does not equally affect descriptions of good consumption experiences. Furthermore, our findings suggest that sharers are conscious of their behavior, and that the effect is robust to differences in both how responsible the consumer is for choosing the product, and the likelihood that the audience will consume the product in the future.

The Vicarious Shopping Momentum Effect

Kaiyang Wu, University of Wisconsin - Madison, USA*
Evan Polman, University of Wisconsin - Madison, USA

We investigated a “vicarious shopping momentum effect,” which describes that when two consumers are shopping together, and one has bought something, then the other will be more likely to buy something. Through a field study, we found suggestive evidence in support of vicarious shopping momentum. Furthermore, in two experiments, using a variety of products, we found more evidence that participants demonstrated higher purchase intentions after a friend has purchased something, compared to three other conditions: participants who shopped by themselves; participants who shopped with a friend who did not buy anything; and likewise a friend who received a gift.

Friday, 16 February 2018

Session 1

1.1 Darwin Goes to the Mall: How Evolutionary Needs Influence Consumer Behavior Symposium

Paper #1: The influence of Disease Concern on Food Preferences

Yexin Jessica Li* (University of Kansas, jessica.li@ku.edu), Joshua M. Ackerman (University of Michigan, joshack@umich.edu), Vladas Griskevicius (University of Minnesota, vladag@umn.edu), Steven L. Neuberg (Arizona State University, steven.neuberg@asu.edu), Douglas T. Kenrick (Arizona State University, douglas.kenrick@asu.edu)

Paper #2: Disease Salience and Preference for Atypicality in Product Choice

Yunhui Huang* (HKUST, yhuangav@connect.ust.hk), Jaideep Sengupta (HKUST, mkjaisen@ust.hk)

Paper#3: Fendi Handbags Fend Off Undesirable Men: Women's Conspicuous Consumption as a Strategy for Mate Selection

Yajin Wang* (University of Maryland, yajinw@rhsmith.umd.edu), Vladas Griskevicius (University of Minnesota, vladag@umn.edu), Qihui Chen (Peking University, qhuihui.chen@pku.edu.cn)

Paper #4: Fertility, Materialism, and Women's Desire for Luxury Products

Aekyoung Kim* (Rutgers Business School, amyakkim@gmail.com), Kristina M. Durante (Rutgers Business School, kdurante@business.rutgers.edu), Vladas Griskevicius (University of Minnesota, vladag@umn.edu), Lambrianos Nikiforidis (University of Texas, San Antonio, Lambrianos.Nikiforidis@utsa.edu)

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SYMPOSIUM OVERVIEW

How would Charles Darwin react to the modern consumption phenomena? Drawing from evolutionary theory, this symposium asks the following question: What adaptive functions might these modern consumption behaviors serve? We present several papers to explore how fundamental motives of surviving and reproducing influence consumer behavior. Specifically, we examine two fundamental motives that are central to survival and reproduction: 1) disease avoidance and 2) mate acquisition. By providing multiple experiments to investigate the underlying processes that explain how each of the fundamental motives affect consumers' preferences and choices, this session can open up new avenues and generate novel hypotheses in this area.

The first two papers examine how a disease avoidance motive influences consumer preferences for products based on their familiarity (prior experience) and conventionality (popularity). The paper by Li, Ackerman, Griskevicius, Neuberg, and Kenrick investigates how concerns about disease can influence food preferences. These authors propose that prior experience is an important cue to how safe a food is to consume. Thus, concerns about diseases lead people to be less attracted to unfamiliar food that may contain novel pathogens that one's physiological immune system has not yet learned to combat, and more attracted to familiar food that can provide much needed nutrients and are safe to consume. Four experiments demonstrated this effect in a marketing context. The second paper by Huang and Sengupta investigates the role of product conventionality on consumers' choices. Conventionality is distinct from familiarity because it denotes the popularity of a product rather than one's own experience with the product. Four experiments test and support the hypothesis that concerns about diseases lead consumers to be less likely to choose conventional than unconventional products because they are associated with a large number of people who may act as transmitters of disease.

The final two papers examine how mate acquisition motives influence consumer preferences, especially for luxury products. The paper by Wang, Griskevicius and Chen examines how women's mate acquisition motives influence their preferences for luxury goods. Four experiments show that when faced with the challenges of selecting a potential mate, women use luxury goods to signal their standards for a mate. Therefore, conspicuous consumption serves as an effective signal to other men in relationships. The final paper by Kim, Durante, Griskevicius and Nikiforidis also examines how women's mate acquisition motives influence their preferences for luxury goods by looking at women's biological markers for mate acquisition: women's ovulation cycles. They propose that ovulation should amplify women's tendency to outcompete potential rivals, and therefore increase their desire for luxury goods. Four studies demonstrate that fertility has positive effects on women's preferences for luxury products.

Taken together, this set of papers examines how fundamental motives influence consumer behaviors. Each paper includes a complete set of experiments and provides process evidence that can stimulate new research ideas. This session will appeal to a wide range of audiences interested in general motivations, evolutionary theory, food choices, and luxury product consumption.

The influence of Disease Concern on Food Preferences

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Short Abstract

Although foods sometimes carry infectious agents, people still need to eat to survive in times of disease. Drawing on functional perspectives of disease threat, four experiments found that disease concerns lead people to use food safety cues when making decisions about what to eat. People adaptively avoid foods that pose greater pathogen risk, such as unfamiliar food, but approach foods that pose low pathogen risk, such as familiar fare. This effect is attenuated when the food poses minimal risk, e.g. when cues to disease prophylaxis are present.

Extended Abstract

This research draws on evolutionary theory to examine how pathogen concerns influence food preferences. A functional perspective suggests food is critically different from other objects. Whereas general avoidance of many objects can lessen exposure to pathogens, the human body requires calories and nutrients to sustain itself. Thus, concerns about disease should trigger a more fine-tuned pattern of responses when it comes to food. Specifically, pathogen concerns should lead people to avoid foods that have historically posed greater risk, such as unfamiliar foods. These foods are likely to contain novel pathogens that one's physiological immune system has not yet learned to combat (Fallon, Rozin, and Pliner 1984). Simultaneously, disease concerns should lead people to become approach foods that pose low risk, such as familiar food. Familiar foods are those that have often been safely ingested or observed to have been ingested in the past, and thus provide important information as to whether a specific food has previously produced an adverse reaction. Thus, we propose that disease concerns lead people to be less attracted to unfamiliar food, and more attracted to familiar food.

Four studies were conducted to test these hypotheses. In study 1, people living either in the U.S. or India were recruited to participate in the experiment. In the disease condition, participants viewed a slideshow of cues to disease; in the control condition, they viewed a slideshow of architecture (Ackerman et al. 2009; Faulkner et al. 2004; Mortensen et al. 2010). Next, participants viewed images and short descriptions of six common American dishes and six common Indian dishes. They were asked to choose the four foods that they would most like to eat. An ANOVA revealed a two-way interaction of disease concern and participant country ($F(1, 313) = 9.76, p < .01$). Americans showed a greater bias toward choosing American food over Indian food in the disease compared to the control condition (60.2% vs. 49.4%, $p < .05$). In contrast, Indian participants showed a greater bias toward choosing Indian food over American food in the disease concern condition compared to the control condition (40.8% vs. 31.0%, $p < .05$) (Figure 1).

Study two tested the alternative explanation that any negative emotion would lead to preference for familiar food. Participants were randomly assigned to read a news article about the risk of contagious diseases (disease condition), the Comic Sans font (control condition), or identity theft (non-disease threat condition). Participants then rated the appeal of two familiar foods from the U.S. and two unfamiliar foods from Bahrain and Andorra. An ANOVA revealed a significant interaction, $F(2, 240) = 8.50, p < .001$. Participants in the disease condition found the unfamiliar foods less appealing than participants in the control condition, $p = .051$ and those in the identity threat condition, $p = .042$. In contrast, participants in the disease condition found the familiar foods to be more appealing than did participants in the control condition, $p = .011$ and in the identity threat condition, $p = .009$, suggesting the effects of disease concern do not merely reflecting the influences of negative affect (Figure 2).

Study three extended our investigation into a marketing relevant context. The study was ostensibly about ad placements on websites. The featured article on the website was about the flu (disease condition) or smartphones (control condition). Banner ads for familiar and unfamiliar restaurants were placed above and adjacent to the article. The ad for the familiar restaurant read, "Serving traditional favorites just like the ones you grew up with" while the unfamiliar restaurant read, "Craving exotic dishes and exciting new flavors? You've come to the right place." The location of familiar and unfamiliar ads (i.e., above vs. left of the article) was counterbalanced. Participants rated how familiar, appealing, desirable, and attractive the food at each restaurant is.

A significant 2-way interaction of food familiarity and news article, $F(1,131) = 11.96$, $p = .001$ emerged. Consistent with our hypothesis, the familiar restaurant was rated more favorably in the disease condition than the control condition, $p = .019$. The effect was insignificantly reversed for the unfamiliar restaurant, $p = .180$ (Figure 3).

The goal of experiment 4 was twofold. We aimed to test a theoretically-derived boundary condition and examine whether chronic individual differences in disease concerns would influence food preferences. Our theoretical model suggests the effect of disease concerns on food preferences should be mitigated if the unfamiliar food is perceived to be safe and uncontaminated. Food packaging is designed not only to ensure freshness but also to increase the safety of the food. Thus, people with disease concerns should be more likely to consume unfamiliar food if it is packaged. In a study that was ostensibly being run by a food company, participants were randomly assigned to view either a familiar or an unfamiliar snack. Each snack was presented either in an open Tupperware container (unpackaged condition) or in its original airtight sealed packaging (packaged condition). Participants rated how appealing the food was and then completed the Perceived Vulnerability to Disease scale (Duncan, Schaller, and Park 2009), a measure of chronic disease concern. A regression analysis revealed a 3-way interaction between food familiarity, packaging, and PVD, ($b = -1.63$, $t(132) = -2.62$, $p = .01$). In line with previous findings, there was a two-way interaction between PVD and familiarity for the unpackaged food ($b = -1.34$, $t(132) = -2.95$, $p < .01$). The higher people's PVD, the stronger their preference for familiar foods ($p < .05$) and the weaker their preference for unfamiliar foods ($p = .06$). Perceived vulnerability to disease did not predict evaluations when the unpackaged food was familiar, or when the food was packaged ($ps > .32$) (Figure 4).

The current research contributes to research on disease concerns and food choice by showing that, when faced with pathogen threat, people make adaptive choices, preferring foods they have seen or consumed before over novel and potentially riskier options.

Disease Salience and Preference for Atypicality in Product Choice

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Short Abstract

Drawing on evolutionary views of the behavioral immune system, this research hypothesizes that cues relating to infectious diseases heighten consumer preference for unconventional (vs. conventional) products. Such products are associated with few consumers and thus signal a symbolic departure from other individuals, who could serve as infection transmitters. A series of studies tested this hypothesis and identified boundary conditions. Specifically, the disease-induced preference for unconventionality did not manifest when participants visualized the act of hand-cleaning, when the decision context involved low infection risk, or when the unconventional products were associated with many rather than few people.

Extended Abstract

Infectious diseases posed strong selection pressure on our ancestors, a process that shaped the evolution of human species. The ability to avoid and combat communicable pathogens is therefore critical to human survival. This premise underpins recent research on the behavioral immune system, which consists of a suite of motivations, cognitions and behaviors

designed to avoid infectious diseases (Murray and Schaller 2016). We extend and inform this perspective by examining how the salience of disease-related cues impact consumer decision-making. This is a novel area of inquiry, because despite the ubiquitous nature of disease cues in our environment – whether via reports of the latest flu, hearing about a sick friend, or simply being exposed to a sneezing, coughing stranger – the impact of disease concerns on consumer behavior has been surprisingly understudied.

Extant research in social psychology suggests that disease salience induces a motivation to stay away from other individuals, who could serve as a source of transmission (Mortensen et al. 2010; Sacco, Young, and Hugenberg 2014). We propose that this motivation, in turn, increases consumers' preference for unconventional, atypical products. The rationale for our thesis is that unconventional (vs. conventional) product options are associated with a smaller number of customers (Loken and Ward 1990) and are more likely to be preferred when people desire a symbolic deviation from others (Ariely and Levav 2000; Berger and Heath 2007). We tested this and related predictions in a series of studies. Note that unconventionality in this context is defined as the degree of atypicality of a product within its category. Empirically, the unconventionality perception of each product option under study was pretested using the following items: novel/unconventional/unusual.

Experiment 1 tested our hypothesis by having student participants interact with an experimenter, who acted either sick (e.g., coughing and sneezing) or normal. Participants then chose between classic versus black cherry vanilla coke as parting gifts, with the latter being the unconventional option. As predicted, participants reported greater preference for the unconventional (vs. classic) coke in the sick-experimenter condition ($M_{sick} = 4.86$, $M_{normal} = 3.91$; $F(1, 84) = 4.25$, $p = .042$); higher scores indicate greater preference for unconventionality. Two other studies (not reported) replicated this finding using different disease manipulations and different products.

The next three studies sought to moderate the proposed effect as well as conceptually replicating the key finding. Experiments 2 and 3 used slideshows to manipulate disease salience. Participants in the disease condition saw ten images that portrayed germs, infections, and disease. A control condition also featured ten negative slides – but relating to accidents, hazards, and other non-disease-related health threats (Faulkner et al. 2004).

In Experiment 2, following the slideshow manipulation, half the participants visualized cleaning their hands using a germ-killing tissue, whereas the remaining half were not given this task. Participants then reported preference between a bottle of orange versus pomegranate juice, with the latter being the unconventional option. We predicted that even visualizing the act of hand-washing would psychologically reduce the threat of infection, attenuating the previous finding. In support, the interaction of disease salience and hand-washing was significant ($F(1, 179) = 10.28$, $p = .002$). Preference for pomegranate (vs. orange) juice was greater in the disease condition ($M_{disease} = 4.21$, $M_{accident} = 2.96$; $t(179) = 2.68$, $p = .008$) when no cleaning was imagined, replicating the basic result. However, the effect was attenuated – and indeed, almost reversed ($M_{disease} = 2.78$, $M_{accident} = 3.67$; $t(179) = -1.86$, $p = .064$) when hand-cleaning wasn't visualized.

Another implication of our theorizing is that the proposed effect is more likely to manifest when the nature of the product is such that its usage carries infection risk (e.g., usage involves oral consumption – as in Experiments 1 and 2). It is for such products that infection-cues should induce a psychological avoidance of other people. Experiment 3 tested this premise while keeping the product itself constant. Thus, in addition to disease salience, this study

manipulated the described purpose of a pair of similar-looking plate-sets: either as dinnerware (high risk) or as decoration (low risk). In all cases, one of the pair of plate-sets was described as being popular (associated with more people) while the other was described as being unique (associated with fewer people). A significant interaction was obtained ($F(1,185) = 4.95, p = .027$): preference for the unique (vs. popular) set was higher given disease cues ($M_{disease} = 7.39, M_{accident} = 6.70; t(185) = 1.85, p = .073$) in the dinnerware condition; whereas the effect was absent in the decoration condition ($M_{disease} = 6.81, M_{accident} = 7.32; t(185) = 1.35, p = .180$).

Our basic prediction relies on the assumption that the conventional (unconventional) option is associated with a large (small) number of people. The effect should no longer obtain if this association is disrupted. Experiment 4 tested this idea, and another key assumption: namely, that the disease has to be contagious for the effect to obtain. Infection salience was manipulated by showing participants the aversive-looking consequences of a disease (lupus), described as being either contagious or non-contagious. Afterwards, participants were presented with two supermarket options: one described (through both pictures and words) as being conventional, and the other unconventional. In the consistent-information condition, the conventional (unconventional) supermarket was described as crowded (not very busy). The pairing of conventionality and crowdedness was reversed in the inconsistent-information condition. Participants then reported their preference between the two supermarkets. Preference for unconventionality was replicated when the unconventional supermarket was described as not busy ($M_{infectious} = 6.82, M_{non-infectious} = 5.86; t(241) = 1.97, p = .050$). In contrast, the difference was eliminated when the unconventional supermarket was, instead, described to be crowded ($M_{infectious} = 3.90, M_{non-infectious} = 4.08; t < 1$).

Collectively, these results advance our understanding of the behavioral immune system by identifying novel consequences of activating this system (preference for unconventionality) and by documenting theoretically-derived boundary conditions for the effect. In addition, this research provides insights into consumer decision-making by showing how disease cues – a widely-prevalent environmental factor – can influence decisions in seemingly-unrelated contexts.

**Fendi Handbags Fend Off Undesirable Men:
Women's Conspicuous Consumption as a Strategy for Mate Selection**

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Short Abstract

Previous literature has suggested that mate motives could influence conspicuous consumption (Griskevicius et al. 2007; Wang and Griskevicius 2014); the present research extends this work by showing that a mate acquisition motive, especially a mate selection goal leads women to use conspicuous consumption as a signal to other men about their high mate selection standards. Additional studies revealed that men perceive a woman with luxury possessions as having higher mate standards, and their intention to ask her out depends on their financial capability. Men with lower incomes are deterred, whereas men with higher incomes remain interested.

Extended Abstract

Conspicuous consumption is believed to function as a signal of the reproductive fitness of a potential partner. Multiple studies have found that cues to a potential mate trigger men's desire for purchasing luxury goods (Griskevicius et al. 2007; Janssens et al. 2011; Sundie et al. 2011). Although the link between conspicuous consumption and women's mate goals remains somewhat mysterious, Wang and Griskevicius (2014) demonstrated that women's luxury products can help deter romantic rivals, serving as a mate guarding motive. Therefore, previous research seems to suggest that: 1) unlike men, women usually do not use luxury products as a signal to attract men; 2) women's luxury products are signals to other women and help to protect their relationships with their mate. Based on these findings, it appears that women's luxury products serve as a minimal signal to men in the mate selection context. However, we argue that this is not always the case. Women's luxury products can send a signal to men about their standards for a mate, and therefore can be an effective strategy in the context of selecting a mate.

Given the different parental costs for men and women, women are more cautious in choosing a potential mate and have typically been the chooser in the mate selection context, particularly in the early stage of potential mate selection (Buss 1989, Trivels 1972). Being the chooser seems to require less effort, but it can be costly when there are too many potential men with unclear qualities. Therefore, it is adaptive for women to develop strategies that can help them discern and select men with desirable traits that are associated with important reproductive value, especially when there are many potential men (Li et al. 2002; Li and Kenrick 2006). One of the most important values that women look for is men's ability to provide resources (Buss 1989; Li et al. 2002). Taken together, we propose that a mate selection motive would increase women's conspicuous consumption as a signal to men about their standards for a mate, especially related to financial resources. We further propose that men should be able to read this signal and infer that women with luxury (vs. non-luxury) goods have higher financial standards for their potential partners. Finally, for this signal to be effective, men with fewer financial resources should be less interested in pursuing women with luxury (vs. non-luxury) products. However, men with more financial resources should not be affected by women's conspicuous consumption. We tested our predictions in four studies.

Study 1 examined whether receivers accurately decipher the signal, testing whether men perceive a woman with luxury possessions as having a higher standard for her potential date. Six hundred and nine male participants were randomly assigned to read a potential dating profile of a woman. The descriptions were identical in both conditions, except that each one included a different description of the woman's choice of clothes and cosmetics to be either luxurious or non-luxurious brands. After reading one of the profiles, participants indicated how difficult it would be to ask this woman out on a scale of 1 to 9. As expected, men in the luxury condition rated the woman to be significantly more difficult to pursue than in the non-luxury condition ($M = 9.4$ vs. 8.9 , $F(1, 601) = 4.68$, $p < .05$).

Study 2 examined the triggers for women's desire for luxury goods, testing whether activating a mate selection motive would trigger women's desire for conspicuous luxury products. The study had a 2 (condition: mate selection vs. control) x 2 (product type: conspicuous vs. non-conspicuous) mixed design, with a between-subjects factor, and a product type as a within-subject factor. In the mate selection condition, participants imagined they were at a party where she was among a variety of men, and she felt a little overwhelmed by too much attention from them. In the control condition, participants imagined a typical day of doing laundry (Griskevicius, Shiota, and Nowlis 2010). Participants were asked about their preference for the level of luxury they preferred for two types of products: 1) products that are easy to

observe in public and are often used for conspicuous consumption: a handbag and watch; and 2) products that are private and generally not used for conspicuous consumption: a water glass and mattress (adopted from Wang and Griskevicius 2014). The results showed that participants in the mate selection condition indicated a significantly stronger preference for public luxury products than the control group ($M= 4.16$ vs. 3.56 , $p < .05$). However, there was no significant difference in the conditions for private luxury products ($M= 3.67$ vs. 3.53 , $p = .59$).

Study 3 examined the specificity of the audience, testing whether a mate selection motive is most likely to trigger women's desire for conspicuous consumption when they face primarily undesirable (vs. desirable) men. Female participants were asked to imagine that they were single and planned to create a profile for an online dating platform. Due to the high volume of men on the website, the women could design different personal profile versions targeting different visitors. Participants in the desirable audience condition were asked to create the personal profile for men who were primarily above their standards for a mate, whereas participants in the undesirable audience condition were asked to create a personal profile for men who were primarily below their standards. Consistent with our predictions, across three different product categories (e.g., clothes, car, leisure activity), there were significantly more women in the undesirable audience condition who chose to display luxury (vs. non-luxury) items in their profiles than women in the desirable audience condition.

Finally, study 4 examined the effectiveness of the signal, testing whether displaying luxury products is effective as a filter for potential mates based on their financial resources. In study 1, we showed that men indeed perceived women with luxury possessions as having higher mate standards. However, if all men were deterred by these high standards, the woman's signal strategy would no longer be effective. Therefore, we predicted that only men with fewer financial resources would be deterred by woman with luxury possessions; however, men with more financial resources would remain interested. The results of study 4 showed that men at a lower income level were less interested in asking out the woman with luxury (vs. non-luxury) possessions ($p < .01$). In contrast, for men with higher income levels, the difference was no longer significant ($p = .67$). Furthermore, a moderated mediation showed that the perceived high standards from the woman with luxury possessions mediated the decreased interest only from men with lower (vs. higher) levels of income.

In conclusion, this research makes a contribution by identifying how the activation of selecting mates can increase women's conspicuous consumption, demonstrating that luxury goods can serve as an effective signal to filter potential mates.

Fertility, Materialism, and Women's Desire for Luxury Products

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Short Abstract

Drawing on the ovulatory competition hypothesis, we examined whether women's materialism and luxury preferences are linked to the hormones that regulate fertility. Fertility had positive effects on women's success materialism and preference for luxury products. Additional studies showed a specific boundary condition for this effect, as well as process evidence.

Extended Abstract:

Billions of dollars are spent each year on lavish goods such as handbags and jewelry, with women accounting for more than half (55%) of this luxury spending (D'Arpizio 2011; Mintel Report 2011). What factors influence women's desire for luxury goods? Drawing on research showing that fertility influences women's competitive motives (Durante, Griskevicius, Cantú, and Simpson 2014), we examined whether women's materialism and desire for luxury products may be linked to fluctuations in the hormones that regulate fertility.

Study 1 examined whether ovulation—the time each month when fertility is at peak levels and conception probability is high—amplifies women's materialism. Materialism is comprised of three dimensions: success, centrality, and happiness (Richins and Dawson 1992). Although most previous research combines these three dimensions of materialism (Ahuvia and Wong 1995; Burroughs and Rindfleisch 1997; Burroughs and Rindfleisch 2002; Mick 1996), each of these three dimensions reflects an importantly different aspect of materialism. How might ovulation affect women's materialism? According to the ovulatory competition hypothesis (Durante et al. 2014), ovulation should amplify women's tendency to outcompete potential rivals and seek relative success. As such, the competitive tendency amplified by ovulation should be directly related to the *success* dimension of materialism, which reflects a desire to own possessions as a measure of one's own status relative to others (Richins and Dawson 1992). Thus, we hypothesized that ovulation should be most strongly linked to women's materialism on the success dimension. Consistent with our prediction, women reported higher scores on the success materialism dimension at high fertility—near ovulation—compared to low fertility ($p < .035$). There was no effect of fertility on either centrality materialism or happiness materialism ($ps > .76$). Moreover, fluctuations in success materialism across the cycle tracked conception probability ($p = .036$). As fertility increased so too did women's success materialism, but not the other dimensions ($ps > .26$).

Study 2 tested whether ovulation also boosts preference for luxury brands. To do this, we measured women's attitudes toward luxury versus non-luxury brands as a function of fertility status. There emerged a two-way interaction between fertility (low vs. high) and brand type (luxury vs. non-luxury; $p < .01$). Ovulating women reported greater desire for luxury brands ($p < .004$). In contrast, there was no effect of fertility on non-luxury brands ($p > .50$). There was a significant correlation between conception probability and women's attraction to luxury brands ($p < .04$), but not to non-luxury brands ($p > .36$).

Study 3 examined whether shifts in success materialism (not the other dimensions) mediated the effect of fertility on increased desire for luxury products near ovulation. After reporting the three dimensions of materialism (as in study 1), women reported attitudes toward luxury versus non-luxury brands (as in study 2). Consistent with the previous findings, there was a two-way interaction between fertility (low vs. high) and brand type ($p = .04$), such that women's desire for luxury brands increased at high (vs. low) fertility ($p < .04$), but their desire for non-luxury brands did not differ ($p > .64$). There was also a significant correlation between conception probability and women's attraction to luxury brands ($p = .03$), but not to non-luxury brands ($p > .85$). For materialism, women reported higher scores on the success materialism dimension at high fertility compared to low fertility ($p = .02$), whereas there was no effect of fertility on the other dimensions ($ps > .39$). Women's success materialism also tracked conception probability across the cycle ($p = .04$), but centrality materialism and happiness materialism did not shift across the cycle ($ps > .52$). For the binary predictor, the indirect effect of the luxury brand attitudes via success materialism was significant ($CI [.02, .38]$), whereas indirect effects via the

other dimensions of materialism were not significant. For conception probability, the indirect effect of the luxury brand attitudes via success materialism was significant ($CI [.39, 12.01]$), whereas indirect effects via the other dimensions of materialism were not significant.

Study 4 sought to test an important boundary condition for how fertility influences women's luxury consumption with a direct behavioral measure in a within-subjects study using hormone tests to detect ovulation. Specifically, we examined whether the fertile phase of the cycle amplifies women's *intra-sexual competition* by testing whether ovulation influences women's luxury choices depending on the target users for the luxury (vs. non-luxury) products. According to the ovulatory competition hypothesis, the fertile phase of the cycle should have different effects on a woman's choices depending on whether those choices improve a woman's standing relative to other women. Hence, ovulation should boost women's desires for more superior products than other women. To measure desire for conspicuous luxury products, we had women draw logos on products (after Wang and Griskevicius 2014), once when they were at a high fertility point in the cycle and again at low fertility. At both test sessions, women were instructed to draw several luxury brand logos on products for themselves and for other women. We calculated the size of the luxury brand logo and measured participants' financial status. There was a two-way interaction between fertility (high vs. low) and targeted users (self vs. other women) after controlling for financial status ($p < .001$). Ovulating women drew significantly larger logos for themselves compared to the logos they drew for other women ($p < .04$), whereas non-ovulating women drew significantly smaller logos for themselves compared to the logos they drew for other women ($p < .04$). In other words, near ovulation, women drew significantly larger logos for themselves ($p < .02$), but drew significantly smaller logos for other women ($p < .007$). Importantly, the results did not change controlling for women's financial status.

Our findings suggest that fertility may motivate women to seek out and purchase luxury goods because of an increase in success materialism near ovulation. This novel finding is important given that research assumes that materialism is a stable, individual difference trait. If the ovulatory cycle systematically alters women's materialistic values and desire for luxury products, this has important implications for marketers, researchers, and consumers. Female consumers might choose more opulent goods depending on when during the month they are shopping. Researchers might explore how manipulated cues to competition affect women's conspicuous consumption. And, marketers may provoke different responses from the same message at different times of the month.

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Figures

Figure 1: Percent of American versus Indian dishes chosen by Americans and by Indians depending on whether disease concerns were salient (with standard errors).

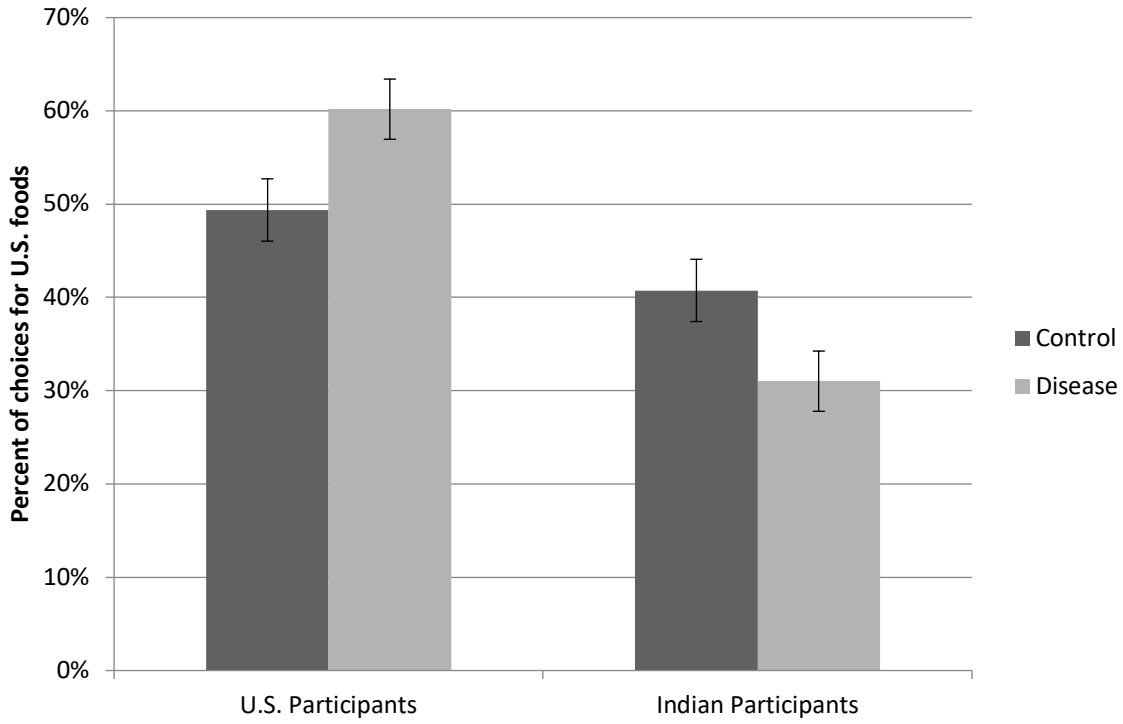


Figure 2: Appeal of familiar and unfamiliar foods depending on whether disease concerns were salient (with standard errors).

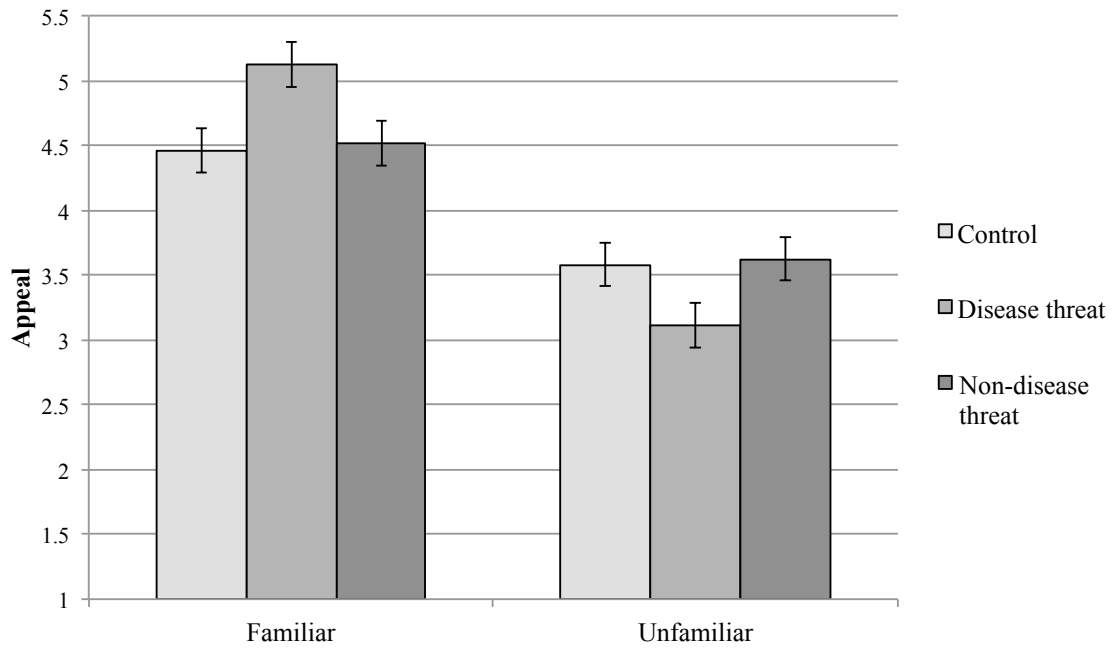


Figure 3: Appeal of familiar and unfamiliar restaurant depending on whether disease concerns were salient (with standard errors).

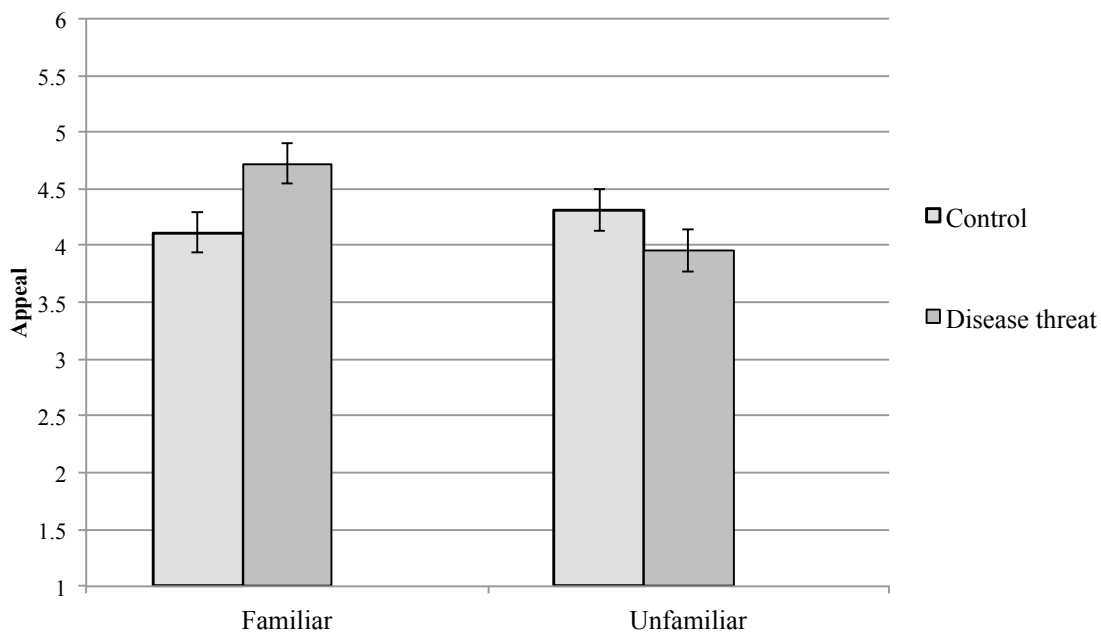
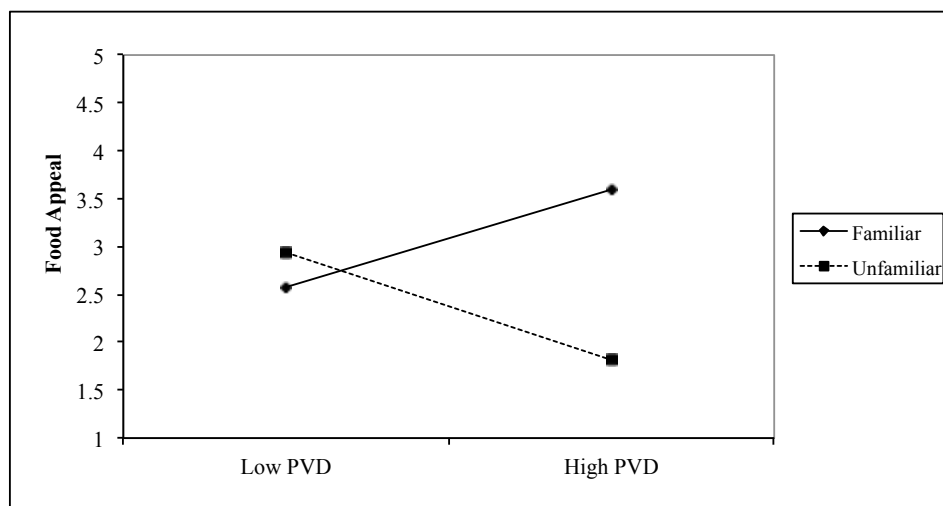
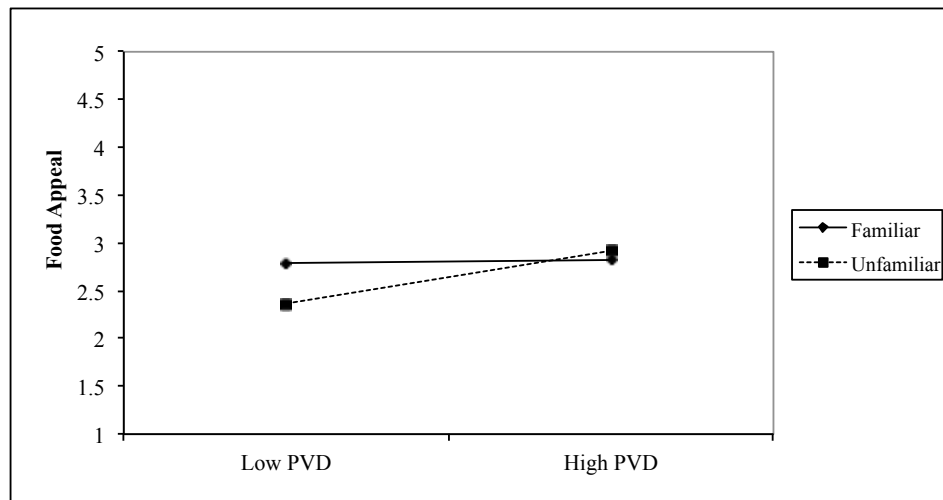


Figure 4: Ratings of appeal for unpackaged (top) and packaged (bottom) familiar and unfamiliar snacks by perceived vulnerability to disease.





1.2 The Time of Our Lives: Examining Utility from Experiential Consumption Over Time

Symposium

Paper #1: The Material-Experiential Asymmetry in Discounting: When Experiential Purchases Lead to More Impatience

**Joseph K. Goodman, The Ohio State University, USA (goodman.425@osu.edu)*

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Mosi Rosenboim, Ben-Gurion University of the Negev, Israel (mmm@som.bgu.ac.il)

Paper #2: The Influence of Creating Event Markers on Experienced Time and Enjoyment

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Alixandra Barasch, New York University, USA (abarasch@stern.nyu.edu)

Paper #3: Sacrificing Enjoyment for the Sake of the Relationship

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Michael I. Norton, Harvard Business School, USA (mnorton@hbs.edu)

Rebecca Ratner, University of Maryland, USA (rratner@rhsmith.umd.edu)

Paper #4: The Primacy of Experience: Comparing the Contributions of Anticipation, Experience, and Memory to Total Utility

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Carey K. Morewedge, Boston University, USA (morewedg@bu.edu)

Michael I. Norton, Harvard Business School, USA (mnorton@hbs.edu)

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The Time of Our Lives: Examining Utility from Experiential Consumption Over Time

SESSION OVERVIEW

Time may be the most precious resource consumers have at their disposal, and a growing literature suggests that consumers' decisions about how to spend their limited time are crucial determinants of their overall well-being (Aaker, Rudd, and Mogilner 2011; Mogilner, Chance, and Norton 2012; Van Boven and Gilovich 2003). While ample research highlights the importance of prioritizing experiences, there is limited research to guide people's choices of which experiences to consume (Bhattacharjee and Mogilner 2014) or how to consume them (Tonietto and Malkoc 2016).

Given the importance of considering the multiple sources of utility we derive from experiences across time (Elster and Loewenstein 1992; Kahneman 1994), this session contributes to our understanding of experiential consumption at multiple stages: *during* the actual experiences, *beforehand* while anticipating those experiences, and *afterwards* from the memories and symbolic meanings of those experiences. Each paper focuses on a different piece of utility from these stages: discounting of utility in anticipation, experienced utility, expected future utility, and lay beliefs about how each source of utility contributes to total utility.

The first paper focuses on the discounting of utility in anticipation of future experiences. **Goodman, Malkoc, and Rosenboim** find that consumers are more impatient toward experiential compared to material consumption, discounting the future utility of experiences to a greater degree. This arises from the singular consumption episode characterizing most experiences, and declines when experiences are consumed over longer periods of time.

The second paper focuses on consumption utility. **Tonietto and Barasch** find that generating content that marks the passage of time (i.e., event markers) during experiences enhances utility. In particular, creating event markers increases engagement with the experience, leading time to feel as though it is passing more quickly, and ultimately increasing enjoyment.

The third paper examines trade-offs between experienced and future utility. **Garcia-Rada, Norton, and Ratner** find that consumers may choose a less desirable experience in order to share that experience with a co-consumer. Sacrificing utility during the experience can signal commitment to a shared future, and is associated with higher future utility from relationship satisfaction.

Finally, the fourth paper bridges across anticipation, experience, and recollection. **Ksendzova, Morewedge, and Norton** examine lay beliefs of how each of these components contribute to total utility over time. They show that experienced utility is the primary contributor to total utility, as people accord the experience more weight than other phases, regardless of its duration.

Understanding how different sources of utility shift and interact over time is essential to leading happier and more fulfilling lives. This session sheds new light on how consumers evaluate multiple sources of utility over time, as experiences approach, unfold, and impart enduring meaning. All four projects are working papers with at least three studies completed. Given the widespread applicability of the issues discussed, we expect this session to attract researchers interested in utility and experience, experiential versus material consumption, happiness and well-being, the psychology of time, affective forecasting, and satiation. We hope that these diverse approaches to studying experiential consumption will generate a lively and fruitful discussion.

ABSTRACTS

The Material-Experiential Asymmetry in Discounting: When Experiential Purchases Lead to More Impatience

Joseph K. Goodman, The Ohio State University, USA

Selin A. Malkoc, The Ohio State University, USA

Mosi Rosenboim, Ben-Gurion University of the Negev, Israel

Short Abstract:

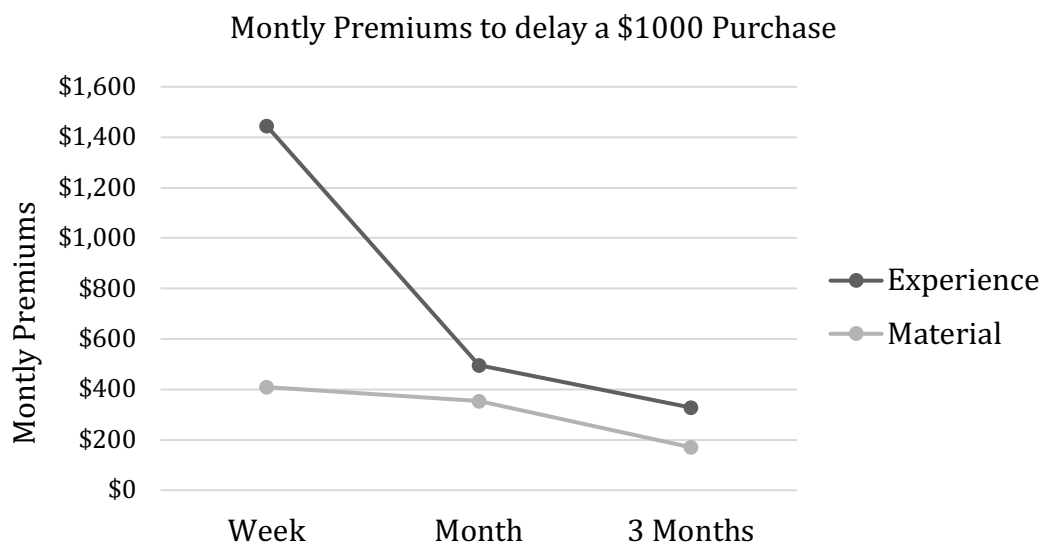
Most of the literature examining consumer impatience has predominantly considered monetary outcomes (i.e., delaying dollars), assuming that how the money will be spent is irrelevant impatience. This research studies systematic differences in impatience towards material and experiential purchases and propose a key distinction between the two—the duration under which a purchase is consumed. The authors propose that consumers are more impatient towards experiential purchases compared to material purchases of equivalent value and that this difference is driven by the greater number of consumption episodes associated with experiential purchases.

Extended Abstract:

Consumers routinely decide whether and when to spend money on doing things (experiential purchases) or having things (material purchases), either in the present or future. When delaying consumption, consumers are impatient and show high rates of discounting (for a review see Berns, Laibson, and Loewenstein 2007; Urminsky and Zauberman 2014). Yet, most of the literature examining consumer impatience has predominantly considered monetary outcomes (i.e., delaying dollars), assuming (perhaps implicitly) that how the money will be spent is irrelevant to how consumers delay outcomes. We examine systematic differences in impatience towards material and experiential purchases and propose a key distinction between the two—the duration under which a purchase is consumed. Eight studies consistently show that consumers are more impatient towards experiences and that it is due to the number of episodes needed to consume material versus experiential purchases.

Studies 1A and 1B initially tested our prediction using a common technique where participants are asked to generate material or experiential purchases. Study 1A asked participants to imagine that they received “\$1000 to spend on an experience [or material] good of your choice.” Next, they completed a standard delay discounting task (e.g., Malkoc and Zauberman 2006). To rule out alternative explanations, we also measured excitement and anticipated regret (neither had an effect). As expected, participants required higher premiums to delay an experience ($M=756.28$) than a material good ($M=310.70$; $F(1,344)=29.75$, $p < .001$; Figure 1). In Study 1B participants considered delaying either a \$950 couch (material) or \$950 vacation (experiential) by 1 week, 1 month, and 3 months (within-subject). We again found a main effect for purchase type, indicating that participants in the experiential condition ($M=618.60$) required higher premiums to delay, and thus were more impatient, than those in the material condition ($M=263.78$; $F(1,160)=30.90$, $p < .001$).

Figure 1. Study 1A: Time horizon by outcome type interaction, using self-generated material and experiential purchases.



The next three studies rule out two alternative explanations associated with experiential purchases: social nature (Study 2), re-scheduling difficulty (Study 3a and 3b), and differences in hedonic/utilitarian goals (Study 4). Study 2 was similar to Study 1B, except we added a third condition where participants imagined a vacation experience alone (vs. with others) and we changed the measurement of impatience to a repeated choice paradigm. Participants made a series of ten choices, indicating preference between receiving their purchase now or next week for additional compensation (from \$0 to \$450, in \$50 intervals). As expected, consumers made fewer impatient choices when delaying a material purchase ($M=2.68$) compared to delaying a social experience ($M=3.69$; $t(303)=3.44$, $p < .001$) or a solitary experience ($M=3.53$; $t(303)=2.80$, $p < .01$). The solitary and social experience conditions did not differ ($t(303) < 1$).

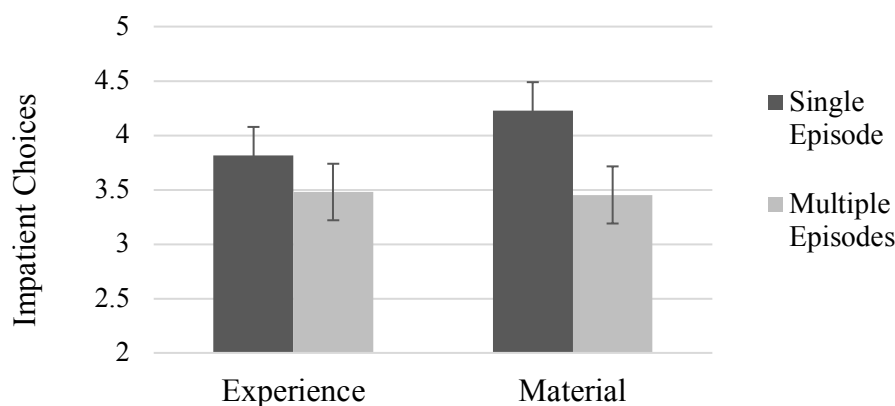
Study 3a and 3b used incentive-compatible designs and controlled for rescheduling difficulty. In Study 3a, we asked participants to schedule a massage appointment (experience) or time to pick-up a massager (material) prior to indicating their intertemporal preferences. Next, participants imagined delaying this purchase and scheduled their delayed appointment/pick-up the following week. Finally, they completed the same repeated choice paradigm (\$0-\$45, \$5 intervals). As expected, participants who considered delaying the experience made significantly more impatient choices ($M=2.17$) than those who considered delaying the material item ($M=1.64$; $t(196)=2.14$, $p < .05$). Study 3b compared novels (material) to movies adapted from the same novels (experience) and again found that participants demanded more to delay seeing a movie ($M_{\text{experiential}}=7.07$) than receiving a book ($M_{\text{material}}=4.47$, $F(1,191)=8.13$, $p < .01$). Ruling out the hedonic nature of experiences as the driver of the observed effect, Study 4 manipulated the consumption goal (hedonic/utilitarian) in addition to material/experiential nature of the purchase and again found that experiences led to more impatience ($M_{\text{experiential}}=4.34$, $M_{\text{material}}=3.50$, $F(1,351)=9.11$, $p < .01$), regardless of the consumption goal (consumption goal did not moderate the effect either, $F(1,351) < 1$, $p > .6$).

Study 5 tested our proposed process. In particular, we propose that the increased number of consumption episodes in the material purchase condition is responsible for the observed lower impatience. To that end, we introduced a third condition to Study 3a. In particular, while two

thirds of the participants imagine receiving a massage (experience) or a massager (material), the remaining third imagined receiving a weekly 15 minute HydroMassage (long experience). As before, participants made significantly more impatient choices for the short experience ($M=6.04$) condition compared to the long experience ($M=4.97$) and material ($M=5.07$) conditions ($F(1,287)=7.84, p < .01$). More importantly and consistent with our predictions, we found no difference between the long experience ($M=4.99$) and material ($M=5.07$) conditions ($F(1,287) < 1$). Several other alternative explanations were examined (ie, future focus, time perception, feelings of ownership), but none could account for the results.

Finally, Study 6 further tested our process. We pre-tested different purchases that matched on attractiveness, but differed in terms of material-experiential. We generated four items for each of the four replicates: (1) material purchase consumed over a long time, (2) material purchase consumed over a short time, (3) experiential purchase consumed over a long time, and (4) experiential purchase consumed over a short time. As expected, participants made significantly more impatience choices when delaying purchases consumed over a single episode ($M=4.02$) compared to multiple episodes ($M=3.47$; $F(1,187)=4.59$; $p < .05$). Since our material-experiential manipulation no longer varied in terms of consumption duration, we did not find a main effect of purchase type ($M_{\text{experiential}}=4.33$ vs. $M_{\text{material}}=3.51$; $F(1,187)<1$; $p > .5$). That is, the material-experiential asymmetry on impatience was eliminated once consumption duration was controlled (see Figure 2).

Figure 2. Study 6: Number of impatient choices by purchase type.



Our findings demonstrate that the type of purchase (i.e., material vs. experiential) systematically alters the extent of consumer discounting and impatience, indicating that a different consumption pattern over time can have significant effects on the compensation consumers require to delay a purchase. This result helps explain why some research has found vastly differently discount rates across experimental stimuli, particularly in quantitative modeling and product adoption that has focused on durable (i.e., material) goods (Dube, Hitsch, and Jindal 2015). Further, our results highlight an instance where material purchases, that are ordinarily have negative associations (e.g., materialism, overspending), lead to a desirable outcome (i.e., less impatience).

The Influence of Creating Event Markers on Experienced Time and Enjoyment

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Short Abstract:

The authors examine the effects of creating event markers, or generating content about an experience (e.g., texting, writing notes), as that experience unfolds. While prior research has found that event markers can elongate retrospective judgements of duration, the authors propose that generating markers within an experience can have the opposite effect on experienced duration, leading to the perception that time is passing more quickly and thus that the experience is shorter. Six studies demonstrate that creating temporal markers increases engagement with the experience, leads time to be perceived as passing more quickly, and ultimately increases enjoyment.

Extended Abstract:

Consumers commonly create content about aspects of an experience as it unfolds. For example, during an experience, consumers often write posts for real-time social media updates and frequently send messages to others (Ahonen 2013) about their experience.

Importantly, when consumers generate information during an experience, they punctuate the intervening events within the experience, creating event markers. Prior research suggests that such markers can alter retrospective time perception and make events feel more distant (Zauberman et al. 2009), while related work suggests that reminders of past events can enhance utility from memory (Zauberman, Ratner, and Kim 2009). However, no past research investigates how creating markers during experiences might affect current time perception and enjoyment.

Building on prior research showing that activities which capture an unfolding experience can increase engagement (Diehl, Zauberman, and Barasch 2016), we propose that creating event markers will increase engagement as individuals search for content to mark, leading time to pass more quickly and ultimately increasing enjoyment. That is, when consumers are more engaged, they tend to pay less attention to the passing of time, which can lead time to feel as though it is passing more quickly (Conti 2001), thus increasing enjoyment (Gable and Poole 2012; Sackett et al. 2010).

Six studies test these predictions. Participants watched a video of a first-person virtual tour before indicating time perception (how quickly time seemed to pass; how long the experience seemed to last—reverse-scored), engagement (Studies 1, 4A, 4B), and enjoyment (Studies 1-2).

In Study 1 (N=246), all participants imagined that they were experiencing a tour with a friend. Those in the marker condition wrote five messages to their friend about the experience at any point throughout the video. Those in the control condition simply watched the video and did not write any messages. We found that those in the marker condition ($M=40.33$) perceived the experience as passing more quickly than those in the *control* condition ($M=27.50$, $p<.01$), and also felt more engaged ($M_{\text{Marker}}=56.62$, $M_{\text{Control}}=45.36$, $p=.016$) and enjoyed their experience more ($M_{\text{Marker}}=43.53$, $M_{\text{Control}}=35.78$, $p=.08$). Moreover, we found evidence for our proposed serial mediation (markers→engagement→time perception→enjoyment; 95% [CI]=0.418, 3.960).

In Study 2 (N=210), we included an additional control group where participants received messages from a friend. We found that the effect is a unique outcome of creating markers, such

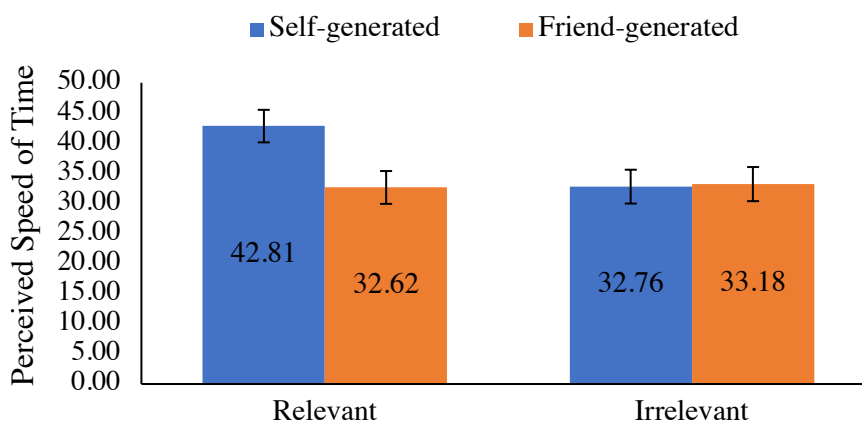
that those who created markers perceived time as passing more quickly ($M=32.09$) compared to both the control ($M=18.54$) and friend-generated content conditions ($M=23.09$, $ps<.02$), which did not differ from each other ($p=.25$). Further, self-generated markers ($M=30.66$) led the experience to be more enjoyable compared to both the control ($M=20.60$) and other-generated conditions ($M=18.61$, $ps<.01$), which did not differ ($p=.58$). Replicating Study 1, we found evidence for our proposed mediation (self-generated markers \rightarrow time perception \rightarrow enjoyment; 95% [CI]=0.731, 3.644).

In Study 3 ($N=244$), we sought to test the robustness of the effect to removing both the sharing aspect and control over the timing of the markers. As such, participants in the marker creation conditions wrote notes for themselves about their experience. Further, an additional marker-creation condition was included in which participants wrote the notes whenever they were prompted to do so rather than whenever they chose. We found that creating markers led participants to perceive the experience as passing more quickly whether participants controlled the timing of the markers ($M=53.10$) or not ($M=60.53$), compared to control ($M=46.07$, both $ps<.05$).

Having demonstrated the core effect, we next sought to test the proposed role of engagement. As such, in Studies 4A-4B, we manipulated the timing of the marker creation within the experience, where participants either created all of their markers during the first minute, the last minute, or throughout the experience by writing notes for themselves (4A; $N=128$) or to a friend (4B; $N=191$). If engagement is indeed driven by searching for content throughout the experience to mark, then creating all their markers at the beginning of an experience should no longer feel engaging. Consistent with this, we find that content created either throughout ($M_{\text{Study4A}}=51.83$, $M_{\text{Study4B}}=48.54$) or towards the end of the experience ($M_{\text{Study4A}}=48.39$, $M_{\text{Study4B}}=49.32$) led the experience to feel more engaging compared to content created at the beginning ($M_{\text{Study4A}}=40.11$, $M_{\text{Study4B}}=39.46$, $ps<.05$). Creating content throughout ($M_{\text{Study4A}}=46.20$, $M_{\text{Study4B}}=50.92$) or towards the end of the experience ($M_{\text{Study4A}}=46.56$, $M_{\text{Study4B}}=48.44$) also increased the perception that time passed quickly compared to creating content at the beginning ($M_{\text{Study4A}}=38.89$, $M_{\text{Study4B}}=37.18$, $ps<.05$).

In Study 5 ($N=107$), we further tested the engagement mechanism by manipulating the relevance of the created content, where only content relevant to the experience should increase engagement. We found a significant 2 (relevance; within-subjects) \times 2 (self vs. other-creation, between-subjects) interaction ($p=.014$; see Figure 1), such that, for relevant content, self-generated markers ($M=42.81$) led time to pass more quickly compared to other-generated content ($M=32.62$, $p<.01$), but no such difference emerged for the irrelevant content ($M_{\text{Self}}=32.76$, $M_{\text{Other}}=33.18$, $p=.92$). Further, in the self-generated markers conditions, relevant content led time to pass more quickly compared to irrelevant content ($p<.01$), but no such difference emerged for the other-generated conditions ($p=.86$). such that self-generated markers only led time to pass more quickly compared to other-generated content when the markers were directly relevant to the experience.

Figure 1. Study 5 Results



Together, six studies demonstrate that creating markers by generating relevant content about an unfolding experience can amplify enjoyment by increasing engagement and the perception that time is passing quickly. This research contributes to the literature examining the effects of event markers while providing implications for marketers to improve consumer experiences by encouraging content-creation.

Sacrificing Enjoyment for the Sake of the Relationship

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Michael I. Norton, Harvard Business School, USA

Rebecca K. Ratner, University of Maryland, USA

Short Abstract:

Across six studies, we examine how consumers in close relationships make decisions for shared experiences. We suggest that consumers often sacrifice the objective quality of an experience in order to share that experience with a co-consumer; in other words, they prefer a shared but worse experience over a better quality one that they could enjoy alone. In our work, we show that such sacrifices are associated with higher relationship quality and examine two factors that shape how consumers make these choices: the type of experience and the type of relationship with their co-consumer.

Extended Abstract:

When taking a flight, faced with the choice of two uncomfortable adjacent seats in the last row of the plane, or two seats in the economy comfort section that are not next to each other, what do consumers in relationships choose? We explore decisions about such shared experiences and examine the consequences of these choices for satisfaction with both the experience itself and the relationship. We suggest that some interaction partners compromise the objective quality of an experience to share that experience with a co-consumer (such as a romantic partner) – and that such choices are associated with higher relationship satisfaction.

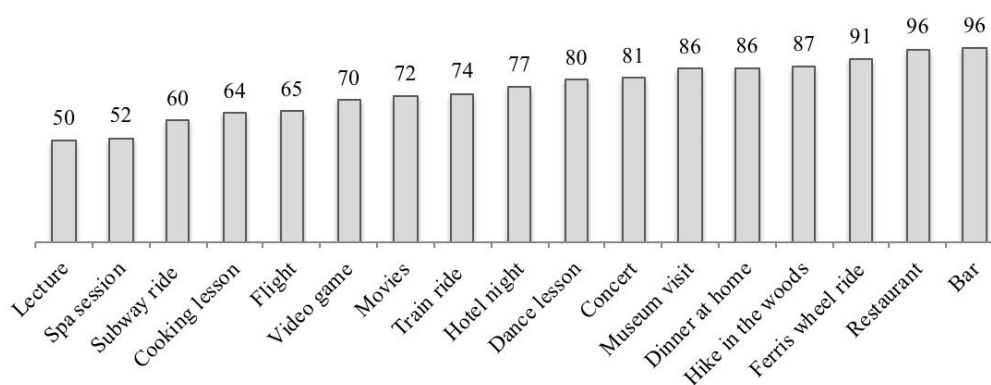
Previous work has shown that shared experiences can be more pleasurable and preferred over both solo experiences and material possessions (Caprariello and Reis 2013). Sharing an activity with another person amplifies the experience (Boothby, Clark and Bargh 2014) and leads to more coherent evaluations (Ramanathan and McGill 2007). Moreover, consumers often feel

inhibited from engaging in hedonic public activities alone as they anticipate negative inferences from others about their social connectedness (Ratner and Hamilton 2015). We build on this work and suggest that consumers not only prefer sharing an experience with someone else over enjoying alone but that they will sacrifice objective quality of the experience to enjoy the experience right next to a close other (H1). Additionally, we build on work on interpersonal closeness to demonstrate that the type and quality of a relationship can explain how consumers make choices for shared experiences. We argue that because consumers in close relationships perceive themselves as interdependent and focus on sharing their resources and perspectives with close others (Aron & Aron, 1986; Berscheid, Snyder, & Omoto, 1989) they will be more likely to choose shared worse experiences (H2A). Specifically, in the context of romantic relationships, we hypothesize that such sacrifices are associated with higher relationship quality (H2B).

In Studies 1A and 1B, we document this ubiquitous phenomenon. First, we analyzed Trip Advisor reviews of the interactive play “Sleep No More.” This is an experience that has been designed to be enjoyed solo: the company encourages visitors to have a unique solo experience and then exchange stories with other group members at the end. We obtained 675 reviews submitted by consumers who visited this show. Two coders read the reviews and identified how the person went through the play (1=alone, 2=with other people, 0=unclear). We find that 26.7% of the visitors decided to stay with their co-consumer(s) and that these people reported enjoying the experience significantly less ($M_{\text{review rating}}=3.23$, $SD=1.54$; $n=40$) than those who went through the experience alone ($M_{\text{review rating}}=4.39$, $SD=1.05$, $n=110$, $t(52.69)=4.42$, $p<.001$). In Study 1B, we document these sacrifices using a broader set of experiences ($N=200$). We asked participants to indicate whether they could recall a time when they had to choose between enjoying an experience with someone or taking a better experience but enjoying it separately or alone. Seventy-one percent said they could recall facing this decision, and 60% of these decisions were made over the last year. Taken together, Studies 1A and 1B suggest that choices between better experiences or shared experiences are common.

Studies 2A and 2B explored whether such seemingly suboptimal choices – worse experiences – may come with benefits: better relationships. We recruited participants in romantic relationships (Study 2A; Mturk $N=200$) and romantic dyads (Study 2B; Panel $N=216$) and asked them to make choices for several experiences they could share with their romantic partner. We created multiple vignettes describing experiences that involved a decision between a “good apart” option and a “bad together” one. We manipulated the quality of the experiences by varying the level of comfort (e.g. seats for a flight), duration (e.g. time of a videogame), location (e.g. front row vs. last row seats for lecture), and perceived quality (e.g. basic vs. premium spa session). In these two studies, we observe that consumers generally prefer a “bad together” experience to a “good apart” one (proportion of people who chose “bad together” for each activity ranges from 50-96%, see Figure 1) and that quality sacrifices are greater when there is more opportunity for interaction during the experience. Interestingly, we find that giving up quality of experience (i.e., choosing “bad together” experiences over “good apart” ones) positively correlates with relationship quality measures such as satisfaction, commitment, gratitude, and interpersonal closeness (these effects hold in our two samples, all $ps<.05$).

Figure 1. % of participants who chose a shared but worse experience



In the final two studies, we manipulate the type of experience (Study 3) and the type of relationship (Study 4) and examine how these two dimensions impact choices. In Study 3, we framed the same experience (a cooking class) either as utilitarian or hedonic and asked participants to choose seats ($N=200$). We observe that 77% of participants chose two adjacent seats in the last row of the class where they couldn't see the instructor properly (over two non-adjacent first row seats) when they had a hedonic goal compared to 60% when they had a utilitarian goal ($\chi^2(1)=6.70, p=.010$). In Study 4, participants were asked to choose seats for a flight they were taking with their romantic partner, a close friend, or a distant coworker ($N=303$). We find that participants in the partner condition displayed the highest level of sacrifice (56.4% chose the two adjacent seats in the last row of the plane over two comfortable non-adjacent seats), followed by close friends (38.0%) and distant coworkers (11.8%; $\chi^2(2)=40.80, p<.001$).

Our results contribute to research on shared experiences, examining when and why consumers make quality tradeoffs for shared experiences with close others. Our archival data suggests that being alone can enhance the quality of the experience, but our relationships data suggest that being together leads to happier couples. Thus it appears that, in some cases, people must choose either to enjoy the experience or solidify their relationships: compromising an experience can help to keep relationships from being compromised.

The Primacy of Experience:

Comparing the Contributions of Anticipation, Experience, and Memory to Total Utility

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Short Abstract:

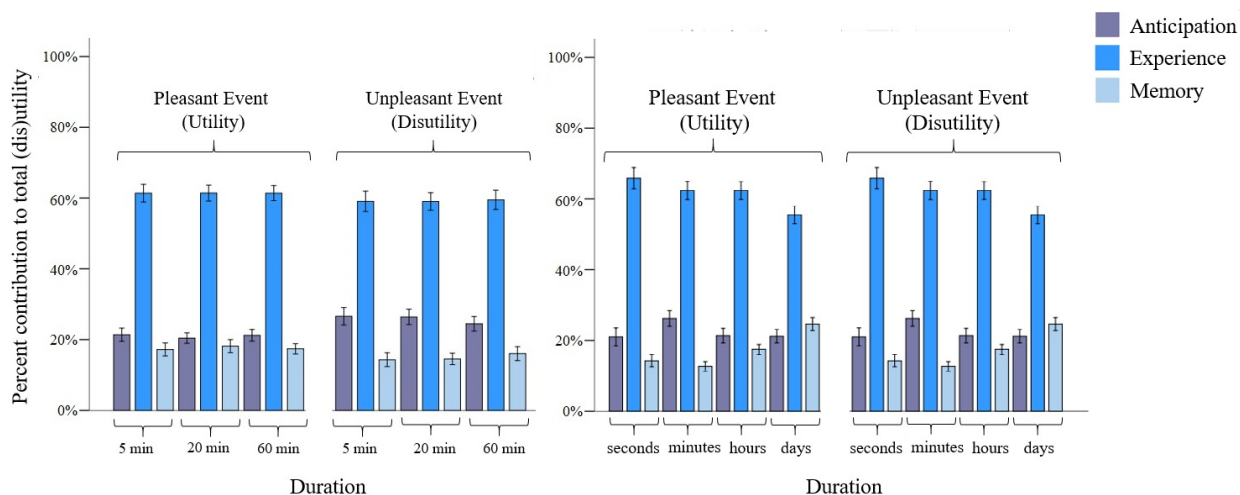
The total utility of an event is the sum of the utility provided by its anticipation, experience, and recollection. Most models of total utility propose to weight phases equally, by duration. While the duration-weighted approach suggests that experienced utility should contribute relatively more to total utility as experience duration increases, we uncover a lay belief in the general primacy of experience. In five studies, we find that people accord experience more weight than other phases, regardless of its duration.

Extended Abstract:

In his conceptualization of the total utility provided by an event - the total pleasure or pain it afforded across its anticipation, experience, and recollection, Bentham (1789) envisioned a duration-weighted approach. In his view, the assessment of total utility should account for the intensity of pleasure or pain an event incurred at each moment in time by the amount of time pleasure or pain was incurred, irrespective of phase. Current proposals echo this suggestion, assuming that duration weighting is the optimal way to aggregate the total utility of events – the utility provided by their anticipation, experience, and recollection (Kahneman, 1999). These models assume that people perceive utility derived from phases of experiences to carry the same weight, an assumption we test in our five studies: do people believe that anticipation, experience, and memory contribute equally to total utility, or are some kinds of utility more impactful than other kinds?

In Study 1a (N = 99; within-subjects), we prompted participants to generate examples of three pleasant and three unpleasant events lasting five, twenty, or sixty minutes. For each event, participants then rated the relative contribution of anticipation, experience, and recollection (between 0% and 100%) to the total utility provided by that event. A duration-weighted approach would suggest that the utility of experience should contribute less for shorter than longer events. Regardless of event duration, however, participants reported that experience contributes more to total dis(utility) than do anticipation and memory ($F = 230.53, p < .001$; see Figure 1). Additionally, in Study 1b (N = 100; valence between-subjects, duration within-subjects), we examined events lasting seconds, minutes, hours, and days, and again found participants rated utility from experience to be the primary contributor, regardless of event duration ($F = 196.71, p < .001$; see Figure 1).

Figure 1. Perceived contribution of anticipation, experience, and memory to total (dis)utility of events in Studies 1a/b.



In addition to the perceived contributions of each phase, we examined people's choice between phases of an event. To do so, in Study 2 we first asked participants to generate examples of positive or negative events lasting seconds, minutes, hours, and days (N=200; valence between-subjects, duration within-subjects). For all listed events, participants then engaged in a thought experiment. Some imagined, for positive events, that they were able to feel pleasure

during only one phase of their choosing. Others imagined, for negative events, that they were able to block negative feelings during one phase of their choosing. Overall, people chose to preserve positive experience and block negative experience most often (64% and 76% of the time, respectively). Further, contrary to the duration weighting approach, the choice of experience, over anticipation and memory, did not decrease for shorter events. In fact, as duration decreased, choice of experience increased ($\beta = -.47$, 95% CI [-.90, -.04], $p < .05$).

Then, in Study 3 (N=100; within-subjects), we investigated whether people believe that a unit of experience, compared to equal units of anticipation or memory, has greater impact on total utility. We asked participants to imagine going on an enjoyable date – a date which they hypothetically anticipate, experience, and recall each for three hours. Thus, duration of each phase was held constant. Next, participants imagined that one minute was randomly selected from the three hours of each phase and rated the desirability of that minute. For each phase (in a random order), they also rated the desirability of five, fifteen, thirty, and sixty minutes on a 0-100 scale. Although people perceived longer durations of pleasure as more desirable than shorter durations ($M_1 = 40.58$, $M_5 = 45.73$, $M_{15} = 52.25$, $M_{30} = 59.49$, $M_{60} = 69.68$; $F_{\text{duration}} = 67.08$, $p < .001$), they rated experience segments as more desirable than equal segments of anticipation and remembering ($M_{\text{experience}} = 60.72$ vs. $M_{\text{anticipation}} = 45.80$ and $M_{\text{memory}} = 54.11$; $F_{\text{phase}} = 23.71$, $p < .001$; $t = 6.01$, $t = 3.89$, $ps < .001$).

Moreover, in considering that people may think of experientially-driven events when judging the utility of phases, we employed more conservative tests. In Study 4 (N=100; within-subjects), we asked participants to name pleasant and unpleasant events for which a) anticipation, b) the experience itself, or c) its recollection defines the nature of that event. We again examined weighting by observing choices: for each event, participants again engaged in a thought experiment. Some imagined for positive experiences that they were able to feel pleasure during only one phase of their choosing. Others imagined for negative experiences that they were able to block negative feelings during one phase of their choosing. For all positive and negative events, participants were in no cases more likely to preserve or block a phase other than experience (e.g., 52% chose experience and 33% chose anticipation for anticipation-defined events, whereas 73% chose experience and 11% chose anticipation for experience-defined events). More specifically, a nested multinomial model indicated that anticipatory event features indeed increased choice of anticipation over experience (posterior mean = 1.77, 95% CI [1.12, 2.37], $p < .001$), just as memory-based event features increased choice of memory over experience (1.93, 95% CI [1.35, 2.48], $p < .001$). However, despite these influences, participants were overall more likely to choose experience over anticipation (2.30, 95% CI [1.81, 2.79], $p < .001$) and over memory (1.93, 95% CI [1.49, 2.44], $p < .001$).

In these studies, we find that people see experienced utility as the primary driver of total utility, as revealed in their choice of experience and perceptions of its greater relative contribution. This primacy of experience does not weaken as event duration decreases. Moreover, people perceive a unit of experience to have greater impact on total utility, compared to equal units of anticipation or memory. Together, our findings shed light on a lay belief that appears to contradict the duration-weighted assumptions of class proposals of total utility.

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1.3 Thy Self & Others: Are you Reading this on the App? The Consumer Online Individual Papers

The Intent to Persuade: Spontaneous Emotionality in Word-of-Mouth Communications

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Influential models of emotion suggest that emotions evolved, in part, to influence others (Frijda and Mesquita 1994). Indeed, emotional appeals can be effective persuasion tools (e.g., Clark and Taraban 1991), but only against the right audience (e.g., Fabrigar and Petty 1999). The present research seeks to understand 1) whether individuals intensify their emotionality to persuade and 2) how deeply rooted this use of emotionality might be. Can the mere activation of an intent to persuade lead people to spontaneously increase their reliance on emotion? And might they rely on emotion even when it is likely to be ineffective?

One obstacle to answering these questions is that many consumer communications occur through text (e.g., online reviews), thereby making the measurement of emotionality difficult. However, the current research takes advantage of recent methodological advances in this area. Specifically, Rocklage and Fazio (2015; Rocklage, Rucker, and Nordgren in press) introduced and validated the Evaluative Lexicon (EL) – a computational linguistic tool that quantifies language in terms of its implied emotionality. The EL allows researchers to quantify differences between more emotional adjectives such as “wonderful” and “lovable” versus more cognitive adjectives such as “helpful” and “excellent.”

EXPERIMENTS

Experiment 1 ($n = 778$) tested the link between the intent to persuade and emotionality. All participants were asked to write a 5-star review for one of 20 products. However, those in the “Persuade” condition were additionally asked to persuade others to purchase the product. Moreover, we compared the emotionality of these reviews to real-world 5-star reviews of the same products from Amazon.com ($n = 840$). These reviews provide a naturalistic baseline for the emotionality expressed toward these products. Attesting to their 5-star nature, the reviews did not differ in their positivity ($F(2, 1605) = 1.74, p = .18$). However, across the products participants with the intent to persuade used greater emotionality compared to both those in both the control condition and the real-world Amazon.com reviews ($F(2, 1605) = 3.63, p = .027$).

Experiment 2 ($n = 288$) provided a further test of the hypothesis. To hold both knowledge and positivity constant, we asked participants to recall a 5-star novel they had read. Moreover, it has been theorized that using emotionality to affect others can often be enacted without much deliberation due to its relatively overlearned association with impacting others’ behaviors (Frijda and Mesquita 1994). To test the deliberative nature of the process, we manipulated the cognitive load participants experienced by having them memorize either a 2- or 8-digit passcode. We also manipulated the intent to persuade more naturalistically via a referral program: we informed half of the participants they would be paid \$1.00 for each future participant who selected their book based on their review. The other half of participants were given no incentive. Finally, we asked participants to list the 3-5 positive adjectives they would use to describe their evaluation. As in Experiment 1, individuals with the intent to persuade expressed greater emotionality than those

in the control condition ($F(1, 283) = 10.40, p = .001$). Moreover, these results were not moderated by cognitive load ($F(1, 283) = 1.54, p = .22$), which suggests the process is less deliberative and more spontaneous.

The pervasiveness of these effects suggest that consumers may rely on emotional arguments even in situations when such appeals may be suboptimal. Previous work indicates that emotional appeals can backfire with more rational, cognitive audiences (Haddock et al. 2008). Would people continue to use more emotional appeals even when they could backfire?

In Experiment 3 ($n = 781$), we used a similar procedure to Experiment 2 but we added conditions to test the effect of audience. Based on the results from a pilot study, we preregistered this experiment (<https://osf.io/vbuqn/>). We asked participants to think of the last restaurant they ate at. There were four conditions. Two of the conditions (control and “Persuade – No Group”) were provided similar instructions as in Experiment 2. However, two additional “Persuade” conditions were given specific groups to persuade. Based on pretesting, those in the “Emotionalists” condition were told their reviews would be shared with artists, dancers, and musicians from a group named “The Emotionalists.” Those in the “Rationalists” condition were told they would be shared with a group of scientists, mathematicians, and economic analysts named “The Society for Applied Rationality and Mathematics.” Replicating the findings of Experiment 2, those incentivized to persuade used greater emotionality than the control condition ($t(378) = 2.18, p = .03$). Most importantly, those in the “Rationalists” condition used greater emotionality compared to those in the control condition ($p = .026$; see Figure 1). Participants used greater emotionality even when it was likely to backfire (e.g., Haddock et al. 2008).

CONCLUSIONS

Although prior research has recognized the intent to persuade as an important motive in word-of-mouth communications, little work has explored how this motive shapes the very nature of people’s communications. We find that the intent to persuade led consumers to spontaneously intensify the emotionality of their language. We also provide evidence that emotionality may represent a default approach to persuasion that requires relatively few cognitive resources to implement. Finally, people relied on emotion even when it could backfire given the audience. In summary, the present work takes strides to inform our understanding of how the intent to persuade affects the very language used in word-of-mouth communications.

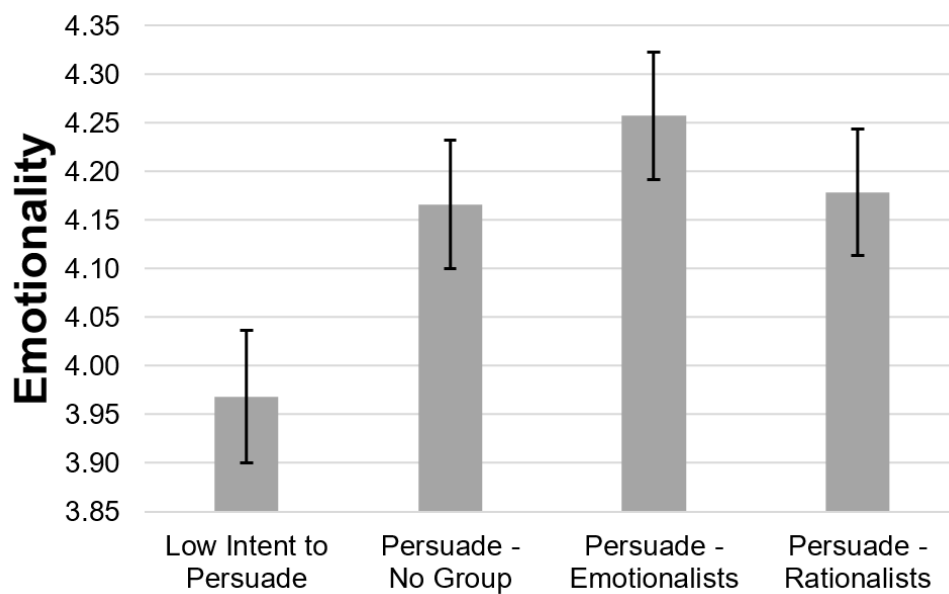


Figure 1 – Comparison of emotionality used by reviewers based on condition. Error bars represent ± 1 standard error of the mean (SEM).

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Textual Paralanguage and Emotional Contagion: Social Proof in the Online Transmission of Emotion

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Many observers have commented on the de-individuation and isolation created by technological innovations such as smartphones. With individuals spending up to five hours a day on social media, commentators have expressed fears about a society where people are unable or unwilling to connect with one another face-to-face (Thomson, 2017). Given that people spend much of their social lives online, we explore the consequences of doing so. Specifically, we look at how a person's emotional reactions to a social media post may be influenced by the type and distribution of textual paralinguistic cues (e.g., emojis) that accompany the post.

Textual Paralanguage (TPL) expresses audible, tactile, or visual elements of face-to-face communication in written form (Luangrath, Peck, & Barger, 2017). TPL is powerful because it can reinforce and augment message content. For example, the message "I am leaving" carries very different connotations if accompanied by a 😊 versus a ☹️. Given its recent development (and despite its ubiquity), little research has examined how TPL affects consumers. This research examines how other people's emoji usage in social media posts influences consumers' own emoji responses and experienced emotions. More specifically, we explore whether emotional contagion can occur online, using emojis as a novel form of emotional communication.

Prior research on contagion has shown that individuals' emotional states can be transmitted to others, leading them experience the same emotions (Schachter & Singer, 1962). Work in this area has generally focused on emotional contagion via physical expression, and in the presence of identifiable others. In contrast, we argue that emotional contagion can occur via the use of emojis in an online, de-individuated context. We predict that people who see how others have responded to a given social media post will use the distribution of observed emojis as an input to their own responses to that post. Hence, the same post may generate different patterns of emoji responses, depending on initial responses to the post. A sample of 100 posts (with nearly 200,000 emoji responses) collected from CNN's Facebook page supported this observation: emoji reactions (i.e., like, love, haha, wow, sad, angry) to a given post were strongly influenced by the first emoji response to the post. We hypothesize that this effect occurs because greater unanimity among past responses signals a social norm and leads to lower emotional ambivalence in the observer, increasing their likelihood of responding in a similar manner. We tested these predictions in four experiments.

Study 1 tested whether consumers' emoji choices were influenced by previous responses. MTurk participants (N=95) imagined that a friend had posted a mixed emotional Facebook update (i.e., happy and sad; Williams and Aaker 2002) about their grandmother's passing. We manipulated the emoji responses that appeared below the post. Participants saw either no prior responses (all emojis were zero), one heart emoji response (all others zero), or one sad emoji response (all others zero). They then reported which of the six emojis they would choose if they were to respond to their friend's post. As expected, manipulated responses (heart vs. sad vs. control) affected participants' responses: those who saw an initial heart (sad) emoji were more likely to select this emoji as their own response ($p < .04$).

Using the same 3-cell design, study 2 (N=389) aimed to replicate and extend study 1. MTurk participants viewed a mixed emotional Facebook post about moving which had either

zero responses, one heart emoji response, or one sad emoji response. Participants selected which emoji they would respond with and reported how they felt on each of 14 emotion items. Replicating study 1, participants' responses tended to match the initial emoji ($p < .01$). Analysis of felt emotions revealed two main factors, representing negative and positive emotions. We used a difference score between these factors to assess emotional ambivalence and found that manipulated response predicted ambivalence ($p < .02$). Participants in the heart and sad conditions felt more (less) positive and less (more) negative emotion, respectively, than those in the control condition. PROCESS analysis (Preacher & Hayes, 2014) showed that ambivalence mediated the relationship between manipulated condition and participants' responses (CI: .01-.34).

Using the same design and Facebook post from study 1, study 3 (N=199; undergraduates) tested whether our effects held for multiple initial responses. Here, the control condition again showed zero emoji responses, the heart condition showed 102 like, 101 heart, and 40 sad emojis (other emojis were zero), and the sad condition showed 102 like, 40 heart, and 101 sad emojis (other emojis were zero). Participants' emoji response patterns replicated prior studies ($p < .02$). Further, participants in the heart and sad conditions had lower emotional ambivalence than those in the control condition ($p < .04$), and ambivalence again mediated the relationship between manipulated condition and participants' responses (CI: 0.003–0.21).

Our final study (N=391) explored the role of social norms using a purely sad Facebook update where the poster's dog had died. We manipulated norms across four conditions by varying the proportion and volume of responses: 10 sad, 5 like; 100 sad, 50 like; 100 sad, 5 like; or 0 emoji responses. We expected that a greater volume and proportion of sad responses would increase the probability that participants would respond with a sad emoji. After viewing the post, participants indicated which emoji they would respond with and reported their felt emotions. As in prior studies, manipulated responses influenced participant's emoji responses ($p < .001$), such that those in the 100 sad, 50 like condition used the highest proportion of sad emojis (27.2%). Further, participants who chose a sad emoji felt sadder ($p < .03$), and ambivalence mediated the relationship between manipulated condition and participants' responses (CI: 0.01–0.03).

In four studies, we find that individuals' emoji responses and felt emotions are affected by the emojis displayed on social media. This research provides an initial exploration of how, when, and why TPL affects consumers, demonstrates that emotional contagion can occur in a de-individualized, online context, and shows that these effects are driven by social norms and emotional ambivalence.

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How Sharing Health-Related WOM Affects Health Risk Perception

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The emergence of social media has dramatically changed health communication practices by enabling sharing. Public health organizations believe encouraging followers to transmit health-related WOM would increase followers' engagement thus promoting awareness of potential health risks (Heldman, Shindelar and Weaver 2013). The extant literature has indeed shown that increasing accessibility of risk information increases risk perceptions (Raghubir and Menon 1998). In contrast, we posit that having people share health risk messages with close (versus distant) friends can ironically lead to the decreased health risk perception. In six experiments, we examined and provide supporting evidence for an empathy mechanism.

The empathy mechanism proposes that after sharing the risk information with close (vs. distant) friends, people with higher empathy ability are more likely to make protective inferences that their close friends will be safer (Dubois, Bonezzi, and DeAngelis 2016) resulting in lower perceptions of self-risk due to greater self-other merging (Batson et.al, 1997). As females have been shown to have greater empathy than males (Davis, 1980), this mechanism would predict reduced risk perceptions for females (vs. males) as a consequence of sharing health risk information with close (vs. distant) friends.

In study 1, 120 MTurk participants were randomly assigned to a 2 (sharing vs. not sharing message) x 2 (friends: close vs. distant) between-subjects design. Participants were first instructed to write down the initials of one of their closest (or a distant) friend. Then they read a news article about the risk of pesticides in fruits and vegetables sold in the U.S. and suggestions on purchasing organic produce. In the sharing condition, participants composed a message based on that news article they just read to send to their recalled friend. In the no sharing condition, participants directly proceeded to dependent measures. All participants assessed how likely they would encounter food contained pesticides. Consistent with our hypothesis, a significant interaction of sharing and closeness on self-risk perception was found ($F(1, 116) = 5.20, p=0.024$). Composing and sharing a message with close friends led to significant lower self-risk estimates than control condition ($M_{\text{control}} = 6.41$ vs $M_{\text{sharing}} = 5.65, F(1, 116) = 5.01, p=0.03$), while no significant difference was found in the distant friend condition ($M_{\text{control}} = 6.05$ vs $M_{\text{sharing}} = 6.28, F(1, 116) = 0.7, p=0.4$).

Study 2 extended Study 1 by assessing the moderating effect of gender with 252 undergraduate participants. Supporting our prediction of an empathy mechanism, females sharing a message with close friends led to marginally lower self-risk perceptions than control condition ($M_{\text{control}} = 6.03$ vs $M_{\text{sharing}} = 5.36, p=0.08$), while no significant difference was found in the distant friend condition ($M_{\text{control}} = 5.42$ vs $M_{\text{sharing}} = 5.64, p>.20$). Further, men displayed an opposite pattern with a marginal main effect of sharing such that sharing increased risk perception versus control condition ($M_{\text{control}} = 5.19$ vs $M_{\text{sharing}} = 5.70, p=0.08$) with no difference as a function of social closeness ($p>.40$).

Study 3 aimed to replicate the core finding with a new context (E.coli contamination in Chipotle) and disentangle the effect of writing a message and sharing a message. 189 participants from MTurk were assigned into four conditions: writing-plus-sharing a message, writing a message alone, sharing a message alone and control. Participants only recalled their close friends. We analyzed the data including gender as a factor to gain insights on the empathy mechanism. Results showed significantly lower self-risk perception for female participants only

after both writing and sharing the message ($M_{\text{control}} = 3.84$ vs $M_{\text{sharing + writing}} = 3.06$, $F(1, 37) = 4.11$, $p = 0.0498$). Moreover, the results were suggestive that the effects of writing and sharing on female's self-risk perception were additive ($M_{\text{control}} = 3.84$, $M_{\text{writing alone}} = 3.53$, $M_{\text{sharing alone}} = 3.26$, $M_{\text{sharing+writing}} = 3.06$).

To further explore the empathy mechanism, study 4 measured empathy directly with a 2 (sharing + writing message vs control) x 2 (gender) design examining sharing with close friends only for 128 participants. First, we confirmed that females ($M = 5.70$) had a higher empathy level than males ($M = 4.67$), $p < 0.001$. Importantly, we replicated the gender x sharing interaction ($p = 0.02$) findings that sharing reduced risk perceptions for females and increased risk perceptions for males. Moreover, we found a marginally significant empathy x sharing interaction ($p = 0.07$) in which sharing risk information reduced (increased) self-risk perception for higher (vs. lower) empathetic participants.

Study 5 further tested the empathy mechanism by examining participants' estimation of close friends' risk. We successfully replicated the effect of sharing with close friends on decreased self-risk perception in female participants. Moreover, a moderated mediation analysis showed that estimation of close friends' risk mediated the effect of sharing risk messages on self-risk perception only when participants were female (higher empathy level) (CI: -1.2382 to -0.1429).

Finally in study 6, we explored the empathy mechanism by introducing another moderator: WOM recipients' vulnerability to the health risk. If sharers perceive their friends as less vulnerable to the risk that they mentioned in the message, their protective motivation towards close friends would be attenuated and the motivated reasoning process on perceived risk will be weakened subsequently. 142 MTurk participants were randomly assigned into a 2 (sharing vs no sharing) x measured gender variables x measure perceived friend's vulnerability between subjects design, with a new context of Listeria contamination in Sabra hummus. We found a significant three-way interaction among sharing or not, gender and perceived friends' hummus consumption frequency, as an indicator of friends' vulnerability to the risk ($F(1, 134) = 6.58$, $p = 0.01$). For participants who perceive their close friend as more vulnerable to the Listeria contamination risk, we replicated the previous findings that sharing health risk information decreased females' (not males') self-risk perception. While there's no such effect for participants who perceive their close friend as less vulnerable to the Listeria contamination risk.

In sum, this research examined a counterintuitive effect that sharing risk information with close friends can reduce risk perception for high empathy participants.

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When Novices are Better than Experts: Evidence from Online User-Generated Content Platforms

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Expert professionals have long played a number of important roles in marketing, such as endorsing products in advertising campaigns and writing reviews to inform consumers. Researchers on expert professionals have highlighted the superiority of experts over novices (Alba & Hutchinson 1987; Solomon 1990). However, with the explosive growth of user-generated content, we are now seeing the emergence of a new type of “expert”, the *expert user*, as third-party review platforms are recognizing their highest contributing users, and it remains unclear whether the superiority of expert professionals permeate to expert users. In this research, we examine if, and how, reviews generated by expert and novice users differ in (i) their impact on shifting user rating averages (Studies 1-3), and (ii) their perceived helpfulness by readers (Studies 4-5).

Research in social and cognitive psychology suggest that we have a tendency to simplify our understanding of the world in a categorical/dichotomous manner; we create dichotomous distinctions, such as good or bad, right or wrong (Billig & Tajfel 1973). However, with greater experiences within a domain, our thinking within that domain tends to shift from dichotomous to gradient (Galinsky & Moskowitz 2000). Given the relationship between familiarity and gradient thinking, we predict that novice (expert) users, by their nature of having less (more) domain-related experiences, adopt a more polarizing (gradient) evaluation approach – that is, they are more likely to assign 1 and 5 (2, 3, and 4) star ratings – relative to their counterparts. Differences in evaluation approaches have important consequences on the shifting (vs. anchoring) of user rating averages; a polarizing (gradient) approach will have more impact on shifting existing user rating averages that are low-to-moderate (high).

Study 1 tested whether novice (expert) users adopt a more polarizing (gradient) evaluation approach, and whether these different approaches impact the shifting (vs. anchoring) of user rating averages. Scraping and analyzing over 130,000 reviews on 60 hotels, spanning 4 cities, on qunar.com, a major Chinese online travel review platform, we find that relative to their counterparts, novice users are more likely to assign 1 and 5 stars (both $p < .001$), whereas experts are more likely to assign 2, 3, and 4 stars (all $p < .001$). Further, we find that the polarizing [gradient] approach adopted by novices [experts] has more impact on shifting user rating averages of hotels that have low-to-moderate [high] ratings ($\beta = -0.035$, $p < .01$ [$\beta = 0.018$, $p < .01$])

Study 2 shows that the different evaluation approaches adopted by novice and expert users, as demonstrated in Study 1, are replicated in reviews (over 180,000 reviews on 60 hotels, spanning 6 cities) on tripadvisor.com, a predominantly North American review platform, not only in assigned star ratings, but also in underlying review sentiment.

Study 3, an experiment (N=190) with a 2 familiarity (high vs. low) x 2 description valence (positive vs. negative) between-subjects design, shows that priming a facet of expertise, familiarity with the focal service, reduces the extremity of ratings ($M_{familiarity_high} = 1.29$ vs. $M_{familiarity_low} = 1.47$, $t = 2.12$, $p < .05$), which reflect the gradient approach favored by experts in our earlier field data.

In the next part, we turn towards readers of reviews and incorporate their outcomes in our investigation on expert users. By their superior nature, expert (vs. novice) users are expected to generate more helpful reviews; however, this effect is likely not consistent across device types. Recent research on mobile devices suggest that the physical experience of generating content on smartphones (vs. PCs) enhances the use of emotional language in reviews (Melamud et al. 2015), which increases review favorability (Ludwig et al. 2013). Melamud et al. (2015) argue that using a smartphone (vs. PC) is more cognitively taxing because of its smaller features (smaller screen and keyboard), which leads users to engage in more emotional processing. Research on the cognition of experts show that experts require less cognitive effort than novices to perform at comparable levels in their domain-specific tasks (Alba & Hutchinson 1987). In light of this difference, we predict that experts are less influenced – use less emotional language and hence receive less benefit – when generating reviews on smartphones (vs. PCs).

In Study 4, analyzing reviews from tripadvisor.com (same dataset used in Study 2), we find that expert users generate more helpful reviews ($\beta = 0.043$, $p < .001$). However, the effect of reviewer expertise is not consistent across device types ($\beta = -0.061$, $p < .001$). On desktop computers, experts generate more helpful reviews ($\beta = 0.045$, $p < .001$). However, on mobile devices, novices generate more helpful reviews ($\beta = -0.037$, $p < .05$). This reverse effect is driven by asymmetric changes in review quality (review depth and photos) and review emotionality (sentiment and rating).

Study 5, an experiment (N=190) with 2 expertise label (“expert” vs. “novice”) x 2 device label (“via mobile” vs. “via desktop”) x 3 quality (low, medium, high) between-subjects design, examines the role of labels and quality on review *helpfulness*. Results show no significant effect of labels, but a significant positive effect of quality ($F(1, 183) = 5.37$, $p = .02$). We conclude that observed effects of expertise and mobile, as found in Study 4, are driven not even in part by associated labels, but rather purely by the changes in review content that derive from the ability developed as an expert user and the physical experience of generating reviews on smartphones.

To conclude, this research unravels instances where novice users are “better” than expert users: (1) novices have more impact on shifting user rating averages that are low-to-moderate, which is driven by their polarizing evaluation approach, and (2) novices generate more helpful reviews on mobile devices, which is driven by asymmetric changes in review quality and review emotionality when generating reviews on smartphones (vs. PC). These findings are especially important to firms as consumers move away from traditional offline media and towards online digital media where user-generated content plays an increasingly larger role in shaping consumer choice.

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1.4 Goals and Motivation: Self-Control Individual Papers

Giving into temptation when thinking about money: Money, time, and self-control

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Consumers constantly face self-control dilemmas when choosing an indulgent snack vs. a healthy snack, staying home to watch a TV show vs. going to the gym to work out, and receiving a smaller sooner reward vs. a larger later reward (Dhar & Wertenbroch, 2012; Loewenstein, 1996; Trope & Fishbach, 2000; Vohs, Baumeister, & Schmeichel, 2012). The failure of self-control can lead to many social and personal problems such as drug addiction, obesity, and infidelity (Haws & Winterich, 2013; Loewenstein, 1996). Although considerable research has studied various factors that can impact self-control (Dalton & Spiller, 2012; Fedorikhin & Patrick, 2010; McFerran et al., 2010; Gollwitzer, 1999; Mukhopadhyay et al., 2008; Nikolova, Lambertson, & Haws, 2016), interestingly, no prior work has investigated how thinking about money versus time impacts self-control. This is an important omission because money and time are two of the most valuable resources for consumers, and self-control is central to consumer decision.

In this investigation, we explore whether thinking about money rather than time impairs self-control. Emerging research has begun to reveal that thoughts about money promote self-interested preferences. For example, merely thinking about money makes people commit more self-interested, immoral acts than thinking about time (Gino & Mogilner, 2014); exposure to a large amount of money leads people to cheat more for financial gain (Gino & Pierce, 2009); or activating thoughts about money leads people to focus on acquiring possessions (Mogilner & Aaker, 2009). Extending these findings, we propose that when consumers think about money rather than time, they are more likely to lose self-control, because they experience a hot state. Prior work supports our proposed link between money and the hot system. In particular, money itself is an object of desire and serves as a strong driving force and incentive that is similar to drug (Lea & Webley, 2006). Relatedly, money can elicit strong affective responses such as greed and desire for greater enjoyment (Gneezy, 2005; Plassmann et al., 2008). Building on these findings, we predict that thinking about money is likely to activate the hot system that is affect-driven. In contrast, we expect that thinking about time is likely to activate the cool system that is more rational, because existing research suggest that thinking about time leads to greater reflection about the self (Gino & Mogilner, 2014; Mogilner & Aaker, 2009) and reflection about life satisfaction (Fredrickson & Carstensen, 1990). Taken together, we suggest that thinking about money (vs. time) will lower people's self-control by eliciting the hot state (vs. the cool state).

Four studies were conducted to test this hypothesis. In Study 1, participants were asked to find songs that have lyrics pertaining to either money or time (Gino & Mogilner, 2014). Next, they read a scenario about being invited to a dinner at a friend's place and choosing between two dessert options—triple chocolate cake and a bowl of fresh fruit (Kivetz & Keinan, 2006; Shiv & Fedorikhin, 1999). To capture reliance on the hot/cool system, we recorded participants' response time to indicating preference. The results showed that participants in the money condition reported a stronger preference for the triple chocolate cake and responded more rapidly

than those in the time condition. Importantly, mediation analyses revealed that response time mediates the effect of money on dessert preference.

In Study 2, participants in the money condition indicated how much money they had spent on five items in US dollars. Participants in the time condition indicated how much time they had spent on five items (Mogilner & Aaker, 2009). Next, participants evaluated ten words associated with temptations and ten neutral words (Fujita et al., 2006). Our analysis revealed a significant interaction between thought type and word type: Participants in the money condition were more positive toward temptations compared with those in the time condition; however, there was no difference in the evaluations of non-temptations.

In Study 3, we asked participants to first solve twenty math problems either with money units or time units. They then imagined that while they were getting ready to go to the gym to stay fit as planned, they received a phone call from their friend who invited them to hang out with some other friends. Participants rated how bad they would feel if they did not work out (Fujita et al., 2006). Our analysis revealed that participants in the money condition reported a lower level of feeling bad about not working out compared to those in the time condition.

In Study 4, we employed a real choice between a smaller, sooner (SS) reward and a larger, later (LL) reward. We also adapted a measure of decision basis (Shiv & Fedorikhin, 1999) to assess the reliance on the hot vs. cool system. Participants first completed the same song-search task as in Study 1. They were then informed that at the end of the study, they would be entered into a lottery with the option of receiving \$25 tomorrow (SS) or \$35 in a month (LL). Participants indicated their choice and preference. They also rated to what extent their decision was driven by “My prudent self (1)/My impulsive self (7)”; “The rational side of me (1)/The emotional side of me (7)”; and “My head (1)/My heart (7)” (Puri, 1996; Shiv & Fedorikhin, 1999; $\alpha=0.93$). Our analysis showed that a significantly greater percentage of participants in the money condition preferred the smaller, sooner reward (\$25 tomorrow) compared with those in the time condition, and the pattern of relative preference is consistent with participants’ binary choice. For Decision Basis, participants in the money condition rated their choices as having been driven more by affective responses than in the time condition. Further, mediation analyses revealed that Decision Basis mediates the effect of money on reward preference.

Does money lead people to give into temptation? Our findings provide an answer to this question by showing that merely thinking about money can make people behave more impulsively based on their hot desires rather than rationality.

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Table 1. Analyses from Study 1: Preference and Response Time

	Condition	Mean	SD	<i>t</i>	<i>p</i>
Dessert preference	Money	4.12	3.51	<i>t</i> (283) = 2.08	.038
	Time	5.05	3.99		
Response time	Money	2.95	1.42	<i>t</i> (283) = 1.72	.086
	Time	4.13	7.86		

Note. Smaller numbers in Dessert Preference represent greater preferences for the triple chocolate cake.

Table 2. Analyses from Study 3: Level of Feeling Bad about Not Working Out

	Condition	Mean	SD	<i>t</i>	<i>p</i>
Level of feeling bad	Money	3.77	1.62	<i>t</i> (137) = 3.01	.003
	Time	4.59	1.56		

Table 3. Analyses from Study 4: Reward Choice/Preference and Decision Basis

	Condition	Percentage	Chi-square	<i>p</i>	
% of choosing the SS option	Money	50%	$\chi^2(N=199) = 4.71$.023	
	Time	34%			
	Condition	Mean	SD	<i>t</i>	<i>p</i>
Reward Preference	Money	4.12	2.28	<i>t</i> (197) = -2.37	.019
	Time	4.86	2.11		
Decision Basis	Money	3.06	1.83	<i>t</i> (197) = 2.27	.024
	Time	2.49	1.69		

Note. Smaller numbers in Reward Preference represent greater preferences for the SS option.

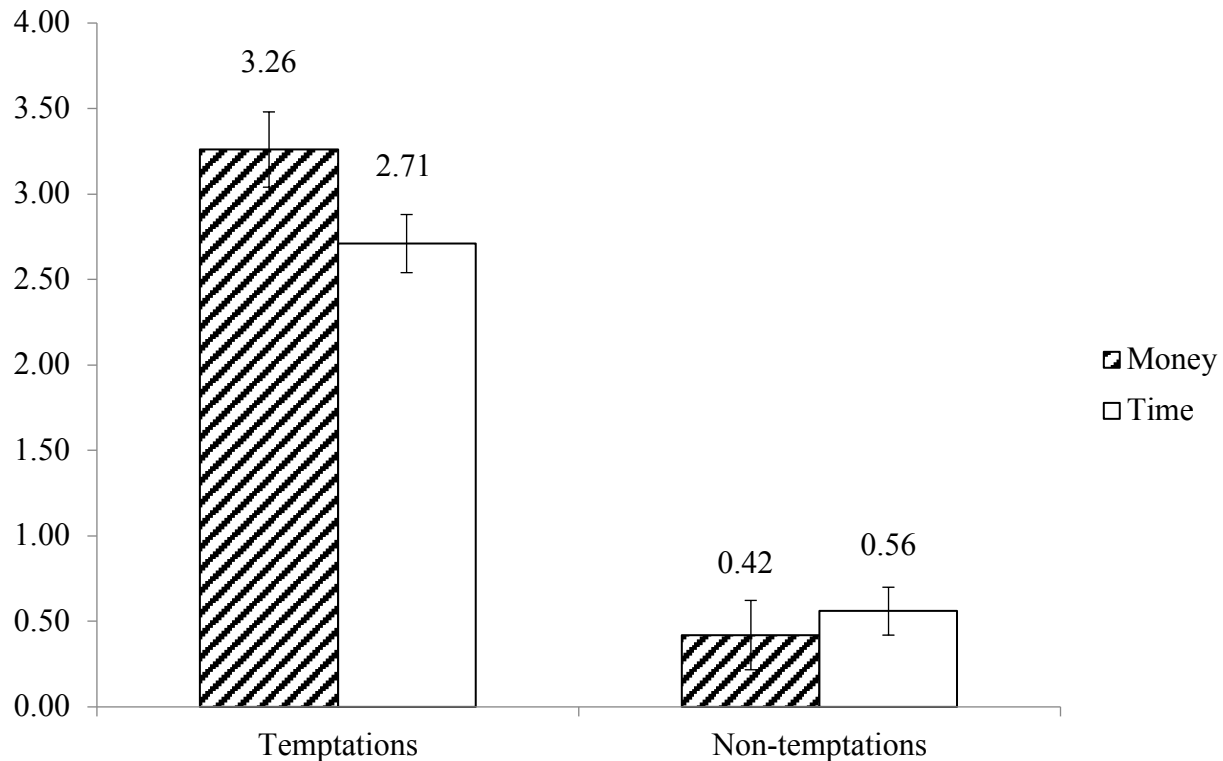


Fig 1. Evaluations for temptations vs. non-temptations in Study 2

Consumers' Satisfaction with Restraint versus Indulgence Depends on Reliance on Reason versus Feelings in Decision Making

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Self-control has been treated as a panacea for a wide range of social and personal problems, such as overspending, overeating, smoking, and alcohol abuse (Baumeister, Vohs, & Tice, 2007). However, research on the phenomenology of self-control – i.e., how exerting self-control is perceived from the first-person perspective – is surprisingly scarce and rather inconclusive. Whereas some research suggests that resisting a temptation has a positive influence on the self (Dhar & Wertenbroch, 2012; Touré-Tillery & Fishbach, 2015), other research suggests that self-control can be aversive and undermine subjective well-being (Keinan & Kivetz, 2008; Kivetz & Keinan, 2006). Our research reconciles these conflicting findings by advancing an individual differences approach. We argue that decision satisfaction with restraint (vs. indulgence) is contingent on lay rationalism, i.e., “the relative weight people place on reason versus feelings in decisions that involve trade-offs between the two factors” (Hsee, Yang, Zheng, & Wang, 2015, p. 135).

We propose that for consumers high in lay rationalism, resisting temptation may induce higher decision satisfaction because it resonates with their tendency “to do what they think they should do” (Hsee et al., 2015, p.143). Several lines of research suggest that self-control is

ascribed to rational processing (Schmeichel, Caskey, & Hicks, 2015) and is perceived as normative (Joffe & Staerklé, 2007), moral (Mooijman et al., 2017), and socially desirable (Righetti & Finkenauer, 2011). In contrast, for consumers low in lay rationalism, indulging temptation may induce higher decision satisfaction because it resonates with their tendency “to do what they want or like to do” (Hsee et al., 2015, p.143). Anecdotal evidence from songs, movies and other cultural products suggests that losing self-control is associated more with passion (e.g., in romantic relationships; Van Steenbergen, Langeslag, Band, & Hommel, 2014) and less so with cold calculation (for a review, see Pham, 2007). Therefore, we expected restraint to induce higher decision satisfaction than indulgence among individuals high in lay rationalism, but lower decision satisfaction among individuals low in lay rationalism. In addition, we propose that the mechanism underlying this effect on decision satisfaction is authenticity – the experience of being aligned with one’s true self (Sedikides, Slabu, Lenton, & Thomaes, 2017).

In Study 1 ($N = 265$), we first assessed individual differences in lay rationalism ($\alpha = .80$; Hsee et al., 2015). We then asked participants to imagine experiencing a conflict between the desire to buy a cheesecake and the conflicting personal goal to lose weight, and randomly assigned them to imagine either buying it (indulgence) or not (restraint). We then asked them to assess their anticipated satisfaction with their decision (single item). As predicted, restraint (vs. indulgence) yielded lower anticipated decision satisfaction among consumers low in lay rationalism but higher anticipated decision satisfaction among consumers high in lay rationalism, $B = 1.01$, $SE = 0.23$, $p < .001$ (Fig. 1).

Study 2 ($N = 252$) replicated Study 1 in another consumer domain (a conflict between the desire to buy a sweater and the conflicting personal goal to save money) and further examined the underlying mechanism (authenticity). We measured state authenticity ($\alpha = .91$), that is, authenticity in a specific situation (Kifer, Heller, Perunovic, & Galinsky, 2013), decision satisfaction (single item), and lay rationalism ($\alpha = .77$). Results for decision satisfaction showed the same interaction pattern as in Study 1, $B = 1.22$, $SE = 0.23$, $p < .001$ (Fig. 2). Moreover, a moderated mediation analysis (model 8; Hayes, 2013) revealed that the interaction effect was mediated by authenticity, 95% CI = [.269, .673]. Consumers low (high) in lay rationalism were less satisfied with restraint (indulgence) because this decision made them feel less authentic.

Study 3 ($N = 403$) tested whether this effect generalizes to real-life consumer conflicts. We asked participants to recall the most recent self-control conflict they had experienced in a shopping context and report whether they resolved this conflict by buying (indulgence) or not buying (restraint) the desired item. We then measured authenticity ($\alpha = .88$), decision satisfaction, and lay rationalism ($\alpha = .79$). Results for decision satisfaction showed the same interaction pattern between decision and lay rationalism, $B = 0.61$, $SE = 0.19$, $p = .001$ (Fig. 3). The moderated mediation through authenticity was also statistically significant, 95% CI = [.212, .582]. Thus, the proposed effect does not concern only anticipated satisfaction with hypothetical decisions but also satisfaction with past decisions in real-life consumer conflicts.

Finally, Study 4 ($N = 396$) provided evidence about the causal role of lay rationalism by experimentally manipulating reliance on reason versus feelings in decision making with a technique used in prior research (Avnet, Pham, & Stephen, 2012; May, 2017). Participants were assigned either to an indulgence or a restraint condition (cheesecake scenario of Study 1), and filled out the same measures of state authenticity ($\alpha = .89$) and decision satisfaction. A 2 (reason vs. feelings) \times 2 (indulgence vs. restraint) ANOVA with decision satisfaction as dependent variable showed a significant interaction, $F(1, 392) = 5.45$, $p = .020$ (Fig. 4). Among participants in the reason condition, the decision to resist ($M = 5.41$, $SD = 1.62$) induced higher satisfaction

than the decision to indulge ($M = 4.07$, $SD = 2.02$), $F(1, 392) = 26.09$, $p < .001$. In the feelings condition, there were no differences between indulgence ($M = 4.58$, $SD = 1.98$) and restraint ($M = 5.03$, $SD = 1.97$), $F(1, 392) = 2.67$, $p = .10$. The moderated mediation through authenticity was again significant, 95% CI = [0.053, 0.964].

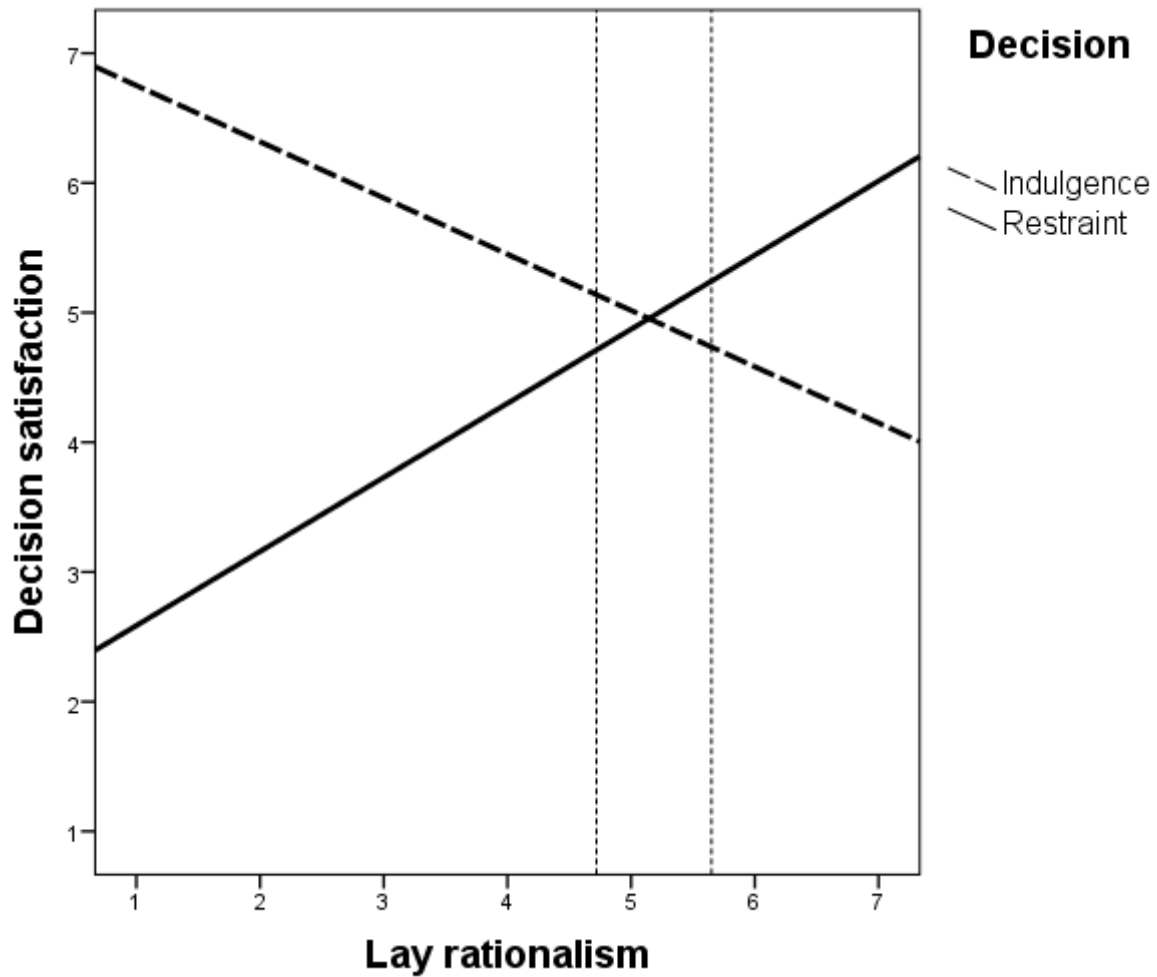
Our research provides a unifying theoretical framework explaining when restraint versus indulgence increases consumers' satisfaction with their decisions. By linking self-control to the self-concept, we show that self-control should not only be viewed as a capacity but also as part of consumers' identities. This more nuanced view of self-control adds to the largely understudied downsides of self-control and reveals that exerting self-control is experienced by some consumers as alienating, which may undermine consumer welfare. This has implications for contexts where self-control is primarily viewed through a normative lens, such as policy making and self-control interventions.

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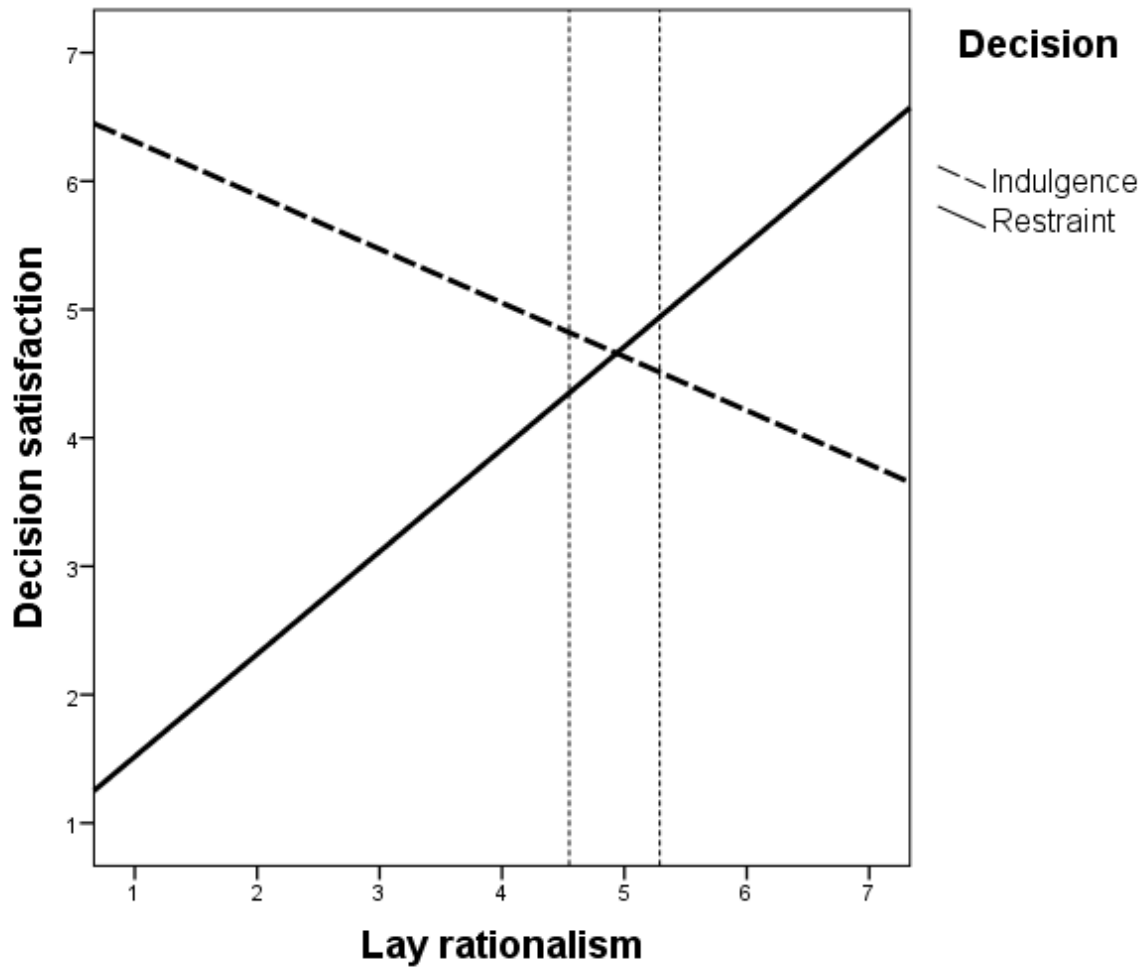
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Figure 1. Decision satisfaction as a function of decision (indulgence vs. restraint) and lay rationalism ($M = 4.98$, $SD = 0.91$, $min = 1.50$, $max = 7.00$) in Study 1.



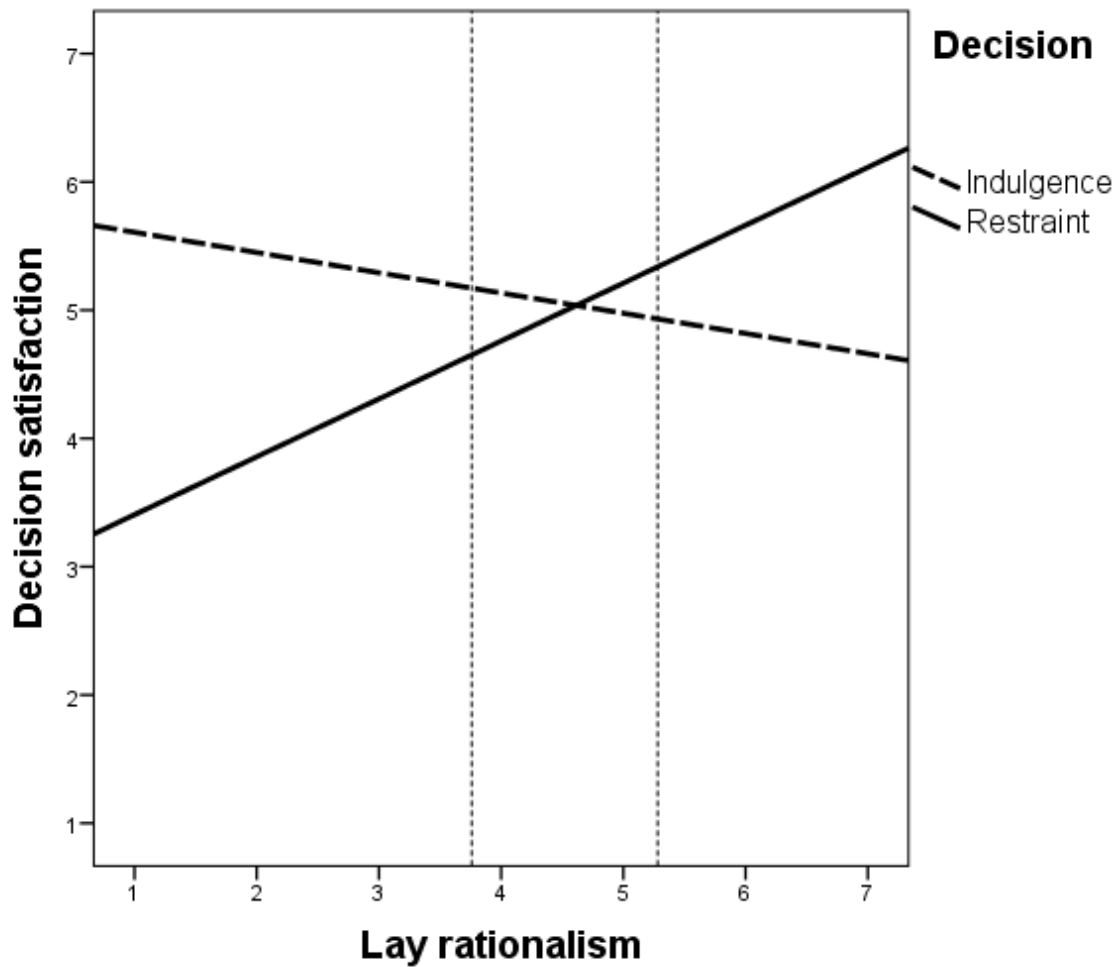
Note. The dotted vertical lines indicate the Johnson-Neyman points. Differences between the decision conditions are statistically significant ($p \leq .05$) at lay rationalism scores left and right of these points. Slopes: Indulgence, $B = -0.43$, $SE = 0.16$, $p = .007$; Restraint, $B = 0.57$, $SE = 0.17$, $p = .001$.

Figure 2. Decision satisfaction as a function of decision (indulgence vs. restraint) and lay rationalism ($M = 5.04$, $SD = 0.93$, $min = 2.00$, $max = 7.00$) in Study 2.



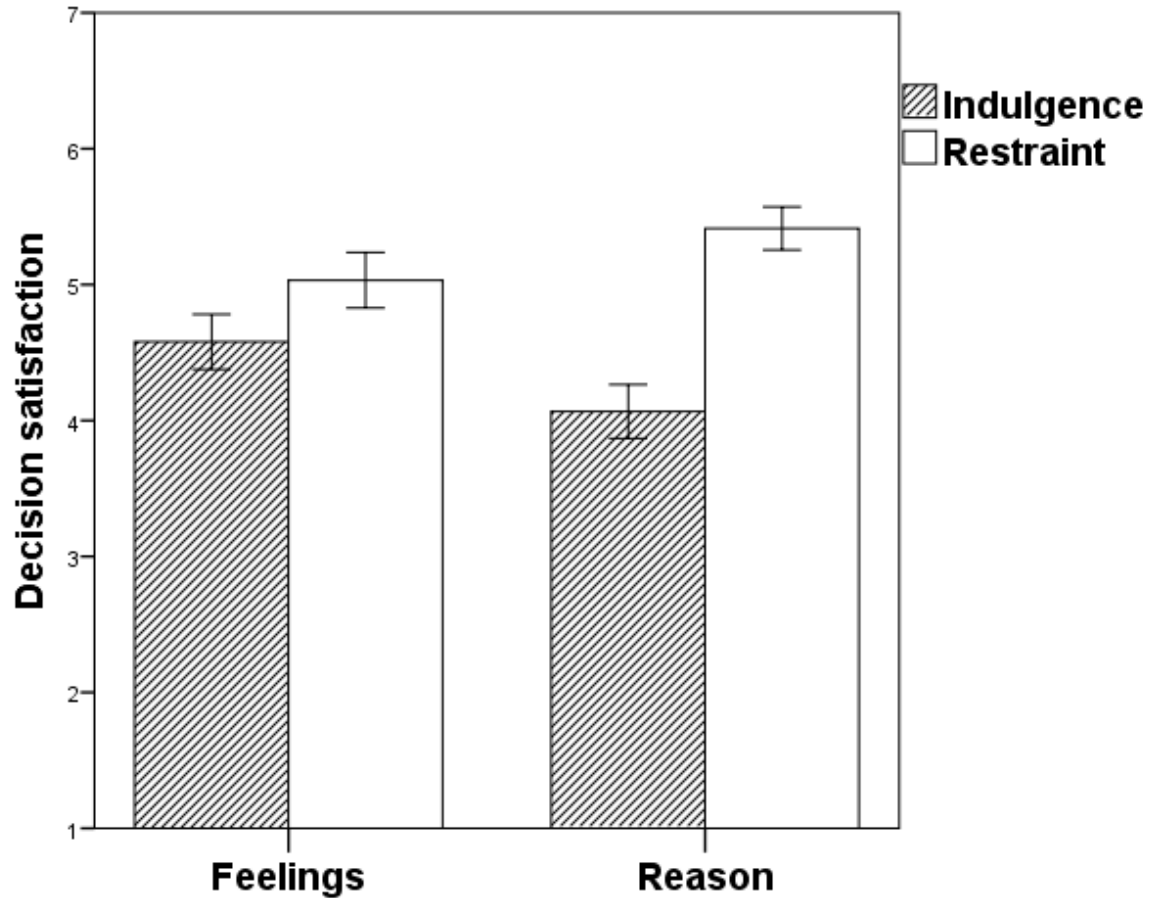
Note. The dotted vertical lines indicate the Johnson-Neyman points. Differences between the decision conditions are statistically significant ($p \leq .05$) at lay rationalism scores left and right of these points. Slopes: Indulgence, $B = -0.42$, $SE = 0.15$, $p = .005$; Restraint, $B = 0.80$, $SE = 0.17$, $p < .001$.

Figure 3. Decision satisfaction as a function of decision (indulgence vs. restraint) and lay rationalism ($M = 4.96$, $SD = 0.95$, $min = 2.00$, $max = 7.00$) in Study 3.



Note. The dotted vertical lines indicate the Johnson-Neyman points. Differences between the conditions are statistically significant ($p \leq .05$) at lay rationalism scores left and right of these points. Slopes: Indulgence, $B = -0.16$, $SE = 0.16$, $p = .32$; Restraint, $B = 0.45$, $SE = 0.11$, $p < .001$.

Figure 4. Decision satisfaction as a function of decision (indulgence vs. restraint) and lay rationalism (feelings vs. reason) in Study 4.



Note. Error bars represent standard errors of the mean.

How consuming sequences of vices and virtues influence experience

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Previous research has paid much attention to how people make trade-offs between vices and virtues (Laran, 2010; Romero & Biswas, 2016) and how people evaluate vices and virtues when they are combined versus separated (Chernev & Gal, 2010; Liu, Haws, Lambertson, Campbell, & Fitzsimons, 2015). In the context of consuming both vices and virtues within one consumption episode, this research examines how the sequence of consuming vices and virtues shapes consumers' overall experience.

Drawing on guilt-reducing justifications framework (Khan & Dhar, 2007, 2010; Mishra & Mishra, 2011), we propose that people would get better experience with the overall consumption when they follow the “vice first and virtue later” sequence (i.e., abbreviated as vice→virtue hereby), compared with the “virtue first and vice later” sequence (i.e., abbreviated as virtue→vice hereby). We reason that the vice→virtue sequence and the virtue→vice sequence are associated with different routes to reconcile self-control conflicts. Specifically, the vice→virtue sequence represents a process of “remission of sins”. By consuming a virtue after having a vice, people can justify their guilt induced by previously consumed vice effectively, thereby going through a decreasing trend of self-control conflicts, which leads to better overall experience. In contrast, the virtue→vice sequence represents a process of “intended indulgence”. When people consume a virtue first, they experience no self-control conflict and obtain a precommitment to indulge subsequently. Even though the previously consumed virtue could license people to indulge, it turned out to not be able to justify guilt effectively. Nevertheless, the “intended” indulgence is still a vice. Thus, consuming in the virtue→vice sequence, people go through an increasing trend of self-control conflicts, which impairs their overall experience.

In sum, the results show that consumers have better overall experience (studies 1, 2, and 3b), and value the consumption experience more (studies 3a and 4) by having a virtue after a vice (vice→virtue) than by having them in a reversed sequence (virtue→vice). Study 2 showed that the perceived effectiveness of the virtue in justifying guilt mediates the sequence effect, and the sequence effect happens only among people with strong goal strength. This effect disappears among people with weak goal strength (study 2), when the vice has been manipulated as less vicious (studies 3a and 3b), and when vices and virtues in the bundle are perceived as isolated (study 4). In addition, across five studies, the results demonstrate that neither underestimated calorie estimation in the vice-virtue sequence, nor priori preference, nor primacy/recency effect could possibly explain the sequence effect.

Specifically, study 1 ($N = 71$) adopted a two-cell between-subject design. Participants in the vice→virtue condition were told to imagine they first eat a piece of cheesecake and then eat a green salad, while participants in the virtue→vice condition were asked to imagine they eat the same meal in the reversed order. The results showed that participants who ate in the vice→virtue (vs. virtue→vice) sequence were more satisfied with the entire meal, ($t(69) = 2.01, p < .05$) (see table 1 for cell means). Besides, there was no significant difference in the estimated calories of the entire meal between the two sequences ($t(69) = -.46, p = .65$), which demonstrate that the sequence effect can hardly be explained by the underestimated calorie contents of the entire meal following the sequence of vice→virtue. To rule out the alternative explanation of priori preference, a different set of participants ($N = 130$) from the same population indicated which sequence they prefer to have the meal. A binominal test showed that the choice rate is not significantly different from 50% ($p = .25$), which indicated that there was no dominated preference of eating sequence.

Study 2 ($N = 100$) conducted a two-cell between-subject design in real settings using similar procedure as in study 1. After they finished eating the same meal consisted of pieces of fried chickens and cucumbers in the assigned sequences, participants rated their satisfaction with their overall experience, their perceived effectiveness of the cucumbers in justifying guilt, and their dieting goal strength (all on 7-point scales). It replicated the sequence effect found in study 1 that it was more satisfying by eating in the sequence of vice→virtue (vs. virtue→vice) ($t(98) = 4.10, p < .001$). Given the fact that people with weak (vs. strong) dieting goal are less likely to experience self-control conflicts in food domain, we predicted that the sequence effect would be

less pronounced with weak (vs. strong) dieting goal. A floodlight analysis using the Johnson-Neyman technique (Spiller et al., 2013) showed that the sequence effect was significant only among participants with strength of dieting goal higher than 4.23. A mediation analysis (Hayes 2013, model 4) showed that the indirect effect of eating sequence on overall satisfaction via perceived justification effectiveness was significant (-.64, 95% CI: -1.22, -.24). In addition, incorporating dieting goal strength as the moderator and perceived justification effectiveness as the mediator, a moderated mediation (Hayes 2013, model 8) was also significant (-.18, 95% CI: -.40, -.03).

Study 3a (N= 243) and 3b (N= 151) adopted a 2 (sequence: vice→virtue vs. virtue→vice) × 2 (viciousness: strong vs. weak) between-subjects design. The strong vice condition is similar to studies 1 and 2, while in the weak vice condition, we described the cheesecake as made by zero-fat milk. By manipulating the vice as a weak vice, there should be no need to justify guilt in either sequence, which in turn eliminates the sequence effect. Studies 3a and 3b differed only in scenario settings and measurement of overall experience. 2 × 2 ANOVA yield significant main effect of sequence and interaction of sequence and viciousness on overall experience, p s < .05. Simple effects analysis showed that both studies replicated the sequence effect in the strong vice condition, where participants in the vice→virtue (vs. virtue→vice) condition valued the entire meal more, $F(1, 208) = 5.85, p = .02$, and felt more satisfied with the overall experience, $F(1, 147) = 8.34, p < .001$. While in the weak vice condition, where the vice food was no longer vicious and did not need to be justified anymore, there was no difference between different sequences, p s > .10.

Study 4 (N=244) involved a 2 (Processing style: holistic vs. piecemeal) × 2 (Sequence: vice→virtue vs. virtue→vice) between-subjects design. We proposed that piecemeal processing undermines the sequence effect documented in previous studies in that people can hardly form an overall impression of the vice/virtue combination, which in turn inhibit the virtue from justifying guilt induced by the vice. This moderator (the processing type) sought to demonstrate the proposed process, and rule out the alternative explanations of the primacy-recency effect and the peak-end rule. If primacy or recency effect is the underlying mechanism, we should find similar sequence effect regardless of processing style. The scenario setting and the manipulation of sequence was identical to study 1. After that, we manipulated processing style based on Chernev and Gal (2010). In holistic condition, participants estimated the calorie content of the entire meal, while in piecemeal condition, participants estimated the salad and the cheesecake individually. Finally, all the participants were asked to indicate their perceived value for the entire meal in terms of money. Perceived value was log-transformed for subsequent analysis to correct for non-normality (Kolmogorov-Smirnov test statistic: .20, $p < .00$). A 2 × 2 ANOVA on perceived value for the entire meal yielded a marginally significant main effect of the sequence, $F(1, 240) = 3.76, p = .05$. Although the interaction of sequence and processing style was not significant, $F(1, 240) = 1.75, p = .19$, the simple effects supported our prediction. In the holistic condition, the vice→virtue (vs. virtue→vice) sequence led to higher perceived value for the entire meal $F(1, 240) = 5.51, p = .02$. However, in the piecemeal condition, the difference in perceived value between the two sequences disappeared, $F(1, 204) = .18, p = .67$.

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Table 1 Summary of results of all studies about the overall experience

	Study 1		Study 2	
	viceàvirtue	virtueàvice	viceàvirtue	virtueàvice
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Satisfaction	5.35	4.7	5.54	4.58
	1.15	1.53	1.18	1.16

	Study 3a				Study 3b			
	Strong vice		Weak vice		Strong vice		Weak vice	
	viceàvirtue	virtueàvice	viceàvirtue	virtueàvice	viceàvirtue	virtueàvice	viceàvirtue	virtueàvice
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Satisfaction	/	/	/	/	5.51	4.48	5.62	5.73
					0.98	2.08	1.52	1.37
Perceived value	3.47	3.24	3.25	3.25				
	0.64	0.43	0.43	0.47				

	Study 4			
	Holistic		Piecemeal	
	viceàvirtue	virtueàvice	viceàvirtue	virtueàvice
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Perceived value	3.32	3.16	3.28	3.24

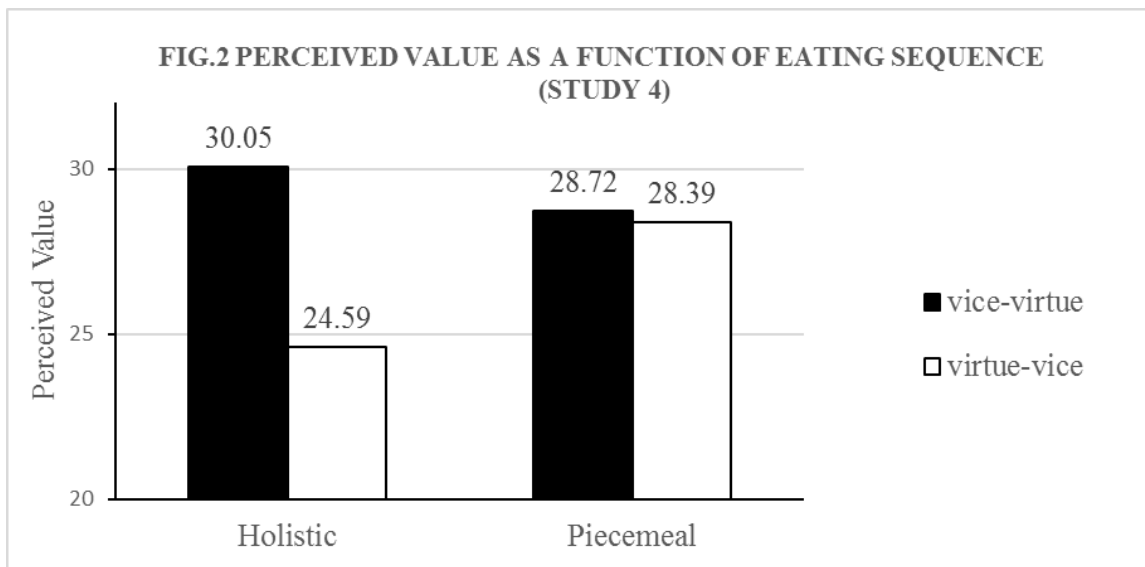
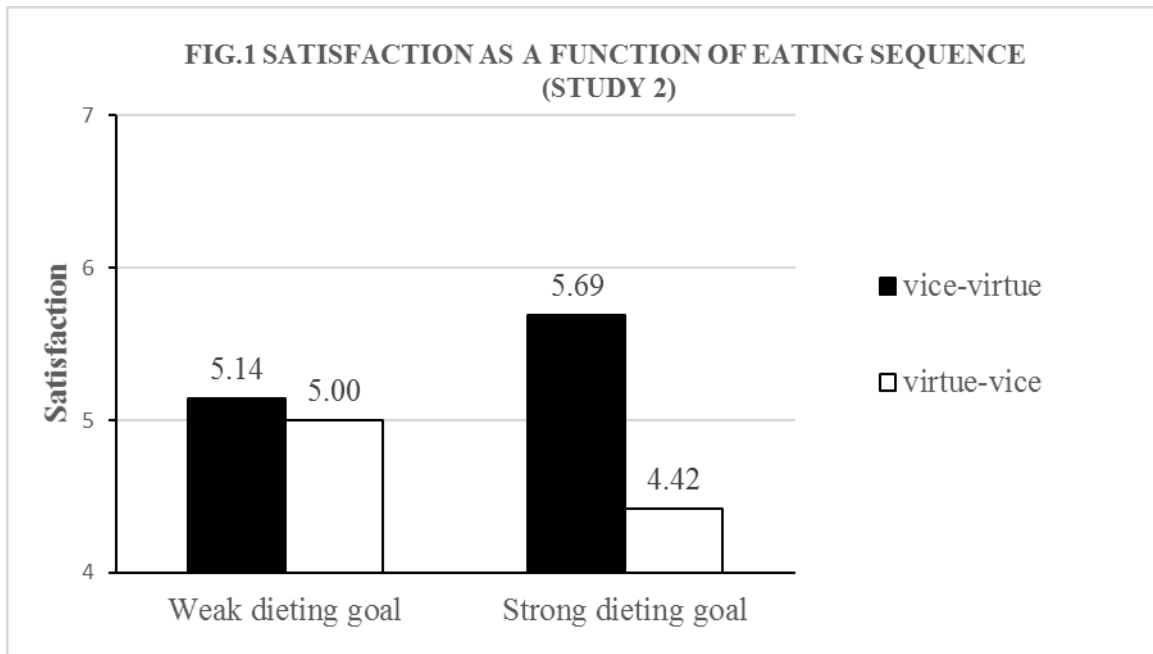
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Figures



To Commit to Yourself, Commit to Others: Using Precommitment to Protect Personal Goals from Relationship Goal Conflict

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Consumers pursue personal goals within a complex social environment rife with opportunities for goal conflict (Fitzsimons, Finkel, & vanDellen, 2015). Even when consumers are motivated to adhere to their goals, relationship partners' goals regularly compete for and claim the same resources (Laurin et al. 2016). How can consumers adhere to valued personal goals when they experience such conflict?

Extant research shows that precommitment, a self-regulatory strategy that increases the cost of future goal failure, can increase adherence to personal goals when consumers experience conflicting desires (Kivetz & Simonson, 2002; Schwartz et al., 2014). The consequences of a precommitment can affect the self (e.g., the cost of a nonrefundable event ticket) as well as other people (e.g., committing to attend an event with a friend). Prior work, however, examines precommitment in the context of self-control conflict between proximal temptations and more distal goals (Milkman, Minson, & Volpp, 2014; Peysakhovich, 2014; Wertenbroch, Vosgerau, & Bruyneel, 2008). It is unclear how precommitment will function for relationship goal conflict between the competing desires to adhere to a personal goal or support a relationship partner's goal (e.g., sticking to one's plan to go to the gym vs. attending an event to support a friend).

We propose that in these circumstances, precommitments that affect the self will be less effective than precommitments that have consequences for other people (i.e., when another person is negatively affected by goal failure). The relationship goal conflict we consider pits a self-oriented personal goal against the relational goal to support another person, whereby adhering to the personal goal entails choosing self-interest over the interests of a relationship partner. Such choices produce the aversive feeling of selfishness (Berman & Small, 2012; Roux, Goldsmith, & Bonezzi, 2015). Because precommitment with consequences for others ties personal goal adherence to protecting the interests of other people, it should make consumers feel less selfish for pursuing the personal goal. Therefore, precommitment with consequences for others (vs. just the self) should be especially effective at protecting personal goals from relationship goal conflict.

Four studies tested these predictions. Study 1 piloted our predictions in a field setting with real precommitments. Students made one of two precommitments to the goal of attending a research study for payment: financial precommitment with consequences for the self (\$1 deposit, forfeited for missed appointments) vs. social precommitment with consequences for another person (missed appointments would harm the researcher's project). We recruited participants in advance for Saturday appointments, when a pretest indicated that impromptu relationship conflicts (i.e., requests from friends and classmates) were likely to occur. As predicted, the social precommitment with consequences for others increased adherence to the personal goal of attending the study (100%*other-affected* vs. 53.1%*self-affected*).

Study 2 tested our theory with both mediation and moderation in a more controlled setting. Participants read that they had a personal fitness goal and one of three precommitments to attend a fitness class: control, self-affected financial (prepaid class), or other-affected social (plans to go with a friend). The conflicting goal was an event that either they wanted to attend (personal) or a friend wanted them to attend (relationship). Results revealed an interaction ($p = .035$). As predicted, for relationship goal conflict, other-affected precommitment increased goal adherence (72.5%) compared to self-affected financial precommitment (56.8%) and a control (25.2%; figure 1). However, when conflict was between two personal goals, the other-affected precommitment was no

longer more effective (67.2%*other-affected* vs. 68.6%*self-affected*). Further, supporting our theory, for relationship (but not personal) conflict, reduced selfishness mediated the effect of other- vs. self-affected precommitment on goal adherence.

Studies 1 and 2 provide evidence that other-affected social precommitment was more effective against relationship-goal conflict than self-affected financial precommitment. However, the other-affected precommitments also differed on the dimension of being visible to other people. In studies 3a and 3b, we use only financial precommitments that are socially invisible and vary who is affected to demonstrate that it is consequences for others—and not the type of consequence or social visibility—that drives the effect.

In study 3a, we compared the effect of socially invisible financial precommitments that affect the self versus others across personal and relationship goal conflicts. Participants had a fitness goal and a precommitment that either affected themselves (prepaid with your own money) or another person (prepaid by a friend who “won’t know whether you go to the class or skip it”). Participants then read about a personal vs. relationship conflict to attend an event. Results revealed an interaction ($p = .039$). As predicted, for relationship goal conflict, the other-affected precommitment increased goal adherence (84.7%) compared to the self-affected precommitment (64.3%; figure 2), mediated by selfishness. However, when conflict was between two personal goals, the other-affected precommitment no longer proved most effective (70.8%*other-affected* vs. 71.4%*self-affected*).

In study 3b we replicated this effect using financial precommitments in which the financial costs to the self were held constant and no aspect of either precommitment was socially visible. We also pitted a hedonic personal goal (attend a fun event) against a utilitarian interpersonal conflict (request to help a friend move) to see if the effect generalizes when the personal goal is harder to justify (Okada, 2005). In addition to a control, participants had a financial precommitment to attend an event that either affected the self (prepaid \$20 ticket) or another, unaware person (prepaid \$20 ticket, plus a bonus ticket to surprise a friend with). As predicted, the other-affected precommitment (84.4%) increased goal adherence compared to the self-affected precommitment (41.2%) and control (31.9%), and this effect was again mediated by reduced selfishness.

In summary, we demonstrate that the effect of precommitments on boosting personal goal adherence depends on the nature of the conflicting goal. For relationship goal conflict, precommitments that affect another person are more effective at reducing selfishness and protecting personal goals. These findings offer novel insight into the psychological mechanisms that underlie precommitment and expand our understanding of a commonly experienced but understudied type of goal conflict. Further, we provide actionable insights to help consumers protect valued goals by crafting effective precommitments.

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TABLE OF KEY RESULTS

STUDY	KEY FINDINGS
Study 1: Field study	<ul style="list-style-type: none"> An other-affected social precommitment increased adherence to the personal goal of attending a research study compared to a self-affected financial precommitment (100%_{other-affected}, 53.1%_{self-affected}; $\chi^2(1) = 21.65, p < .001; N = 74$).
Study 2: The underlying role of selfishness	<ul style="list-style-type: none"> In the relationship goal conflict condition, an other-affected social precommitment increased goal adherence compared to a self-affected financial precommitment (72.5%_{other-affected}, 56.8%_{self-affected}; $\chi^2(1) = 7.90, p = .005$) and a control (25.2%_{control}; $\chi^2(1) = 66.29, p < .001; N = 862$). In the relationship condition, the other-affected (vs. self-affected) precommitment also reduced selfishness for adhering to the personal goal ($M_{\text{other-affected}} = 2.35$ vs. $M_{\text{self-affected}} = 3.46$; $F(1, 856) = 34.50, p < .001$). These effects were moderated by goal conflict type (goal adherence interaction $\beta = .76$, Wald $\chi^2(1) = 4.46, p = .035$; selfishness interaction $F(2, 856) = 33.84, p < .001$). In the personal goal conflict condition, precommitment type did not affect personal goal adherence (67.2%_{other-affected}, 68.6%_{self-}

	<p>affected; $\chi^2(1) = .062, p = .803$) or selfishness ($M_{other-affected} = 1.89, M_{self-affected} = 1.95; F < 1$).</p> <ul style="list-style-type: none"> • A moderated mediation analysis confirmed that selfishness drove the effect of other- (vs. self-) affected precommitment on goal adherence for relationship ($ab = .37; 95\% \text{ CI } .22 \text{ to } .53$), but not personal goal conflict ($ab = .001; 95\% \text{ CI } -.10 \text{ to } .09$).
<p>Study 3a: Financial precommitment across goal conflicts</p>	<ul style="list-style-type: none"> • In the relationship goal conflict condition, a socially invisible financial precommitment that affected another person increased personal goal adherence compared to a financial precommitment that affected only the self (84.7%_{other-affected}, 64.3%_{self-affected}; $\chi^2(1) = 7.83, p = .005; N = 277$). • In the relationship condition, the other-affected (vs. self-affected) precommitment also reduced selfishness for adhering to the personal goal ($M_{other-affected} = 2.08$ vs. $M_{self-affected} = 2.91; F(1, 273) = 19.64, p < .001$). • These effects were moderated by goal conflict type (goal adherence interaction $\beta = 1.16$, Wald $\chi^2(1) = 4.27, p = .039$; selfishness interaction $F(1, 273) = 5.73, p = .017$). • In the personal goal conflict condition, precommitment type did not affect personal goal adherence (70.8%_{other-affected}, 71.4%_{self-affected}; $\chi^2(1) < 1$) or selfishness ($M_{other-affected} = 2.08$ vs. $M_{self-affected} = 2.46; F(1, 273) = 2.02, p = .156$). • A moderated mediation analysis confirmed that selfishness drove the effect of other- (vs. self-) affected precommitment on goal adherence for relationship ($ab = .93, 95\% \text{ CI } .52 \text{ to } 1.43$), but not personal goal conflict ($ab = .78, 95\% \text{ CI } -.10 \text{ to } .70$).
<p>Study 3b: Socially invisible financial precommitments that affect the self vs. others</p>	<ul style="list-style-type: none"> • For relationship goal conflict (request to help a friend move), a socially invisible financial precommitment that affected another person increased adherence to the personal goal to attend an event compared to a self-affected precommitment that entailed the same financial consequences to the self (84.4%_{other-affected}, 41.2%_{self-affected}; $\beta = 2.05$, Wald $\chi^2(1) = 32.92, p < .001$) and a no-precommitment control (31.9%_{self-affected}; $\beta = 2.45$, Wald $\chi^2(1) = 44.45, p < .001; N = 278$). • This effect was driven by reduced selfishness ($M_{other-affected} = 4.01$ vs. $M_{self-affected} = 4.73, F(1, 275) = 7.29, p = .007$; mediation analysis $ab = .51, 95\% \text{ CI } .15 \text{ to } 1.00$).

FIGURE 1: OTHER-AFFECTED PRECOMMITMENT INCREASES PERSONAL GOAL ADHERENCE FOR RELATIONSHIP BUT NOT PERSONAL GOAL CONFLICT (STUDY 2)

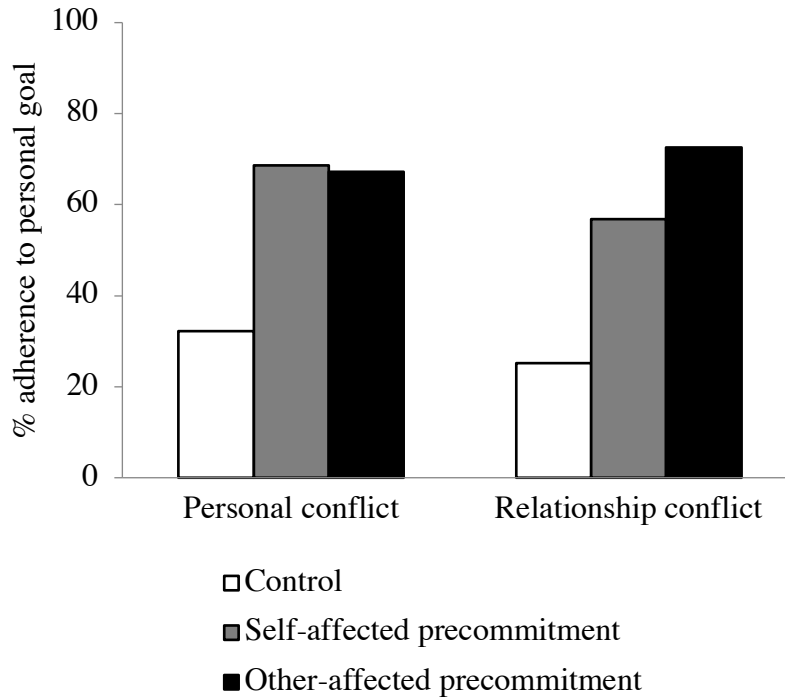
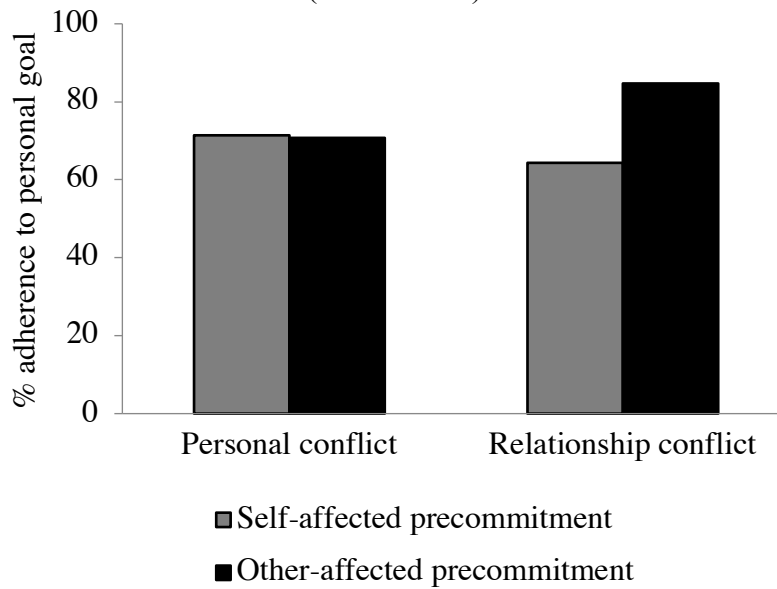


FIGURE 2: SOCIALLY INVISIBLE, OTHER-AFFECTED PRECOMMITMENT INCREASES PERSONAL GOAL ADHERENCE FOR RELATIONSHIP CONFLICT (STUDY 3A)



1.5 Health & Social Justice: Company and Charity Cause Related Marketing Individual Papers

When the Face of Need Backfires: The Impact of Facial Emotional Expression on the Effectiveness of Cause-Related Advertisements

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In cause-related marketing (CRM) advertisements that link the purchase of products to support for charitable causes, companies often display the image of a person in need, which varies in terms of facial emotional expression. Prior research on the effect of facial emotional expressions has shown that they can automatically trigger vicarious emotions in observers, i.e., emotional contagion (Hatfield et al. 1992). Indeed, in a non-profit charitable advertisement context, displaying an image of a sad-faced (vs. happy-faced) person in need elicited sadness (happiness) in viewers. The elicited sadness increased sympathy toward the person and increased donations (Small and Verrochi 2009).

We propose that an image of a sad-faced person in need in CRM advertisements will evoke a different process than it does for charity-based advertisements. Specifically, we propose an inferential process where consumers think about *why* the company used the image. Research suggests that consumers are sensitive to cues suggesting for-profit motives underlying CRM (Barone et al. 2007). We argue that use of an image of a sad-faced person in need is such a cue. Evidence from emotion research shows that people strategically express sadness to solicit help (Clark et al. 1996), suggesting that people may infer from a person's expression of sadness that the other is strategically expressing sadness. Thus, we hypothesize that the image of a sad-faced (vs. happy-faced and neutral-faced) person in need in a CRM advertisement reduces the effectiveness of the advertisement (H1) and that this effect is mediated by the perceived manipulateness of the advertisement (Campbell 1995) (H2).

Based on the manipulateness mechanism, we test two theoretically relevant moderators. The first factor is an individual difference variable reflecting the tendency toward disbelief of CRM claims, which we call skepticism towards CRM (adapted from Obermiller and Spangenberg 1998). More skeptical consumers are more likely to attribute a company's potentially suspicious act to the company's negative intent of misleading consumers. Thus, the negative effect of a sad-faced (vs. happy-faced or neutral-faced) person in need will be stronger for consumers who are more skeptical towards CRM (H3).

The second factor is a stimulus factor. We consider the moderating role of cause centrality (i.e., cause-focused vs. product-focused advertisement) (Chang 2011). Cause-focused (product-focused) ads feature the cause (e.g., image of person in need) at the focal (secondary) point and the promoted product at the secondary (focal) point. Consumers will perceive the stimulus at the focal point of an advertisement as the

company's main message, which the company chose to influence consumers. Thus, we expect that the negative effect of a sad-faced (vs. happy-faced or neutral-faced) person in need will be stronger in the cause-focused than in the product-focused ad (H4).

Study 1 tested H1 and H3. Participants viewed a CRM advertisement with either the image of a sad-faced or happy-faced child. The image of a sad-faced (vs. happy-faced) child reduced purchase intention, company evaluation, and company evaluation (H1). We found these effects to be the same across various levels of donation amounts (5%, 50%, and 100% of the profits). Moreover, the negative effect of sad (vs. happy) facial expression was significant only for participants with stronger skepticism towards CRM, supporting H3.

In study 2, we included a neutral facial expression condition. Consistent with H1, for company and campaign evaluations, participants in the sad condition evaluated the company less positively than those in the neutral and happy conditions. The difference between neutral and happy conditions was not significant. Also, participants in the sad condition showed the lower intention for positive WOM than those in the neutral and happy conditions. However, participants in the neutral and happy conditions did not differ. Moreover, company evaluation (not purchase intention) mediated the effect of facial expression on intention for positive WOM. This suggests that sad (vs. neutral and happy) facial expression lowered the company evaluation, which in turn lowered the intention for positive WOM about the company. Moreover, only perceived manipulateness served as a significant mediator of the effect of facial expression on purchase intention, and company and campaign evaluations. Empathy and perceived warmth and competence of the company did not serve as a significant mediator for any of the three dependent variables, although personal distress served as a significant mediator for purchase intention.

In study 3, we ruled out an alternative explanation based on perceived attractiveness using the images of the sad- and neutral-faced children that were evaluated equally attractive in a pretest. Consistent with H1, the main effect of facial expression on company and campaign evaluations was significant. Purchase intention was directionally lower in the sad than in the neutral condition.

In study 4, we tested H4 using a 2 (facial expression: happy vs. sad) x 2 (cause centrality: cause-focused vs. product focused) between-subjects design (N=192, undergraduates). Participants viewed a one-page CRM advertisement for 15 seconds to ensure no difference in processing of the information. For both company and campaign evaluations, the interaction between facial expression and cause centrality was significant. Consistent with H4, the negative effect of the sad-faced (vs. happy-faced) expression was larger in the cause-focused versus product-focused format. For purchase intention, the interaction effect between facial expression and ad format was not significant. However, purchase intention was significantly lower for the sad-faced than for the happy-faced condition in the cause-focused format, but not for the product-focused format, supporting H4. Perceived manipulateness of the advertisement was a significant mediator. Consistent

with our prediction, the size of the mediation effect was greater for the cause-focused than for the product-focused format.

Note that in studies 2, 3, and 4 we found effects on purchase intention to be less strong, compared to effects on company/campaign evaluations. A single-paper meta-analysis, however, indicated that the effect was significant for purchase intention. In sum, these findings adds to the literature on CRM, persuasion, and emotion by demonstrating that, in CRM context, the facial expression of a person in need can evoke the inferences of manipulative intent.

Featuring the Benefactor or the Victim? How Charity Advertisements with Different Protagonist Foci Affect Donation Behavior

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Charities often utilize different marketing strategies (e.g., using a charity appeal that describes the plight of the victim(s) or portrays a benefactor who rendered help) to attract donor attention and enhance donation. For example, Save the Children's website displays victims in need, whereas *Doctors Without Borders* features the extraordinary helping behaviors of volunteering doctors.

Despite the widespread use of both victims and benefactors in charity advertisements, bulk of the research has examined the effect of victim focused charity advertisements on helping behavior (e.g., Small, Loewenstein and Slovic 2007). What's more, recent work suggests that the effectiveness of victim focused charity advertisements may be compromised (Ein-Gar and Levontin 2013) or even backfire in certain situations (Lee, Winterich and Ross 2014). In the current research, we extend the literature on charity advertisement by introducing the benefactor focused charity appeals and show that benefactor focused charity ad can be effective in promoting charitable giving. Specifically, we propose that a benefactor focused charity advertisement elicits moral elevation—a warm, uplifting feeling people experience when observing others' helping behavior—which leads to greater helping behaviors by the observers (e.g., Haidt 2003).

Moreover, integrating charity advertisements with different protagonist foci with the social categorization theory, we examine when and why charity advertisements with benefactor versus victim focus would lead to different degrees of helping for different social groups. Prior research has shown that people are more willing to help their in-group members than out-group ones (e.g., Dovidio et al., 1997), leaving an important unanswered question: How can we offset the social categorization effect on donation and nudge people to donate more to out-group members. Though prior research has identified multiple individual factors such as gender or moral identity (Winterich, Mittal and Ross 2009) that can promote donations for out-group beneficiaries, it is critical to examine other variables that can be altered in the charity appeals to promote donations to out-group beneficiaries. In this work, we propose that when the beneficiaries are out-group members, featuring an in-group benefactor in the charity appeal can lead to more helping

than featuring an out-group victim or an out-group benefactor in charity advertisement. The rationale is that people's behavior are more likely to be influenced by in-group members than out-group ones (e.g., Reicher, Spears and Haslam 2010) and the emotions elicited by an in-group member should play a more important role in affecting people's behaviors than that of an out-group member. We further examine benefactor focused charity appeals only and propose factors associated with the benefactor that influence the intensity of elevating experiences, resulting in various levels of donation behaviors.

We test our hypotheses in four experiments. In experiment 1 (N=86), we test the main effect of protagonist focus on charitable donation and the underlying mechanism. Participants were randomly assigned to one of the two conditions—a charity appeal featuring either a benefactor or a victim (we pretested the comparability of these two appeals). Results showed that participants donated more money to the benefactor-focused appeal than the victim-focused appeal ($p = .006$, two-tailed).

Using PROCESS (model 4; Hayes 2013) with 10,000 bootstrapped samples, the indirect effect of charity appeal focus on donation amount was mediated by moral elevation (bootstrap CI: -1.8890, -.4678). Overall, the results support that benefactor focused charity advertisement can promote charity donation, due to feelings of moral elevation elicited by the benefactor portrayed in the charity appeal.

In experiment 2 (N=141), we examine the boundary condition where benefactor-focused charity advertisement may not lead to more donations than victim-focused charity. This experiment employed a 2 (charity appeal protagonist focus: benefactor (in-group) vs. victim) X 2 (beneficiary: in-group vs. out-group) design. As predicted, results showed a significant interaction ($p = .005$, two-tailed). Replicating the results from experiment 1, pairwise comparisons revealed that when the beneficiaries are out-group, participants who read the in-group benefactor focused charity appeal were more willing to donate than those who read the victim focused charity appeal ($p = .02$, two-tailed). No donation difference was observed between participants who read the benefactor focused appeal and victim focused appeal for in-group beneficiaries ($p = .15$, two-tailed).

In experiment 3 (N=612), we included two more conditions where an out-group benefactor helps in-group/out-group beneficiaries. We used a 3 (charity appeal protagonist focus: in-group benefactor vs. victim vs. out-group benefactor) X 2 (beneficiary: in-group vs. out-group) between-subjects design. As predicted, results showed a significant two-way interaction ($p = .02$, two-tailed). In pairwise comparisons, when the beneficiaries are out-group members, intention to donate was higher for the in-group benefactor focused appeal than the out-group victim focused appeal ($p = .03$, two-tailed) or the out-group benefactor focused appeal ($p = .008$, two-tailed). On the other hand, when the beneficiaries are in-group members, no donation intention difference was found among the three appeals (all $ps > .32$, two-tailed). Similar results were obtained using donation amount as the dependent variable.

In experiment 4 (N=211), we focus on charity advertisements featuring benefactors only and test how benefactors of different characteristics impact the levels of moral elevation observers experience and their donation behaviors by manipulating benefactors' financial helping ability (a benefactor with higher financial ability/similar financial ability/lower financial ability (than the participants) or with unidentified financial ability). Results showed that comparing with the unidentified financial ability condition, only participants who observed the benefactor with lower financial ability

indicated both higher donation likelihood ($p = .01$, two-tailed) and donation amount ($p = .08$, two-tailed). Serial mediation analysis showed people expected benefactors with lower financial ability to help less, which subsequently affects the amount of moral elevation people experience; which, in turn influence donation behaviors.

Taken together, we show that for out-group beneficiaries, using an in-group benefactor focused appeal can elicit more donations than using an out-group victim focused appeal or an out-group benefactor focused appeal. And not all benefactors lead the observers to engage in similar levels of helping behaviors. We contribute to research on charity advertisement, moral elevation and demonstrate to charities that a benefactor-focused charity advertisement approach can be effective in encouraging donation behaviors.

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How Active Sentences in CSR Advertisement Imply Less Sincere Company's Motive Taehoon Park, University of South Carolina, USA*

Corporate Social Responsibility (CSR) literature has documented that higher congruence between a company and its campaign is more effective (Pracejus and Olsen 2004; Rifon et al. 2004; Basil and Herr 2006; Gupta and Pirsch 2006; Barone, Norman, and Miyazaki 2007). From a high fit CSR, consumers perceive a higher credibility leading to positive attitudes toward the firm (Rifon et al. 2004). In addition, the company-

cause fit also impacts on product purchase intent (Gupta and Pirsch 2006) and consumer choice (Pracejus and Olsen 2004).

However, later research showed that the positive effect of high fit CSR reveals only when the perceived motive of the company is sincere (Barone et al. 2007). Another research found that consumers evaluate a CSR campaign less favorably when the company's motive is in question (Yoon, Gürhan-Canli, and Schwarz 2006). Given that self-benefit salience of a company increases consumers' suspicion of its motive, a high fit CSR, which is directly related to the firm's core business, could be perceived as less altruistic (vs. low fit).

Focusing on CSR messages, which describe the target company's pro-social campaign, this research suggests that sentence structure (i.e., active vs. passive) can change perceived CSR motive depending on the company-cause fit. Linguistics literature has shown that behavioral agents in an active sentence are not only perceived as more responsible for the described event but also interpreted as they have more intention to cause the event (Fausey and Boroditsky 2010; Fausey et al. 2010). Based on this, I argue that a high fit CSR (vs. low) would be perceived as less altruistic with suspicion when it is described in an active sentence (e.g., Company A helps people in need). However, this pattern will not be shown for a passive message (e.g., People in need are helped by Company A).

Study 1 employed a 2 (CSR fit: low vs. high) by 2 (sentence: active vs. passive) between-subject design. Participants were exposed to a CSR advertisement of a chocolate bar company. The campaign was to support a charity to feed hungry people for high fit condition, whereas it was building houses for homeless for the low fit condition. Participants read either active or passive sentences explaining what the company does. Then they reported the extent to which the company tries to make more profit with the campaign as well as how truly the company committed to the campaign with single item each. Difference between the two scores was used as perceived motive. An ANOVA showed a significant sentence by fit interaction on perceived motive ($F(1, 158) = 5.19, p = .024$). As expected, participants read active sentences reported more altruistic motive of the company for the low fit campaign (vs. high) ($M_{lowfit} = .46, M_{highfit} = -.63; F(1, 158) = 3.81, p = .053$), whereas no difference was shown for the passive sentence condition.

Study 2 employed the same design as Study 1 with a different fit manipulation. CSR advertisement was about a gas company. Before reading the advertisement, participants were informed that the company's core business is responsible for greenhouse effect to make a better fit with conserving natural environment. The campaign was either to conserve the natural environment (high fit) or support cancer research (low fit). Attitude toward the company was measured with two items. An ANOVA revealed a significant interaction between fit and sentence on attitude toward company ($F(1, 169) = 5.19, p = .024$). As expected, with active CSR messages, participants in the low fit (vs. high fit) condition revealed more favorable attitudes toward the company ($M_{lowfit} = 4.23, M_{highfit} = 3.73; F(1, 169) = 3.75, p = .054$). No difference was revealed for the passive sentence.

Study 3 aimed to replicate the effect by directly manipulating suspicion level to examine the underlying process. A 2 (Suspicion: low vs. high) by 2 (sentence: active vs. passive) between-subject design study was conducted. To manipulate suspicion level,

participants were asked to evaluate an irrelevant product advertisement before reading the main stimuli. In the product advertisement for suspicion manipulation, the company emphasized its product superiority to other competitors based on their own comparing test (vs. third party). The CSR advertisement described that a chocolate company supports a charity to build houses for homeless. Perceived CSR motive of the company was measured by three items of a semantic differential scale as well as attitude toward the target company. An ANOVA revealed a marginally significant interaction between suspicion and sentence on attitude toward company ($F(1, 139) = 3.21, p = .076$). As expected, when the target advertisement was described in active sentences, participants in the low (vs. high) suspicion condition reported more favorable attitude toward the firm ($M_{low\ suspicion} = 5.12, M_{high\ suspicion} = 4.25; F(1, 139) = 6.03, p = .015$). No difference was revealed for the passive sentence. The same pattern of interaction was revealed for the perceived motive ($F(1, 139) = 5.36, p = .022$). A moderated mediation analysis supported my hypothesis such that indirect effect of perceived motive was significant only when the CSR messages were active sentences.

Study 4 was to examine whether the inferred motive impacts on behavioral intention. Participants ($N = 165$) were randomly assigned to a 2 (CSR fit: low vs. high) by 2 (sentence: active vs. passive) between-subject design. CSR advertisement described that a computer software company provides free education sessions either for computer illiterates or illiterates). Intention to participate in the campaign was measured with two items as well as perceived motive. After omitting participants by attention check question, an ANOVA revealed a significant fit by sentence interaction on behavioral intention ($F(1, 140) = 4.19, p = .042$) showing the same pattern as the previous studies.

This research argues that structure of CSR message can impact on how consumers infer a company's CSR motive depending on the company-cause fit. Contributing to the company-cause fit literature, this research provides managerial implication about how to construct a better CSR message.

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Table 1. Summary of Findings

Study number	IV	Moderator	Mediator	DV	Finding
1	Company-cause fit (low vs. high)	Sentence structure (active vs. passive)	X	Perceived firm's motive	Active CSR messages in advertisement imply less altruistic motive for a high fit campaign (vs. low)
2	Company-cause fit (low vs. high)	Sentence structure (active vs. passive)	X	Attitude toward company	Active CSR messages lead to less favorable consumer attitude for a high fit campaign (vs. low)
3	Suspicion (low vs. high)	Sentence structure (active vs. passive)	Perceived firm's motive	Attitude toward company	Active CSR messages lead to less favorable consumer attitude when consumers are highly sensitive to manipulative intent (vs. low)
4	Company-cause fit (low vs. high)	Sentence structure (active vs. passive)	Perceived firm's motive	Participation intention	Active CSR messages lead to less participation intention to the campaign for a high fit campaign (vs. low)

Table 2. Summary of Means

Study 1		Dependent variable			
		Perceived motive			
Sentence	Fit	M		SD	
Active	Low	0.46		2.87	
	High	-0.63 ^b		2.60	
Passive	Low	-0.53 ^a		2.58	
	High	0.20 ^{ab}		2.05	

Study 2		Dependent variable			
		Attitude toward the company			
Sentence	Fit	M		SD	
Active	Low	4.23 ^b		1.32	
	High	3.73		1.22	
Passive	Low	4.03 ^{ab}		1.22	
	High	4.37 ^a		1.10	

Study 3		Dependent variable			
		Attitude toward the company		Perceived motive	
Sentence	Suspicion	M	SD	M	SD
Active	Low	5.12 ^b	1.58	4.75 ^b	1.61
	High	4.25 ^c	1.70	4.01	1.61
Passive	Low	4.8 ^{ab}	1.12	4.23 ^{ab}	1.42
	High	4.83 ^{ac}	1.54	4.73 ^a	1.78

Study 4		Dependent variable			
		Participation intention		Perceived motive	
Sentence	Fit	M	SD	M	SD
Active	Low	3.57	1.89	1.40	2.51
	High	2.83 ^b	1.55	0.18	2.68
Passive	Low	2.79 ^a	1.83	-0.25	2.77
	High	3.26 ^{ab}	1.78	1.30	2.5

Note: Means not sharing a superscript in the same column are significantly different from each other ($p < .1$).

Consumer Perceptions of Environmental ‘Win-Wins’

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Many organizations across a wide range of industries have sought to align their financial goals with environmental ones by identifying strategies that maximize profits while minimizing environmental impacts. Although such ‘win-win’ strategies are generally thought to reflect positively on companies employing them, here in a series of 3 studies we find that people tend to respond negatively to the notion of profiting from environmental initiatives. In fact, observers may evaluate environmental win-wins less favorably than profit-seeking strategies that have no environmental benefits.

We suggest that the negative response to environmental win-wins results from a fundamental psychological divide between social relationships that are perceived as communally-oriented versus those that are perceived as market-oriented (hereafter, ‘communal’ and ‘market’). Previous research has demonstrated that communal versus market relationships invoke fundamentally different norms for behavior (Aggarwal, 2004; Ariely, Bracha, & Meier, 2009; Clark & Mills, 1979; Fiske, 1992; Heyman & Ariely, 2004; Newman & Cain, 2014; Tetlock & McGraw, 2005). Specifically, when a communal relationship is established, profits can “taint” the positive value associated with pro-social behavior because they violate the norm that one should give without receiving something in return. In market contexts, however, this norm is not present and thus it may be perfectly acceptable, and perhaps even expected, to profit from one’s actions (Holmes, Miller, & Lerner, 2002; Miller, 1999).

Indeed, past research has demonstrated that blurring the lines between communal and market relationships lowers evaluations of individuals and organizations who behave pro-socially and may even reduce individuals’ likelihood of helping others (Newman & Cain, 2014; Newman & Shen, 2012; Vohs, Mead, & Goode, 2006). In the environmental domain, previous studies have found that framing environmental benefits in a market-oriented way decreases the adoption of green behaviors and products (Bowles, 2008; Muradian, et al., 2013), while altruistic, social-based appeals tend to be more effective in promoting them (Bolderdijk, Steg, Geller, Lehman, & Postmes, 2013; Delmas, Fischlein, & Asensio, 2013; Evans, et al., 2013; Spence, Leygue, Bedwell, & O’Malley, 2014).

Here we examine the distinction between communal and market norms, and how they affect perceptions of companies profiting from environmental win-wins in a series of 3 studies.

Study 1, examined whether an environmental win-win is evaluated less favorably than a ‘business as usual’ approach. 375 MTurk Participants were presented with a fictitious newspaper article that discussed real advertisements used by the outdoor apparel company, Patagonia. In the environmental conditions, participants read about Patagonia’s pro-environmental ‘Don’t buy this jacket’ campaign, in which the company argued that to help the environment, individuals should simply consume less. In the control conditions, participants read about a more standard ‘Try on adventure’ campaign, which highlighted the performance capabilities of Patagonia products. In commenting on these advertisements, the newspaper article highlighted that the ad campaign resulted in an increase in profits (which it actually did; Stock 2013), while the other half read that the campaign resulted in an increase in brand recognition (reputational benefit). Thus, the

factors of ad type (environmental vs. control) and benefit (monetary vs. reputational) were fully crossed in a 2X2 between-subjects design. Participant then rated the company on several dimensions (moral, ethics, like, approve, trust, manipulative(R), selfish (R), buy, competent).

We found that Patagonia received significantly lower evaluations when the environmental advertisement resulted in profits ($M=5.41$, $SD=1.65$) than when the control advertisement resulted in profits ($M=6.32$, $SD=1.12$), $t(183.29)=4.55$, $p<.001$, $d=0.65$. We also observed a significant interaction between ad type and benefit type, $F(1, 371)=5.51$, $p=.019$, $\eta^2=.02$. In contrast to the profit conditions, when the benefit was reputational, participants had equivalent ratings of the company in both the environmental ($M=5.96$, $SD=1.52$) and control ad conditions ($M=6.18$, $SD=1.22$), $t(181)=1.09$, $p=.28$.

In Experiment 2 we directly test the hypothesis regarding communal versus market norms. 244 Mturk participants were first primed to a specific norm (communal/market exchange) with a short writing exercise. Then, participants read about a sustainability initiative in which trash collectors would institute a new pricing model that encourages waste reduction ('pay-as-you-throw'). Half of the participants read the initiative had environmental benefits (environmental benefit only), while for the other half read that the initiative was profitable for the company and also environmental (win-win). Thus, the factors of priming task (communal vs. market) and benefit type (environmental benefit only vs. win-win) were fully crossed in a 2X2 between-subjects design. Participants then rated the company's morality.

Participants primed with communal norms, gave the company significantly lower evaluations in the win-win condition ($M=5.22$, $SD=2.13$) compared to the environmental benefit only condition ($M=6.89$, $SD=1.62$), $t(119.50)=5.02$, $p<.001$, $d=.88$. However, participants primed with market norms, gave the company equivalent evaluations in the win-win ($M=6.55$, $SD=1.84$) and the environmental benefit only ($M=6.37$, $SD=1.96$) conditions, $t(113)=0.52$, $p=.61$ (see figure 2). This resulted in a significant interaction between the priming task and the benefit type, $F(1, 240)=14.57$, $p<.001$, $\eta^2=.06$. Further comparison of the two win-win conditions indicated that profits led to significantly lower evaluations of the company when participants were primed with communal norms vs. market norms, $t(121)=3.70$, $p<.001$, $d=.67$.

Experiment 3 tested whether differences in mere temporal order would engender a similar negative win-win effect. Initial categorization of an event may strongly affect the processing of subsequent information such that people tend to resist re-categorizing the event even when they encounter conflicting information (Markman, 1987, 1989; Moreau, Markman, & Lehmann, 2001). Therefore, we hypothesized that even when people are exposed to identical information about an organization, they may have very different evaluations depending on whether environmental benefits or monetary benefits are encountered first.

123 participants, read two pages containing identical information about the Patagonia clothing company. Half of the participants first read that the company was a very good

environmental actor, and on a subsequent page read that the company was also very profitable. The other half of participants first read the profitability information, followed by the sustainability information. Participants then rated the company on the same dimensions as in Experiment 1.

Results indicated a significant effect of information order on company evaluations, $F(1,121)=6.65$, $p=.011$ $\eta^2=.05$. As predicted, Patagonia was evaluated significantly more positively when participants first read about how they were profitable before reading about their environmental efforts ($M=7.15$, $SD=1.51$) compared to when instead read about their environmental efforts before reading about how they were profitable ($M=6.45$, $SD=1.52$).

Together these studies suggest that the risk of eliciting negative public response following the adoption of green business practices, is not limited to “greenwashing” or other forms of disinformation previously examined (Delmas & Cuerel Burbano, 2011; Esty, Winston, Stella, & Pepera, 2008; Walker & Wan, 2012). Hence, even if an organization’s actions are truly in line with the environmental goals professed and no ‘greenwashing’ is involved, it is still at risk of drawing a negative reaction if it is not careful to control the communication of those activities. We show that this negative backlash can be avoided by reframing the efforts as market-oriented, or by simply altering the order in which individuals encounter information regarding the initiative.

1.6 4P's et al.: Bundles and Pricing Individual Papers

Together or Separate? A Psychological Ownership Account of Bundling Effect

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Imagine Jessica shopping for apparels. If she looks at a mannequin with a shirt and a pair of pants putting together, would her evaluation be higher compared with if she evaluates the shirt and the pants from the different racks? It is well-known that consumers' decisions are not only affected by the actual products, but also by various factors in the retailing environment including ways of product presentation. In this research we focus on the effect of presenting multiple product items as a bundle versus as separate items.

According to research on prospect theory (Kahneman and Tversky 1979) and hedonic editing (Thaler 1985), Jessica should derive greater utility when the items are presented separately than when they are presented as a bundle because of the greater utility of segregated gains. Research on price bundling also predicts that Jessica's willingness to pay for the bundled products is lower than the sum of the price of each individual item (Estelami 1999; Heeler et al. 2007). Counter to these prior findings, we draw on research on visual imagery and psychological ownership (Kamleitner and Feuchtl 2015; Jussila et al., 2015), and argue that bundling these items together can actually increase Jessica's product evaluation and willingness to pay (WTP). This is because bundling presentation can evoke greater spontaneous mental imagery of using the products, which enhances Jessica's psychological ownership of the products and her subsequent valuation of the products and willingness to pay because of endowment effect.

We further identified boundary conditions. First, because mental imagery requires cognitive resources, the effect of bundling will be attenuated when consumers' cognitive resources are constrained. Second, enhanced mental imagery only occurs when the elements in the bundle provide a consistent overarching theme and the bundle is conducive to positive mental simulation.

We conducted four studies to test these predictions and the results provide robust evidence.

Study 1 tests the basic effect of bundling on ownership and product evaluation. Participants ($n = 82$, M-Turkers) were asked to imagine that they were planning to buy some clothing items (see Appendix for all stimuli). Each participants viewed the items of their own gender either together (bundled) or each item on separate screens. We measured their evaluations of the overall items, WTP, and perceived ownership (see measurement items in Table 1 and all descriptive statistics in Table 2). The results revealed a significant main effect of presentation format, with bundled presentation leading to significantly higher evaluation of the clothes than the unbundled presentation ($M_{\text{bundled}} = 5.80$ vs. $M_{\text{unbundled}} = 3.82$; $F(1, 81) = 22.21$, $p < .001$). Presentation format also showed a significant main effect on ownership ($M_{\text{bundled}} = 3.49$ vs. $M_{\text{unbundled}} = 2.25$; $F(1, 81) = 8.65$, $p < .005$). Finally, mediation analysis showed that psychological ownership is

a significant mediator of the effect ($b = 1.31$, $t(80) = 3.74$, $p < .005$, 95% CI = [.306 to 1.182]).

In study 2, we manipulate cognitive resources to test the role of mental imagery. Participants ($n = 284$ M-Turkers) in the cognitive load condition were asked to memorize a list of words for later recall. Those in the control condition were exposed to the same list of words but were not asked to memorize. A similar apparel shopping context without the model was used. Results confirmed the interaction effect ($F(1, 280) = 8.85$, $p < .005$; see Figure 1). Bundled presentation led to higher evaluation than the unbundled presentation ($M_{\text{bundled}} = 5.98$ vs. $M_{\text{unbundled}} = 5.00$, $F(1, 280) = 9.01$, $p < .005$) when there was no cognitive load constraint; however, under cognitive load, the effect was attenuated ($M_{\text{bundled}} = 5.20$ vs. $M_{\text{unbundled}} = 5.57$, $F(1, 280) = 1.39$, $p = .24$). Mediation analysis confirmed the expected serial mediation ($b = .16$; 95% CI = [.031, .397]). Effects on WTP showed similar patterns (see Figure 2).

Study 3 tests the moderating effect of the match among the bundle elements. Participants ($n = 467$, M-Turkers) were randomly assigned to a 2 (presentation format: unbundled vs. bundled) \times 2 (overall theme: match vs. mismatch) between-subjects design. A similar apparel scenario was used. Results showed a significant interaction ($F(1.464) = 43.77$, $p < .001$; see Figure 3): When the items created a match, bundled presentation led to higher evaluation of the clothes than the unbundled presentation ($M_{\text{bundled}} = 5.89$ vs. $M_{\text{unbundled}} = 5.40$, $F(1, 464) = 4.15$, $p < .05$). However, when the items did not create a match, the effect was reversed ($M_{\text{unbundled}} = 4.95$ vs. $M_{\text{bundled}} = 3.23$, $F(1, 464) = 55.13$, $p < .001$). Mediation analysis showed positive bundling \rightarrow imagery \rightarrow psychological ownership \rightarrow evaluation effect ($b = .069$, 95% CI = [.017, .155]) for matching conditions while negative effect for the mismatching conditions ($b = -.087$; 95% CI = [-.200, -.014]; Figure 4).

Since psychological ownership plays an important role, in study 4 we directly manipulate it by having participants ($n = 98$, undergraduate students) making either a buy or sell decision. Participants examined a notebook and a pen either together or separately, and were told that they would either have the opportunity to buy them (no ownership), or they were given the products and would have the opportunity to sell them (ownership). Analysis showed a significant interaction effect ($F(1, 94) = 7.23$, $p < .01$): When participants were yet to buy the products, bundled presentation led to higher evaluation of the products than the unbundled presentation ($M_{\text{bundled}} = 5.27$ vs. $M_{\text{unbundled}} = 4.55$, $F(1, 94) = 3.56$, $p = .06$). However, the effect was reversed when participants already had ownership ($M_{\text{unbundled}} = 4.88$ vs. $M_{\text{bundled}} = 3.96$, $F(1, 94) = 3.74$, $p = .05$).

Counter to the findings in prospect theory and the bundling literature, our work showed novel effects of bundling on product evaluation and WTP. We extend the research scope of bundling by focusing on its presentation effect, add to research in mental accounting and hedonic editing, and contribute to existing research on mental imagery. Finally, our research provide important managerial implications.

Figure 1A: Study 2 Moderating Effect of Cognitive Load on Evaluation

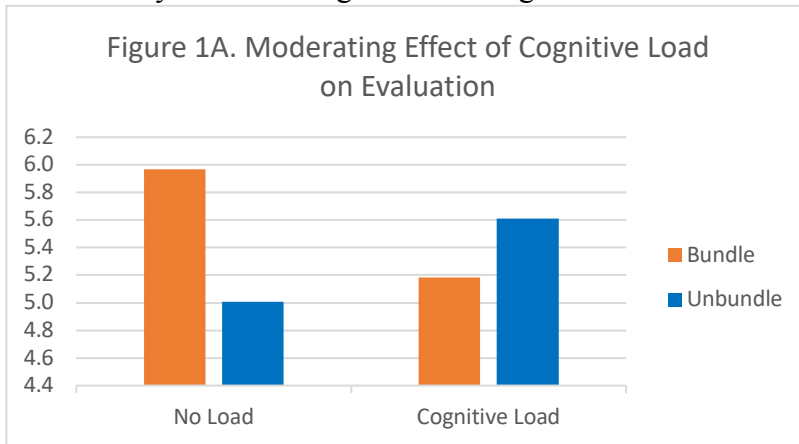


Figure 1B: Study 2 Moderating Effect of Cognitive Load on WTP

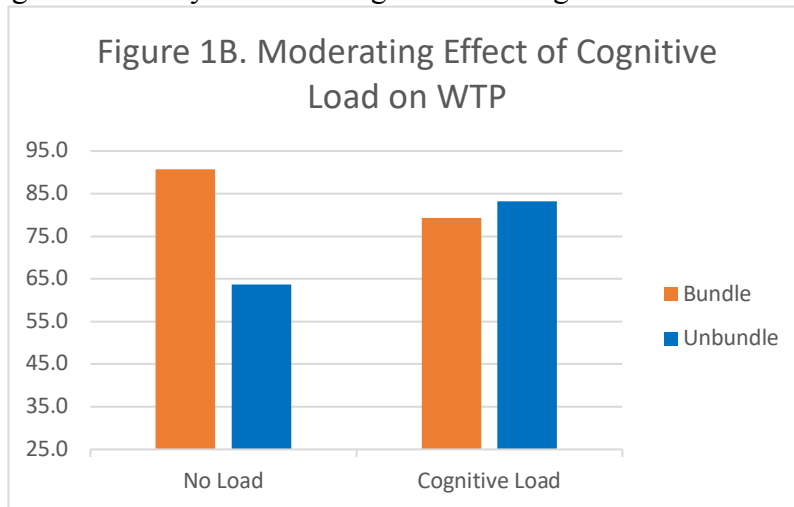


Figure 2A. Study 2 Mediation Effects of Imagery and Psychological Ownership on Product Evaluation (No cognitive Load)

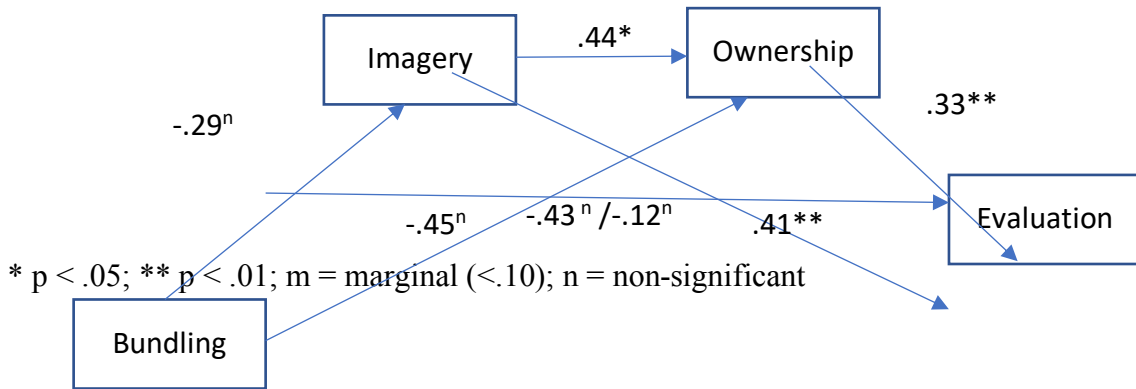
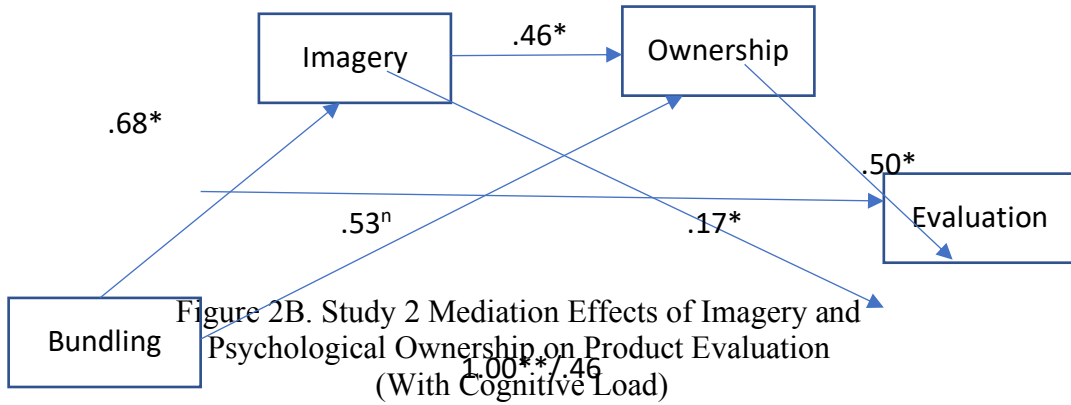


Figure 3A: Study 3 Moderating Effect of Match on Evaluation

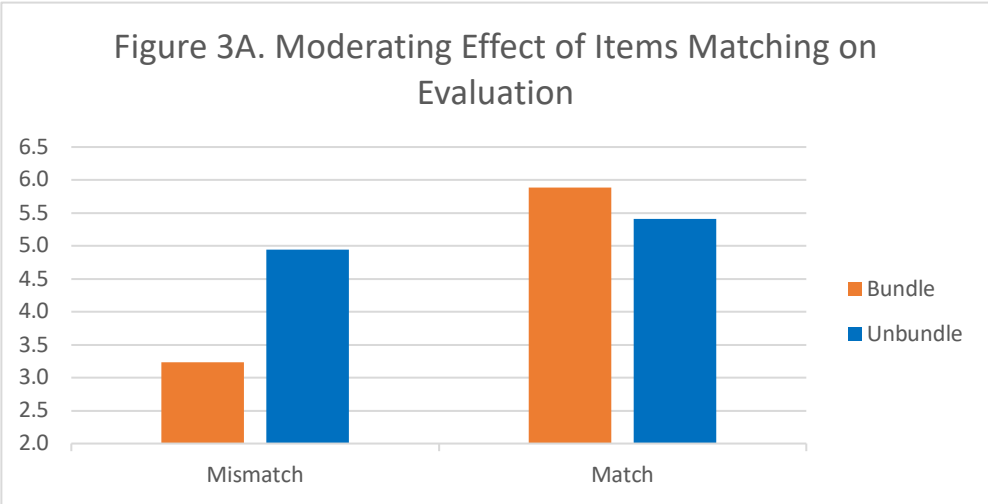


Figure 3B: Study 3 Moderating Effect of Match on WTP

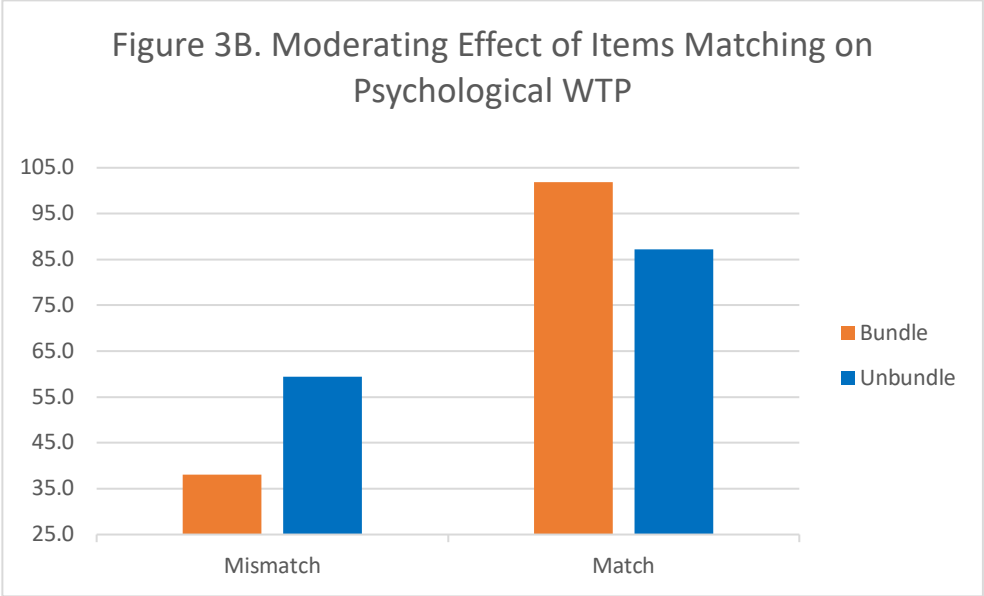


Figure 4A. Study 3 Mediation Effects of Imagery and Psychological Ownership on Product Evaluation (Matched Items)

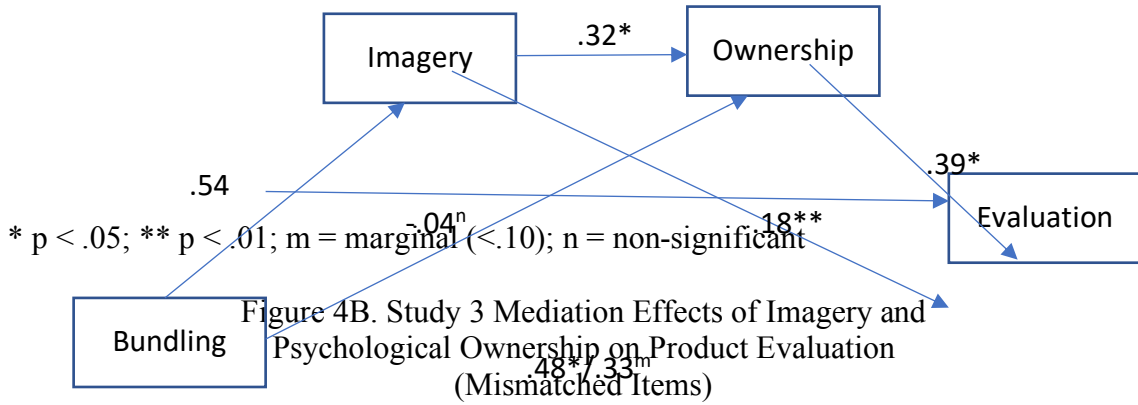


Figure 4B. Study 3 Mediation Effects of Imagery and Psychological Ownership on Product Evaluation (Mismatched Items)

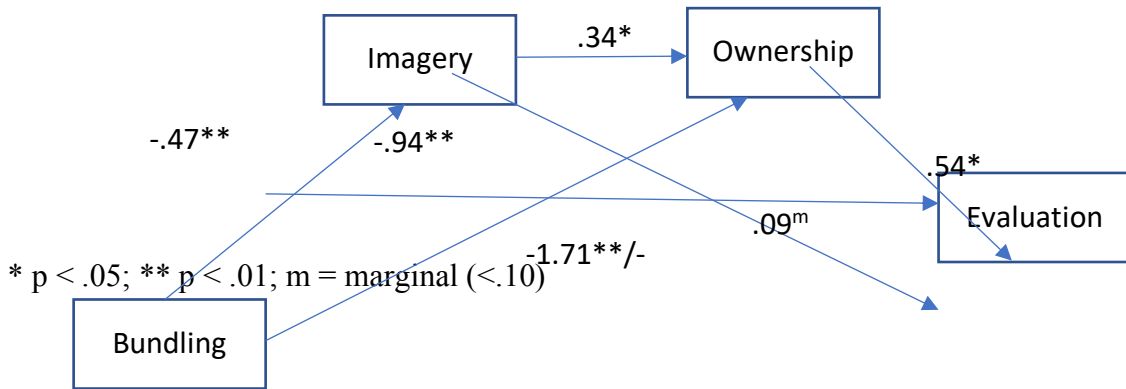


Table 1. Measures

Product Evaluation
Your overall evaluation of the entire set of outfit is: 1= very negative; 9 = very positive
How do you rate this set of outfit: 1 = poor; 9 = excellent
Are you interested in purchasing this set of outfit: 1 = not at all; 9 = very interested
How likely you would be to purchase this set of outfit: 1 = not at all, 9 = very likely
Psychological Ownership (9-point scale)
I feel like this is my outfit
I feel a very high degree of personal ownership of this outfit
I feel like I own this outfit
Imagery
When I am looking at the clothes, I find myself imagining wearing it: true/not true
When I am looking at the clothes, the images come to my mind are: clear/unclear
When I am looking at the clothes, the images come to my mind are: vivid/vague

Table 2. Descriptive Statistics

Factors		Product Evaluation	Willingness to Pay	Imagery	Psychological Ownership
Study 1	Bundle	5.80 (1.68)	215 (163.79)	NA	3.49 (1.90)
	Unbundle	3.82 (1.80)	111.54 (65.31)	NA	2.25 (1.48)
Study 2					
No Load	Bundle	5.97 (2.05)	90.76 (63.51)	6.86 (1.63)	4.71 (2.71)
	Unbundle	5.01 (1.94)	63.73 (52.92)	6.24 (1.70)	3.91 (2.47)
Cognitive Load	Bundle	5.18 (1.77)	79.33 (49.78)	5.95 (1.76)	3.60 (2.31)
	Unbundle	5.61 (1.89)	83.15 (55.67)	6.24 (1.74)	4.17 (2.27)
Study 3					
Matched	Bundle	5.89 (1.77)	101.89 (60.71)	6.91 (1.83)	4.26 (2.45)
	Unbundle	5.40 (1.80)	87.16 (50.95)	6.37 (2.05)	4.12 (2.58)
Mismatched	Bundle	3.23 (1.84)	38.13 (36.96)	6.22 (1.75)	2.57 (2.15)
	Unbundle	4.94 (1.74)	50.45 (47.91)	6.70 (1.79)	3.69 (3.41)
Study 4					
Buy	Bundle	5.27 (1.33)	2.93 (2.45)	6.32 (1.69)	NA
	Unbundle	4.55 (1.52)	2.57 (1.83)	5.57 (2.16)	NA
Sell	Bundle	3.96 (1.80)	5.37 (4.23)	6.23 (1.55)	NA
	Unbundle	4.88 (1.24)	9.47 (10.58)	6.47 (1.79)	NA

Appendix A: Stimuli used in Study 1

Bundled set



Unbundled set



Appendix B: Stimuli used in Study 2



Appendix C: Stimuli used in Study 3

Matching set



Mismatching set



Appendix D: Stimuli used in Study 4



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Bundling Products Worldwide: How Self-Construal Influences Product Bundle Evaluation

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Product bundling is a widely observed marketing practice, as it is known to be an effective strategy to increase sales of companies' offerings across various product categories. Despite its preexisting ubiquity, product bundles are still growing in number, because it has become easier for online-retailers to offer various forms of bundles to a wide range of customers across the globe (Venkatesh and Mahajan, 2009). Given that the

same bundle offerings are being exposed to consumers with different cultural and individual characteristics, it is important to investigate which type of bundles appeals to which segment of consumers. The current research answers this question by examining the impact of the interplay between the bundle type and self-construal on consumers' bundle evaluation.

A bulk of research has shown that consumers prefer bundles of complementary products to bundles of substitute (Gaeth, 1990; Telsler, 1970) or unrelated products (Harlam et al., 1995; Popkowski-Leszczyc and Haubl, 2010). Together, these studies indicate that consumers extract an additional value from the perceived degree of complementarity between bundled items when evaluating product bundles. Building on this, we propose that the amount of value that a consumer extracts from complementarity differs depending on which self-construal consumers adhere to. It has been well documented that individuals with interdependent self-construal have a more pronounced ability to detect relationships between objects and/or concepts, compared to individuals with independent self-construal (Ahluwalia, 2008; Lalwani and Shavitt, 2013; Monga and John, 2007). Accordingly, we predict that interdependents may be superior not only at uncovering the relationship between bundled products, but also at discerning the types of relationships between bundled products relative to independents. Thus, when bundles include complementary products, interdependents would evaluate bundles more favorably relative to independents because they would extract greater value from the complementarity. We test our hypotheses across one study using secondary sales data and three laboratory studies.

Study 1 provides an initial demonstration of the effect of self-construal on bundle evaluation using global cosmetics company's sales data from South Korea and U.S. We employed culture as an operationalization for self-construal, as interdependence is more prevalent in Korea, whereas independence is more prevalent in the U.S. Controlling for price, product categories, and fixed-time effects, sales of product bundles was greater in Korea than in the U.S. In contrast, sales of standalone single products did not differ across countries ($p = .23$). Furthermore, sales of bundles of complements was greater than that of bundles of non-complements ($p < .001$). This difference was not evident in the U.S. ($p = .52$). The market share of complement bundles was greater in Korea than in the U.S. ($p = .001$), supporting our prediction.

It is possible that the differences we found between these countries may be due to differences in other unobservable factors like distribution channels and market size. To address this issue, in Study 2 ($n = 237$ from U.S. online-panel), we directly measured participants' chronic level of self-construal and examined how that correlated with their evaluation of product bundles using a homogenous sample. Participants first filled out Oyerman's self-construal scales (1993) and then evaluated either a bundle of complements (La Roche-Posay's facial cleanser and moisturizer) or a bundle of substitutes (La Roche-Posay's two different facial cleansers). An OLS regression on bundle evaluation revealed that overall, participants favored the complement bundle more than the substitute bundle ($p = .003$). More importantly, this main effect was qualified by a significant bundle-type \times interdependence interaction ($p = .04$), but not by bundle-type \times independence interaction ($p = .64$). Interdependence was positively associated with bundle evaluation ($p < .001$) when it consisted of complements. When the bundle included substitutes, however, interdependence did not predict bundle evaluation ($p =$

.21).

In Studies 3 ($n = 343$) and 4 ($n = 247$), we directly tested the causal effect of self-construal on bundle evaluation by manipulating self-construal. In addition, we examined the moderating role of a contextual factor (i.e., brand composition) on the relationship between self-construal and bundle evaluation. Rahinel and Redden (2013) found that consumers enjoy joint consumption of multiple products more when the products are labeled with the same brand (vs. different brands), because the matching brand labels make the products go well together as complements. Since interdependents are more susceptible to contextual cues like brand labels than independents, interdependents would extract greater value from the complementary between bundled products when they are from the same brand versus different brands. As a result, interdependents would favor a bundle of complements from the same brand. However, because independents are less concerned about relationship associated cues, a variation in brand composition would not affect their bundle evaluation.

We first primed self-construal by having participants write about who they are using a first-person singular vs. plural pronouns (S3) and what makes them similar to vs. different from their family and friends (S4). Subsequently, approximately half of participants saw a bundle of complements from the same brand (S3: MUJI notebook, pencil, and eraser; S4: Pantene shampoo, conditioner, and hair-masque). The other half saw the comparable products from different brands. We then measured participants' willingness-to-pay (S3) and purchase intention (S4) for the bundles. A significant self-construal \times brand-composition interaction ($p_{S3} = .01$, $p_{S4} = .02$) revealed that interdependents indicated greater WTP and purchase intention for the same-branded (vs. differently-branded) bundles ($p_{S3} = .001$, $p_{S4} = .01$). These differences were not evident among independents ($p_{S3} = .94$, $p_{S4} = .50$). Furthermore, in Study 4, we measured perceived degree of complementarity among bundled items to test its moderated mediating impact. Primed interdependence increased the purchase likelihood of the bundle through enhanced perceived complementarity (*C.I.* [.04, .28]). There was no corresponding indirect effect among participants who evaluated the bundle of complements from different brands (*C.I.* [-.39, .08]).

In summary, we identify a key individual- and cultural-level difference in bundle evaluation that previous research has overlooked. In doing so, the current research suggests a novel marketing strategy to segment product bundles in both global and domestic markets, as certain regions are known to possess collectivist than individualistic culture.

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FIGURE 1

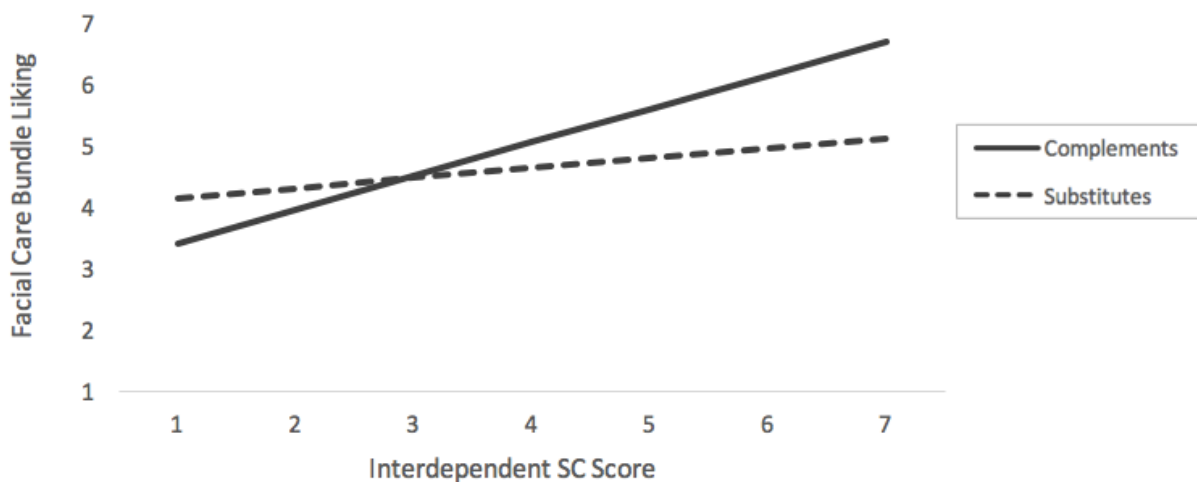


Figure 1. Bundle liking as a function of self-construal and bundle type (Study 2)

FIGURE 2

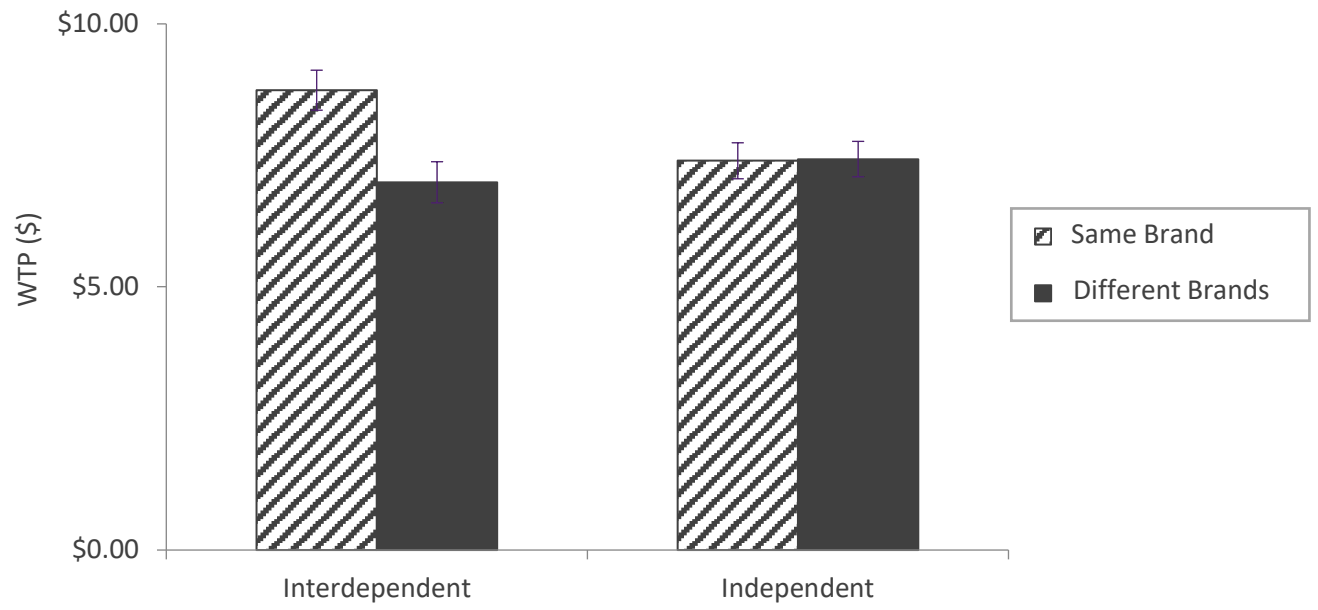


Figure 2. WTP as a function of self-construal and brand composition (Study 3)

FIGURE 3

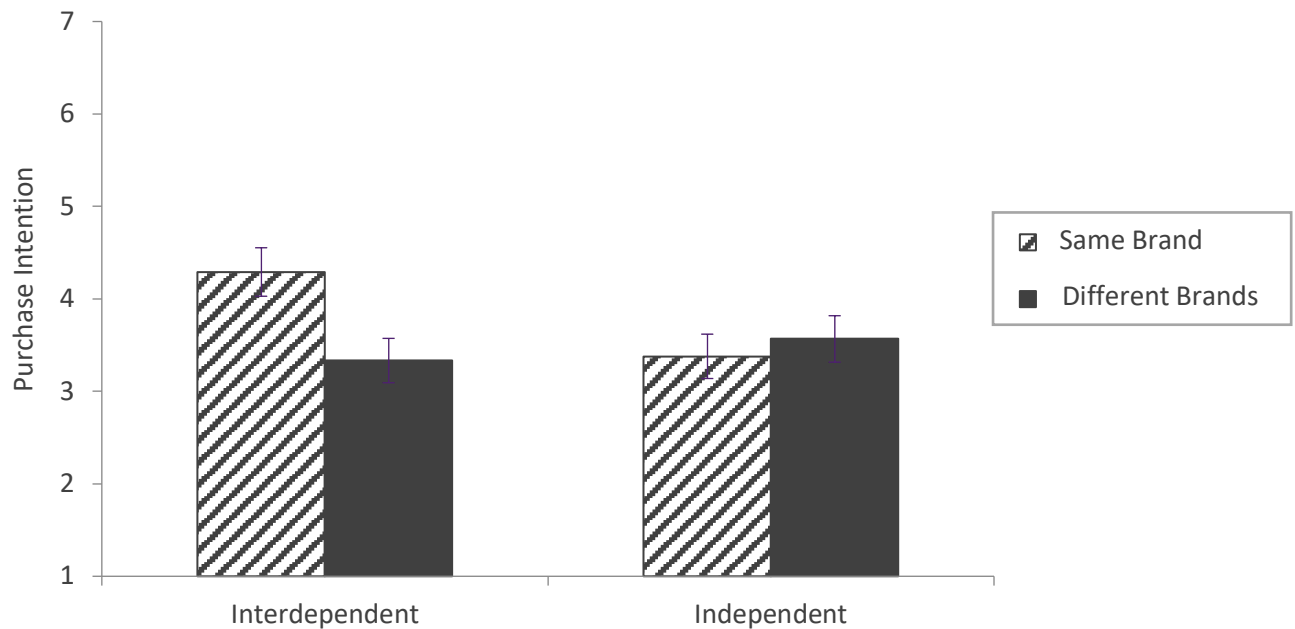


Figure 3. Purchase intention as a function of self-construal and brand composition (Study 4)

Double Mental Discounting: When One Single Price Promotion Feels Twice As Nice

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Consider a situation in which a college student purchases a \$900 laptop and receives a \$100 gift card to spend in an Apple Store in the future. If the student feels confident that she will use the gift card, she may mentally reduce the laptop cost and think: “I am spending \$800 (instead of \$900) on this laptop because I receive \$100 worth of store credit back in my pocket.” Now consider that later, the student is back in the store purchasing a \$300 tablet. At this point, the student uses the \$100 gift card, resulting in a final \$200 charge for the tablet. She may think: “I am spending \$200 (instead of \$300) for this tablet, because my gift card covers some of the cost.” In total, this consumer has paid \$1100 for the laptop and tablet, and yet, because she mentally has applied the promotional credit to both purchases, she may feel as if she paid substantially less.

This research studies consumers’ tendency to “double discount” some forms of financial gains from their purchase prices. We find that consumers over-discount gains that feel easily “coupled”, or directly associated, with multiple purchases. This finding extends knowledge on malleable mental accounting. Previous research about malleable mental

accounting demonstrates that consumers have considerable flexibility in which one account to post a gain (Cheema and Soman 2006). In this research, we propose that consumers can post a single price promotion to multiple expenditures across time, reducing total perceived costs (Thomas 2013; Thomas and Morwitz 2009) relative to actual costs. This form of malleability suggests more than mere flexibility in budget categorization; in this case, a single gain reduces perceived costs multiple times, defying basic rules of accounting. We examine this phenomenon in seven studies in the full paper, focusing on three studies in this abstract.

Study 1 establishes the basic double mental discounting phenomenon and tests the role of coupling as mediator. Participants ($n=438$) first imagined buying a computer (Purchase 1; \$500) and subsequently imagined buying a tablet (Purchase 2; \$300). Participants in a discount condition received a standard \$100 discount for Purchase 1. Participants in a promotional credit condition, at the time of Purchase 1, received a \$100 gift card to spend on Purchase 2. We asked each participant how much they perceived they have spent on each purchase (perceived cost; open-ended) and how coupled each purchase felt their promotion (coupling; 1-9 Likert).

Promotional credit participants reported lower total perceived costs across the two purchases ($M=\$663.51$) than discount participants ($M=\$701.85$; $F(1,455)=54.40$, $p<.001$), though actual costs across the two conditions were identical. Promotional credit participants also fully “double discounted” their price promotion more frequently (i.e., reported perceived costs of \$600; $p<.001$), at a percentage of 38.57% (vs 3.05% in discount condition). Further we find that promotional credit felt more highly coupled with both purchases ($M=13.81$) than did the discount ($M=10.46$; $F(1, 430)=106.75$, $p<.001$). The extent to which promotional credit felt coupled to both Purchase 1 and Purchase 2 mediated double discounting (Indirect effect 95% CI = [7.22, 14.77], Direct Effect $B=8.61$, $t=3.09$, $p<.01$).

Study 2 compares promotional credit to multiple other forms of price promotions to determine the precise features of promotional credit that drive perceived costs lower. MTurk workers ($n=569$) participated in a study that took place across two sessions. We randomly assigned participants to interact with one of five price promotions: 1) promotional credit 2) discount 3) mail-in rebate 4) cash back—general 5) cash back—cash back received today (refer to Appendix 1 for condition descriptions). As in study 1, participants imagined buying a \$500 laptop that came with a \$100 promotion corresponding with their condition. In a separate session, participants imagined buying a \$300 tablet at the same retailer. After each purchase, participants reported perceived costs and answered coupling questions.

Participants in the promotional credit condition reported significantly lower total perceived costs ($M_{\text{PromotionalCredit}}=\652.88) than did participants in any other condition ($M_{\text{Discount}}=\$711.28$; $M_{\text{Rebate}}=\$693.89$; $M_{\text{Cashback-Basic}}=\684.82 ; $M_{\text{Cashback-ReceivedToday}}=\677.75 ; all $p's<.01$ compared to promotional credit). In addition, participants in the promotional credit condition reported significantly higher total coupling ($M_{\text{PromotionalCredit}}=13.55$) than did participants in any other condition

($M_{Discount}=11.26$; $M_{Rebate}=11.50$; $M_{Cashback-Basic}=11.98$; $M_{Cashback-ReceivedToday}=12.47$; all $p's < .01$ compared to promotional credit; Table 2 includes detailed comparisons).

Study 3 tests whether promotional credit influences willingness to pay in a field experiment. A local gourmet ice cream shop partnered with the researchers to bring an ice cream cart to a university campus for three days. On Day 1 (i.e., “Time 1”), potential customers ($n=172$) who paused to read the ice cream cart sign were approached by a research assistant who, depending on experimental condition, offered an immediate \$3 discount or, \$3 in promotional credit to spend on Day 2 or 3 (i.e., “Time 2”) contingent upon purchasing on Day 1. We measured how much ice cream participants in each condition purchased across the three days as well as amount spent.

Examining total purchases, participants in the promotional credit condition purchased marginally significantly more often on average ($M=1.14$), than did participants in the discount condition ($M=1.00$, $t(161)=1.82$, $p=.07$). Participants in the discount condition were significantly more likely to purchase exactly one time than were participants in the promotional credit condition (91% versus 62%, $\chi^2=19.39$, $p<.001$), however, participants in the promotional credit condition were significantly more likely to purchase more than one time than were participants in the discount condition (24% versus 5%, $\chi^2=13.93$, $p<.001$); see Table 3. Across the three days, the discount condition generated a total revenue of \$234.72, or \$2.73 per customer who received the offer. The promotional credit condition generated total revenue of \$313.28, or \$4.12 per customer who received the offer.

In sum, we document that consumers favorably compute perceived costs when gains are coupled with multiple expenditures, mentally discounting those gains multiple times to feel as if they spend less money than they actually do. We refer to this tendency as “double mental discounting”. Finally, we document that consumers who receive price promotions that lend themselves to double mental discounting spend more on their purchases.

TABLE 1: SCENARIO WORDING FOR STUDIES

<i>Experimental Conditions</i>	<i>Time 1 Scenario</i>	<i>Time 2 Scenario</i>
Study 1 (all)	Imagine that you are in Best Buy and you see a laptop that you really like priced \$500 including taxes. There is a special today.	Now imagine that you go back to Best Buy one month later.
Promotional Credit condition	The laptop comes with a \$100 gift card to use at Best Buy in the future. You decide to buy the laptop and gain the \$100 gift card.	You previously received a \$100 gift card when making a prior purchase at this store. You want to buy a tablet and you see that the tablet is priced \$300 including taxes. You decide to buy the tablet and use the \$100 gift card.”
Discount condition	The laptop comes with a \$100 price discount to use today at Best Buy. You decide to buy the laptop and use the \$100 discount.	You previously received a \$100 discount when making a prior purchase at this store. You want to buy a tablet and you see that the tablet is priced

\$300 including taxes. You decide to buy the tablet.”

Study 2
(all)

Imagine that you are in Best Buy and you see a laptop that you really like priced \$500 including taxes. There is a special today.

In the scenario in part I of this study, you received a \$100 [promotion] when making a laptop purchase at Best Buy. Now, imagine that you are back at Best Buy. You want to buy a tablet and you see that the tablet is priced \$300 including taxes.

Promotional Credit condition

The laptop comes with a \$100 gift card to use at Best Buy in the future.

You have not used the \$100 gift card from your previous laptop purchase and have it in your wallet.

Discount condition

The laptop comes with a \$100 price discount to use at Best Buy today.

You received a \$100 discount when making a laptop purchase at Best Buy.

Mail-in rebate condition

The laptop comes with a \$100 mail-in rebate that you can mail in to receive a check.

You have received the \$100 rebate check from your previous laptop purchase and deposited it in your bank account.

Cash back-basic condition

The laptop comes with \$100 cash back that will be deposited in your bank account in the future.

You have received the \$100 cash back from your previous laptop purchase in your bank account.

Cash back-received today condition

The laptop comes with \$100 cash back that will be deposited in your bank account in the future.

Just today, you have received the \$100 cash back from your previous laptop purchase in your bank account (Italic emphasis for “just today” was included in the original materials).

Study 3

Promotional Credit Condition

\$3 Gift Card Valid April 25 or 26, 11 a.m.-2 p.m.

Discount Condition

\$3 Discount Valid April 24, 11 a.m.-2 p.m.

No additional wording

TABLE 2: STUDY 2 EFFECTS AND CONTRASTS

	<i>Promotional Credit</i>	<i>Discount</i>	<i>Mail-in Rebate</i>	<i>Cash back- Basic</i>	<i>Cash back- Received today</i>
Promotion Value	\$100	\$100	\$100	\$100	\$100
Purchase 1 Retail Price	\$500	\$500	\$500	\$500	\$500
Purchase 2 Retail Price	\$300	\$300	\$300	\$300	\$300
Purchase 1 Perceived Cost	\$439.58 ^b	\$424.51 ^a	\$431.80 ^{ab}	\$429.86 ^{ab}	\$426.38 ^{ab}
Purchase 2 Perceived Cost	\$213.30 ^a	\$286.77 ^c	\$262.09 ^b	\$254.96 ^b	\$251.37 ^b
Total Perceived Cost	\$652.88 ^a	\$711.28 ^c	\$693.89 ^{bc}	\$684.82 ^b	\$677.75 ^b

Total Actual Cost (\$700) – Total Perceived Cost	\$47.12	-\$11.28	\$6.11	\$15.18	\$23.38
Purchase 1 Coupling	6.00 ^a	6.86 ^b	6.71 ^b	7.09 ^b	7.10 ^b
Purchase 2 Coupling	7.55 ^c	4.40 ^a	4.79 ^{ab}	4.89 ^{ab}	5.37 ^b
Total Coupling	13.55 ^c	11.26 ^a	11.50 ^a	11.98 ^{ab}	12.47 ^b

Contrast effects are denoted by superscript letters. Condition means in the same row that share a same letter are insignificant from each other at $p \leq .05$.

TABLE 3: STUDY 3 FIELD TEST PURCHASES

# of Purchases	Condition	
	<i>Promotional Credit</i>	<i>Discount</i>
Percent Who Purchased on Day 1	87% ^a	95% ^b
Percent Who Purchased on Days 2-3	24% ^b	5% ^a
Average Number of Purchases	1.14 ^a	1.00 ^{a†}
Percent Who Purchased 0 Times	13% ^b	5% ^a
Percent Who Purchased 1 Time	62% ^a	90% ^b
Percent Who Purchased 2 Times	22% ^b	5% ^a
Percent Who Purchased 3 Times	3% ^a	0% ^a

Contrast effects are denoted by superscript letters. Condition means in the same row with different superscript letters are significantly different from each other at a $p \leq .05$ level. A [†] symbol indicates a statistically significant difference at a $p \leq .10$ level.

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You Get What You Pay For? The Impact of Scarcity Perception on Price-Quality Judgments

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While consumers routinely encounter situations where they perceive resources as limited (Roux, Goldsmith, and Bonezzi 2015), little is known about how this perception influences consumers’ use of price in their purchase decisions. To address this issue, this research examines the link between a general perception of resource scarcity and

consumers' tendency to use price to judge product quality, namely price-quality judgments (Lalwani and Shavitt 2013).

We propose that a general perception of resource scarcity triggers the desire to both have and perceive abundance (Cialdini 2001), and this motivates individuals to exhibit a reduced tendency to categorize objects because categorization involves a feeling of reduction. Reduced categorization tendency, in turn, hinders individuals from viewing brands in terms of price-tier groups, and thus lowers their tendency to use price as a basis for judging brands' quality.

Study 1 tested the effect of scarcity perception on price-quality judgments. Participants in the scarcity (vs. control) condition wrote three episodes in which they didn't have enough of something (vs. three things they did during the past week), then elaborated on one of those episodes. Participants then reviewed a list of 33 camcorders that included information on brand name, country of origin, model number, price, and quality. Next, participants were given a retail price for an anonymous camcorder brand (e.g., brand "A") and asked to rate its quality, the process they repeated for 10 different brands. The correlation between the retail prices of these anonymous brands and participants' quality estimates for those brands was the dependent variable. Results showed that participants in the scarcity condition ($M = .46$) indicated a significantly lower correlation between price and quality than participants in the control condition ($M = .65$; $F(1, 87) = 4.64, p = .034$).

Study 2 tested the underlying process by manipulating categorization tendency. If reduced categorization tendency mediates the effect of scarcity perception on decreased price-quality judgments, increasing categorization tendency via experimental manipulation should attenuate the effect. A 2 (scarcity: scarcity, control scarcity) x 2 (categorization tendency: high categorization tendency, control categorization tendency) between-subjects design was used. Scarcity was manipulated as in study 1. Next, participants were shown a list of 30 random items and asked to sort the items into subgroups (high categorization tendency) or to select any 5 items and write a sentence about when and how those items can be used (control categorization tendency). Similar to study 1, a list of 24 computer monitors with information on various attributes was used as stimuli. The interaction between scarcity and categorization tendency was significant ($F(1, 173) = 8.66, p = .004$). For participants in the control categorization tendency condition, the correlation between retail prices and participants' quality estimates was lower in the scarcity condition ($M = .56$) than in the control scarcity condition ($M = .83$; $F(1, 173) = 13.40, p < .001$). However, for participants in the high categorization tendency condition, the correlations did not differ between the two scarcity conditions ($M = .78$ vs. $M = .79$; $F < 1$). This supports the role of reduced categorization tendency as the underlying process.

Study 3 tested a moderator to bolster the process. If scarcity reduces an individual's categorization tendency, and this arises because avoiding categorization leads one to feel greater abundance for oneself, an individual experiencing scarcity who views objects that are to be owned by *others* may be motivated to do the opposite—categorize the objects *more* so that others are perceived as having less (thus leaving more available for oneself). Thus, we predicted that scarcity individuals who view brands that others consider for their purchases (brands for their own purchase) should *increase* (decrease) price-quality judgments. A 2 (scarcity: scarcity, control; between) x 2 (own

versus others': own-purchase, others'-purchases; between) x 2 (price: high, low; within) mixed design was used. Scarcity was manipulated as in study 1. Next, participants in the own-purchase (others'-purchases) condition imagined that they were looking at brands for their own purchases (other shoppers were looking at brands for their purchases). Next, participants were shown three brands of washing machines, two of which were target brands. In the high (low) price condition, the price of the target brand was highest (lowest) among the three. Participants then rated quality of each of the two target brands.

The scarcity by price interaction in the own-purchase condition was significant ($F(1, 572) = 4.01, p = .046$). When participants evaluated brands for their own purchases, they rated quality higher for the high-price brand ($M = 6.87$) than the low-price brand ($M = 6.05; F(1, 572) = 21.97, p < .001$) only in the control condition; in the scarcity condition, quality ratings for the low-price brand and the high-price brand did not differ ($M = 6.28$ vs. $M = 5.97; F(1, 572) = 2.57, p > .1$). This replicates the finding that scarcity decreases price-quality judgments. Also, the scarcity by price interaction in the others'-purchases condition was significant ($F(1, 652) = 14.87, p < .001$). When participants evaluated brands that others consider for their purchases, they rated quality higher for the high-price brand than the low-price brand, in both the control condition ($M = 6.69$ vs. $M = 6.04; F(1, 652) = 18.44, p < .001$) and the scarcity condition ($M = 7.10$ vs. $M = 5.58; F(1, 652) = 80.01, p < .001$). However, the difference in ratings between the high-price and the low-price brands was magnified in the scarcity condition, compared to the control condition. Thus, the others'-purchase condition showed a reversal effect to our previous findings, by demonstrating that people in the scarcity condition were *more* (not *less*) likely to make price-quality judgments, which bolsters our theorizing.

To conclude, this research finds that a general perception of resource scarcity decreases people's tendency to use price to judge product quality. The current research contributes to the scarcity literature by identifying a new psychological process activated by scarcity: a reduction in categorization tendency. This research also adds to the literature on price-quality judgments, as it identifies a new mechanism that may underlie consumers' price-quality judgments.

FIGURE 1

THE EFFECT OF SCARCITY AND CATEGORIZATION TENDENCY ON PRICE-QUALITY JUDGMENTS (STUDY 2)

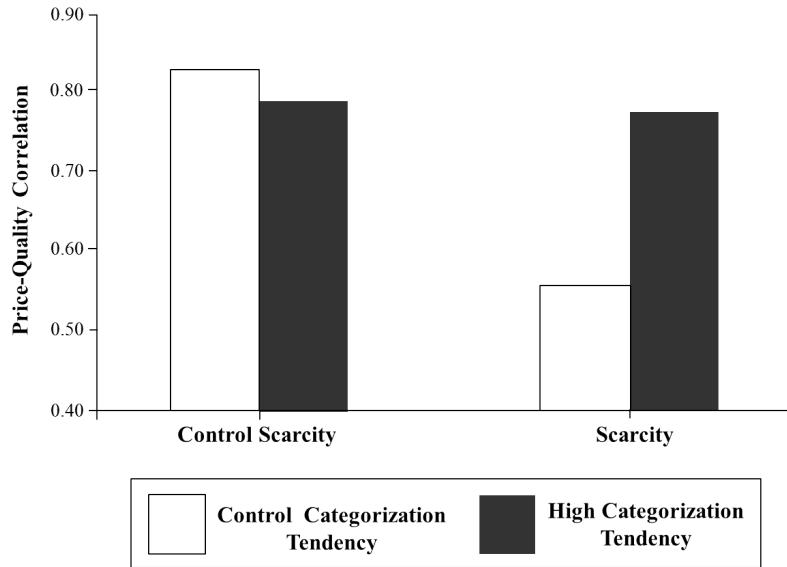
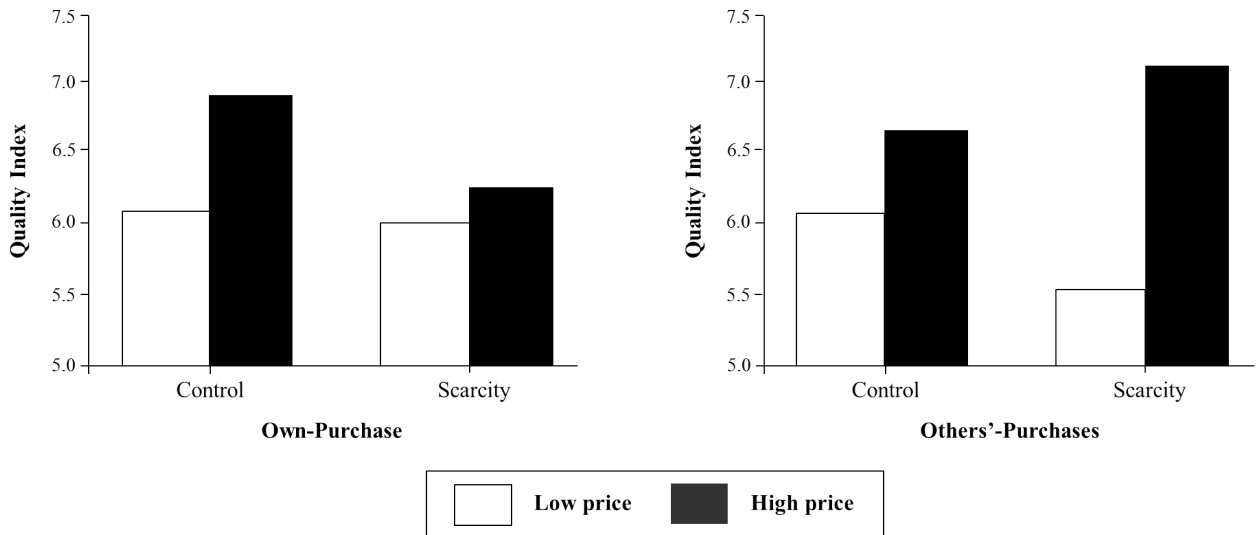


FIGURE 2

THE EFFECT OF SCARCITY AND OWN VERSUS OTHERS' PURCHASES ON PRICE-QUALITY JUDGMENTS (STUDY 3)



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Session 2

2.1 How Artificial Intelligence Is Changing Consumer Psychology Symposium

Paper #1: Consumers' Trust in Algorithms

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Paper #2: Consumers' Choice of a Forecasting Method

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Paper #3: Theory of Machine: When Do People Rely On Algorithms?

Jennifer M. Logg (Harvard Business School; jlogg@hbs.edu)

Paper #4: Artificial Intelligence and Medical Decision Making

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Symposium Overview

Artificial intelligence (A.I.) is becoming ubiquitous in our society. Applications of A.I. are manifold and pervade just about every aspect of our/consumers' lives. Dating sites use algorithms to match people looking for love. Hospitals use IBM's Watson to diagnose cancer and heart disease. Companies use chatbots to deliver customer care. Financial institutions use mathematical models to automate trading and investment decisions.

How do consumers react to applications of A.I. in various aspects of their lives? The objective of this symposium is to feature research that offers a wide range of perspectives on this question. In particular, this symposium showcases the most up-to-date research that examines what factors hinder versus foster consumers' reliance on A.I., how A.I. affects consumers' judgments and decisions, and what psychological processes are at play when consumers interact with A.I. The topics covered in this symposium include: (1) in what contexts do consumers prefer the input of an algorithm over the input of a human; (2) what process underlies consumer choice of a human versus an algorithmic forecasting method, (3) when do consumers rely on algorithmic advice, and (4) how do consumers react to artificial intelligence providing medical care.

Castelo, Bos and Lehmann set up the stage by discussing when and why consumers trust algorithms more than expert humans in a variety of domains. This research suggests that trust in algorithms depends on three main factors: perceived objectiveness of the task, perceived performance of the algorithm, and reliance on feelings versus reason.

Dietvorst develops the theme by examining why consumers often prefer to rely on their own judgment rather than on a superior algorithm. This research suggests that, when faced with a forecasting decision, consumers prefer to use their own inaccurate judgment over the output of a more accurate algorithm. This is because consumers fail to directly compare the performance of these two forecasting methods and instead compare the algorithm's performance to an irrelevant performance goal.

Logg tests whether people are distrustful of algorithms to the extent suggested by prior work. Results from several experiments suggest that algorithm aversion might not be as pervasive as we thought, and that people are willing to rely on algorithmic advice depending on factors such as subjectivity of the decision, expertise of the advisor, and expertise of the decision maker.

Longoni, Bonezzi and Morewedge focus on the medical context and examine consumer choice of care provider. The authors show that when it comes to health care, consumers are reluctant to choose a robotic provider over a human provider even when informed that the robotic provider is more accurate. The authors also identify a novel psychological mechanism driving reluctance to rely on A.I.: a lay belief that a robotic provider will not account for a person's uniqueness.

Overall, the research featured in this symposium addresses a timely and important topic, exploring how A.I. influences the way in which consumers behave, make decisions, and form inferences. By examining the multi-faceted impact of A.I. on consumer psychology, we hope that this symposium will spur a new wave of research that delves deeper into how and why AI affects consumer judgment and decision making. Together, these papers raise and answer questions that are both practically relevant and theoretically interesting, such as: How does A.I. influence choices and behaviors across various consumer contexts? What processes explain these influences? Under what conditions can policy makers ensure that A.I. does not come in the way of consumer welfare?

We expect this special session will attract a wide audience. In particular, scholars whose theoretical interests fall at the intersection of prediction, attitudes, advice giving/taking, and medical decision making. Due to the breadth of the domains investigated (i.e., artificial intelligence, recommendation systems, robotics), this symposium is also likely to attract researchers interested in digital marketing and online consumer psychology. This symposium is a novel submission (not presented at recent conferences), and all papers included are at an advanced stage of completion.

Paper #1: Consumers' Trust in Algorithms

Noah Castelo, Maarten Bos, Don Lehmann

Short Abstract (96 words):

We explore when and why consumers trust algorithms more than expert humans in a variety of domains. We find that trust in – and use of – algorithms depends on the perceived objectiveness of the task, the perceived performance of the algorithm, consumers' reliance on their feelings, and interactions between these variables. As algorithms increasingly outperform humans in a wide variety of consequential tasks, our results provide important insights into when and why consumers are likely to trust and use them, and how marketers can increase trust in algorithms in order to improve outcomes for consumers and firms.

Extended Abstract (985 words):

Prior research suggests that consumers are “algorithm averse,” which may limit the potential of algorithms to improve outcomes in many domains. We explore when and why consumers trust algorithms, and how to increase trust when algorithms outperform humans.

Study 1. 808 MTurk users indicated how much they would trust an algorithm and a human for 27 tasks, using 0–100 scales. The human was described as either an “acquaintance” or a “well-qualified person.” Overall, participants trusted algorithms ($M = 52.8$) more than acquaintances ($M = 48.9$) and less than qualified humans ($M = 70.2$, p 's $< .001$). However, this pattern varied by task (see Table). 390 separate participants rated how objective each task seems. The gap between trust in qualified humans and in algorithms was smaller for tasks that seemed more objective ($r = -.17$, $p < .001$).

	Acquaintance	Expert Human	Algorithm	Expert-Algorithm Gap	Task Objectiveness
Writing News Article	51	79	37	42	48
Composing a Song	45	81	43	38	30
Hiring & Firing Employees	43	72	34	38	49
Driving Truck	62	81	43	38	70
Predicting Joke Funniness	53	65	30	35	27
Driving Car	73	81	47	34	69
Piloting Plane	26	79	47	32	78
Rec. Gift	58	75	46	29	26
Rec. Disease Treatment	25	73	48	25	69
Driving Subway	34	77	52	25	73
Disease Diagnosis	25	73	48	25	77
Playing Piano	53	84	61	23	48
Rec. Romantic Partner	41	59	37	22	26
Rec. Movie	68	76	59	17	23
Pred. Student Performance	41	63	46	17	52
Recommending Music	64	75	59	16	22
Rec. Marketing Strategy	40	70	56	14	55
Pred. Recidivism	36	54	42	12	45
Pred. Employee Performance	42	61	50	11	51
Scheduling Events	59	78	69	9	62
Buying Stocks	37	62	60	2	56
Pred. Election	36	51	54	-3	57
Pred. Stocks	33	55	63	-8	58
Pred. Weather	40	57	67	-10	68
Data Analysis	44	69	80	-11	73
Giving Directions	65	70	82	-12	75

Study 2. Do people trust algorithms more than humans when they have evidence that algorithms outperform humans? 408 participants reported whether they would trust an algorithm or a human more for 9 tasks, using a scale with 0 labeled as “trust algorithm more,” 100 as “trust well-qualified human more,” and 50 as “trust both equally.” For each task, participants read about a real study demonstrating that the algorithm outperformed humans. T-tests comparing each task’s mean to 50 (“trust both equally”) showed participants trusted algorithms more for cancer treatment, parole decisions, admitting students, and hiring employees, p ’s < .001; they trusted humans more for predicting someone’s personality and joke funniness, p ’s < .001. The means for driving cars, recommending movies, and psychological diagnosis were not significantly different from 50. Given evidence of an algorithm’s superior performance, participants trusted algorithms at least as much as qualified humans, except for the most subjective tasks. We also asked participants how much they relied on their feelings and on facts when deciding whether to trust an algorithm or a human more (we reverse-coded reliance on facts and averaged the two questions to create a measure of reliance on feelings). Participants also reported a range of demographic videos. We found that reliance on feelings ($r = -.33, p < .001$), desire for control ($r = -.14, p = .005$), political conservatism ($r = -.09, p = .069$), and age ($r = -.10, p = .036$) were negatively correlated with trust in algorithms, while income ($r = .13, p = .009$) and education ($r = .11, p = .025$) were positively correlated. Males trusted algorithms more than females ($M = 47.7$ vs. $M = 51.2, t = 2.16, p = .031$). After applying the Bonferroni correction for multiple comparisons, the only correlation that remained significant was reliance on feelings, $r = -.33, p < .001$.

Study 3. Can framing subjective tasks as being objective increase trust in algorithms? 756 participants used the same scale as in Study 2 to report trust in algorithms vs. humans for the two tasks where participants trusted humans more than algorithms. The tasks were either described neutrally, as in Study 2, or as being objective (i.e. quantifiable, data-driven.) Trust in algorithms was lower than in humans for both tasks in both conditions (control and objective frame), but the objective frame did significantly increase trust in algorithms (collapsing across both tasks, $M_{\text{control}} = 63.4, M_{\text{objective}} = 58.3, p = .008$; higher numbers indicate greater trust in humans relative to algorithms).

Study 4. To apply these findings in a marketing context, 41,592 Facebook users were exposed to one of 4 real ads on their Newsfeed, for either algorithm- or human-based dating advice (subjective) or financial advice (objective). We measured click-through rate (CTR). CTR

for the dating advice ads was significantly higher for the human advisor (2.1%) than the algorithm advisor (0.6%, $p < .001$). For financial advice, CTR was only marginally higher for the human advisor (1.8% vs. 1.6, $p = .071$). This confirms that trust in algorithms is lower than in humans primarily for subjective tasks.

Study 5. 14,997 Facebook users were exposed to 1 of 2 ads for algorithm-based dating advice: either the neutral ad from Study 4, or one describing dating as benefiting from objective, quantifiable data. CTR was higher for the objective ad (0.87%) compared to the control ad (0.39%, $p = .053$). Advertising algorithm-based advice for a subjective task was therefore improved by framing the task as being objective.

Study 6. 601 participants estimated the market share that a new product had captured after one year, then saw the same estimate from a marketing expert or an algorithm, and could then revise their initial estimate. The difference between their two estimates provides a measure of reliance the algorithm or human's advice. We informed some participants that the algorithm was 80% more accurate than expert humans. We framed the task as either objective or subjective. When the task was framed subjectively, there were no differences in reliance on advice ($M_{\text{algorithm}} = 10.5$, $M_{\text{algorithm+performance}} = 11.2$, $M_{\text{human}} = 10.7$, all p 's $> .65$). When the task was framed objectively, participants relied more on the algorithm than the human when they were aware of the algorithm's performance ($M_{\text{algorithm+performance}} = 14.5$, $M_{\text{human}} = 10.6$, $p < .001$) but not when they were unaware ($M_{\text{algorithm}} = 10.4$, $p = .871$). Thus, participants relied on an algorithm more than a human only when the task was framed objectively and they were aware of the algorithm's performance. In all other conditions, participants relied on algorithms and humans equally. Furthermore, participants' reliance on feelings decreased reliance on the algorithm when participants were unaware of the algorithm's relative performance ($\beta = -1.14$, $p = .001$), but not when they were aware ($\beta = -.23$, $p = .533$).

Consumers are increasingly presented with a novel choice: should they rely more on another human's input, or on an algorithm's? Algorithms often outperform humans, but algorithm aversion sometimes persists. We identified the importance of perceived task objectiveness, algorithm performance, and trust in feelings in shaping this important choice.

Paper #2: Consumers' Choice of a Forecasting Method

Berkeley J. Dietvorst

Short Abstract (83 words):

Consumers and managers often fail to use the best forecasting method that is available to them. However, it is still unclear what decision process leads them to choose inferior forecasting methods. I propose that consumers and managers choose between forecasting methods by (1) using their status quo forecasting method by default and (2) deciding whether or not to use an alternative forecasting method by comparing its expected performance to a performance goal. I find empirical support for this decision process in five experiments.

Extended Abstract (883 words):

Now more than ever, consumers and managers have the opportunity to use new forecasting methods in order to make better predictions. For example, consumers can use recommendation systems to decide which products to buy, use matchmaking algorithms to decide whom to date, and use algorithms to forecast the future prices of airline tickets. Professionals can use algorithms to forecast demand for products, decide which job applicants to hire, and choose which investments to make. Algorithms already outperform humans in the majority of the forecasting domains that have been tested (see Ægisdóttir et al., 2006; Camerer, 1981; Dawes, Faust, & Meehl, 1989; Grove et al., 2000; Kaufmann, Reips, & Wittmann, 2013; Kaufmann & Wittmann, 2016; Kuncel, Klieger, Connelly, & Ones, 2013; Meehl, 1954), and algorithms will become more accurate and abundant as we collect more data and develop new methods of

leveraging those data. However, these new forecasting methods cannot help consumers and managers make better predictions if they are unwilling to use them.

Consumers and managers are often hesitant to use these new forecasting methods, even when they are the best alternative available. Professionals often underuse algorithms when making predictions (e.g. Fildes & Goodwin, 2007; Sanders & Manrodt, 2003; Vrieze & Grove, 2009). Similarly, laypeople often prefer using forecasts from humans to forecasts from algorithms (Arkes et al., 2010; Diab, Pui, Yankelovich, & Highhouse, 2011; Eastwood, Snook, & Luther, 2012; Önköl et al., 2009; Promberger & Baron, 2006). However, it is still unclear what decision process leads people to stick with inferior forecasting methods.

I propose that people choose between forecasting methods by (1) using their status quo forecasting method by default and (2) deciding whether or not to use the alternative forecasting method by comparing its expected performance to a performance goal. In other words, people often decide whether or not to adopt an alternative forecasting method by asking “will this alternative meet my performance goal?” instead of asking “will this alternative beat my default forecasting method?”. This process leads people to reject a superior forecasting method when (1) the inferior method is their default forecasting method and (2) the superior method performs better than their default forecasting method but fails to meet their performance goal.

I report the results of five studies that are consistent with this decision process. In each study, participants decided whether to use their own judgment or an algorithm to complete an incentivized forecasting task. I manipulated participants’ performance goals by incentivizing them to reach different levels of performance between conditions and tested whether or not this manipulation affected participants’ choice of forecasting method.

In Study 1, participants in the “higher reference points condition” could earn \$0.40, \$0.30, \$0.20, or \$0.10 for estimates that were off by 5, 15, 25, or 35 percentiles respectively, and participants in the “lower reference points condition” could earn \$0.20 or \$0.10 for estimates that were off by 25 or 35 percentiles respectively. I found that participants in the lower reference points condition were significantly more likely to choose to use the algorithm (69% vs 52%), $\chi^2(1, N = 544) = 15.87, p < .001$. This finding is consistent with the notion that the majority of participants used human judgment by default and compared the algorithm’s expected performance to their performance goal when deciding whether or not to use it. In study 2, I replicated this finding, $\chi^2(1, N = 553) = 5.14, p = .023$, and ruled out the alternative explanation that participants in the lower reference points condition believed that the algorithm had a larger relative advantage.

In Study 3, participants made 10 practice forecasts and then learned how well they performed on average. Next, participants were assigned to one of five conditions in which they would need to achieve an absolute error of 12, 14, 16, 18, or 20 to earn a \$0.25 bonus. Finally, participants chose between using the algorithm’s forecast and their own by indicating how good the algorithm’s past performance would have to be in order for them to use its forecast instead of their own. I found that participants required the algorithm’s past performance to be significantly better when they were assigned to harder incentives, $t(506) = 2.21, p = .027$, even though participants in each condition believed that the algorithm was the better performing alternative, $t_s(>=98) \leq -3.61, p_s < .001$, and participants’ estimates of the algorithm’s performance advantage were not related to their assigned condition, $t(505) = -0.60, p = .552$. In Study 4, I replicated the main finding from Study 3, $z(N = 508) = 4.01, p < .001$, and found evidence consistent with the notion that that 66% of participants used my hypothesized decision process when making their decision.

In Study 5, I changed participants’ default – participants used the algorithm’s forecast by default and reported how well they would need to perform in a set of 10 practice forecasts in order for them to use their own forecast instead of the algorithm’s. Participants continued to use the same decision process even though their default had switched. Participants required *their own* past forecasts to be significantly better when assigned to harder incentives, $z(N = 508) = 4.44, p <$

.001, and I found evidence consistent with the notion that that 64% of participants used my hypothesized decision process when making their decision.

Paper #3: Theory of Machine: When Do People Rely on Algorithms?

Jennifer M. Logg

Short Abstract (99 words):

When are people most likely to leverage the power of computational algorithms to improve their judgment accuracy? Even though algorithms often outperform human judgment, people appear resistant to allowing a numerical formula to make decisions for them (Dawes, 1979). Counter to the widespread conclusion of algorithm aversion, results from eight experiments suggest that people are willing to rely on algorithmic advice under circumstances that apply to many decisions. The results suggest important moderators to algorithm aversion and contribute to a program of research I call “theory of machine,” which examines lay beliefs about how algorithmic and human judgment differ.

Extended Abstract (994 words):

Algorithms, scripts for sequences of mathematical calculations, are powerful. As humans interact more with algorithmically programmed agents in their cars, homes, and workplaces, we need to understand their “theory of machine.” By *theory of machine*, I refer to lay perceptions of how algorithms and humans differ in their *input*, *process*, and *output*, a flavor of theory of mind (Dennett, 1987). This tests when people are willing to rely more on algorithmic than human advice. Anecdotal evidence has led to a widespread idea that people are resistant to allowing a numerical formula to make decisions for them, even though algorithms often outperform human judgment in accuracy (e.g., Dawes, Faust, & Meehl, 1989). Yet, the empirical evidence is mixed and complicated (e.g., Dietvorst, et al., 2014; Dzindolet, et al., 2002; Yeomans, et al., 2017 vs.: Dijkstra et al., 1998; Dijkstra, 1999). In eight experiments, I test whether people are as distrustful of algorithms as prior work suggests.

Experiments 1A (N = 202) and 1B (N = 77 MBAs) tested if people are willing to rely on algorithmic advice. In Experiment 1A, participants guessed someone’s weight in a photograph answered the Numeracy Scale (Schwartz, et al., 1997). Participants were more influenced by advice when they thought that it came from an algorithm (M = .45, SD = .37) than from other people (M = .30, SD = .35), $F(1, 200) = 8.86, p = .003, d = .39$. See Figure 1. Higher numeracy correlates with greater reliance on algorithmic advice, $r(100) = .21, p = .037$. 1B replicated the effect with MBAs, $F(1, 72) = 13.21, p = .001$, and two geopolitical forecasts, $F(1, 72) = 5.52, p = .022$. See Figure 2. Algorithm aversion may not be as widespread as prior work suggests.

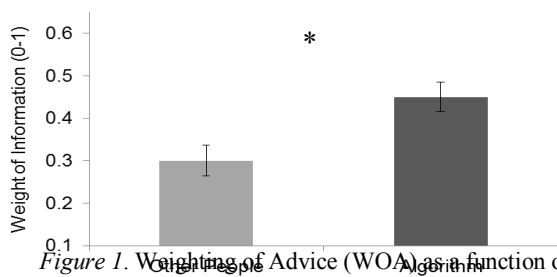


Figure 1. Weighting of Advice (WOA) as a function of experimental advisor (other people vs. algorithm). Note: $*p < .05$.

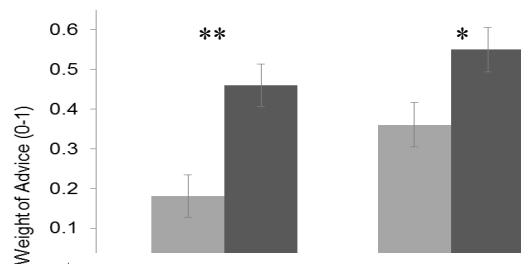
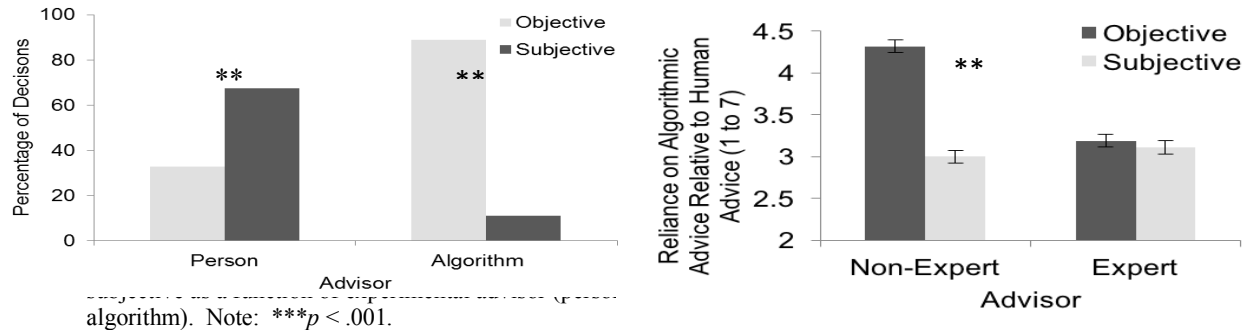


Figure 2. Weight of Advice (WOA) as a function of experimental advisor (another person vs. algorithm), Experiment 1B. Note: $**p < .01$, $*p < .05$.

Experiments 2A (N = 276 decisions) and 2B (N = 555) tested a mechanism of reliance on algorithmic advice: subjectivity of the decision. Participants provided three decisions for which

they expected reliance on an algorithmic and three for reliance on a human advisor. Decisions were coded by assistants. Participants listed more objective decisions for the algorithmic advisor, $\chi^2(1, N = 144) = 87.11, p < .001, r = 0.78$, and more subjective decision for the human advisor, $\chi^2(1, N = 136) = 16.03, p < .001, r = 0.34$ (Overall: $\chi^2(1, N = 276) = 92.66, p < .001, r = 0.58$). See Figure 3. Subjectivity of the domain appears to explain why people are willing to rely on algorithmic advice for objective estimates and forecasts.

Experiment 2B tested how subjectivity interacted with expertise of the human advisor. The experiment had a 2 (subjectivity: subjective vs. objective) X 2 (expertise of person: expert vs. non-expert) mixed design where participants imagined making twelve decisions. Subjectivity was within-subjects and expertise was between-subjects. Controlling for importance, there is an interaction between subjectivity and expertise, $F(1, 550.98) = 124.98, p < .001$. Figure 4 shows that participants were more open to receiving algorithmic advice for objective decisions relative to subjective decisions, $F(1, 719.23) = 342.71, p < .001$. Perceived subjectivity of the decision mediates the relationship (sobel for between: $z = -3.18, p = .001$). Expert advice was preferred, regardless of subjectivity, $F(1, 719.23) = 0.87, p = .352$. These results suggest that although subjectivity mediates reliance algorithmic advice, expertise of the human advisor moderates it.



Experiment 4 examined how the expertise of the *decision maker* influenced perceptions of algorithmic advice. Experiment 4 ($N = 301$ lay, 77 experts) compared how lay people and experts who worked in National Security for the U.S. Government (who made geopolitical forecasts regularly) differed in their response to algorithms. Participants made an estimate, one business forecast (the samples were expected to have low expertise on both) and two new geopolitical forecasts (the experts were expected have more expertise). Figure 5 shows that lay people relied more on algorithmic advice. Figure 6 shows that experts discounted all advice equally. Controlling for familiarity with what an algorithm is, there is a main effect of advisor, $F(1, 338) = 9.46, p = .002$, and expertise, $F(1, 338) = 32.39, p < .001$. The effect of advisor is driven by the lay sample, as evidenced in the interaction, $F(1, 338) = 5.05, p = .025$.

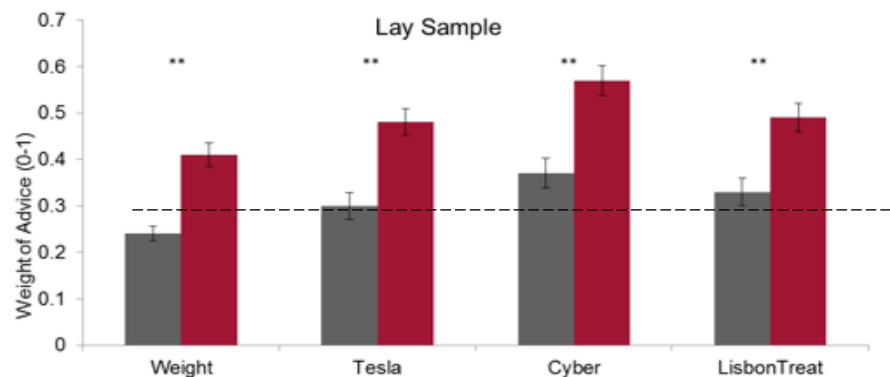


Figure 5. WOA from the lay sample as a function of experimental advisor (another forecaster vs. algorithm). A line is overlaid at 30% discounting for reference, denoting the average discounting produced from most of the advice-taking literature (although see Soll & Larrick, 2009). Note: $**p < .01$, $*p < .05$.

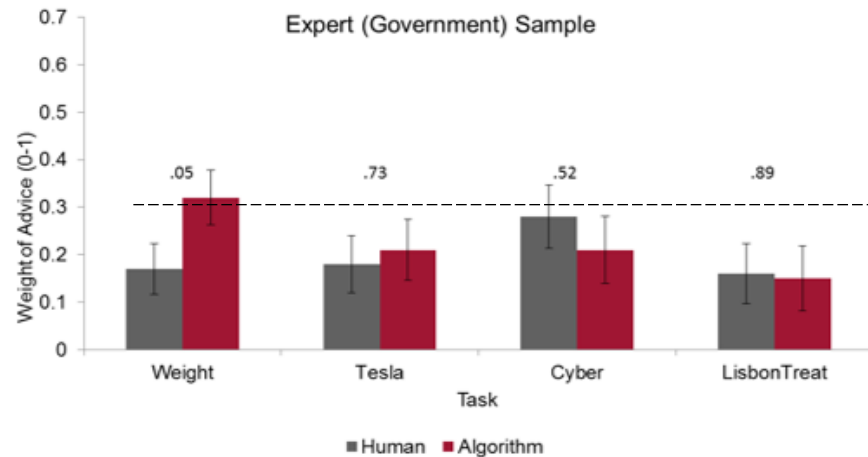


Figure 6. WOA from the expert sample as a function of experimental advisor (another forecaster vs. algorithm). Note: non-significant p-values are noted above.

Counter to the widespread conclusion of algorithm aversion, results from eight experiments suggest that people are willing to rely on algorithmic advice under circumstances that apply to many decisions. Providing algorithmic advice appears to be one way to increase lay people's adherence to advice, which is useful considering that people tend to discount advice from others (Bonaccio & Dalal, 2006). [OSF link with anonymized pre-registrations, materials, and data: https://osf.io/t279p/?view_only=7d06036cc2644e9f8d683631e91eafcf]

Paper #4: Artificial Intelligence and Medical Decision Making

Chiara Longoni, Andrea Bonezzi, Carey K. Morewedge

Short Abstract (93 words)

Artificial Intelligence is revolutionizing healthcare, but little is known about consumer propensity (or reluctance) to choose A.I. as their provider of medical care. In a first set of experiments, we show that consumers are reluctant to choose a robotic provider over a human provider even when informed that the robotic provider is more accurate. In a second set of experiments, we identify a novel psychological mechanism driving reluctance to choose A.I.: a lay belief that a robotic provider will not account for a person's uniqueness. We present process evidence via mediation and moderation.

Extended Abstract (986 words)

Artificial Intelligence is revolutionizing healthcare. IBM's Watson diagnoses heart disease, the United Kingdom's National Health Service uses conversational chatbots to dispense medical advice, and an app called DermaCompare allows anyone to identify melanoma moles by analyzing photos taken with a smartphone. Despite the excitement of the healthcare industry, it is unclear how consumers will react to applications of A.I. to the medical field. Will consumers choose A.I. as their provider of medical care? If not, what are the barriers? To date, these questions remain unanswered.

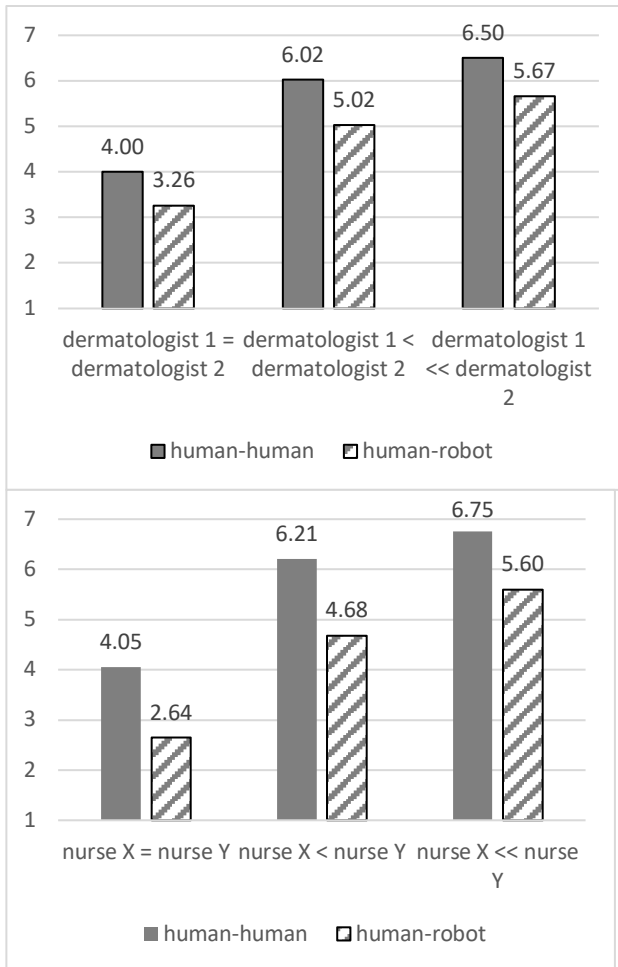
The current research focuses on the fundamental drivers leading consumers to accept (or reject) A.I. as provider of medical care. In a first set of experiments, we examine consumers'

reaction to A.I. We identify existing applications of A.I. in medical care, and systematically investigate people’s propensity to choose (or reject) A.I. over a human provider. Studies 1a-b show that consumers are reluctant to choose a robotic provider over a human provider even when informed that a robotic provider is vastly more accurate. In a second set of experiments, we focus on what explains consumers’ reaction to medical A.I. We identify a novel psychological mechanism that drives consumers’ reluctance to choose A.I. as provider of medical care: the belief that a robotic provider will not account for a person’s uniqueness. In study 2 we show the association between one’s sense of uniqueness and reluctance to choose A.I.; in study 3 we show that beliefs about the ability of a medical provider to accommodate a person’s uniqueness mediate choice of provider (process evidence via mediation); and in study 4 we show that, when choosing a provider for another person, a situation in which uniqueness concerns do not apply, people’s reluctance to choose A.I. as a care provider is curbed (process evidence via moderation).

In studies 1a (N=253) and 1b (N=250) participants imagined choosing the provider of preventive care (a dermatologist performing a skin cancer screening) and diagnostic care (a nurse triaging chest pains). We employed a 2x3 between-subject design in both studies. Half of the participants were assigned to a human-human choice-set (both providers were human) and the other half to a human-robot choice-set (one provider was human and one was robotic). We also manipulated the providers’ past performance, so that the past accuracy rates of the providers were: equal, or one provider was slightly better, or one provider was better than the other to a larger extent. Provider X was always human; provider Y was human or robotic depending on the choice-set:

	Past Performance (Accuracy)		
	Provider X = Provider Y	Provider X < Provider Y	Provider X << Provider Y
Study 1a	Dermatologist X = 90%	Dermatologist X = 90%	Dermatologist X = 90%
(screening)	Dermatologist Y = 90%	Dermatologist Y = 93%	Dermatologist Y = 96%
Study 1b	Nurse X = 90%	Nurse X = 90%	Nurse X = 85%
(diagnosis)	Nurse Y = 90%	Nurse Y = 95%	Nurse Y = 95%

Participants indicated their choice of provider (1=*Definitely human provider X*, 7=*Definitely [human/robotic] provider Y*, with 4=*Indifferent*). In both studies, 2x3 ANOVAs revealed significant effects of Choice-set ($F=23.9, p<.001$; $F=59.3, p<.001$) and of Performance ($F=71.4, p<.001$; $F=91.2, p<.001$). As one would expect, when the providers were both human, participants were indifferent between the providers if their past performance was the same, and chose the more accurate provider if their past performance was different. However, relevant to our theorizing, when choosing between a human and a robotic provider, participants’ choices revealed a reluctance to choose the robotic provider even when it was more accurate (all pairwise $ps<.001$; left graph refers to study 1a, right graph refers to study 1b).



In study 2 (N=286), we used the Sense of Uniqueness scale (Simsek and Yalınçetin 2010) to measure perceptions that characteristics of the self are unique to the individual and different from those of others (“I feel that some of my characteristics are completely unique to me,” “I think that the characteristics that make me up are completely different from others” and “I feel unique;” 1=Strongly disagree, 7=Strongly agree; higher scores indicated greater sense of uniqueness, $\alpha=0.864$). As in study 1a, participants then chose a dermatologist to perform a screening (past accuracy was the same for both dermatologists and set at 90%) from a human-human choice-set or a human-robot choice-set. Sense of uniqueness index had a significant relationship with choice of provider ($\beta=-.14$, $SE=.056$, $t=-2.49$, $p=.01$) and the negative coefficient indicated that greater perceptions of self-uniqueness were associated with greater reluctance to choose a robotic provider.

In study 3 (N=215) participants rated the likelihood to use a diagnostic service that allowed them to chat with a nurse and diagnose whether the symptoms participants were said to be experiencing required medical attention (1=Very unlikely, 7=Very likely). In a 2-cell between-subject design, the triaging service was provided either by a human nurse or by a robotic nurse (a chatbot). The service was described in detail and both providers were said to have been accurate in the past 89% of the times. Subsequent to measuring the likelihood to use the service, we measured the mediator of interest (3-items scale measuring beliefs about the ability of the provider to accommodate a person’s uniqueness; $\alpha=0.928$). As expected, participants were more likely to use the service when the provider was human ($M=4.15$) than robotic ($M=3.16$;

$t=3.8, p < .001$), with concern that the provider accommodates self-uniqueness mediating the effect (LLCI=-0.7007 ULCI=-0.1803, Sobel $z=-3.2, p=.001$).

In study 4 (N=333) we employed the same scenario and choice variable as in study 3, but this time we also varied whether participants were expressing intention to use the service for themselves or for somebody else. When choosing for themselves, results replicated the findings of study 3, with greater intentions to use the service if the provider was human ($M=2.40$) than robotic ($M=1.70, p=.002$); however, when choosing for somebody else, likelihood to use the service was the same irrespective of whether the provider was human or robotic ($p=.7; F_{interaction}=4.7, p=.03$).

Overall, this paper investigates consumer reaction to automation in medical care. Theoretically, this research advances our understanding of medical decision making and identifies sense of uniqueness as an important and yet understudied factor. This research also has reaching practical implications given that A.I. is increasingly pervading all aspects of medical care and experts estimate that it will replace as much as 80% of what doctors currently do.

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2.2 Social and Perceptual Influences on Satiation Symposium

Seeing the World through Others' Lens: When Co-experiencing with a First-timer Boosts Novelty

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Buying Beauty for the Long Run: (Mis)predicting Liking of Product Aesthetics

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The Effect of Incidental Emotion and Food Color on Satiation from Repeated Consumption

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SESSION OVERVIEW

Marketers want consumers to enjoy consuming their products. However, over time, a consumer enjoys a particular consumption experience less and less the more he or she consumes the product. This decrease in enjoyment over time is referred to as satiation (Redden and Galak 2013). While satiation can result from physiological factors (e.g., the sensation of being full after a big meal), psychological factors also affect the rate of satiation. The goal of this symposium is to further explore the psychological factors that affect the rate of satiation, with a specific emphasis on understanding social (papers 1 and 2) and perceptual (papers 3 and 4) variables that affect how quickly individuals' enjoyment of consumption declines over time.

The first paper, by **Tu, Yang, and Fishbach**, examines a strategy consumers can adopt to counteract unwanted satiation to an experience. Specifically, the authors find that experiencing something repetitive (e.g., watching a movie again) with close others who are new to the experience can enhance perceived novelty of the experience. This occurs because individuals adopt the perspective of close others with whom they are sharing the experience. The second paper, by **Nowlan, Borenstein, and Laran**, identifies another factor, albeit a negative one, that also reduces the rate of satiation: stress. The authors demonstrate that stress causes consumers to attempt to manage more aspects of the hedonic task they are engaged with (e.g., eating, listening to music, etc.) as a means to cope with their stress. As a result, stressed (vs. not stressed) consumers enjoy what they consume for a longer period of time. The third paper, by **Buechel and Townsend**, examines satiation in the context of visual aesthetics, and explores whether consumers accurately predict the extent to which they will satiate to visually intense/complex (vs. simple) product designs. The authors show that consumers predict they will satiate at a slower rate to simple (compared to intense/complex) products, but in fact the reverse occurs. As a result, consumers make an affective forecasting error that, as the authors show, creates suboptimal outcomes when it leads to choice of visually simple over visually complex products. The fourth and final paper, by **Sevilla and Salerno**, examines how another dimension of visual aesthetics—color—interacts with incidental emotions to

affect the rate of satiation in the domain of eating. The authors adopt the perspective that individuals associate certain colors with certain emotions (e.g., “blue” and “sadness”; “green” and “envy”), and that eating foods whose color matches the emotion currently being experienced can reduce the rate of satiation. This effect occurs because a fit between color and emotion decreases the salience of the item being consumed, which consequently leads the consumer to enjoy the product for longer.

Together, these papers identify four common marketing factors (social consumption, stress, visual complexity, and food color) that affect the rate at which enjoyment of a consumption experience declines over time. The research presented in this symposium makes theoretical contributions by broadening our understanding of how different properties of engagement with an experience can extend enjoyment of that experience. This research also identifies steps that marketers of food and other experiential products can take to extend consumer enjoyment of their products.

Seeing the World through Others’ Lens: When Co-experiencing with a First-timer Boosts Novelty

Yanping Tu, Yang Yang, and Ayelet Fishbach

Short abstract

We show that consumers find a familiar experience novel again when experiencing it with close (vs. distant) others who are new to the experience, because they adopt close others’ perspectives. This effect is independent of another’s mere presence and the change of experience type (solo vs. joint experience).

Extended abstract

Mundane life is filled with repeated activities. Very often consumers take the same route to work, stop by the same coffee shop and interact with the same group of people. Almost by definition, repetition results in a decrease in experienced novelty—people satiate (Coombs and Avrunin 1977). To counteract unwanted satiation, prior research has identified a few intra-personal strategies, such as consuming later and consuming something different. We propose an interpersonal strategy: consume with others who are new to the experience.

Due to our social instinct, we automatically synchronize our behaviors and experiences with other people. When seeing others yawn, we also start yawning (Platek et al. 2003); when witnessing a person being socially rejected, we feel lonely too (Wesselmann, Bagg, and Williams 2009); when reading emotionally laden posts on Facebook, without face-to-face interaction, we can feel how others feel and converge with our friends’ emotions (Kramer, Guillory, and Hancock 2014). Building on this line of research, we predict that when experiencing old stimuli with another person who is new to the experience, people adopt his/her novel perspective, resulting in a more refreshing experience for the self. This effect is driven by neither the mere presence of others nor the change in experience type (i.e., solo experience vs. joint experience). Hence, controlling for the presence of others, we predict that people find their experience more novel when experiencing it with another person who has had the experience fewer times. Importantly, because the degree to which people adopt another person’s fresh pair

of eyes depends on interpersonal closeness, we predict that the proposed effect only occurs between close others. Four studies tested our proposed framework.

Study 1 surveyed people's movie re-consumption experience. Participants recalled the last time they re-watched a movie, rated the novelty of their experience, and indicated whether they re-watched it by themselves or with other person(s). Those who watched with other(s) further rated whether other(s)' have watched the movie more or fewer times than they did (1 = fewer times, 7 = more times). We also collected background variables such as participants' and other(s)' overall liking of the movie. In support of our hypothesis, those who re-watched the movie with others (vs. alone) rated the movie more novel ($M = 5.00$, $SD = 1.22$ vs. $M = 4.57$, $SD = 1.09$; $t(256) = 2.50$, $p = .013$). This is driven by the lower consumption frequency of others relative to self ($M = 2.93$, $SD = 2.05$, $t(196) = 7.34$, $p < .001$; one-sample t-test against 4). Further, controlling for other people's liking of the movie, the fewer times other(s) watched the movie relative to participants themselves, the more novel participants rated their experience ($\beta = .17$, $p = .02$).

Study 2 tested the effect in the Magic Kingdom in Disney World using real-time measures. We surveyed visitors who were with family and friends. Participants first evaluated novelty of their experience on that day, and then indicated whether they were a first-time visitor or not. Non-first-timers also rated to what extent it felt like first time. Next, participants indicated 1) how likely they would come back and 2) how soon they would come back. Finally, they answered other questions about the visit, including 1) the (average) frequency of other person(s)' visit, 2) frequency of their own visit, 3) time elapsed since their last visit, 4) time in Magic Kingdom on that day, and 5) group size. Controlling for items 2)-4), the frequency of other(s) visit negatively predicted novelty ($\beta = -.19$, $p = .02$), likelihood of coming back ($\beta = -.24$, $p < .001$), how soon people would like to come back ($\beta = -.24$, $p < .001$), and for non-first-timers, whether it felt like first time ($\beta = -.42$, $p < .001$).

Study 3 was conducted in the lab for higher internal validity. We presented undergraduate participants with six pictures of their familiar campus scenes and asked them to imagine visiting these places with a group of freshman (their in-group members) who have "never been to these places before" or "been to these places many times". Participants in the former condition rated the scenes more novel ($M = 4.61$, $SD = 1.29$ vs. $M = 3.97$, $SD = 1.01$; $F(1, 130) = 9.95$, $p = .002$).

Study 4 further tested the process by manipulating closeness, using a 2 (Other's status: without-prior-experience vs. with-prior-experience) \times 2 (Closeness: close vs. distant) between-participants design. Participants first answered a few attitude questions as a part of the closeness manipulation. Next, they watched a short video clip four times, and then watched it one more time with another person who "has not yet watched the video" or "has watched this video for the same number of times." They also learned that this person's answers to the attitude questions overlapped 80% (in close conditions) or 20% (in distant conditions) with theirs. Finally, participants rated the novelty of the last iteration. An Other's Status \times Closeness ANOVA on novelty yielded the predicted interaction ($F(1, 79) = 6.25$, $p = .014$); participants found the video clip more novel when the other person had no prior experience ($M = 4.52$, $SD = 2.09$ vs. $M = 3.19$, $SD = 2.11$; $t(40) = 2.06$, $p = .046$) only when they felt close to the other person.

Satiation occurs all too often as consumers usually need to experience stimuli repeatedly by themselves. We propose and find support for a social approach to combat satiation—that is, consumers can regain novelty by re-experiencing with a close other who has a fresh pair of eyes. Among other benefits of a social relationship, such as emotional and financial support, friends can enhance our experiences.

Does Consumer Stress Affect the Rate of Satiation?

Luke Nowlan, Ben Borenstein and Juliano Laran

Short abstract

We demonstrate that stress reduces the rate at which consumers satiate to hedonic consumption experiences. This occurs because stressed individuals, in order to cope with the loss of control associated with stress, attempt to manage various aspects of the tasks they are engaged with. We find that this coping strategy sustains enjoyment of hedonic experiences such as listening to music, eating, and looking at images. Three studies test and support this framework and rule out alternative accounts.

Extended abstract

Stress is the state resulting from an inability to cope with elements of the surrounding environment (Lazarus 1966). On a day-to-day basis, a variety of factors can cause consumers to feel stress, such as waiting in a check-out line that won't move (Wheaton 1990). While the physiological and psychological effects of stress on general behavior have been well-documented (Mathes, Brownley, Mo and Bulik 2009), less is known about the psychological mechanisms underlying the effect of stress on behavior in consumption contexts. The purpose of the current research is to investigate how stress affects the way consumers manage consumption experiences, which consequently influences sustained enjoyment of consumer experiences. Specifically, we propose that stress can slow the rate at which consumers satiate to the things they consume.

Satiation refers to a decrease in enjoyment of hedonic experiences over time (Redden 2007). For example, consumers typically enjoy the fifth slice of pizza less than the first slice of pizza. Several psychological factors have been shown to reduce the rate of satiation (i.e., sustain enjoyment), including limited availability (Sevilla and Redden 2014), perceived variety (Galak, Redden and Kruger 2009), and lower categorization level (Redden 2007) of the stimuli being consumed. We assert that another such factor involves the tendency for stressed consumers to try to manage various aspects of the tasks they are engaged with. Research on the psychological effects of stress demonstrates that consumers experience a loss of control during stressful experiences (Durante and Laran 2016), and subsequently adopt compensatory strategies to restore control (Cutright and Samper 2014). We propose that stressed individuals, as a means of coping, attempt to manage various aspects of the tasks with which they are engaged. This broader scope of engagement enhances the connection between the individual's actions and features of his immediate environment, thus helping to restore control. Additionally, because consumers

that are engaged with more varied aspects of a hedonic activity (e.g., eating food) tend to enjoy the experience for a longer duration (Crolic and Janiszewski 2016), we hypothesize that stress decreases the rate at which consumers satiate to such experiences. Three experiments test this hypothesis in the domains of music (study 1), food (study 2), and images (study 3).

Study 1 was a 2 (state: stressed vs. neutral) by 5 (consumption trial) mixed design. Participants were randomly assigned to write for two minutes either about their typical day (neutral condition), or about all the things that stress them out in life right now (stressed condition). Subsequently, each subject was exposed to a list of popular songs and was asked to choose one song. Subjects listened to an audio sample of their chosen song, and this was repeated across a total of five trials. After each trial, participants rated their enjoyment of the song. While participants in both conditions satiated to their chosen song to some degree, the decrease in enjoyment from T1 to T5 in the stressed condition was significantly smaller than that of the neutral condition, supporting our prediction that stress reduces the rate of satiation.

Study 2 aimed to replicate the results of study 1 in the domain of food consumption, and rule out the possibility that demand could play a role in this effect. To accomplish this, undergraduate participants prepared an argument, which half of them thought they might have to present to the rest of the lab (stressed condition) and the other half did not (neutral condition) (Dickerson and Kemeny 2004; Durante and Laran 2016). In an ostensibly unrelated study, participants were asked to complete a taste test of grapes. Across five trials, participants ate a total of fifteen grapes (three per trial), reporting their enjoyment for the grapes after each trial (Sevilla and Redden 2014). Consistent with our prediction, the rate at which stressed participants satiated to the grapes was significantly slower than that of the neutral condition.

In study 3, we sought to test the process underlying the effect, as well as rule out the possibility that the effect of stress on satiation can be explained by negative affect in general. To accomplish this, we induced either stress or sadness, and subsequently measured enjoyment of images across five trials. Importantly, we also manipulated whether or not participants perceived that the task they were doing was inherently manageable. Thus, study 3 employed a 2 (state: stress vs. sadness) by 2 (management: baseline vs. no task management) by 5 (trial) mixed design. We predicted that, at baseline stress would decrease the rate of satiation, but when participants did not attempt to manage the task, stress would have no effect on the rate of satiation. After writing about things that make them stressed/sad in life, participants completed five trials where they ranked images of computers. We listed a different criterion on which to base the rankings in each trial (e.g., “how sleek the computers are”), but in the no task management condition, the instructions made it salient that participants could not use their own criteria to rank the images, rather, they had to use the one we specified. The images were the same in all the trials, and after they completed each ranking they rated how much they liked the images. Replicating studies 1 and 2, at baseline stress reduced the rate of satiation to the images. However, when participants perceived that they could not manage aspects of the task, there was no difference between the stressed and sadness condition. In addition to highlighting the role of task management in decreased satiation resulting from stress, study 3 also demonstrates that this effect is not general to all negative affect, rather, it is specific to stress.

Together, these three studies support our framework that stress decreases the rate at which consumers satiate to hedonic experiences. In addition to contributing to the discussion of the effects of stress on consumer health, this research makes a theoretical contribution in the realm of satiation. Specifically, we identify a novel property of task engagement that sustains enjoyment of the things individuals consume.

Buying Beauty for the Long Run: (Mis)predicting Liking of Product Aesthetics

Eva Buechel and Claudia Townsend

Short abstract

Investigating predicted and experienced satiation to two common product design elements, the intensity of color and pattern, we identify a systematic error in consumer preference for aesthetics over time. When choosing for long-term use versus short-term use, consumers opt for simpler designs (less intense colors and patterns) because they predict faster satiation (greater irritation and greater decrease in liking) for high (vs. low) intensity design elements. This preference, however, seems to be misguided. Specifically, consumers overestimate satiation from high intensity design elements, leading to errors in predicted utility and suboptimal decision-making.

Extended abstract

Design elements, such as product color and pattern, are an increasingly important component of the consumer product choice decision (Hoegg and Alba 2008, Patrick and Peracchio 2010). Given that many products are purchased for use over an extended period of time, consumers must not only identify their current preferences, but also predict if and how these preferences may change in the future (Kahneman and Snell 1992). Thus, an important question is whether consumers can accurately predict satiation with different product design elements.

Previous research suggests that consumers are not very adept at predicting future hedonic value (Wilson and Gilbert 2003; 2005) and often have erroneous beliefs about how hedonic value changes after repeat consumption (Snell, Gibbs and Varey 1995). For example participants failed to anticipate that repeated consumption would increase tastiness of an unpalatable yogurt and overestimated how quickly they would tire of music over time (Kahneman and Snell 1992).

While it is clear that consumers have difficulty predicting hedonic value, little is known about how consumers predict perceptual satiation and how this might influence consumer decision-making. Furthermore, research comparing predicted and actual liking has not systematically manipulated stimuli characteristics and examined how these influence predicted and experienced hedonic value over time.

We focus on two common product design elements: color and pattern. Both color and pattern are aesthetic characteristics that vary in their intensity and arousal potential (Berlyne 1970; Kueller, Mikellides, and Janssens 2008; Walters, Apter, and Svebak 1982).

We propose that consumers anticipate high arousal design elements (intense colors and patterns) to become increasingly irritating, making them believe they will tire from high arousal product designs more quickly than from low arousal product designs

(H1). As a result, they will be more likely to avoid intense product designs when the product is intended for long-term use **(H2)**.

This intuition however, may be misguided. Berlyne (1970) suggested that satiation effects depend on the arousal potential of the stimuli. Consumers experience greatest hedonic value when the arousal potential is at a moderate level (Wundt 1974). While people tire quickly from stimuli with low arousal potential, stimuli with high arousal potential only reach this optimal moderate arousal potential after repeated exposure, thus slowing satiation (Zajonc, Shaver, Tavris, and Kreveld 1972).

The broad implication for product design is that arousing product design elements might not be as tiring as consumers expect, but instead yield continued hedonic value. Specifically, we hypothesize that consumers overestimate satiation from high arousal design elements, leading to errors in predicted utility **(H3)**.

In four studies we investigate how consumers predict satiation to product design elements varying in arousal potentials over time and how this influences purchase decisions. In addition, we compare predicted and actual liking to examine the accuracy of consumers' predictions.

Study 1A varied the expected product usage period and examined its effect on product design preference. Participants in Study 1A imagined purchasing paper cups for use over one weekend (short-term condition) or the coming year (long-term condition) and were presented a choice between a low (white) and a high (bright green, bright orange, bright blue, green stitch, blue dots, black zig-zags or red checkered) intensity design. Participants were more likely choose the low intensity design when the consumption duration was long (45.5%) than when it was short (30.9%; H2). Study 1B replicated these results with a variety of low and high intensity iPad cover designs by simply activating a long-term vs. short term consumption mindset.

Study 2 tested whether the preference for low arousal design elements when making decision about long term use results from consumer predicting faster satiation with high arousal design elements (H1). Participants reported predicted irritation and liking for one of two products (bedding or plates) with either low or high arousal product design (low arousal [plain white], high arousal pattern [white/striped or white/abstract], high arousal colored [strong green or strong orange]) at various points in the future (ranging from one week to four years). Participants expected to grow tired more quickly from high arousal than from low arousal product designs, which was mediated by anticipated irritation with the product designs. The pattern was observed for both of the high arousal design elements, color and pattern.

Study 3 and 4 tested whether consumers' predicted satiation patterns observed in Study 2 are accurate (H3).

In a lab study (Study 3), participants either forecasted or reported their liking of a low (e.g., light gray) or high intensity (e.g., bright color and/or abstract patterned) screen background over 15 five-second exposures. In a field study (Study 4) conducted in class, students (experiencers) used a nameplate that had either a high or low arousal design (Low [plain white or pale green], high [abstract pattern or bright green) and reported their liking of the nameplate at three points in the semester (beginning, mid, end). A separate group of students (forecasters) imagined using one of the four nameplates in a class and predicted how much they would like it at the same three points in the semester.

In both studies, forecasters predicted that they would grow more tired of high intensity (vs. low intensity) designs, when, in fact, participants satiated more quickly from low (vs. high) intensity designs. As a result, forecasters overestimated satiation from high arousal design elements, leading to errors in predicted utility (H3). Providing direct evidence for suboptimal decision-making, a follow up study confirmed that students are more likely to choose a low arousal nameplate to use over the semester, even though they were more likely to choose a high arousal nameplate to use in just one class.

In conclusion, we identify a systematic error in consumer preference for aesthetics. We show that consumers are more likely to choose simple (vs. intense) product design elements for long-term use than short-term use because consumers predict they will satiate more quickly from intense product design elements than simple ones. We also show that product design decisions for long-term product use may be misguided and that consumers overestimate satiation with intense product design elements.

The Effect of Incidental Emotion and Food Color on Satiation from Repeated Consumption

Julio Sevilla and Anthony Salerno

Short abstract

We demonstrate how the interplay between incidental emotions and food color influences satiation. We show that participants satiated slower when they consumed a food whose color was consistent with their currently experienced emotion. For example, while feeling angry (sad) participants satiated slower from the consumption of red (blue) chocolate balls. This fit between emotion and color led to reduced salience of the item at the moment of consumption and to less satiation from it. Finally, we provided evidence for the generalizability of the effect by showing that it held across emotions of different valence and arousal levels.

Extended abstract

While common intuition may dictate that consumers satiate from the quantity consumed (e.g. Mook and Votaw 1992; Rolls et al. 1981), past work has shown that satiation can also be influenced by psychological factors such as the way in which a stimulus is categorized (e.g. Redden 2008) or perceived (e.g. Sevilla and Redden 2014), or by the metacognitions (Redden and Galak 2013) or time orientation (Galak, Redden and Kruger 2009; Sevilla, Zhang and Kahn 2016) by which an experience is construed. Despite these findings, one factor that has received little attention in past work on the psychological determinants of satiation relates to how the visual aspects (e.g. color) of a food stimulus may affect satiation. In this work we examine how consumers differentially satiate from otherwise identical stimuli that only vary on the color dimension. Specifically, we show that consumers satiate slower from stimuli whose color is consistent with their currently experienced emotions.

We build on past findings demonstrating that certain colors are closely associated to certain emotions (e.g. Goethe 1810). For example, bright red has been associated to anger (e.g.; Epps and Kaya 2004; 2005) while dark blue has been related to sadness (e.g. Goethe 1810). We show that not only do consumers relate specific colors to certain emotions, but that these associations can also influence the rate of satiation from foods whose colors are consistent with their current emotions. We show this effect across

different types of emotions that vary on valence and level of arousal. Furthermore, we demonstrate that the effect is driven by a positive effect of a match between current emotion and food color, rather than by a negative effect of a mismatch. We also demonstrate that the effect is explained by the reduced salience of a food whose color is consistent with a consumer's current emotions, which makes the consumption experience less satiating.

We provided support for our hypothesized effect and its underlying mechanism across three real food consumption studies. Study 1 provides initial evidence in favor of the hypothesized effect. In this design we exposed consumers to eating either bright red or dark blue chocolates and manipulated their incidental emotions through the presentation of a video. This video either made them angry, sad or was a control emotion. We expected that the dark blue chocolate would be a match with the sad emotion while the bright red chocolate would be a match with the angry emotion. We hypothesized that the control condition would not be a match with either type of chocolate. This condition was included to test if any observed effect was due to a beneficial effect of a match between a color and emotion or due to a negative effect of a mismatch between color and emotion. Consistent with our theory, we showed that, in the anger and sadness conditions, consumers satiated slower and enjoyed the last bite of chocolate more when there was a match between their experienced emotion and the color of the food eaten ($M_{match} = 34.47$ vs. $M_{no-match} = 23.94$; $F(1, 293) = 14.24, p < .0001$). Importantly, we did not observe any difference between the no emotion and the no-match conditions ($F < 1, n.s.$), which shows that the effect is driven by a positive effect of a match between incidental emotion and color. This finding is also consistent with past work linking bright red to anger and dark blue to sadness (e.g. Cortes 2005; Goethe 1810; Kaya 2004; 2005).

Study 2 provided support for the generalizability of the effect by showing that it holds for other negative emotions such as fear and envy. Furthermore, in this case rather than relying on past literature, we ran a pretest to delve more into the relationship between different emotions and colors. The pretest demonstrated that the color black is associated to fear while green is related to envy. Given this, we used these emotions and colors as our stimuli for this study. Consistent with study 1, once again we showed that the last bite of a chocolate experience was enjoyed more when there was a match between an experienced emotion and the color of the food eaten ($M_{match} = 47.29$ vs. $M_{no-match} = 35.73$; $F(1, 201) = 8.84, p < .005$).

The goal of study 3 was twofold. First, unlike the first two studies, which tested the effect across negative emotions, in this experiment we employed two positive emotions (i.e., happiness and calmness) that vary in the level of arousal they evoke (Russell 2003). Specifically, we used happiness and calmness as our target emotions. Once again, we relied on our pretest to provide support for the link between these emotions and their associated colors. In this case, our pretest showed that happiness was linked to the color pink while calmness was associated to turquoise. Our satiation results once again showed that a match between an experienced emotion and the color of a food eaten led to more enjoyment of the last chocolate consumed ($M_{match} = 43.06$ vs. $M_{no-match} = 30.65$; $F(1, 288) = 15.16, p < .0001$). The second objective of this study was to provide mediation support in favor of our hypothesis that the effect was driven by a congruency between the experienced emotion and the color of a food consumed making the eaten item less salient, which led to a slower rate of satiation ($\beta = .72, 95\% \text{ CI: } [.02, 2.19]$). This

finding seems to be consistent with past work showing that keeping less track of what is consumed decreases the rate of satiation (e.g. Sevilla and Redden 2014).

The present research extends our knowledge of the phenomenon of satiation by showing that visual aspects of a food consumed, such as its color, may influence how fast we satiate from an experience. Furthermore, this work demonstrates that this may occur due to the interplay between an experienced emotion and the color of the food consumed. This finding shows that the effect of food color on consumption may be moderated by contextual factors.

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2.3 Affect: Anger, Fear, Gratitude, and Just a Tease Individual Papers

On the Consumption of Anger-Eliciting Items

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Given that anger is generally considered a negative feeling, intuitively we should expect people to refrain from consuming anger-eliciting items (e.g., an article that speaks in favor of a rival political party). With so much content to choose from, it seems logical to assume, for example, that people would change the channel or turn the page when anger-inducing news or opinions are delivered. Contrary to this intuition, we suggest that sometimes people are motivated to consume items (e.g., articles) that make them angry. Prior studies show that anger leverages performance in conflictual tasks (Tamir et al., 2008; van Kleef & Côté, 2007), and may also be instrumental to maintaining the positivity of the self, for example by producing a sense of control and lessening self-blame attributions (Lerner & Tiedens, 2006; Smith & Ellsworth, 1985). Integrating these streams of research, we suggest that anger may increase consumption when it is intertwined with a conflict between consumers' attitudes and the message conveyed by a consumed item. We further suggest that this effect arises because in the presence of such a conflict, anger-involved consumption may have positive effects on self-perceptions. The experience of discordance between the message carried by a consumed item and people's own opinions may challenge people's personal views and therefore cause them to question themselves (De Dreu & van Knippenberg 2005; Rohmann et al. 2008). In line with previous findings pointing to the potential of anger for maintaining the positivity of the self, we expect that in the presence of a conflict, consumers who engage in anger-eliciting consumption will eventually feel better about themselves, as expressed in greater confidence in their attitudes and beliefs and feelings of greater self-value.

A set of experiments provides empirical support for the consumption of anger-eliciting items, its underlying motivation, and its favorable consequences in terms of self-perceptions. Specifically, a pilot study confirmed prevalent deliberate engagement in anger-involved consumption. Participants reported consuming a variety of items despite expecting their consumption to make them angry: for articles, 78%; for blogs, 62%; and for television programs, 48%.

Experiment 1 then manipulated conflict through two versions of a brief narrative about an incident in which a disabled person was not allowed to fly with his wheelchair. Analysis using the PROCESS bootstrapping method (Model 4, with 5000 resamples; Hayes 2013) confirmed the mediating role of anger in the effect of conflict on consumption intentions. Compared to lower conflict, higher conflict with the message induced more anger ($t(205)=9.86, p<.001$). Greater anger, in turn, increased people's interest in further consumption of the conflictual item (i.e., reading more about the incident; 95% CI: .560, 1.403), and also made them more likely to choose to read a full-length article specifically on the conflictual topic (over an alternative item; 95% CI: .067, .429). The results further suggest that anger contributed to the effect of conflict above and beyond arousal.

Experiment 2 provides initial support for our proposed underlying process by demonstrating that anger resulting from conflictual consumption leads people to expect to feel better about themselves following further consumption of the same type. Analysis using the PROCESS bootstrapping method (Model 4, with 5000 resamples; Hayes 2013) confirmed that the level of anger which people felt following the conduct of Trump during the US presidential election campaign mediated the effect of their perceived conflict with Trump's agenda on how they expected to feel about themselves after listening to his next speech (95% CI: .070, .443). Specifically, conflict increased anger (95% CI: .825 to 1.115), and anger, in turn, led to greater expectations to feel better about oneself (more assured in one's opinions, smarter, and more self-valuable; Cronbach's $\alpha = .73$) (95% CI: .078 to .438). Experiment 2's results also suggest that the current effect is unlikely to be triggered by other emotional reactions, such as happiness and sadness.

Experiments 3A and 3B provide convergent evidence for our proposed effect, showing that actual consumption of conflictual items driven by anger indeed helps people to feel better about themselves. In Experiment 3A, an analysis using the PROCESS bootstrapping method (Model 4, with 5000 resamples; Hayes 2013) revealed that the greater the conflict people perceived with a satirical political television show, the angrier they felt, and the longer they watched the show (95% CI: .002, .093). An additional analysis testing serial multiple mediation using the PROCESS bootstrapping method (Model 6, with 5000 resamples; Hayes 2013) confirmed that as a consequence of their anger-involved consumption, people felt better about themselves (95% CI: .0002, .0478). The results of Experiment 3A also suggest that the current effect is unlikely to be triggered by participants' prior self-perceptions.

Experiment 3B manipulated conflict through a written narrative about a real incident in which one Member of Parliament accused another of double voting. A serial mediation analysis using the PROCESS bootstrapping method (Model 6, with 5000 resamples; Hayes 2013) revealed that anger resulting from a conflict with the content of the initial paragraph caused people to spend more time reading a full-length article about the conflictual topic (95% CI: .002, .142), and, consequently, enhanced their self-perceptions (95% CI: .001, .103). The results of Experiment 3B also suggest that interest level and a desire to know whether the issue had been resolved, be more informed, or relieve boredom cannot explain our results.

Taken together, our results show that people deliberately engage in the consumption of items that elicit anger when a conflict of attitudes accompanies consumption, and they do so because the anger serves a purpose—namely, producing “better-self” perceptions. These findings contribute to our understanding of the evasive interplay between emotions, consumption and self-perceptions, add to the literature on anger and self-protective consumption, and have practical implications for the designing of messages in the media and other consumed content.

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I'm Scared, Want to Listen? Incidental Fear's Influence on Self-Disclosure to Brands

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Extant research has considered various antecedents that may influence consumers to engage in self-disclosure (Derlega et al, 1993). However, scant research has examined the impact of incidental emotion on self-disclosure. For example, a common emotion consumers feel is fear. Yet, research has not considered incidental fear's potential influence on self-disclosure motivations. In this research, we explore the impact of fear on self-disclosure and how this self-disclosure may be beneficial for brands.

Fear is a basic negative emotion elicited in response to perceived threat (Izard, 2013). Several theories examine the antecedents to and outcomes of fear. For example, cognitive appraisal theory suggests that fearful individuals are risk-averse and express pessimistic risk estimates of future events (Lerner and Keltner, 2001). Emotion regulation, however, has found that people cope with fear through affiliation with others (Schachter, 1959; Sarnoff and Zimbardo, 1961), a mechanism that has been shown to enhance brand attachment (Dunn and Hoegg, 2014).

The above theories of fear provide divergent predictions on fear's effect on behavioral outcomes. While cognitive appraisal theory would predict that fearful individuals are risk-averse, affiliation theory would predict that fearful individuals are motivated to affiliate with others. Such affiliative behavior could potentially put an individual at risk of rejection or exploitation, if it involves self-disclosure (Derlega et al, 1993). Previous literature has suggested that individuals choose to divulge private information when it provides a "net benefit" (White 2004), and are more likely to be open

and honest when they do disclose (Derlega et al. 1993). This vulnerability results in self-disclosure being an inherently risky activity. If self-disclosure can enhance affiliation, but is also perceived as risky, which motivation (risk-aversion vs. affiliation) would exert greater influence over a fearful individual? This research explores this question and, in doing so, adds theoretical depth to our understanding of the motivational outcomes of fear. We suggest that the findings can also be beneficial for brands as self-disclosure can strengthen consumer-brand relationships.

Across four studies we observe directional and significant effects of fear on self-disclosure. Specifically, we expect affiliation (via measurement and moderated by affiliative experience) as the underlying process. For sake of space, we provide three of our four studies here. Study 1 (N = 155) tested whether a) self-disclosure is seen as a risky activity and b) fear leads to higher perceptions of risk. Using several measures of self-disclosure behavior [i.e., private information, personal information, use of private and personal information (Vogel and Wester 2003; Fogel and Nehmad 2009)], we find a consistent pattern for fear: those who experienced fear perceived directionally greater risk in different domains of private and personal information than those in the control group (Table 1).

Study 2 was a 2 (emotion: fear vs. control) x 2 (experience: alone vs. with others) between-subjects design used to test the moderating effect of experience on incidental fear's influence on self-disclosure. Undergraduate participants (N = 172) were told that they would either be watching a movie clip alone or with everyone in the lab. Participants were then randomly assigned to watch either a fear-inducing or control movie clip. All participants were told that they had been selected for a pre-screening for a future focus group conducted by a brand. Participants were presented with opportunities to answer open-ended questions and questions measuring likelihood of openness and honesty in participants if they were selected for the future focus group. Results found that individuals who experienced fear alone believed they would demonstrate significantly greater openness and honesty with the brand if they were selected for the future focus group ($M = 5.16$, $SD = 0.94$) than all other groups ($M = 4.49$, $SD = 1.07$, $F(1,166) = 4.61$, $p = .033$) (Figure 1). The findings from this study suggest that individuals who have experienced fear alone exhibit significantly greater levels of self-disclosure qualities.

Study 3 utilized the same setting and design as Study 2. Undergraduate students (N = 250) were asked to recall and write about a time they went to the movies alone vs. with others and were then randomly assigned to watch a fear-inducing or control movie clip. Manipulation checks confirmed both the experience and emotion manipulations. Study 3 then asked participants to answer open-ended questions about a risky personal topic: what they were most guilty about in life. Participants assigned to experience fear alone provided significantly longer responses about what they were most guilty about in life ($M = 17.88$, $SD = 27.61$) than participants assigned to experience fear with others ($M = 10.98$, $SD = 11.57$, $F(1, 246) = 3.69$, $p = .056$) (Figure 3). To measure private information disclosure, participants were asked if they would be willing to disclose their school roster photo to the unknown moderating brand representative. Analysis revealed that participants who experienced fear alone were directionally more likely to agree to disclose their roster photo to the unknown brand moderator (55.38%) than participants who watched the same clip with others (42.85%), $\chi^2(1, N = 121) = 1.89$, $p = .117$. No

significant differences were observed between experience conditions in the control condition regarding the likelihood to provide roster photos to the moderator.

Our contribution to theory is three-fold. Firstly, we present a novel consideration of cognitive appraisal theory and affiliation theory in the domain of fear. Secondly, we extend the current knowledge of incidental emotional research within marketing (Achar et al, 2016). Thirdly, we extend self-disclosure literature within marketing by offering fear as a novel antecedent. We believe brands can utilize our findings to create strategic plans for communication with their consumers after an unrelated scary event has occurred. By doing so, both parties within the relationship can benefit; consumers can have the opportunity to alleviate their fear by affiliating with the brand via self-disclosure and the brand can obtain valuable information about its consumers that they would otherwise not have access to. Future research will examine brand outcomes.

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Appendix

Table 1: Risk Perceptions of Individuals With and Without Experiences of Fear

Topic and Condition	Mean	Standard Deviation	F(1,154)	p-value
Risk in disclosing private information to	6.01	1.19	3.22	.075

brand representative (fear)				
Risk in disclosing private information to brand representative (control)	5.61	1.57		
Risk in disclosing private information in online survey (fear)	5.61	1.70	3.14	.079
Risk in disclosing private information in online survey (control)	5.37	1.78		
Risk in exploitation of information (fear)	2.78	3.34	3.12	.079
Risk in exploitation in information (control)	2.38	3.00		
Risk in misuse of information (fear)	2.74	3.31	8.29	.005
Risk in misuse of information (control)	2.16	2.72		

Figure 1: Commitment to Openness and Honesty Towards Brand

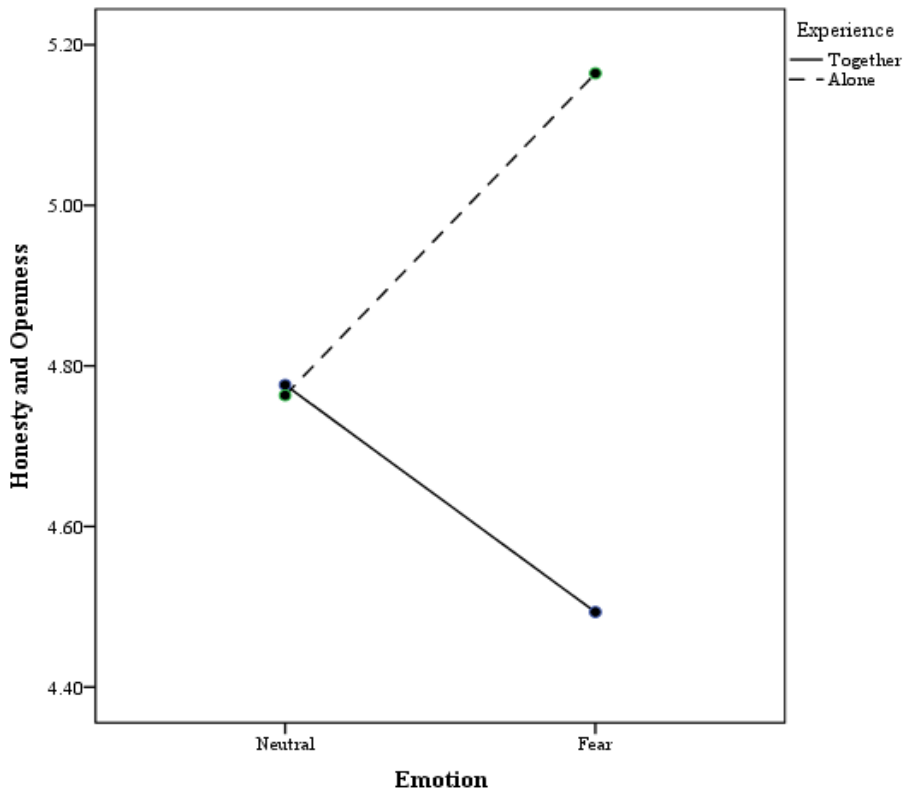
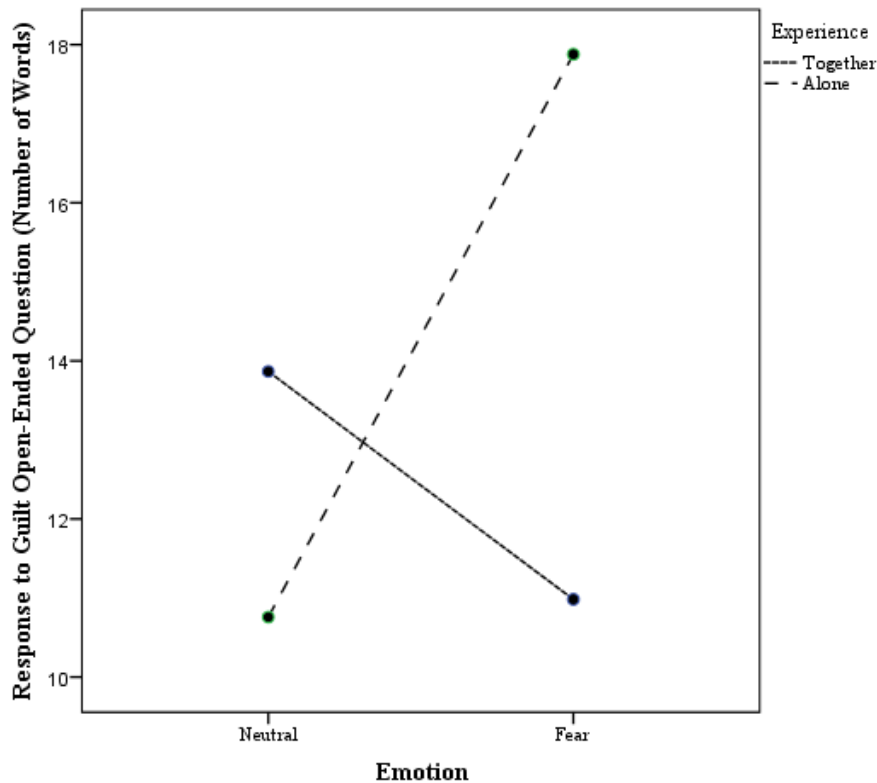


Figure 2: Effect of Emotion and Experience on



The Teasing Effect: An Underappreciated Benefit of Creating and Resolving an Uncertainty

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Happiness, to a large extent, comes from the satisfaction of desires. Yet our basic desires, such as those for food, drink and sleep, are finite. Once satiated, they cannot be immediately and easily recreated without entailing side effects. Hence, our happiness from satisfying these desires is also bounded. The desire for knowledge – curiosity, however, can be easily induced and can possibly be innocuous. This research studies how to use uncertainty to enhance happiness. The uncertainty we study here is about general knowledge (e.g., “When was Einstein born?”), not about personal issues (e.g., “Am I infected with Ebola?”), and the happiness we study here is momentary hedonic experience, not overall life satisfaction.

Inspired by existing research on the hedonic consequences of curiosity, we propose that (a) uncertainty (which induces curiosity) does not make one unhappy and (b) uncertainty resolution (which resolves the curiosity) makes one happy. Therefore, first inducing a

person to feel curious and then resolving her curiosity will endow the person with a net gain in happiness. We further propose that laypersons are largely unaware of the hedonic benefit of this uncertainty-creation-resolution process, and are unwilling to expose themselves to such a process.

Put formally, we submit the following hypotheses:

H1. When receiving information, people will enjoy a better overall experience if they first experience some uncertainty about the information and then the resolution of the uncertainty than if they directly receive the information with on uncertainty.

H2. When given a choice between (i) directly receiving information, and (ii) undergoing an uncertainty-creation-resolution process, people prefer to directly receive information.

We have conducted multiple experiments that tested and lent support to these hypotheses. Here is a typical experiment. It consisted of three between-participants conditions: treatment, control, and choice. In the treatment condition, participants went through two phases. In phase 1, they read 10 questions about the life of Albert Einstein. They were told in advance that they only needed to think about the answers and did not need to write them down. They were also told that they would find out the answers to those questions in phase 2. In phase 2, the participants read a biography of Einstein, which contained the answers to the 10 questions. The control condition was identical to the curiosity condition, except that in phase 1, the participants viewed 10 pictures of Einstein rather than read 10 questions about Einstein. Therefore, relatively speaking, participants in the treatment condition were more curious than participants in the control condition before they read the biography. In the third – choice – condition, participants were told about the procedures of the above two conditions and asked to make a choice. In all the conditions, we sampled participants' hedonic experience in both phase 1 (when they read the questions or viewed the pictures) and phase 2 (when they read the biography).

Supporting H1, participants in the treatment condition were on average happier than participants in the control condition. Moreover, the main difference in happiness between the two conditions occurred in phase 2, not in phase 1. That is, during phase 1, participants who read the questions were not happier (nor less happy) than participants who viewed the pictures, but during phase 2, participants who had read the questions were happier when reading the biography than participants who had viewed the pictures.

Supporting H2, when given a choice between the treatment and the control conditions, most participants chose the control condition, that is, they chose to view the pictures rather than read the questions in Phase 1, even though they knew they could find out the answers in phase 2.

We have obtained these results in six experiments. Table 1 summarizes these experiments, including their procedures and main results.

The current research demonstrates the potential of boosting happiness by first inducing a desire and then satisfying it. In most of human history, our ancestors lacked the resources

to satisfy even their most basic desires. In times like those, one of the most effective ways to boost happiness was to satisfy such a basic desire. Historically, this is probably why in many cultures, a popular way to treat friends was to cook a meal for them or take them to a restaurant. Relative to our ancestors, we are now living in a world of abundance. For many of us, there is too much to eat, not too little. With the advances of technology and the accumulation of wealth, more of us will face this “ceiling effect.” To generate additional happiness, we will need additional desires. Thus, the key to happiness is not to satisfy existing desires, but to induce new desires. But desires such as those for food, drink and sleep cannot be easily induced; even if they could, inducing such desires would entail costs and side effects. Curiosity, at least the type of curiosity studied in this research, is a desire that can be readily induced, and can be satisfied with little to no cost. Our studies show the potential of using curiosity induction and resolution to boost happiness.

TABLE 1: OVERVIEW OF STUDIES

Study	Condition	Procedure	Dependent Variable(s)
1. Trivia	Treatment	Read animal trivia, each piece first posing a question and then revealing the answer	Experience = 3.61 (1.17)
	Control	Read animal trivia, each piece directly revealing the answer	Experience = 3.18 (1.21)
	Choice	Choose between the above conditions	Choosing Treatment = 37.0%
2. Cities	Treatment	View city scene slides, each slide first unnamed and then named	Experience = 3.65 (.99); choosing to continue = 69.7%
	Control	View city scene slides, each slide always named	Experience = 3.32 (.99); choosing to continue = 52.6%
	Choice	Choose between the above conditions	Choosing Treatment = 37.4%
3. Biography	Treatment	Phase 1: Read 10 questions Phase 2: Read a biography	Experience = 4.09 (.74); phase 1 = 3.86 (.92); phase 2 = 4.33 (.81)
	Control	Phase 1: View 10 pictures Phase 2: Read a biography	Experience = 3.77 (.93); phase 1 = 3.78 (1.03); phase 2 = 3.76 (1.14)
	Choice	Choose and predict experience between the above conditions	Choosing Treatment = 19.8%; predicting happier in Treatment = 21.8%
4. Target Card	Treatment	Viewing a gift card emerging from an envelope not knowing which store it can be used at	Experience = 7.84 (1.79); phase 1 = 7.02 (1.98); phase 2 = 8.68 (2.10)
	Control	Viewing a gift card emerging from an envelope knowing which store it can be used at	Experience = 7.07 (1.96); phase 1 = 7.25 (1.97); phase 2 = 6.89 (2.09)
	Choice	Choose between the treatment condition and the control condition	Choosing Treatment = 39.5%

5. Ads	Treatment	View ads, each ad first describing product and then revealing identity	Experience = 3.35 (.94); attitude = 3.98 (.61)
	Control	View ads, each ad first revealing identity and then describing product	Experience = 2.17 (.88); attitude = 3.65 (.59)
6. Starbucks Card	Treatment	View an ad that first describes product and then reveals identity	Choosing the manipulated stimulus = 66.0%
	Control	View an ad that first reveals identity and then describes product	Choosing the manipulated stimulus = 45.3%

Is All Gratitude the Same? Differentiating Salvation, Serendipitous, and Serene Gratitude

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People often describe themselves as feeling grateful, but such pronouncements arise from an incredibly diverse array of situations. For example, gratitude can be experienced in response to a much-needed rescue, an unexpected kindness shown by another, or reflection on positive elements of one's life. With such diversity, it is difficult to believe that each experience of gratitude similarly and consistently elicits a single set of affective and behavioral responses to a consistent pattern of situational appraisals and behavioral outcomes, as might be expected of any specific emotion (Lerner and Keltner 2001). When an individual experiences gratitude, s/he experiences it within a particular context – a benefit is provided and s/he reacts to it in a manner consistent with its source and circumstances surrounding its conferral. The traditional conceptualization of gratitude, however, does not account for these contextual factors. We focus on need and agency. Specifically, the beneficiary could perceive that a received benefit was needed (i.e., perceived as important and unlikely to have been obtained without another's assistance). We refer to this type of gratitude as *salvation gratitude*. Alternatively, a benefactor might bestow a benefit that, while appreciated, was not needed. We refer to this type of gratitude as *serendipitous gratitude*. We further propose a third type of gratitude arises in individuals not in response to receiving a benefit from another, but rather via a process of self-reflection or self-awareness. We refer to this type of gratitude as *serene gratitude*.

To empirically differentiate the proposed gratitude types, we propose the appraisal dimensions other-agency and pleasantness should differentiate salvation, serendipitous, and serene gratitude. Salvation and serendipitous gratitude are expected to differ from serene gratitude on the other-agency appraisal dimension, while salvation gratitude, with need of the benefit as an antecedent, will report lower appraisals of pleasantness than the other gratitude types. These individuals should also have heightened negative feelings because they were both in need prior to receiving the benefit and likely feel responsibility for that need due to lower appraisals of other-agency. Salvation gratitude should thus elicit more negative affect than serendipitous or serene

gratitude. Finally, though gratitude has been linked regularly to pro-social behaviors (e.g., Bartlett and DeSteno, 2006), we suggest there could be differences across gratitude types. We propose that the more negative feelings associated with salvation gratitude will increase the focus on oneself, thereby inhibiting the other-focused pro-social orientation that prototypically arises from gratitude.

Study 1A – Appraisal Patterns of Gratitude Types

A 3-condition (salvation/serendipitous/serene gratitude) between-subjects experiment was completed by 145 mTurk participants.

To prime gratitude type, participants completed an autobiographical recall task (Lerner and Keltner 2001). Following the emotion priming task, participants were asked to complete the Dimensional Ratings Questionnaire to measure appraisal patterns of their recalled experiences (Smith and Ellsworth, 1985).

Results

An ANOVA revealed a significant effect of gratitude type on the pleasantness appraisal. As expected, salvation gratitude was associated with lower pleasantness than serendipitous and serene gratitude. Serendipitous and serene gratitude were associated with similar levels of pleasantness.

An ANOVA of other-agency as a function of gratitude type was significant. Follow-up contrast analyses demonstrated this effect was driven by the serene gratitude condition, which was associated with significantly lower appraisals of other-agency than salvation gratitude and serendipitous gratitude, which did not differ from each other.

Study 1B – Affective Profiles of Gratitude Types

A three-condition (salvation/serendipitous/serene) between-subjects experiment was completed by 111 mTurk participants. A similar recall task was employed as in S1A, though the word ‘gratitude’ was excluded from all instructions. After the autobiographical recall task, all participants completed the PANAS-X (Watson and Clark 1994) with the items ‘grateful,’ ‘thankful,’ and ‘appreciative’ added.

An ANOVA of felt gratitude, as a function of the gratitude type condition was NS. An ANOVA of negative affect indicated a significant effect by gratitude type. Planned contrasts revealed salvation elicited greater negative affect than either serendipitous or serene gratitude. Serendipitous was also associated with more negative affect than serene gratitude.

Study 2A

S2 was designed to explore whether gratitude types would uniquely predict pro-social responses using donation intentions (2A), and donation behavior (2B). A 3-condition (salvation/serendipitous/serene) between-subjects experiment was completed by 142 mTurk participants. Participants completed the same autobiographical recall task as in

S1A. Following the gratitude type prime, participants read a description of Feeding America and indicated their likelihood of donating to Feeding America.

An ANOVA of donation likelihood as a function of gratitude type was significant. As expected, salvation gratitude was associated with the lowest likelihood of donating relative to serendipitous and serene gratitude, which did not differ.

Study 2B

A five-condition (salvation gratitude, serendipitous gratitude, serene gratitude, happiness, neutral) between-subjects design was completed by 109 adult mTurk participants.

Participants in the salvation, serendipitous, and serene gratitude conditions completed the same recall task as in S1A and S2A. Participants in the happiness condition were asked to describe a time when they felt happy. Participants in the neutral condition were asked to describe their typical laundry day. Following the emotion prime task, participants were told they would receive an additional \$0.25 cents for completing the study, and that they had the option to donate any of this bonus to Childhelp. Participants were provided with a brief description of this organization and provided a link to the Childhelp website for additional information.

An ANOVA of donation amount as a function of emotion condition revealed the expected significant effect of gratitude type when controlling for sympathy. Planned follow-up contrasts revealed that salvation gratitude was associated with reduced donation magnitude relative to serene gratitude, and marginally reduced donation magnitude relative to serendipitous gratitude. Salvation gratitude also elicited marginally lower donations than happiness, and equal donations to the neutral condition.

Conclusion

In conclusion, across four studies, we present evidence of three unique gratitude types: salvation, serendipitous, and serene. These gratitude types differ across appraisal dimensions, affective gestalt, and pro-social motivation properties.

Means by Condition Across Studies

		Salvation	Serendipitous	Serene	Happy	Neutral
S1A						
	MC: Need	5.48	3.38	3.38	-	-
	MC: Others	6.5	6.38	3.23	-	-
	Pleasantness	4.19	5.64	5.33	-	-
	Other-Agency	3.73	3.95	3.19	-	-
S1B						
	Gratitude	5.62	6.11	6.12	-	-
	Negative Affect	2.49	1.24	1.72	-	-
	Surprise	3.44	4.39	3.48	-	-
	Serenity	3.89	4.33	4.92	-	-
S2A						
	Donate Likelihood	4.12	5	5.02	-	-
S2B						
	Donation	3.06	7.39	8.28	7.52	1.92

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2.4 JDM: Anchoring and Reference Points Individual Papers

Shopping for estimates: a theory of anchoring

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When people consider arbitrary anchors before estimating unknown quantities, the anchors influence their estimates (Tversky & Kahneman, 1974). In this project, we explore how anchors affect judgments. We present evidence against two popular accounts of anchoring - scale distortion (Frederick & Mochon, 2012) and traditional anchoring-and-adjustment (Epley & Gilovich, 2006) – and in favor of a novel account that we call *shopping for estimates*.

According to scale distortion theory, considering an anchor changes people's perceptions of candidate values. For example, considering a smaller anchor makes larger candidate values seem even larger, and so smaller values seem large enough. According to traditional anchoring-and-adjustment accounts, people decide in which direction to adjust from anchor values, and then consider potential estimates sequentially. Because this process is effortful, people stop as soon as they reach a plausible estimate. Hence, people tend to select a plausible estimate that is close to the anchor.

According to the shopping-for-estimates account, people first consider the anchor, and then adjust towards plausible values. However, people do not simply choose the first plausible value that they consider. Rather, they decide among the estimates that they consider in the same way that consumers choose among products, and thus exhibit the same proclivities. Specifically, we propose that people (1) engage in a truncated search for plausible options, and (2) they exhibit extremeness aversion when choosing among those options (Simonson & Tversky, 1992). Anchoring occurs because people usually consider a small number of values that are close to the anchor.

Although all three of these theories predict the emergence of anchoring effects, they make divergent predictions about how exactly anchors will affect judgments. In this abstract, we report the results of two studies that test these predictions.

In Study 1 (N=409), participants made 15 incentivized estimates, each after considering an anchor value. We allowed them to adjust up to 60 units away from this anchor, and instructed them to round their estimate to the nearest 10. We manipulated whether the scale required them to adjust in units of 10 (large adjustment condition) or allowed them to adjust in units of 1 (small adjustment condition; see Figure 1). For the purposes of cleanly distinguishing among the theories, we measured whether or not they adjusted at least 50 units away from the anchor. (More straightforward versions of the dependent variable also yield significant effects, but make it harder to tease apart the theories).

According to scale distortion theory, this manipulation should have no effect. According to anchoring-and-adjustment theory, this manipulation should also have no effect. If the

first plausible estimate is 50 units from the anchor, all participants should settle for an adjustment of 50. If the first plausible estimate is 51 units from the anchor, participants should settle for an adjustment of 51 in the small adjustment scale condition, and 60 in the large adjustment scale condition. No matter which estimates are plausible, anchoring-and-adjustment predicts an equal likelihood of adjusting by more than 50 whether the unit of adjustment is 1 or 10. Shopping-for-estimates predicts a different result. If people engage in a biased and truncated search for estimates, then the consideration sets are likely to differ as a function of adjustment magnitude. For example, if a person adjusts in units of 10, she might consider adjusting by 40, 50, 60, and 70 and then choose a value in the middle of that range (e.g., 55 rounded up to 60). But if a person adjusts in units of 1, she might consider 40, 41, 42, and 43, and then choose a value in the middle of *that* range (e.g., 41 rounded down to 40). Thus, by this account, larger adjustments should increase the probability that a participant will adjust by 50 or more. Indeed, although 15.1% of the adjustments were greater than 50 in the large adjustment condition, only 11.7% of the adjustments were greater than 50 in the small adjustment condition, $t(408)=2.53$, $p=.012$; see Figure 2.

In Study 2 ($N=392$), shopping for estimates and effortful adjustment predict anchoring, but scale distortion does not. Participants made 5 estimates, each concerning the relationship between a different pair of variables (e.g. soccer games and goals scored.) For each estimate, we randomly assigned participants to one of 4 conditions in a 2 (anchor: high vs. low) by 2 (variable estimated: e.g. goals vs. games) design. According to the variable estimated condition, we assigned a value to one variable in the pair, and asked participants to estimate the corresponding variable by filling in a blank (e.g. Lionel Messi scored 174 goals in his first ___ games.) Before each estimate, we told participants a data point linking the variables. In the low (high) anchor condition, the variables took low (high) values (e.g. “Lionel Messi scored 9 (524) goals in his first 34 (647) games.”) Shopping for estimates and effortful adjustment predict an anchoring effect; estimates increase with the values in the anchor condition. However, scale distortion predicts a null effect. For example, when participants predict how many games it took Lionel Messi to score 174 goals, knowing that Lionel Messi took 647 games to score 524 goals should have two offsetting effects. First, it should make 174 seem like a small number of goals, *reducing* the estimate of the games required to score them. Second, it makes any number of games feel smaller, *increasing* the estimate of the required games. Even if some variables are more susceptible to contrast effects than others, by randomizing which variable participants estimate in each pair, we ensure that these effects should offset each other overall. We z-scored estimates of each of the 10 variables and found that, consistent with shopping for estimates, participants estimated higher values in the high anchor condition, $t(391)=8.51$, $p<.001$; see Figure 3.

By unifying the consumer choice literature on extremeness aversion with the anchoring literature, we have generated and tested new falsifiable predictions that current theories of anchoring struggle to explain. We expect our findings to interest a broad audience at SCP.

Figures

Figure 1: Response scales for the question “How many calories are there in a Big Mac?” after predicting that the answer would be more than 550 calories.

Small adjustment scale condition

You indicated that there are more than 550 calories in a Big Mac.

How many calories are there in a Big Mac?



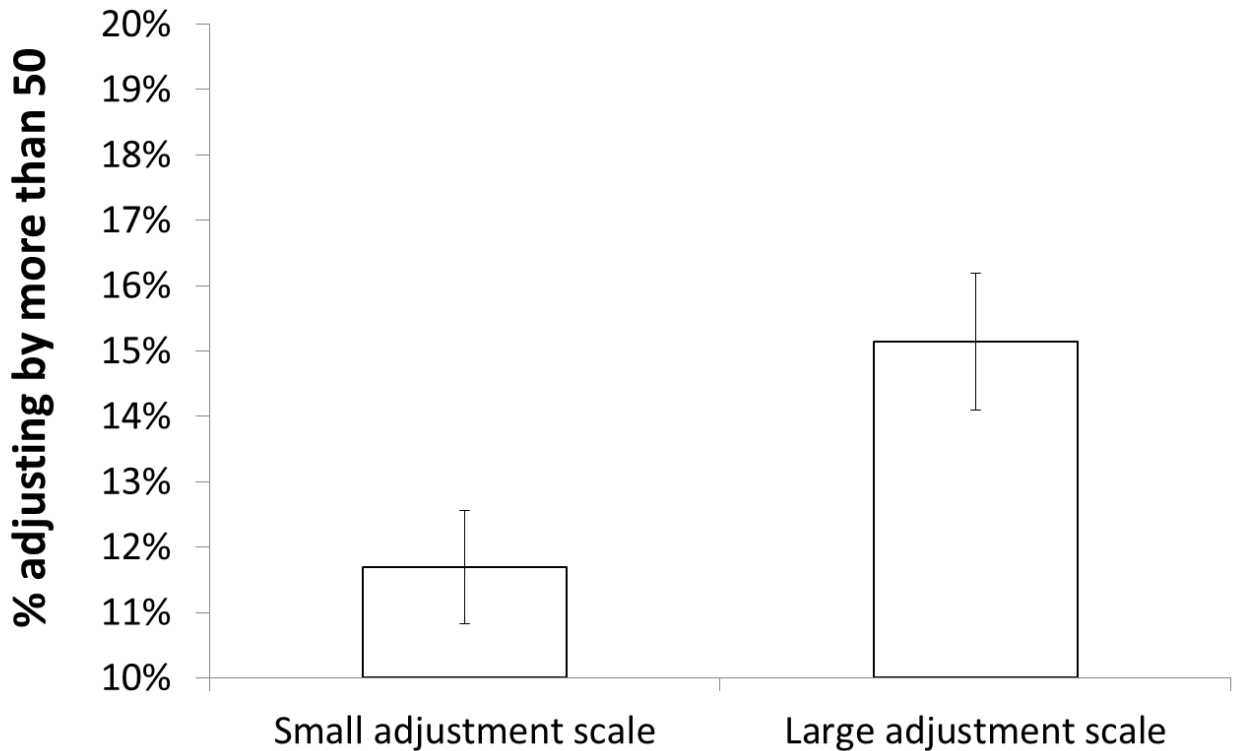
Large adjustment scale condition

You indicated that there are more than 550 calories in a Big Mac.

How many calories are there in a Big Mac?

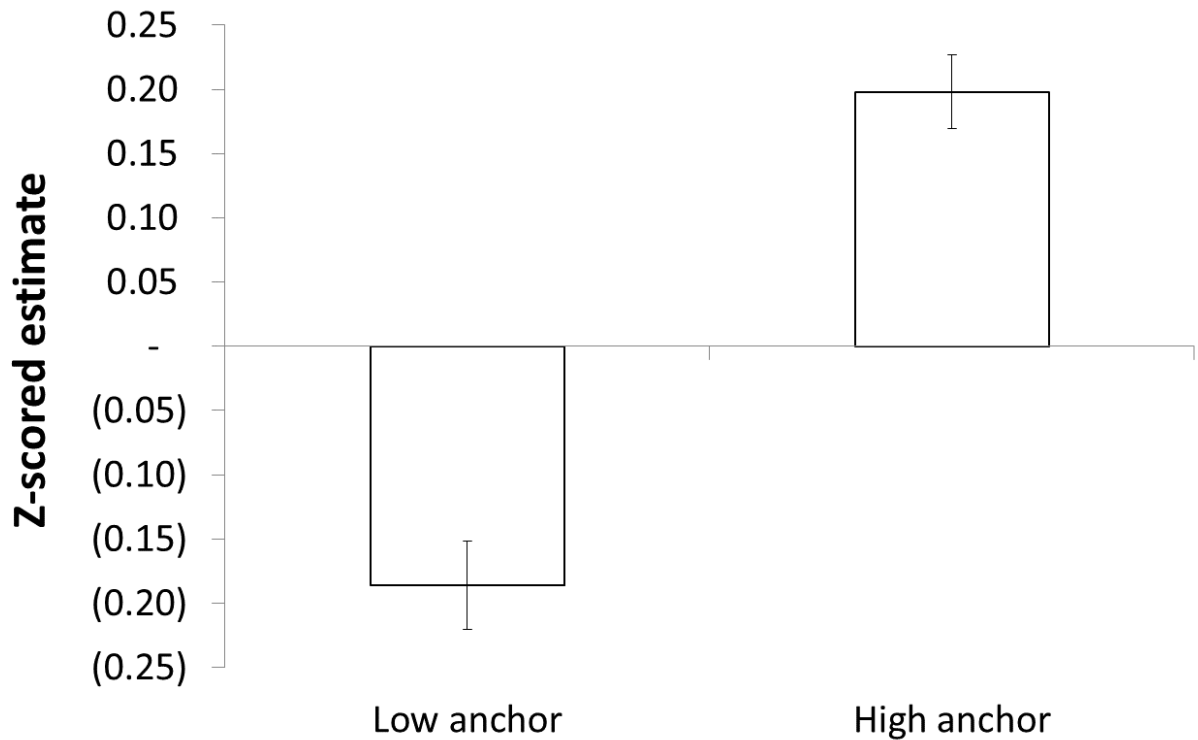


Figure 2: Percentage of participants adjusting from the anchor by more than 50 units by adjustment scale condition in Study 1.



Error bars show standard errors clustered by participant (N=409). Each participant provided 15 estimates. We regressed the binary dependent variable indicating whether the estimate was more than 50 units from the anchor on a dummy variable for the large adjustment scale condition and fixed effects for each anchor-estimate combination, and clustered standard errors by participant. The coefficient of the large adjustment scale condition variable was positive and statistically significant, $t(408)=2.53$, $p=.012$.

Figure 3: Z-scored estimate by anchor condition in Study 2.



Error bars show standard errors clustered by participant (N=392). Each participant provided 5 estimates. We winsorized each estimate to the 95th percentile for that question, z-scored this winsorized estimate by question, and regressed the resulting dependent variable on the high anchor condition, and clustered standard errors by participant. The coefficient of the high anchor condition was positive and statistically significant, $t(391)=8.07$, $p < .001$.

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Exposure to random anchors improves judgments

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When subjects make quantitative judgments, experimenter-provided anchors can substantially affect estimates, even when these anchors are random. As such, researchers take anchoring effects to reflect either a cognitive bias or a misapplied heuristic.

Yet, research on wisdom of the crowds shows that combining judgments is usually beneficial. The aggregate tends to be more accurate than the individual judgments, because the aggregate has less variance than the individuals do. Although more accurate judges should be given more weight, the less accurate judge should always be given some weight.

We are aware of no prior work in the anchoring literature that applies this logic to anchoring. If an anchored guess is like a combination of one's putative guess and the anchor value, then anchored guesses could benefit because they will have lower variance than unanchored guesses. Indeed, we are hard-pressed to find an anchoring paper that even reports on accuracy. As unintuitive as this suggestion might seem, we find support for random anchors helping accuracy in multiple datasets.

For example, we replicated 10 problems from Jacowitz & Kahneman (1996) in which subjects had to guess a quantity (e.g., length of the Mississippi river, height of Mt. Everest). Following their design, a control group made guesses with no anchor, while a treatment group received a mixture of low and high anchors across the 10 problems. As in the original study, we found that guesses that were exposed to high anchors were higher than the control group, and guesses that were exposed to low anchors were lower. Yet, both the low-anchored and the high-anchored guesses were significantly lower variance and lower mean square error than the control.

Although this is a direct replication of the classic result, these anchors are far from random. The high and low anchors are drawn from the 15th and 85th percentiles of the control group, guaranteeing that they contain information, and providing a stronger demonstration of the literature's confusion about when participants *should* anchor, than the counter intuitive result that we claim: that even random anchors can reduce error.

In our next study, we used stimuli from Mochon, Frederick, and Savary (2017) for which the answers were necessarily in a given range (e.g., What percentage of US citizens have a passport?) while also drawing anchors from the same range (e.g., What are first two digits of the serial number of a dollar bill you have?). Such anchors are thus *uninformative* – they do not tell the guesser anything about the possible range of the answer that was not already known. Here, we again find lower variance and lower mean square error in each of two separate anchoring conditions than in a control condition.

Next, rather than just coming up with trivia questions arbitrarily, we selected a domain of judgment (the population rank of countries), told participants the possible range (1-195), drew 20 countries randomly, and assigned participants to guess their population ranks, either without an anchor, with an anchor drawn randomly from the bottom half of the range (1-98), with an anchor drawn randomly from the top half of the range (99-195), or with an anchor drawn randomly from the entire range (1 to 195). Again, we find lower

variance and lower mean square error in each of the three anchoring conditions than in the control condition.

Finally, we asked participants to estimate the number of dots flashed briefly on the computer screen. In two studies, we told all participants that the number of dots would be between 1 and 100, and asked them to guess the number of dots that appeared, either with or without exposure to a random anchor drawn randomly on the range from 1 to 100. Here, we found no difference in variance or mean square error between the control and anchored conditions. We suspect that this domain was simply too easy, so that almost any amount of anchoring was too much (though, note that the anchored conditions were still no worse than the control conditions). To test this conjecture, we increased the range of dots from 1 to 100, up to 100 to 200, and repeated the experiment with this more difficult estimation task. Now, we find lower variance and lower mean square error in the anchored condition than in the control condition.

Further studies revealed some of the psychology behind the effectiveness of anchoring. In a hypothetical study about guessing the number of dots flashed quickly on a screen, subjects answered three questions in randomized order. The “range only” question had them imagine that they were blindfolded when the dots were flashed, but that they knew that the number of dots was chosen randomly between 1 and 100. The modal answer was 50. The “signal only” question had them imagine that the dots flashed too quickly to count, but looked to be about 80. They knew nothing about the possible range of dots being flashed. The modal answer was 80. Finally, the “range and signal” question had them imagine that they saw an uncertain 80 dots, but then learned that the number of dots was drawn randomly between 1 and 100. Of the subjects who answered 50 and 80 to the range only and signal only questions, nearly all answered 80 to the range and signal question. These subjects apparently endorsed the principle that in absence of knowledge, the best guess is to regress to 50, yet in partial absence of knowledge, saw no reason to regress their guesses somewhere between 80 and 50.

The beneficial effect of anchoring thus appears to arise as an accident of two mistakes. Subjects do not seem to incorporate prior “range” information; their guesses are not regressive. Given that, their guesses are open to being improved by biasing toward an arbitrary number, owing to the established Bayesian principle that *any* prior is better than none. Thus, when subjects are drawn to anchors, even unintentionally or for bad reasons, it often makes their guesses more accurate.

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My Experience or My Expectations: The Effect of Expectations on Willingness to Recommend Experiential Purchases

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Consumers' willingness to recommend their purchases is critical for businesses as word-of-mouth is consistently rated as the most credible and trustworthy form of marketing material (e.g., Nielsen 2015). However, research that speaks to the reason consumers decide to engage in word-of-mouth is still relatively nascent. In this work, we add to word-of-mouth literature by investigating whether the reference points against which experiential purchases are compared systematically influence willingness to recommend experiences.

In this work, we suggest when consumers use expectations as reference points, it reduces their likelihood of recommending experiential purchases to others. Moreover, we demonstrate how and why this effect occurs. An experiential purchase consists of what is offered to a consumer (e.g., a movie, theater seats) and what is experienced by the consumer (e.g., enjoyment, comfort). When evaluating an experiential purchase, we suggest that people typically introspect and consider what they experienced (e.g., their emotional reactions). However, making expectations salient shifts their focus to more external components of the offering. For instance, in the case of going to the movies, rather than considering one's enjoyment, expectations shift focus towards external factors such as the plot quality, which is less emotional in nature. Since existing research shows that word-of-mouth is greater when content is emotional (Berger 2014), this shift in focus results in a decreased willingness to recommend experiences.

In study 1, customers at a pub were asked to fill out a short customer survey as they paid for their meal. The survey varied whether customers considered their expectations or their experience at the restaurant prior to indicating their likelihood of recommending the restaurant to others. Participants in the expectations condition were less likely to recommend the restaurant than were participants in the control condition, $F(1, 246) = 4.03, p = .046$.

In study 2, we replicated this effect with willingness to recommend college courses. In this study, we compared the effect of expectations to another plausibly high reference point: people's goals. Participants either reflected on their goals or expectations for the first college course they had taken before indicating their likelihood of recommending the course to a friend. Replicating study 1, participants considering their expectations were less likely to recommend the course compared to those considering their goals for the course, $F(1, 375) = 7.84, p = .005$.

In study 3, we compared the effect of evoking expectations to both goals and a control condition in another restaurant field study. Some participants wrote about either their goals or expectations for their restaurant visit while participants in a control condition did not complete any writing task. All participants then indicated their likelihood of recommending the restaurant. Expectations lowered evaluations relative to the goals and control conditions, $F(1, 197) = 4.89, p = .028$, whereas there were no differences between those in the goals condition and those in the control condition, $F < 1$.

Open-ended responses regarding people's goals and expectations were coded for whether they pertained to the person's experience (e.g., "have fun" coded as yes vs. "good food" coded as no). Supporting our process explanation, expectations were less likely to involve personal experiences and emotional reactions, and this explained the lower evaluations by those in the expectations condition.

Study 4 provided greater evidence for the proposed process by asking lab participants to draw their expectations, goals, or experience for a recent restaurant visit. Replicating studies 1-3, participants in the expectations condition were less likely to recommend the restaurant compared to those in the goals and control conditions, $F(1, 386) = 6.01, p = .015$, whereas there was no difference between the latter two, $F < 1$. To examine whether participants in the expectations condition were less likely to think about their own experience, participants' drawings were coded as to whether the drawing included a person (e.g., themselves). Indeed, people were included significantly less often in the drawings created by participants in the expectations condition than participants in the goals and control conditions, $\beta = -0.54, SE = 0.11, \text{Wald } \chi^2 = 23.59, p < .001$, whereas there were no differences in drawing of goal and control participants, $\beta = -0.16, SE = 0.13, \text{Wald } \chi^2 = 1.52, \text{NS}$. Further, differences in the inclusion of a person in the drawing mediated the effect of condition on likelihood of recommending the restaurant.

In study 5, we examine process by manipulated the purchase type (material good vs. experience) orthogonally to manipulating the salience of expectations. If this is about shifting focus away from one's experience, this effect should depend on the extent one is focused on the subjective experience to begin with, and be more pronounced for experiences than for material goods. Indeed, there was a significant interaction, $F(3, 80) = 11.71, p = .001$. Whereas expectations decreased willingness to recommend experiences, $F(1, 380) = 4.22, p = .041$, they actually increased willingness to increase material goods, $F(1, 380) = 7.81, p = .005$.

Next, we examined real online reviews. Analysis of 1,931,556 hotel reviews from TripAdvisor demonstrates that when review content references expectations, the star-rating associated with the hotel is, on average, 0.2-stars lower, $p < .001$. Using LIWC's affective language score as a proxy for reflecting on one's personal experience and emotional responses, we find that a reduction in affective language helps explain the lower evaluations by those referencing expectations. These results are robust to different specifications including hotel-year-month of stay fixed effects and user fixed effects.

Finally, in a dataset including 39,672 hotels from Expedia.com, we demonstrate that the proportion of users referencing expectations in their reviews reliably predicts a decrease in the percentage of consumers who recommend the hotel at an aggregate level, $p < .001$.

In summary, across a variety of contexts, we find that expectations reduce willingness to recommend experiences, and that this is explained by shifting focus away from one's subjective experience and emotional reactions. Consequently, firms may receive more word-of-mouth if they focus consumers' attention on their experiences rather than whether it lived up to expectations.

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How Slider Scales Systematically Bias Willingness-to-Pay: Implicit Recalibration of Monetary Magnitudes

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Many organizations allow customers to decide how much to pay for a product or a service on technology interfaces. Online retailers such as eBay allow customers to bid on the items. Priceline allows customers to name their own prices for hotels rooms. Charitable organizations allow donors to enter a donation amount of their choice. In many cases, the response format is an open-ended textbox where people have to come up with a price in their mind and enter it. With the proliferation of mobile transactions, some organizations now use slider scales instead of textboxes due to their perceived ease-of-use. This has led to their widespread use on mobile interfaces, web sites, and even by academic researchers.

Interchangeable use of textboxes and slider scales is based on the assumption that response formats do not change people's responses because their valuations are stable. While several studies suggest that this assumption might not be valid (Champ and Bishop 2006; Klien, Thomas, and Sutter 2007), surprisingly, none of the extant studies have examined whether valuations and bids elicited using a textbox would be any different from those elicited through a slider scale. This research focuses on the following questions: Do consumers respond in systematic differently ways when presented with textbox versus slider scale response formats? If so, then what is the psychological mechanism underlying this systematic difference?

Across seven experiments, we show that relative to a textbox, a slider scale elicits more extreme responses in willingness-to-pay contexts. In experiment 1a, lab participants bid on a real Japanese thermal mug and were given the retail price (\$24) and range of possible bids. They indicated their bid price using either a slider scale or textbox. Those using slider scales bid higher (\$11.40) than those using textboxes (\$8.01, $F(1, 125) = 37.05, p < .01$). Experiment 1b replicates this effect in a donation context where all participants were unexpectedly given \$1 after being asked to complete a 51-cent study. The study was run on Veteran's Day, and participants using a slider scale donated significantly more of their \$1 ($M = 37.8$ cents) than those in the textbox condition ($M =$

24.0 cents, $F(1, 202) = 307.29, p < .01$) to a charity for veterans (Intrepid Fallen Heroes Fund). Demonstrating the robustness of the effect, the following two studies use repeated measures designs in a more familiar bidding context. In experiment 2, participants were shown three products in an ascending numeric format where bids were made that were higher than the starting point (e.g. e-Bay) and those using a slider scale (\$291) made higher bids than those using a textbox (\$280, $F(1, 393) = 5.61, p = .02$). Experiment 3 examined a descending numeric format (e.g. Priceline) where the bids were made that were lower than the starting point—they were asked to indicate their bids for six items using a textbox or using a slider with an anchor on either the right or left side of the scale. Participants' average bids in both the left-to-right-slider condition (\$130 vs. \$142; $t(1504) = -3.25, p < .01$) and right-to-left-slider condition (\$135 vs. \$142; $t(1504) = -1.84, p = .07$) were lower than bids in the textbox condition. Thus bids are not always higher on slider scales, but more extreme depending on the type of bid.

We offer an explanation for this effect based on the numerical cognition literature in cognitive psychology (Dehaene 2001, 2003; Dehaene and Changeux 1993; Parducci 1965, 1995) and consumer psychology (Aval 2013; Bagchi and Davis 2016; Cheng and Monroe 2013; Grewal and Marmorstein 1994; Lembregts and Pandelaere 2013; Monroe 1973; Thomas and Morwitz 2009). We propose that the effect of response formats on valuations is caused by a change in the boundaries of mental categories—low, medium, and high—that people use to judge magnitudes. When people use a textbox to submit their bids, the category boundaries are assimilated towards the starting bid on their mental number line. With a textbox, only the starting point is salient. In contrast, when people use a slider scale to submit their bid, the category boundaries are influenced by both end-points of the scale, causing people to recalibrate their mental number line more linearly between both the starting and ending points. Therefore, the boundaries of the mental categories used to judge magnitudes can be quite different depending on whether the responses are elicited using textbox or slider scale.

We demonstrate this underlying process in several ways. (*For brevity, the remaining results are summarized in the table below.*) First, we show that the slider scale effect is stronger for extreme categories farther away from the starting point. In experiment 4, participants were asked to submit what they considered low, medium, and high bids for a product using either a textbox, slider scale, or select a bid amount from a horizontal list of bid amounts. The effect of response format increased as distance from the starting point increased, and the effect of selecting a bid amount from a horizontal list was the same as using a slider scale, providing further evidence that visualization of a number line, rather than response momentum, is important for the effect. In experiment 5, we show that employing a slider scale that is formulated to have more convex values that increase more slowly towards the starting point results in values similar to a textbox. In experiment 6, we show that increasing the range of possible input values influences only participants responding on slider scales but not those using textboxes. Together, the results of this research demonstrate a robust new effect in the highly managerially relevant domain of response format while offering new insights in theory development.

SUMMARY OF EMPIRICAL RESULTS

1A: Mug Auction (<i>Ascending Format</i>)									
	Textbox			Slider					
	n	Mean	SE	n	Mean	SE			
Mug Bid Price	62	8.01	0.84	65	11.40	1.21			
1B: Veteran's Day Donations (<i>Ascending Format</i>)									
	Textbox			Slider					
	n	Mean	SE	n	Mean	SE			
Donation	105	24.04	2.99	99	37.76	3.93			
2. eBay Bids (<i>Ascending Format: Laptops</i>)									
	Textbox			Slider					
	n	Mean	SE	n	Mean	SE			
\$239	97	268.02	5.64	102	276.71	4.24			
\$259	97	281.85	3.69	102	293.70	3.98			
\$279	97	290.42	2.86	102	301.36	3.99			
3. Priceline Bids (<i>Descending Format: Hotel Rooms</i>)									
	Textbox			Slider Left-to-Right			Slider Right-to-Left		
	n	Mean	SE	n	Mean	SE	n	Mean	SE
\$161 / \$179	100	128.59	2.28	101	117.81	2.33	103	123.89	2.08
\$194 / \$183	100	142.22	2.53	101	130.06	2.59	103	136.72	2.36
\$199 / \$214	100	154.54	2.82	101	143.90	2.94	103	145.95	2.86
4. Moderation by Distance to Endpoint (<i>Ascending Format: Laptops</i>)									
	Textbox			Slider			Pick		
	n	Mean	SE	n	Mean	SE	n	Mean	SE
Low	110	289.33	6.14	111	297.82	6.84	112	298.64	5.84
Medium	110	395.17	10.88	111	437.47	10.53	112	439.00	8.85
High	110	560.62	20.42	111	621.20	17.46	112	621.68	15.78
5. A Convex Slider (<i>Ascending Format: Laptops</i>)									
	Textbox			Convex Slider			Slider		
	n	Mean	SE	n	Mean	SE	n	Mean	SE
Low	86	276.80	4.42	88	284.43	4.84	88	303.80	6.75
Medium	86	380.79	10.70	88	397.78	11.04	88	435.19	12.32
High	86	551.22	20.36	88	564.63	21.42	88	595.92	18.87
6. Moderation by Endpoint Size (<i>Ascending Format: Wine</i>)									
	Textbox			Slider					
	n	Mean	SE	n	Mean	SE			
\$500 range									
Low	107	29.39	1.75	99	50.78	6.31			
Medium	107	59.41	5.77	99	84.68	8.09			
High	107	102.98	11.12	99	125.31	11.33			
\$1000 range									
Low	103	29.14	1.39	104	62.90	9.48			
Medium	103	65.08	7.19	104	128.77	15.74			
High	103	122.64	15.86	104	219.83	25.72			

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2.5 Health & Social Justice: Gave at the Office... Donation Behavior I Individual Papers

Donate to Be a Hero: Social Power Induces Prosocial Donation

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Social power, defined as asymmetric control over valued resources in a social relationship (Galinsky, Rucker, & Magee, 2015), has been long tinted with a negative light, as suggested in a famous quote — “Power tends to corrupt, and absolute power corrupts absolutely.” Consistent with this proposition, research has shown robust evidence that power leads to various negative consequences. For example, as compared to powerless people, powerful people are more likely to lie (Lammers, Stapel, & Galinsky, 2010), to be aggressive (Howard, Blumstein, & Schwartz, 1986), and to spend less money on others (Rucker, Dubois, & Galinsky, 2011).

However, it might be premature to conclude that power makes people unethical. Recent research hinted at the possibility that power might lead to more, instead of less, prosocial behaviors in certain contexts. For example, millionaires (supposedly more powerful than many other people) are found to be more generous than the less wealthy ones when allocating money to low-income people (Smeets, Bauer, & Gneezy, 2015). Research also finds that power is negatively associated with self-interested behavior among people with high-moral identity (DeCelles, DeRue, Margolis, & Ceranic, 2012). In this research, we want to investigate whether power leads to more or less donations and people’s motivation behind the effect of power on donations.

The motivation of choosing to donate could be very different from the motivation underlying other prosocial behaviors (e.g. buying a gift for a friend in Rucker et al. (2011)). In particular, donation is a context that cultivates strong emotional satisfaction about oneself. Research has found that donations sometimes are driven by the emotional satisfaction about oneself being a noble and heroic person, and this emotional satisfaction mainly comes from the fact that donations have a positive impact on recipients’ life (Batson & Powell, 2003). Consistent with this conjecture, Cryder, Loewenstein, and Seltman (2013) found that emotional satisfaction of a donation increase with perceived impact of the act. Because power is largely based on their impact on others, powerful people, we predict, may perceive a bigger impact for their donations than powerless people, and thus derive greater emotional satisfaction. Therefore, we anticipate that power facilitates donations because donation brings the powerful more emotional satisfaction. This implies that the powerful would not show a stronger donation tendency for low-impact causes. In addition, given that the driving motivation for donation comes from the feeling of one being a noble and heroic person, highlighting self-benefiting aspects of a donation will drive away the positive effect of power.

We tested these predictions in six experiments. In experiment 1, we established the basic positive effect of power on donation behavior. To manipulate power, participants were assigned to be a leader or a member in a group task. Then they were shown an advertisement soliciting book donations for Cambodia children. We found that powerful participants were more likely to donate (57.1%) than did powerless ones

(36.5%), $\chi^2(1) = 4.31, p = .038$. We collected the books and found more powerful participants actually donated (30.6%) than powerless participants (13.5%), $\chi^2(1) = 4.36, p = .037$. Power did not affect how many books one would donate ($M_{\text{high-power}} = 10.00$ vs. $M_{\text{low-power}} = 11.14; F(1, 20) = .28, p = .605$).

Experiment 2 tested the mediating role of perceived impact and emotional satisfaction. After recalling either a powerful or a powerless experience, participants were asked whether they would agree to donate blood. As predicted, the powerful were more likely to donate (41.0%) than did the powerless (19.7%), $\chi^2(1) = 6.56, p = .010$. To measure emotional satisfaction, participants rated the extent to which they would feel good if they were to donate blood, the extent to which they would feel positively, and the extent to which they would feel happy (Cronbach's $\alpha = .98$). To measure perceived impact, participants indicated their perceived impact of donating blood could make on the recipient's life, the perceived positive impact on the recipient, and the perceived capability of benefiting the recipient (Cronbach's $\alpha = .85$). We found that power led to a higher perceived impact, which consequently generated more emotional satisfaction (serial mediation, $\beta = .49$, 95% CI from .10 to 1.1).

Experiment 3 manipulated the impact of a donation. When the donation itself is not impactful, it would be difficult for powerful people to derive more perceived impacts. Participants were asked to donate books either for Cambodia (pretested as high impact) or Hong Kong children (pretested as low impact). As predicted, feeling powerful led to a higher tendency to donate for Cambodia children (63.0%) than feeling powerless (34.0%), $\chi^2(1) = 8.71, p = .003$. However, when the recipients were changed to Hong Kong children, the powerful were no more likely to donate (44.2%) than did the powerless (44.0%).

Next, we tested the role of emotional satisfaction. We manipulated whether monetary (experiment 4, paying \$20 for donating hair to children with cancer) or non-monetary incentives (experiment 5, donate cornea and continue to see the world) were offered. Because such incentives would make one's donation behavior seem selfish and consequently stop people from feeling good about their donations, we reasoned that incentives would reduce powerful people's donation tendency. As expected, powerful participants were more likely to donate their hair (48.7%) than did powerless ones (17.5%) when no money was offered, $\chi^2(1) = 8.72, p = .003$. However, powerless participants were more likely to donate (48.7%) than did powerful ones (17.1%) when \$20 was offered, $\chi^2(1) = 9.12, p = .003$. Similar patterns were found in Experiment 5 when we asked people's intention to donate cornea. Highlighting that donating cornea can allow people to continue to see the world reduced powerful people's donation intention. In experiment 6, we replicated our findings with measuring participants' chronic sense of power.

Taken together, six experiments provide corroborative evidence that the powerful are more likely to donate because of more perceived impact, which generates more positive feeling about the self. For donations that generate rewarding feelings, powerful people seem to be interested in being part of the event more than powerless people.

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Malice or Benevolence: The Role of Schadenfreude in Donation Behavior

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Donation appeals that include harm to another (e.g., dunk tanks, pie tosses) offer an opportunity for schadenfreude, that is, joy in the suffering of another. Though such appeals are popular, their effectiveness remains unknown. The present work examines such appeals, the process through which they affect donation behavior, and the parameters that impact their effectiveness.

We propose that schadenfreude-based appeals increase donation behavior due to a sequence of anger and vengeance followed by happiness and excitement. Specifically, when consumers see a disliked other (e.g., perched atop a dunk tank) they experience anger, which motivates a desire to inflict harm (i.e., vengeance; Carver & Harmon-Jones, 2009). However, aggressive, vengeful behavior is socially unacceptable (Lobbestael, 2015); thus, consumers temper their enthusiasm for inflicting harm. The donation context makes such temperance unnecessary, as it provides a socially acceptable pretext. Thus, consumers are free to experience excitement over harming the target, increasing their approach towards the donation appeal and increasing donations.

Six studies demonstrate this effect and reveal the underlying emotional process. The data rule out alternative explanations and show the effect is unique to the donation context.

Study 1 tested the effects of schadenfreude by asking participants how likely they would be to donate (7-point scale) and how much they would donate (\$0-\$10) to place a purple toilet in either a disliked or unknown person's yard (adapted from an American Cancer Society campaign). We predicted only the disliked target would cause consumers to anticipate schadenfreude, as only it would lead to anger towards the target; as detailed earlier, this anger and the opportunity to act on it was predicted to increase donations. Accordingly, participants in the disliked condition showed greater likelihood of donating ($M = 4.14$) and higher donations ($M = \$5.01$) than participants in the unknown condition ($M = 3.45$, $M = \$3.65$; $ps < .05$).

In study 2, we compared a disliked versus liked target to rule out a role for playfulness. We predicted that a disliked (liked) target would (not) elicit schadenfreude and therefore would (not) increase donations. We also included a pay-to-play condition, in which participants paid to participate as part of a carnival game (not for charity). Since this condition does not provide a socially acceptable pretext for harming another, we predicted it would not increase payment. Accordingly, in a between-subjects study, participants donated more ($M = \$5.17$) than they paid ($M = \3.19) to see a disliked person consume three ounces of hot sauce. They also donated less when the person was liked ($M = \$3.56$, $ps < .05$). There was no difference in the amount paid in the carnival game across liking conditions ($M_{\text{like}} = \$3.97$, $M_{\text{dislike}} = \$3.19$, $p > .33$), supporting the proposed process and demonstrating the uniqueness of the donation context.

Study 3 tested the proposed process via mediation. In a between-subjects study, participants were asked how much (\$0-\$10) they would donate to dunk a disliked versus unknown professor; a no-dunk control was included. As predicted, participants donated significantly more in the disliked (\$3.87) than unknown (\$2.48) condition ($F(1, 170) = 10.34$, $p < .005$); the latter did not differ from the control ($p > .66$). A two-step mediation test showed anger and vengeance ($r = .51$) followed by happiness and excitement ($r = .74$) serially (and fully) mediated the effects of condition on donation (95% CI: -.06, -.009). Alternative emotions including guilt, embarrassment, sadness, nervousness, and fear played no mediating role.

In study 4, we tested the process by manipulating severity of harm. We proposed the donation context liberates consumers to harm others. However, if the harm is too severe it would be socially inappropriate, even in a donation context. Thus, participants imagined dunking a disliked professor in either mild or harsh conditions; a no-dunk control was included. We predicted and found that participants in the mild harm condition donated more ($M = \$3.55$) than those in the severe harm condition ($M = \$2.13$; $F(1, 87) = 5.15$, $p < .05$); the latter did not differ from the control ($M = \$2.31$; $p < .77$). We also included an adapted measure of schadenfreude (Feather & Sherman, 2002; van Dijk, Ouwerkerk, Goslinga, & Nieweg, 2005), and found it fully mediated donation behavior (95% CI: .13, .95).

Next, we examined counter-intuitive effects of schadenfreude-based appeals. If donation behavior is driven by self-focused needs for vengeance rather than other-focused benevolence, individualists (who normally donate less than collectivists; Moorman & Blakely, 1995) should donate as much as collectivists. Furthermore,

consumers should be relatively insensitive to charity characteristics, as any charity will suffice as a pretext for acting on consumers' motivation for vengeance (Zemack-Rugar et al., 2016). We tested these predictions in two studies.

In study 5, we conducted a 2 (individualist/collectivist) X 2 (schadenfreude/control) between-subjects study. Replicating prior work, in the control condition, individualists donated less ($M = \$2.31$) than collectivists ($M = \3.20; $p = .05$). However, in the schadenfreude condition, individualists donated as much as collectivists ($M_{\text{individualist}} = \3.50 , $M_{\text{collectivist}} = \3.05 , $p > .30$). In study 6 we conducted a 2 (schadenfreude/control) X 2 (high/low charity trustworthiness) between-subjects study. Replicating prior work, participants donated significantly less to the untrustworthy charity in the control condition ($M_{\text{untrustworthy}} = \2.49 , $M_{\text{trustworthy}} = \3.59 , $F(1, 271) = 7.34$, $p < .01$), but equally as much in the schadenfreude condition ($M_{\text{untrustworthy}} = 3.53$, $M_{\text{trustworthy}} = 3.50$, $p > .95$).

Six studies showed that schadenfreude appeals increase donations, not due to benevolence, but because they provide a socially acceptable way to express anger and vengeance. We demonstrated that these increases were unique to the donation context. We also demonstrated some counter-intuitive effects, such as increased donations by less donation-prone individuals and to less donation-worthy charities. We identified boundary conditions (e.g., target dislike, severity of harm) for the effectiveness of schadenfreude-based appeals. Our findings provide practical insights on how to design effective schadenfreude appeals while adding to the understanding of the nature of schadenfreude and its role in consumer donation behavior.

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Prevention versus Treatment: How Negative Emotion and Charitable Appeal Affect Donation Behavior

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A consumer's decision of whether to donate to a charity is oftentimes driven by emotion (Andreoni 1990; Batson 1990). Prior research has focused largely on the role of negative emotion in shaping donation behavior, although a consensus has not been reached as to whether its effect is beneficial or detrimental (Andrade and Cohen 2007; Fisher, Vandenbosch, and Antia 2008).

We propose that these divergent findings are because most donations research has (1) examined negative emotion using a valence-based approach (i.e., negative mood) rather than an emotion-specific approach and (2) not considered how the charitable appeal (i.e., messaging used in a donation solicitation) may be received differently depending on a person's emotional state. This research is the first to examine each of these two factors concurrently. We chose to focus our efforts specifically on the effects of anger and sadness based on prior research showing that anger discourages helping (Polman and Kim 2013), whereas sadness encourages helping (Small and Verrochi 2009). Thus, prior research suggests that anger (sadness) will discourage (encourage) donations.

The current research challenges this conclusion by considering how each emotion might influence donations differently, depending on the type of charitable appeal used. We find that both anger and sadness potentially encourage donations. However, for this to occur, the charitable appeal must be framed in a way that matches the underlying function of each emotion. Specifically, we propose that anger should encourage donation behavior when the appeal emphasizes the prevention of the charitable cause (what is being done to stop victimization from occurring). This effect occurs because an underlying function of anger is to empower consumers to take corrective action (Frijda 2005). By contrast, we propose that sadness will encourage donation behavior when the appeal emphasizes the treatment of the cause (i.e., what is being done to manage the consequences of victimization). This effect occurs because an underlying function of sadness is to motivate consumers to foster social bonding (Keller and Nesse 2006). We tested these predictions in four studies.

Study 1 used a 3 (donors' emotional state: neutral, anger, sadness) x 2 (charitable appeal: prevention, treatment) between-subjects design. All participants read about histiocytosis (a life-threatening health disease). Emotion was manipulated via emotional contagion (Small and Verrochi 2009). Specifically, participants saw a picture and quote from a histiocytosis victim who either expressed anger, sadness, or neutrality about the diagnosis. Participants then received a donation solicitation from the Histiocytosis Association that either appealed to the prevention ("sponsoring medical research that would ultimately prevent this disease from claiming new victims") or treatment

(“providing life-saving treatment and care to improve the well-being of victims”) of histiocytosis. Donation behavior was assessed via the actual amount of money donated by participants (\$0-\$4). Results showed a significant interaction between the emotion and appeal factors ($F(2, 129) = 5.12, p < .01$). Participants in the anger (sadness) envy condition donated significantly more money when the appeal was framed in terms of the prevention (treatment) of the disease.

Study 2 provided process evidence for the hypothesized psychological mechanisms driving the interactive effect of a donor’s emotional state and charitable appeal on donations. A 2 (donors’ emotional state: anger, sadness) x 2 (charitable appeal: prevention, treatment) between-subjects design was used. The procedure was identical to study 1, except that once participants indicated their willingness to donate, they were asked two questions about the decision: (1) whether their decision was driven by the need to fix what is wrong (need for corrective action) and (2) whether their decision was driven by the need to feel close to others (need for social bonding). A significant interaction emerged between the emotion and appeal factors ($F(1, 137) = 11.44, p < .01$), replicating the results of study 1. Moderated mediation analyses revealed that the beneficial effect of anger (sadness) on donation behavior framed in terms of prevention (treatment) was mediated by a need for corrective action (need for social bonding).

We hypothesized that anger encourages donations under a prevention appeal because the act of donating addresses the need to take corrective action. If this is so, an opportunity to partake in corrective action prior to a solicitation may attenuate the positive effect of anger on donations. Study 3 examined this possibility using a 2 (need for corrective action: control, addressed) x 3 (donors’ emotional state: neutral, anger, sadness) x 2 (solicitation orientation: prevention, treatment) between-subjects design. Emotions were manipulated by having participants watch a video pretested to either elicit anger, sadness, or neutrality. Next, participants in the need addressed condition wrote a letter to the university about a problem at their university and how it could be solved (control condition did not complete this task). Participants then received a donation solicitation that either focused on the prevention or treatment of Isiolo fever (described as a life-threatening fever). Results revealed a significant three-way interaction ($F(2, 290) = 3.15, p < .05$). The control condition replicated studies 1-2. In the action addressed condition, angry participants no longer donated more under a prevention (versus treatment) appeal.

Study 4 examined whether an opportunity to reaffirm one’s social belongingness prior to a solicitation may attenuate the positive effect of sadness on donations. A 2 (need for belongingness: control, addressed) x 3 (donors’ emotional state: neutral, anger, sadness) x 2 (solicitation orientation: prevention, treatment) between-subjects design was used. Emotion manipulation was identical to study 3. In the need addressed condition, participants wrote about a friendship they currently have and value (control condition did not complete this task). Results revealed a significant three-way interaction ($F(2, 289) = 3.26, p < .05$). The control condition replicated studies 1-2. In the action addressed condition, sad participants no longer donated more under a treatment (versus prevention) appeal.

Collectively, this research contributes to the literatures on emotion, donation behavior, and prosociality. The findings illustrate how negative emotion has a more nuanced influence on donation behavior than previously thought. Finally, this research

also highlights the importance of considering how the donation behavior of consumers may vary based on the appeal used by the charity.

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Penny for Your Preferences: Leveraging Self-Expression to Increase Prosocial Giving

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How can marketers motivate prosocial giving? Recently, scientists and practitioners have begun leveraging identity to motivate prosocial behavior (e.g., Aaker and Akutsu 2009; Gneezy et al. 2012). For example, organizations can increase prosocial giving by appealing to people who strongly identify with the organization (i.e., donated to them previously, Kessler and Milkman 2016) or by growing the set of people that view an organization as linked with their identity (Arnett, German, and Hunt 2003; O'Reilly and Chatman 1986). However, these approaches can suffer from constraints of scope (i.e., few people may strongly identify with an organization) and implementation (i.e., shifting identities can be challenging and costly).

We introduce a novel approach that leverages peoples' drive to express their identity while resolving some prior challenges and costs. Rather than being restricted to the set of people that already hold a strong organization-linked identity or exerting resources to grow that set, our approach leverages *any* valued identity to motivate behavior. People value the opportunity to express their identities through their choices (Berger and Heath 2008; Escalas and Bettman 2003; LeBoeuf, Shafir, and Bayuk 2010; Levy 1959; Tamir and Mitchell 2012); as such, we suggest that framing the act of giving as an opportunity to express one's self can enhance prosocial giving.

We test our theory through a technique termed *dueling preferences*. Rather than simply asking people to tip or donate (i.e., a standard giving appeal; Figure 1), this approach frames the act of giving as a choice between two categories (e.g., cats vs. dogs; Figure 2). Thus, while giving (e.g., tipping, donating) may already be somewhat self-expressive, we suggest that the dueling preferences frame provides an even greater opportunity to self-express, and, consequently, leads to more frequent and greater acts of prosocial giving. Four studies in the laboratory and field demonstrate this theory.

Study 1 ($N = 88$) was a field experiment conducted at a local café. We varied whether cash-paying patrons encountered a tip jar (standard appeal condition; Figure 1) or a cats-versus-dogs duel (Figure 2) and observed tipping behavior. As predicted, compared to a standard tip jar, dueling preferences nearly doubled the number of customers who tipped ($P_{\text{Duel}} = 77.3\%$ vs. $P_{\text{Standard}} = 40.9\%$, $p = .014$).

Study 2 tests dueling preferences in a more controlled setting and examines whether the results extend to donations. Online participants ($N = 203$) were given an opportunity to donate to the American Red Cross, and we varied whether they were shown a standard appeal labeled "donations" or a chocolate-versus-vanilla ice cream duel. Participants then indicated how much of a \$0.10 bonus they wanted to donate. Consistent with Study 1, compared to the standard appeal (37.3%), dueling preferences (57.4%) led more participants to donate ($p = .004$) and increased how much they donated ($M_{\text{Standard}} = \$0.03$ vs. $M_{\text{Duel}} = \$0.04$, $p = .032$), ultimately raising 30% more money for the Red Cross.

If our theory is correct, duels should only elicit greater prosocial giving when they provide a greater opportunity for self-expression. Study 3 tests this prediction by including a non-self-expressive duel. Participants ($N = 172$) imagined ordering a beverage at a café. While at the register, they imagined viewing a standard appeal (single tip jar), a pre-tested expressive duel (Duke vs. UNC), or a pre-tested non-expressive duel (Hate vs. Love Licorice), depending on condition. Consistent with prior studies, compared to the standard appeal ($M = 3.61$), the expressive duel ($M = 4.51$) made people more likely to tip ($p = .017$). Importantly, the non-expressive duel ($M = 3.92$) did not boost tip likelihood relative to the standard appeal ($p > .25$; Figure 3). Thus, in addition to supporting our theory, this study also casts doubt on concerns that some other aspect of the duel format (e.g., novelty or competition)—and not self-expression—drove the key effects.

Study 4 provides additional process evidence through both mediation and moderation. If our theorized mechanism (self-expression) is correct, duels should only change behavior among those who find it personally relevant. To test this, participants ($N = 136$) imagined ordering a beverage at a café. While at the register, they imagined viewing a standard appeal (single tip jar) or a cats-versus-dogs duel. After indicating their

tipping decision (yes, no), they rated how self-expressive the tipping opportunity was (3 items) and the extent to which pets are personally relevant to them. Supporting our prediction, in addition to a main effect of appeal type ($b = .93, p = .016$), we found the predicted appeal type \times personal relevance interaction ($b = .89, p < .001$; Figure 4). The duel increased tipping among people who rated pets as personally relevant (+1 SD; $P_{\text{Duel}} = 78.8\%$ vs. $P_{\text{Standard}} = 23.1\%$, $p < .001$), but not among people who rated pets as personally irrelevant (-1 SD; $P_{\text{Duel}} = 27.5\%$ vs. $P_{\text{Standard}} = 42.4\%$, $p = .241$).

We also found the predicted appeal type \times personal relevance interaction on self-expressiveness of the tip opportunity ($b = .45, p = .017$), and moderated mediation analysis indicated that the effects on tipping were mediated by self-expressiveness and moderated by personal relevance (index of moderated mediation = .20, 95% CI [.01, .51]). When pets were personally relevant (+1 SD), the duel made the tipping opportunity a greater opportunity for self-expression, which enhanced tipping ($ab = .75$, 95% CI [.28, 1.59]). When pets were personally irrelevant (-1 SD), however, these effects disappeared ($ab = .02$, 95% CI [-.48, .48]) because the duel no longer provided greater opportunity for self-expression and thus did not increase tipping.

Across a range of identities, duels, and giving contexts, these studies demonstrate that dueling preferences boosts prosocial giving by providing the opportunity for self-expression. This research contributes to the literatures on self-expression and identity factors that influence prosocial behavior.

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Figures

Figure 1: Example of Standard Appeal



Figure 2: Example of Dueling Preferences



Figure 3: Study 3 Results

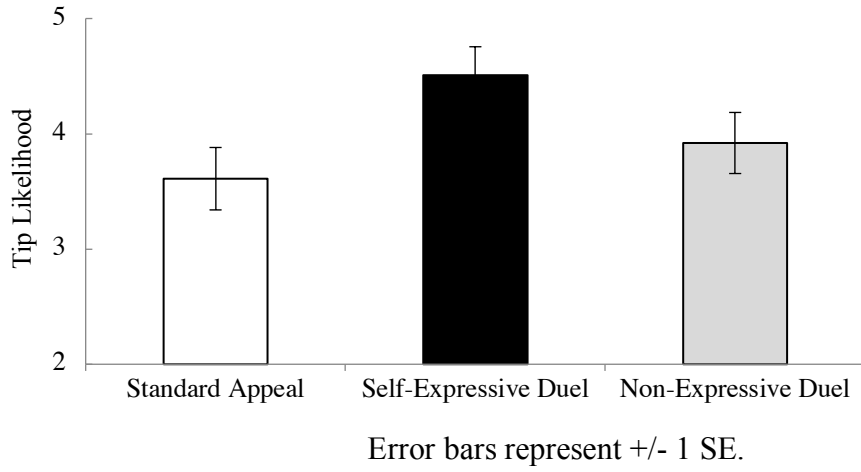
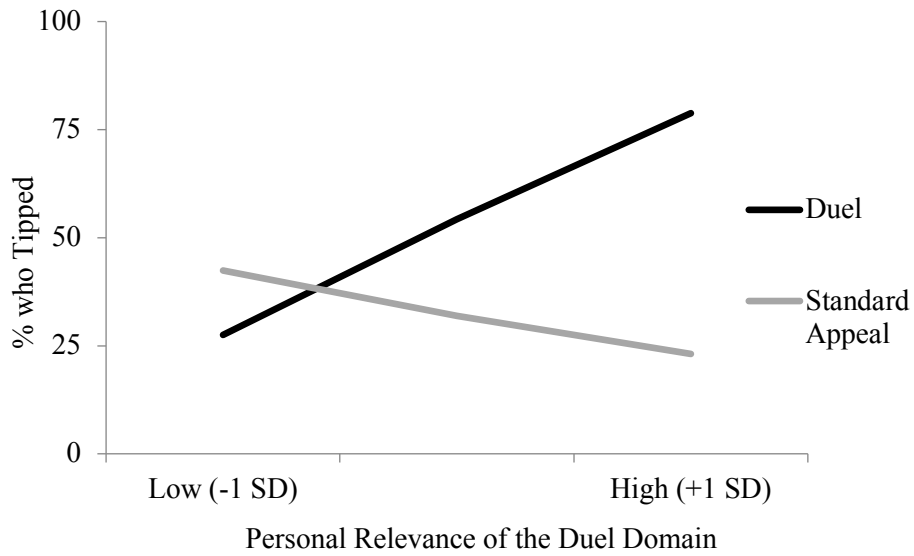


Figure 4: Study 4 Results



2.6 Thy Self & Others: I Shouldn't Have to Tell You...The Implicit Remembered Self Individual Papers

Mindset and Political Ideology: The ID-ER Model

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Ideology is a subject of enormous interest with theoretical, practical and policy implications. The traditional conceptualization since the French Revolution was of political ideology lying along a single left-right dimension. This formulation usually contains two inter-related aspects: 1) advocating versus resisting social change and 2) rejecting versus accepting inequality (Bobbio 1996; Jost, Federico, and Napier 2009). Research demonstrates a stubborn and reliable negative correlation between liberalism and conservatism (Weber and Federico 2007; Whitley 1999).

In the current research, we provide empirical evidence that an epistemic motivation (i.e., implicit self-theory) contributes to political ideology. This is of interest because theorists have made conflicting predictions. One account based on personal control suggests that some individuals endorse conservatism because they perceive the world as fixed and unvarying (i.e., entity theorists) (Kwon and Nayakankuppam 2015, 2016) and this belief can increase a sense of personal control which has been shown to reduce support of big government (Kay, Gaucher, Napier, Callan, and Laurin 2008). Another possible account based on threat sensitivity, however, predicts exactly the opposite: it suggests that individuals who view the world as constantly changing (i.e., incremental theorists) will be more sensitive to changes because they view the world as consistently changing and changes are uncertain and uncertainty is threatening, which will lead them to support conservatism (Jost, Federico, and Napier 2008). These two arguments thus make opposite predictions regarding the relationship between political ideology and implicit self-theories. The current research addresses this ambiguity.

In Experiment 1, we attempted to provide initial evidence of the association between implicit self-theory and political ideology. Participants' ideology was measured by asking their overall political orientation, social and cultural orientation, and economic orientation (Carney, Jost, Gosling, and Potter 2008). Next, each participant's implicit self-theory was assessed (Levy, Stroessner, and Dweck 1998). Finally, they provided demographic information such as age, gender, race, having a child or not, and household income (HHI). We regressed political ideology on implicit self-theory after controlling for the demographic variables. We found that the impact of implicit self-theory on political ideology was significant, even after controlling for the effects of demographic variables, suggesting that entity (incremental) theory is associated with conservatism (liberalism) and supporting the personal control account.

In Experiment 2, we examine the causal relationship between implicit self-theory and political ideology via the theorized underlying mechanism of personal control. Participants were randomly assigned to a single-factor (entity vs. incremental) between-participants design. First, participants were primed with implicit self-theories by reading

a “mock” scientific article presenting views consistent with either entity theory or incremental theory (Dweck, Chiu, and Hong 1995). Then, they indicated their personal control and political ideology using the same scale used in Experiment 1. A one-way ANOVA on political orientation revealed that entity theorists indicated greater conservative orientations than incremental theorists. In addition, a test of mediation with 1,000 bootstrapped samples revealed that personal control mediated the effect of implicit self-theory on political orientation.

In Experiment 3, we manipulated personal control. Upon arrival, participants were randomly assigned in a 2 (implicit self-theory: entity vs. incremental) X 3 (personal control (PC): high vs. low vs. control condition) between-participants design. After being primed with one of the implicit self-theory orientations, participants were asked to write a short essay about different topics to alter their levels of personal control (Cutright, Bettman, and Fitzsimons 2013). After then, participants indicated their political ideology. A 2 X 3 ANOVA on political ideology yielded a significant interaction effect between implicit self-theory and personal control (PC hereafter), along with the main effects of implicit self-theory and of personal control. Planned analysis showed that the control PC conditions replicated the results of Experiment 2. Among entity theorists, only those in the low PC condition differed from the control PC condition in terms of their political ideology: the entity–low PC condition was significantly different from the entity–high PC condition and from the entity–control PC condition, but the entity–high PC and the entity–control PC conditions did not differ in their political ideology, suggesting that the “default” PC for entity theorists is a high level of control. In contrast, among incremental theorists only the high PC condition resulted in a difference in ideology from the control PC condition, suggesting the “default” for incremental theorists is a lower level of personal control.

In Experiment 4, we attempted to show how the documented effect of implicit self-theories on political ideology could be utilized in a political campaign. We constructed four different versions of print advertisements for a political candidate differing on a 2 (advertising copy: entity vs. incremental) X 2 (political party of the candidate: Republican vs. Democratic) between-participants factors. We aimed to temporarily prime either self-theories using some copies in the print ads (Kwon, Seo, and Ko 2016). Participants were randomly given only one version of the four print ads and asked participants to indicate their attitudes toward the candidate, attitude certainty (capturing how certain they were about their attitudes), as well as their intention to vote for the candidate. As predicted, we found a significant interaction effect between the advertising copy and the political party of a candidate on attitude, on attitude certainty and on the intention to vote for the candidate, suggesting that fit between ad messages and political affiliation of the candidate increases persuasion.

The current research provides empirical evidence that an individual’s implicit self-theory orientation influence his/her perception about personal control, which, in turn, decides his/her political ideology.

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Effects of Implicit Theories on Customers' Satisfaction with Service Recovery: The Value of Process

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Service recovery (i.e., the actions that firms take to mitigate or rectify the failures during service) is crucial for marketers as occasional mistakes are inevitable (Johnston and Hewa 1997). A well-executed service recovery enhances customers' overall-satisfaction and repatronage intention, while a poor recovery might dissolve buyer-seller relationship (Kelley et al. 1993; Smith and Bolton 2002). A key predictor of customers' evaluations of firms' recovery efforts is perceived justice or the extent to which they feel being treated fairly (Tax, Brwon, and Chandrashekar 1998). Perceived justice has three dimensions: distributive justice (DJ: the outcome of the recovery), procedural justice (PJ: the policies to handle the failure), and interactive justice (IJ: the attitude and manners of employees during the

recovery). While an ideal service recovery can have high quality of all three dimensions, such a “perfect” recovery might be too costly and not necessary (as we show in this research).

Past research suggests that customizing service delivery, rather than using a one-size-fits-all approach, is a better strategy (Lee and Lim 2010). Similarly, fitting recovery efforts to customer characteristics, rather than offering a uniform recovery to all customers, might yield a more positive outcome. In this research, we propose and test how customers’ implicit theories about the stability or malleability of personal traits (Chiu, Hong and Dweck 1997; Dweck, Chiu and Hong 1995) impact the efficacy of service recovery efforts. Specifically, we argue that incremental theorists, who believe personal attributes are malleable and pay more attention to the process to achieve the outcome, will value higher level of interactive justice or the process of how recovery is delivered more. In contrast, we expect that improving interactive justice will be less effective for entity theorists, who assume personal attributes are fixed and value the process and efforts less. Furthermore, we expect that higher level of interactive justice will show spillover effects on incremental (vs. entity) theorists’ evaluation of the recovery outcome as they view efforts as the process of improving and value it more (Murphy and Dweck 2016).

Study 1 provided preliminary evidence that customers’ implicit theories influenced their focus of three different justices of service recovery. Participants first read a scenario of flight delay. Next, they were presented with six recovery initiatives (two relating to DJ, PJ, and IJ respectively) from the company and asked to allocate relative importance to each of them, with the total sum added up to 100. Participants’ implicit theories were measured using an 8-item scale (Levy, Stroessner and Dweck 1998). Regression analysis showed that incremental theory predicted higher importance of IJ ($\beta=.36$, $t(59)=3.00$, $p<.01$) and lower importance of DJ ($\beta=-.37$, $t(59)=3.05$, $p<.01$). However, the importance of PJ was not affected by participants’ implicit theories ($p=.45$). This might be because PJ has a mixture of outcome (e.g., timeliness) and process (e.g., policies) dimensions of the recovery practices, thus in this research, we chose to focus on DJ and IJ as they map more directly onto the outcome and process aspects of service recovery.

Study 2 aims to examine how customers’ implicit beliefs impact the effectiveness of IJ in service recovery. A 2 (IJ: high vs. low) \times 2 (implicit theories: entity vs. incremental) mixed design is adopted. Participants first read a flight cancellation scenario, and then were either told that the employee treated them with respect and care (high IJ) or in a rude and careless manner (low IJ). In both scenarios, participants were told that they were given good compensation (i.e., high DJ). Participants’ overall satisfaction, repatronage intention, and extent to which they focused on outcome or process were measured. Next, they completed the same implicit theories measure. Results revealed a significant IJ \times implicit theories interaction effect on overall satisfaction ($F(1,331)=8.06$, $p<.01$) and repatronage intention ($F(1,331)=4.73$, $p=.03$). Specifically, although no difference was found in low IJ condition, high IJ enhanced incremental (vs. entity) theorists’ satisfaction ($M_{\text{incremental}}=6.44$, $M_{\text{entity}}=5.82$; $F(1,160)=11.43$, $p<.01$) and repatronage intention ($M_{\text{incremental}}=5.73$, $M_{\text{entity}}=5.27$; $F(1,160)=4.47$, $p=.03$) more. Furthermore, moderated mediation analysis (Process Model 15, Hayes 2013) with implicit theories as IV, outcome-process focus as mediator, IJ conditions as moderator, and recovery satisfaction as DV, demonstrated the mediating effect of focusing on outcome versus process was significant ($b=.08$, $SE=.05$, $CI=(.01, .19)$).

Study 3 aims to replicate the findings observed in study 2 when 1) participants’ implicit theories were primed and 2) no resolution was given for the service failure (i.e.,

low DJ instead of high DJ in study 2). A 2 (IJ: high vs. low) \times 2 (implicit theories: entity vs. incremental) between-subjects design was used. The procedures were similar to those used in study 2, except that participants completed the implicit theory priming task first (Hong et al. 1999) and they were not given compensation for flight cancellation (i.e., high DJ). Results revealed a significant IJ \times implicit theories interaction effect on satisfaction ($F(1,386)=8.06, p < .05$) and repatronage intention ($F(1,386)=4.73, p < .03$). Specifically, higher level of IJ enhanced incremental (vs. entity) theorists' satisfaction ($M_{\text{incremental}}=4.63, M_{\text{entity}}=3.89; F(1,191)=9.14, p < .01$) and repatronage intention ($M_{\text{incremental}}=4.16, M_{\text{entity}}=3.58; F(1,191)=7.49, p = .03$) more, while no difference was found in low IJ condition. More importantly, we found that high IJ buffered the negative impact of not being given a solution (i.e., low DJ) on incremental theorists, as incremental (vs. entity) theorists perceived a higher level of DJ ($M_{\text{incremental}}=3.40, M_{\text{entity}}=2.79; F(1,191)=6.91, p < .01$) in high IJ condition, while no difference was found in low IJ condition.

Our research demonstrates that implicit theories play an important role in determining how customers evaluate service recovery. Specifically, we found that for incremental theorists, not only does high interactive justice enhance the value of an appealing recovery solution, it also buffers the negative impact of an unappealing recovery practice. Not such enhancing/buffering effect was observed for entity theorists. To the best of our knowledge, this is the first study that examines how individual implicit theories impacts customers' satisfaction with service recovery efforts. Managerially, our findings have direct marketing implications for service providers to better allocate their limited resources and design more effective recovery strategies.

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Special Memories Require Special Protection

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Research has found that memories of special experiences (e.g. vacations, weddings) can be viewed as assets because of their importance for self-definition (Elster and Loewenstein 1992), and consumers often protect such memories in order to safeguard them from contamination by avoiding repetitions of the experience (Zauberman, Ratner, and Kim 2009). For example, it was found that following a special resort vacation with friends, participants did not want to return the resort for a work conference.

Our research aims to expand the memory protection literature in three specific ways. One, we suggest that consumers do not avoid all repetitions of special experiences, but only avoid *non-special* repetitions. We argue that consumers avoid repeating a special experience under ordinary, but not special circumstances (e.g. will not return to the resort for a work trip but will return for an anniversary trip). In other words, the type of interference cue (special versus non-special) moderates memory protection such that only non-special cues trigger memory protection.

Two, we explore the process underlying memory protection and find contamination of a special memory by a non-special cue is perceived as a self-concept threat, leading consumers to avoid this type of contamination. Memories of special experiences are more important for self-definition than are memories of non-special experiences, thus special memories are strongly linked to the self-concept (Belk 1988). We suggest that contaminating a special memory with a non-special cue devalues the memory (by making it seem less special), and consequently also devalues the self, by making the individual feel as though they are less special. This threat to the self-concept triggers the desire to protect the memory and results in avoidance of repeating the experience.

Third, we expand current theorizing on how memories can be contaminated by documenting that marketing communications can be perceived as non-special cues, and make the advertised brand seem less special, thereby making an individual consumer's own personal experience seem less special. This reduction in the specialness has significant negative downstream implications for brand attitudes (less special = less favorable attitudes). These are especially intriguing findings since they suggest that memory contamination and protection may be far more pervasive than originally

envisioned, and also because they point to a specialness-contamination tradeoff for marketers.

Study 1 was conducted with 28 participants recruited via an online sample. Participants described a special dinner they had experienced and then rated their likelihood of going back to the same restaurant for another special versus ordinary occasion and likelihood of going back with a different person if it was for a special versus ordinary occasion.

A repeated measures analysis revealed that participants were more likely to return to the restaurant when the follow-up experience was special ($M_{special}=6.00$) than when it was ordinary ($M_{ordinary}=4.82$; $F(1,27)=12.49$, $p<.01$). Further, even when going back with a different person, participants were more likely to return when the follow-up experience was special ($M_{special}=5.29$) than when it was ordinary ($M_{ordinary}=4.54$; $F(1,27)=6.72$, $p<.05$).

Study 2 utilized a 2(initial: special vs. non-special) x 2(follow-up: special versus non-special) mixed design in which the initial (follow up) experience was a between (within) subjects factor. 141 undergraduates imagined going to dinner for a special or ordinary occasion and then rated their likelihood of going back to the restaurant for another special versus ordinary dinner.

An ANOVA revealed a significant interaction between the specialness of the initial and follow-up experiences on willingness to return to the restaurant ($F(1,139)=56.84$, $p<.001$). Following a special experience, participants were more likely to return when the follow-up experience was special ($M_{special}=6.52$) than when it was ordinary ($M_{ordinary}=5.68$; $F(1,70)=66.60$, $p<.001$).

Study 3 utilized a 2(initial: special versus non-special) x 2(experience: special versus non-special) between-subjects design. 192 undergraduate students imagined going out to dinner for either a special or ordinary occasion and were told they had worn a new item of clothing that was described to them. Participants then imagined a follow-up scenario (special vs. non-special) at which they again wore the clothing item and then reported attitudes towards the item.

An ANOVA revealed a significant interaction between the initial and follow-up conditions ($F(1,111)=6.71$; $p=.01$). Following a special experience, attitudes were more positive when subsequently worn to another special event ($M_{initial_special_followup_special}=6.11$) than an ordinary ($M_{initial_special_followup_ordinary}=5.18$; $F(1,113)=9.36$; $p<.01$).

Study 4 used an online sample of 192 participants and utilized a 2(initial: special vs. non-special) x 2(follow-up: special vs. non-special) between-subjects design. The initial and follow-up scenarios were similar to those used in study 3. In order to explore the underlying process, participants reported perceptions of a self-concept threat after reading the follow-up scenario.

An ANOVA revealed a significant interaction between the initial condition and the follow-up condition on perceptions of self-concept threat ($F(1,188)=4.38$; $p<.05$) and on evaluations of the restaurant ($F(1,188)=2.74$; $p=.10$). Participants in the non-special follow-up condition felt more threatened ($M_{initial_special_followup_nonspecial}=4.59$) than those in the special follow-up condition ($M_{initial_special_followup_special}=5.15$; $F(1,188)=4.16$; $p<.05$) and evaluated Firefly more positively ($M_{initial_special_followup_special}=5.83$) than those in the non-special follow-up condition ($M_{initial_special_followup_nonspecial}=5.19$; $F(1,188)=10.17$; $p<.01$). Mediation analysis using the PROCESS SPSS macro (Model 7; Preacher and Hayes

2004) with specialness of the follow-up as the IV, of the initial condition as the moderator, threat as the mediator, and satisfaction as the DV provided support for moderated mediation (95% CI=.0123 to .2830).

Study 5 utilized a 2(initial: special vs. non-special) x 2(control vs. ad) between subjects design. 135 undergraduates imagined either a special or ordinary dinner, and were then either shown an ad for the restaurant before filling out the dependent measures or taken directly to the dependent measures (control condition). The main dependent measures were perceptions of how special the dinner was and evaluations of the restaurant.

An ANOVA revealed a significant interaction between the initial experience and marketing communication on specialness perceptions ($F(1,131)=3.82; p=.05$) and attitudes ($F(1,131)=4.41; p<.05$). Following a special experience, participants in the control condition perceived their experience as more special ($M_{\text{control}} = 6.28$) than those who had viewed an ad ($M_{\text{ad}}=5.63; F(1,131)=6.52; p<.05$), and had more positive attitudes ($M_{\text{control}}=6.36$) than those who viewed the ad ($M_{\text{ad}}=5.74; F(1,131)=7.49; p<.01$).

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Do All Consumers Embrace Fluency? How Neuroticism Influences Advertising Fluency Effects

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Marketers employ tactics to enhance the "fluency" or subjective ease by which consumers process information (e.g., repetition, rhyming, etc.). Despite an extensive body of literature on fluency effects, and its importance to marketers as a strategic tool, scholars have not examined whether consumers process fluent information differently based on personality traits.

We specifically identify neuroticism as a personality trait that may impact fluency effects. Extant research indicates that processing ease (i.e., fluency) generates an affective reaction that is hedonically pleasant (e.g., Winkielman & Cacioppo, 2001). Research shows that those with lower levels of neuroticism demonstrate an approach-oriented motivation toward positive affect (Elliot & Thrash, 2002), whereas those with

higher levels of neuroticism generate more negative affect (e.g., Larsen & Ketelaar, 1991) and are also less likely to express, experience, or savor positive emotions and experiences (Bryant, 2003; Gross & John, 2003). Combing these two streams of literature, we propose an inverse relationship between fluency effects and neuroticism. Specifically, we propose that consumers low (high) in neuroticism are more (less) likely to become involved with, and responsive to, highly fluent marketing messages given their motivation to approach (inhibit) the positive affective state generated by fluency.

Study 1

For Study 1, we seek to demonstrate an inverse relationship between neuroticism on the tendency to approach fluent information. US adults ($N = 226$) were recruited via MTurk, randomly assigned to evaluate one of six advertisements pretested to vary according to fluency, in a six group, between-subjects design. Across conditions, the advertisement content remained the same, but the high (low) fluency advertisements were presented in one of three, easy-to-read (difficult-to-read) fonts (Chang, 2013; Park, Herr, & Kim, 2015). Next, participants indicated the extent to which they approached the ad and then completed an eight-item measure of neuroticism ($\alpha = .91$; John & Srivastava, 1999).

Results

Hierarchical regression analysis revealed a main effect of processing fluency ($\beta = .29, p = .01$) that was qualified by the expected two-way interaction between processing fluency and neuroticism ($\beta = -.22, p = .05$). According to a J-N analysis, the value of neuroticism at which our approach measure was no longer significantly different across the fluency conditions was equal to 3.02. Thus, consistent with our prediction, for consumers low in neuroticism (below 3.02), we observed a positive main effect of processing fluency on approach tendencies. Conversely, for consumer high in neuroticism (above 3.02), processing fluency had no effect on approach tendencies.

Study 2

For Study 2, we seek to demonstrate the downstream consequences of the observed approach-oriented tendency found in Study 1 on message persuasiveness while demonstrating process evidence via involvement. US adults ($N = 276$) were recruited using MTurk, randomly assigned to a processing fluency condition (low vs. high), and reviewed an advertisement for an HDTV. Similar to Study 1, the description was presented in either an easy to read, or difficult to read, font. After reviewing the advertisement, participants indicated their intentions to purchase the product, their level of involvement when reviewing the advertisement, perceptual fluency, and their level of neuroticism (John & Srivastava, 1999; $\alpha = .70$).

Results

Hierarchical regression analysis revealed the expected main effect of processing fluency ($\beta = .48, p < .001$) that was qualified by the expected two-way interaction between processing fluency and neuroticism ($\beta = -.37, p = .04$; see Figure 1). According to a J-N analysis, consistent with our hypothesis, we observed a positive main effect of processing fluency on purchase intentions for consumers low in neuroticism (below 4.61). Conversely, for consumer high in neuroticism (above 4.61), processing fluency had no effect on purchase intentions. As hypothesized, using Model 8 of the PROCESS

macro (Hayes, 2013), involvement mediated the interactive effect of fluency and neuroticism on intentions to purchase the product for low neurotics (95% CI: .04, .21; see Figure 2), but not for high neurotics (95% CI: -.002, .09).

Study 3

For Study 3, we seek to extend earlier findings by using geography as a proxy for neuroticism. US adults (N = 112) were recruited via MTurk, randomly assigned to review an advertisement for a laptop facing inward, toward the center of an advertisement (high fluency), or outward toward the edge of the advertisement (low fluency) (see Leonhardt, Catlin, and Pirouz, 2015). Only participants from Georgia (low neuroticism state) and Massachusetts (high neuroticism state) were recruited to participate as residents of these two states typically differ in their levels of neuroticism (Rentfrow et al., 2013). After reviewing the advertisement, participant indicated their purchase intentions and product attitudes before completing the trait neuroticism scale (John & Srivastava, 1999; $\alpha = .91$).

Results

As predicted, participants living in Georgia reported significantly lower levels of neuroticism than participants living in Massachusetts based on the neuroticism scale ($M_{Georgia} = 2.29$ vs. $M_{Mass} = 2.83$, $p = .005$).

A two-way ANOVA on purchase intentions revealed a marginally significant main effect of neuroticism ($p = .09$) that was qualified by the same two-way interaction effect demonstrated in Studies 1 and 2 between neuroticism and advertising fluency ($p = .02$; see Figure 3). As predicted, for those participants living in the low neuroticism region (i.e., Georgia), there was a significant difference between the high (vs. low) fluency condition ($M_{High} = 3.36$ vs. $M_{Low} = 4.02$; $p = .01$). That is, those participants living in the low neuroticism region reported greater purchase intentions when exposed to the high fluency advertisement. However, for those participants living in the high neuroticism region (i.e., Massachusetts), advertisement fluency had no significant effect on purchase intentions ($M_{Low} = 3.46$ vs. $M_{High} = 3.30$; $p = .53$). The same pattern of results was observed for product attitudes.

Discussion

These findings show that those low (but not high) in neuroticism tend to approach fluent information (Study 1). This approach tendency, which influences message persuasiveness via message involvement (Study 2), can readily enhance marketing segmentation strategies (e.g., geography) (Study 3). Overall, these findings stand in stark contrast with an expansive literature that repeatedly demonstrates positive consumer responses to fluent information (see Schwarz, 2004).

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Figure 1

Study 2: Purchase intentions as a function of advertisement fluency and neuroticism

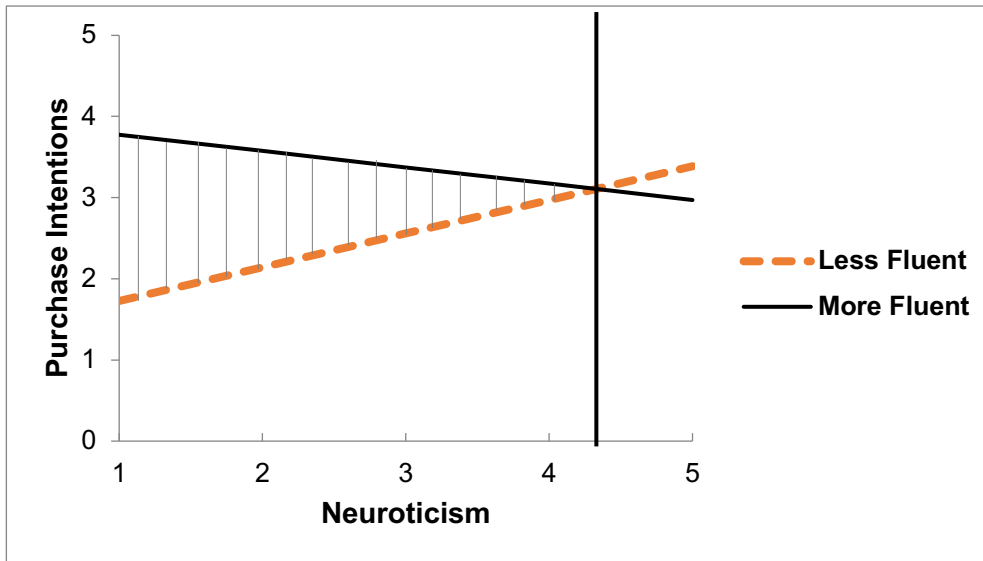
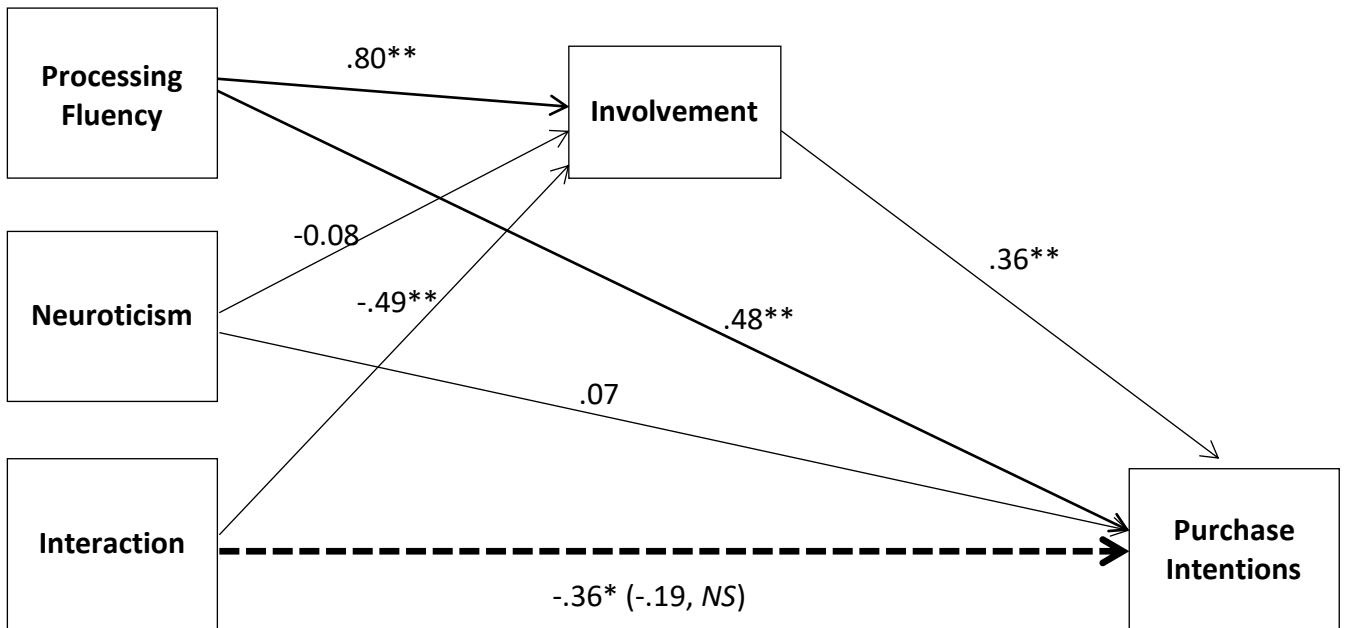


Figure 2

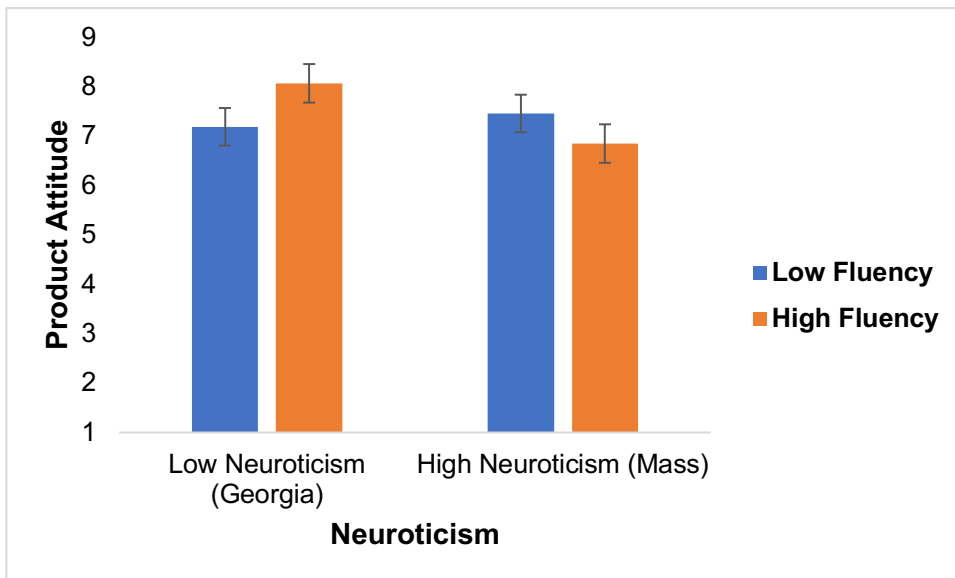
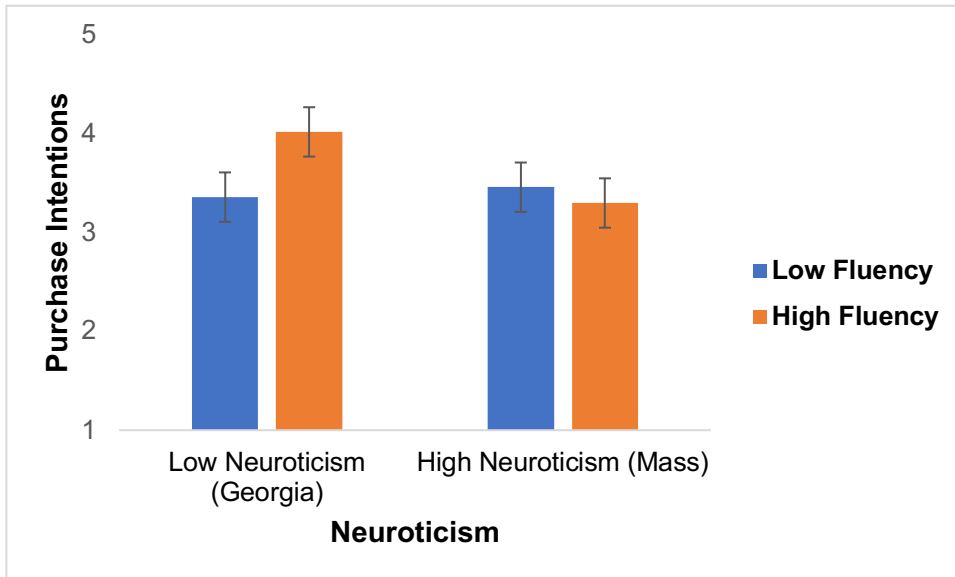
Study 2: Moderated mediation effect



NOTE.— * = significant at .05 level; ** = significant at .01 level.

Figure 3

Study 3: Purchase intentions and product attitude as a function of advertisement fluency and neuroticism



Session 3

3.1 A New Look into Ecological and Emotional Influence on Prosocial Behavior Symposium

Paper #1: Tightening the Purse Strings: Population Density Dampens Generosity

Anni Sternisko* (New York University, sternisko@nyu.edu), Adam Alter (New York University, aalter@stern.nyu.edu)

Paper #2: How Residential Mobility Influences Prosocial Behaviors

Yajin Wang* (University of Maryland, yajinw@rhsmith.umd.edu), Xiaolin Li (University of Texas, Dallas, Xiaolin.Li@utdallas.edu), Amna Kirmani (University of Maryland, akirmani@rhsmith.umd.edu), Nicole Kim (University of Maryland, nykim@rhsmith.umd.edu)

Paper #3: Empathy Reduces Donations to the Needy

Broderick Turner* (Northwestern University, broderick.turner@kellogg.northwestern.edu)Aparna A. Labroo (Northwestern University, a-labroo@kellogg.northwestern.edu)

Paper #4: Advance Gratitude Expressions as a Prosocial Appeal

Leandro Galli* (London School of Economics and London Business School, UK, leandro.galli.11@mail.wbs.ac.uk), Katherine White (University of British Columbia, Canada, katherine.white@sauder.ubc.ca), Piotr Winkielman (University of Warwick and UCSD, piotr@ucsd.edu), Hongwei He (University of Manchester, hongwei.he@manchester.ac.uk)

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SESSION OVERVIEW

What motivates consumers' prosocial behaviors such as helping and donations? In this session, we provide novel research from four papers that explore two perspectives around prosocial behaviors: the ecological factors that shift people's helping behaviors and the emotional factors that shape people's helping behaviors. By examining the motivations for prosocial behaviors from both the macro and micro perspectives, this session can open new avenues for research on prosocial behavior. Taken together, the papers present compelling findings from experiments, panel data, and field studies that speak to novel ways of motivating consumers to engage in prosocial behaviors.

The first two papers examine how ecological factors influence prosocial behaviors. The paper by *Sternisko and Alter* investigates whether population density affects people's donation behaviors. The findings from both experiment and second hand data across the entire United States showed that population density diminishes donation behaviors. The second paper by *Wang, Li, Kirmani and Kim* explores another ecological

factor: residential mobility. They predict that high residential mobility should increase people's openness to new people and new experiences and such broad mindset would promote prosocial behaviors. The results from national panel data along with experiments and field study revealed that high residential mobility increases prosocial behaviors, especially towards distant recipients.

The final two papers examine how emotional factors influence prosocial behaviors. The paper by *Turner and Labroo* examines the emotion of empathy. They propose a novel hypothesis that empathy can backfire and reduce donations to needy victims. Four experiments demonstrate that making empathy salient decreases people's donations to needy victims because empathizing with such victims involves taking their perspective which is threatening to the donors. The final paper by *Galli, White, Winkielman and He* examines gratitude as another type of emotion and proposes that an "advance gratitude expression" can significantly increase prosocial behaviors by activating a sense of moral awareness. Four experiments demonstrate this effect and also test three theoretically relevant moderators that further test the mechanism.

In conclusion, this set of papers examines how a macro perspective such as ecological factors and a micro perspective such as emotional factors can affect prosocial behaviors. Each paper includes a complete set of experiments and provides process evidence that can stimulate new research ideas and provide practical insights about prosocial behavior promotion. This session will appeal to a wide range of audiences interested in prosocial behaviors, donations, ecological influence, morality, and emotions.

Tightening the Purse Strings: Population Density Dampens Generosity

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Adam Alter, New York University, New York City, USA

Short Abstract

Over the past six decades, the number of people per square mile in the U.S. has nearly doubled. Two studies investigated the implications of this development for generosity. In Study 1, participants who thought about a dense environment intended to donate less to a charity than did participants who thought about a sparse environment. In Study 2, we collected U.S. zip code-level donation data and found that the percentage of household income donated declined with rising population density. Findings in both studies hold when adjusting for a range of other factors, suggesting a strong relationship between density and generosity.

Extended Abstract

Over the past decades, millions of people have emigrated from rural areas to the world's cities. Thirty-three of those cities now house more than 50,000 residents per square mile, and 50 world cities contain more than five million inhabitants (United Nations Department of Economic and Social Affairs, 2014). Whereas in 1950 less than one third of the world's population resided in urban areas, today around half of the world's population is urban (United Nations Department of Economic and Social Affairs, 2014). This trend will most likely continue and researchers expect that in 2050, around two third of the world's population will live in urban areas (United Nations Department

of Economic and Social Affairs, 2014). In addition, the overall population density of most countries steadily increases. For instance, within the last six decades, the number of people per square mile has nearly doubled in the U.S. (Worldbank, 2016).

What does this rise in density mean for us as a society? One effect may be that population density shapes helping behavior and generosity. In fact, research has demonstrated that people in a dense environment are less likely to help colleague students with an art project (Bickman et al., 1973), to participate in a door-to-door interview (Davis, 1973), or to give a stranger change for a quarter (Levine, Martinez, Brase, & Sorenson, 1994).

However, unsound methodologies call these results into question. For instance, comparing the likelihood of helping behavior between high and low dense environments, Bickman et al. (1973) adopted Milgram's (1969) lost letter paradigm and dispersed stamped and addressed letters in student dormitories that varied in density. As a measurement of helping behavior, the researchers recorded how many letters were picked up and mailed. Whereas educational level of the participants was held fairly constant across dormitories, the study did not account for socio-economic status of the students or for self-selection.

In an effort to address such methodological shortcomings, we sought to replicate past work with a cleaner paradigm. We present one experimental and one archival study to investigate the relationship between population density and generosity, as a form of helping behavior. In study 1, we examined whether people donate to charity as a function of population density. We recruited 100 participants on Amazon Mechanical Turk and manipulated density using an imagination task. Participants in the low density condition thought and wrote about a time when there were people nearby but they felt as though they had plenty of personal space (low density condition); those in the high density condition thought and wrote about a time when there were people nearby, and they did not have much personal space. After completing an unrelated task, participants learned that they were entered into a draw to win a \$50 Amazon gift voucher. As a measurement of generosity, participants had the opportunity to commit to donating some or that entire amount to a charity of their choice if they happen to win the lottery. We found that participants in the high density condition committed to significantly lower donations ($M = \$3.68$, $SD = \$0.85$) than participants in the low density condition ($M = \$12.08$, $SD = \$2.02$), suggesting that population density diminishes giving behavior. These results held when we controlled for participants' moods and the number of people they imagined.

Though Study 1 established a basic relationship between density and giving, we sought to replicate this result in an ecologically valid context. Accordingly, in Study 2 we collected U.S. zip code-level donation data from the Chronicle of Philanthropy. For each zip code, we recorded population density (predictor variable), the proportion of income donated by the average household (criterion variable), whether the zip code was predominantly urban or rural, average household income, population size, and several demographic characteristics that have been shown to influence giving (education level, race and ethnicity make-up, and age breakdown). We regressed the proportion of income donated to charities on zip population density, controlling for the remaining factors, and found that people in more sparsely populated zip codes donated a greater proportion of their income, $\beta = .03$, $t(24,862) = 4.97$, $p < .0001$. The result held when we conducted a

series of robustness checks and eliminated outliers on both the predictor and criterion variables.

Using complementing methods, we demonstrated that population density consistently attenuated generous behavior. To our knowledge, Study 1 is the first attempt to experimentally investigate the effects of population density on generosity and provides unique support for the existence of a causal relationship. Study 2 replicates the result in an ecologically-valid real-world setting that captures data across the entire United States. Our findings offer important directions for future research examining the implications of geopolitical trends on social behavior.

How Residential Mobility Influences Prosocial Behaviors

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Amna Kirmani (University of Maryland)

Nicole Kim (University of Maryland)

Short Abstract

With globalization, geographical relocation has become an essential part of life in many parts of the world. How does moving affect people's psychology and behavior? The present research examines the relationship between residential mobility and prosocial behaviors. Previous literature in sociology and psychology has demonstrated that high residential mobility is often negatively associated with prosocial behaviors such as high crime rates and low pro-community actions. This research challenges this finding and proposes a novel prediction that high residential mobility can increase prosocial behaviors, especially towards distant recipients. The results from national panel data, lab experiments, and field studies demonstrate that residential mobility increases donations and helping behaviors towards distant recipients.

Extended Abstract

With globalization, geographical relocation has become an essential part of life in many parts of the world. How does the experience and mindset of residential mobility impact prosocial behaviors? Previous literature in sociology and psychology has demonstrated that residential mobility is often negatively associated with prosocial behaviors such as high crime rates and low pro-community actions. We present evidence that high (vs. low) residential mobility can positively impact prosocial behaviors. In particular, we argue that residential mobility increases openness to new experiences, which impacts one's helping behaviors towards distant others. While it is natural to want to help those who are close and similar to us (Batson and Powell 2003), not everyone is motivated to help distant others. Moving to new geographical locations implies exposure to different cultures and experiences, as well as relationships with new people. We argue that such an open mindset from residential mobility increases prosocial behavior toward distant others.

In Study 1, we used national panel data (China Family Panel Studies 2010, N=29,553) to investigate the effect of residential mobility on donation values toward close vs. distant beneficiaries in an ecologically valid context. The panel data recorded

the amounts of respondents' donations given to victims of the severe earthquake in Sichuan Province in 2008 (Wenchuan Earthquake). We used an item asking the current residence of respondents as a measure of distance between the respondents and the donation beneficiaries. Respondents who currently lived in Sichuan Province were coded as *close* since the earthquake occurred in their home town province, and respondents who currently lived in other provinces were coded as *distant*. After controlling for age, gender, annual family income, and the total value of donations to any institutions in the same fiscal year, the results showed that people who had moved (vs. never moved) donated significantly more to the earthquake when they were distant ($\beta = 0.22, p < 0.01$); however, when the beneficiary was close, residential mobility did not affect the donation amount.

Study 2 aimed to establish the causal relationship between residential mobility and prosocial behaviors in a controlled lab setting. Participants from a large university in North America participated in this study with a 2 (residential mobility: mobile vs. stable) X 2 (donation beneficiary: close vs. distant) between-subjects design. Residential mobility was manipulated using a mobility mindset priming task (adapted from Lun, Oishi and Tenney 2011), where participants imagined being offered a new job that either required moving to a different location every year (*mobile*) or living in one area for ten years (*stable*). Next, participants were introduced to a campaign helping hungry children either in their home state (*close*) or in another state with similar size and population (*distant*). Then participants were asked to indicate how likely they would be to donate to the campaign. The results replicated Study 1 and confirmed our prediction that for hungry children in a distant state, participants were more likely to donate when they were primed with a mobile mindset compared to a stable mindset ($M=4.74$ vs. $3.68, F(1,139)=6.03, p=.015$). However, mobility did not impact donation likelihood when the beneficiary was close.

The purpose of Study 3 was to investigate the underlying process that drives the effect of residential mobility on prosocial behavior toward distant others. We argue that the experience or prospect of experiencing different locations and building new relationships increases openness to new experiences. It follows that while people are open to aiding close others' needs regardless of residential mobility, being more open-minded from residential changes impacts how people respond to distant others' needs. We test this prediction in Study 3. The study employed a 2 (residential mobility: mobile vs. stable) X 2 (donation beneficiary: close vs. distant) mixed-design. The same priming task was used to manipulate residential mobility. After the priming task, participants were asked to indicate their attitude toward engaging in several consumption behaviors, including two focal items: an item measuring helping toward close others ("donate used items/clothes to a charitable organization to help local families in need") and an item measuring helping toward distant others ("buy a product that donates part of its profits to a charitable organization helping refugee families in a foreign country" (adapted from Cavanaugh et al. 2015). Next, participants answered a series of personality measures, among which three items measured openness to new experiences (adapted from John and Srivastava, 1999; $\alpha = .80$). Consistent with prior studies, the results showed that mobile-primed participants had a greater likelihood of helping distant others compared to stable-primed participants ($M=5.79$ vs. $5.28, F(1,177)=6.52, p=.012$). There was no difference when the beneficiary was close others. A moderated mediation analysis confirmed that

openness mediated the effect of mobility on helping distant others ($b = -.1497$, $SE = .08$, $CI: [-.3423, -.0209]$), but not close others.

Finally, we conducted a field study to test if residential mobility affected real prosocial behaviors. Specifically, we coordinated with a national charity foundation, inviting 10,000 students in Shanghai to “Donate Voice,” in which donors commit to spending time recording audio books for blind children. In the *close* beneficiary condition, the message was presented as a campaign for blind children in Shanghai. The distant beneficiary condition was presented as a campaign for blind children in Xizang, which is different from Shanghai in geographical location, economy, and culture. Students who signed up for donations were directed to a subsequent survey in which they were asked to report their residential history and how much time they were willing to donate. Results revealed that for students who signed up to donate, those with higher (vs. lower) residential mobility were willing to donate more time to blind children in Xizang ($\beta = 1.40$, $p < 0.01$). Again, there was no impact of residential mobility on blind children in Shanghai.

In conclusion, this research makes a novel contribution by demonstrating how residential mobility affects prosocial behaviors, especially towards distant others using national panel data, experiments, and field study.

Empathy Reduces Donations to the Needy

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Aparna A. Labroo, Northwestern University

Short Abstract

The disadvantaged, destitute, and needy are perceived as low in competence and warmth (Fiske et al. 2002). Consideration of members of such social groups is known to evoke disgust. We show that as a result, people do not like to empathize with such victims. Four studies show that people donate to the needy because they think they should, and making empathy salient can backfire and reduce donations to such victims.

Extended Abstract

Charitable giving is big business. For example, in 2016 Americans donated \$390 billion to various causes. About 72% of these donations were made by individuals (Giving USA 2017). In general, people give when they become aware of the needs of others, consider the cause worthy, and want to make a difference. Two motivations – egoistic and altruistic – determine why people give (Batson et al. 1983; Bettancourt 1990; Cialdini et al. 1997). Ego needs arise when seeing the suffering of others evokes negative feelings or guilt and giving makes people feel better about the self. Altruistic needs arise when seeing suffering of others increases concern for welfare of the victim. Both these views imply that highlighting economic and psychological benefits rather than the costs of giving, for instance by evoking empathy for a needy victim, will increase giving. Charities follow this advice, highlighting needs of the neediest. But interestingly, only 4% of all donations are received by the neediest (Cryder, Botti, and Simonyan 2017).

We posit that evoking empathy for needy victims can backfire. People give to the neediest because they think they should to such victims. But the poor, weak, destitute,

and neediest are perceived as low in competence and warmth (Fiske et al. 2002), and consideration of members of social groups who are low in competence and warmth is known to evoke disgust and contempt. Empathizing with such victims involves taking their perspective and feeling like the victim. Doing so can be threatening, revulsive, and evoke disgust, because people also do not want to see themselves as needy. Making empathy salient to donors therefore reduces giving to such victims. We test this hypothesis in four studies.

In study 1, we presented a story of a victim killed in an accidental shooting. We manipulated whether the victim was from a poor or middle class family and after the description either directly asked participants if they would like to make a donation for funeral expenses of the victim or asked how much empathy they feel for the victim and then for a donation. The study ($N = 439$) thus followed a 2 (victim: needy vs. control) \times 2 (empathy: baseline vs. salient) between-subjects design in which donation served as the dependent variable. The analysis revealed only a significant interaction, $F(1, 435) = 8.75$, $p < .003$. Replicating past research, for the control (middle-class) victim, making empathy salient ($M = 60\%$) increased donation compared to not making it salient ($M = 43\%$, $p < .003$). Importantly however, as we predicted, making empathy salient reduced donation ($M = 44\%$) to the needy victim compared to not making it salient ($M = 57\%$, $p < .03$). In addition, donation to the needy victim was higher than to the control victim in the baseline condition ($p < .05$) but was lower than to the control victim when empathy was salient ($p < .01$). Participants also reported more empathy for the needy victim after they donated to the victim than before, but more empathy for the control victim when they empathized first with the victim, implying that people do not empathize with the needy and empathizing with the needy reduces donation to them.

To test whether this effect also emerges for a needy child, in study 2 we employed a child victim “Fahad” who was shown either as highly malnourished (needy) or as control. As in study 1, we either immediately asked for a donation or asked for the donation after participants indicated empathy for Fahad. The results replicated study 1 – participants were more likely to donate to the needy child when directly asked to make a donation (80%) than after empathizing (40%, $p < .01$). A non-significant trend emerged in the opposite direction for the control child (59% vs. 65%). In addition, participants were more likely to make a donation to the needy child than the control child when directly asked for a donation ($p < .05$), implying this donation was based on assessed need to the victim. They were also more likely to make a donation to the control child compared to the needy child when asked to empathize prior to donating ($p < .05$), implying people are less likely to donate to needy victims when empathy is salient. Interestingly, this effect was stronger among parents than non-parents, in line with the possibility that the former group find it more threatening to empathize with the needy child. The effect emerged with a very subtle empathy cue – just responding to a scale asking felt empathy.

Study 3 ($N = 333$) tested process that participants donate to needy victims because of deservingness rather than empathy. Using a 2 (victim: needy vs. control) \times 3 (salient: baseline vs. empathy vs. deservingness) between-subjects design, we replicated the findings of studies 1-2 showing that participants are more likely to donate to needy victims when directly asked to donate (96%) or when asked about deservingness prior to making a donation (90%), compared to being first asked about empathy (84%, p 's $< .05$).

Donation rate to the control victim instead was highest when empathy was salient (92%) compared to the control (82%) or deservingness (82%) conditions (p 's < .05). Donation rates in this study were overall high because we used a sample from India and there may be country differences, and we also employed a real bridge collapse tragedy covered extensively by the media.

To further test process, study 4 employed framed a victim of domestic abuse as needy or resilient and we manipulated the participant's reliance on feelings or reasons (Hsee et al. 2015) prior to the donation ask. As we expected, reliance on thoughts increased donation to the needy over the resilient victim (80% vs. 59%, $p < .01$), replicating studies 1-3, but reliance on feeling increased donation to the resilient over the needy victim (65% vs. 40%, $p < .05$).

Taken together, these findings thus imply that people give to the needy because they think they should. But empathizing with the needy can backfire and reduce donations to them. Empathizing with a needy victim results in less empathy than empathizing with a non-needy victim, this effect emerges merely indicating felt empathy on a scale, it emerges framing the same victim as weak rather than as resilient, and it reduces donation to the needy.

Advance Gratitude Expressions as a Prosocial Appeal

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Short Abstract

We introduce the novel concept of an “advance gratitude expression” as a prosocial appeal and demonstrate how this can increase prosocial behaviour, by activating a sense of moral awareness. We further elucidate upon the mechanism by examining theoretically-relevant moderators of the effect.

Extended Abstract

Charitable organizations often find themselves struggling to attract sufficient support and there is a pressing need to develop more effective fundraising strategies (Nesta, 2014). We introduce the novel concept of an “advance gratitude expression” (e.g., “thank you in advance for your help...”) as a prosocial appeal and demonstrate how this can increase prosocial behaviour, by activating a sense of moral awareness. We further elucidate upon the mechanism by examining theoretically-relevant moderators of the effect.

Past research finds that expressing gratitude after some prosocial act has already been conducted can encourage further prosocial behaviour (Grant & Gino, 2010). What remains unexplored, however, is whether expressing gratitude to prospective benefactors *prior* to them agreeing to provide assistance can persuade them to act benevolently. Psychologists have long regarded gratitude as the quintessential moral emotion (McCullough et al, 2001, Hurst-house, 1999). Given gratitude's moral nature and the fact that constructs related to morality are theorised to trigger the activation of moral awareness

(Leavitt et al, 2015; Haidt, 2003; Aquino and Reed, 2002), we posit that an advance gratitude expression will activate moral awareness, which will subsequently translate to increased prosocial behaviour.

Importantly, we test three theoretically relevant moderators of the observed effect. In particular, we look at whether the morality of the source of the request and individual differences in moral identity moderate the effect of advance gratitude expressions on prosocial behavior. Our reasoning suggests that the effect should only emerge when the request comes from a moral (vs. less moral) organization and for those who do not (vs. do) already have moral identity chronically activated. In addition, we look at the moderating role of psychological connectedness, which we operationalize by manipulating self-construal. Research finds that people are more receptive to other-focused appeals when psychological connectedness to others is high (Aaker & Williams, 1998). We propose that, when connectedness to others is high (i.e. interdependent), individuals will be more receptive to advance gratitude expressions. However, when connectedness is low (i.e. independents), we expect advance gratitude expression to backfire because independents may not feel as psychologically connected to the cause.

In Study 1 we measured a real behavioural outcome and examined the main effect of advanced gratitude on prosocial behavior. Participants read an ad from The Society for the Prevention of Cruelty to Animals that either included an “advance gratitude expression” (i.e., “*Thank you in advance for your support*”) or did not. They were then asked to donate to the cause. Average donations were higher in the gratitude condition, ($F(1, 49) = 8.323$, $p = 0.006$, $M_{Gratitude} = \$2.83$ vs. $M_{NoGratitude} = \$2.08$). Moral awareness was measured with two items (i.e., “Contributing to the BCSPCA cause has moral implications” $\alpha = 0.764$). Increased moral awareness fully mediated the effect ($b = 0.2739$, $C_{95} = 0.0368, 0.6946$). We also measured reciprocity norms as a competing mechanism, but no mediation was found. Study 1 thus finds that advance gratitude expressions result in increased prosocial behaviour and that this appears to be driven by increased levels of moral awareness.

Study 2 examines a theoretically relevant moderator of the observed effect—the ethical (vs. unethical) nature of the request. If the effect is driven by moral awareness, one would expect it to only emerge when the request seems ethical in nature. Moreover, we might expect a backfire effect when the request comes from a morally dubious organization. This is because an advance gratitude expression should heighten moral awareness, which will result in the respondent questioning the moral value of complying with the request when the organization has questionable moral standards. We manipulated ethical credibility of the charity making the request by assigning high vs. low scores on three ethically-relevant criteria. The interaction between ethical credibility and advance gratitude significantly predicted donation intentions ($F(1, 407) = 7.3$, $p = 0.007$). When the request for support came from the “unethical” charity, expressing advance gratitude reduced donation intentions ($M_{NoGratitude} = 4.4$ vs. $M_{Gratitude} = 3.8$, $p = 0.06$). The opposite pattern arose when the charity with morally sound credentials, ($M_{NoGratitude} = 4.6$ vs. $M_{Gratitude} = 5.1$, $p = 0.05$), providing further support that moral awareness is the underlying mechanism.

Study 3 identifies an additional moderator of the observed effect—individual differences in moral identity. Participants first completed the Aquino and Reed (2002) moral identity internalization scale, followed by unrelated filler tasks and viewed an advertisement for the WWF requesting support for endangered elephants. The ad either included an advance gratitude statement (“*Thank you in advance*”) or not. The interaction

between moral identity and advance gratitude on donation intentions was significant ($t(133)=2.2$ $p=0.03$). Simple slopes analysis revealed the following coefficient effect sizes at low (- 1SD), $b=1.6$ $t(133) = 3.29$, $p=.00$, moderate (mean) $b=0.84$ $t(133) = 2.48$, $p = 0.01$, and high (+ 1SD) $b=0.08$ $t(133) = 0.16$, $p =0.87$ levels of moral identity. Consistent with the premise that advance gratitude expressions can activate one's dormant moral self, the focal effect is not observed among those whose moral identity centrality is chronically high.

Study 4 tested the moderating effect of connectedness to others by manipulating participants' self-construal, by reading a short story (Gardner et al, 1999). Participants were subsequently shown an advertisement for a food bank requesting donations on behalf of a family. The advance gratitude condition included the statement "Thank you in advance for your support from the Roberts Family," while the control condition did not. The interaction between self-construal and advance gratitude significantly predicted volunteer intentions ($F(1,202) =11.04$, $p=0.001$). For those primed with an interdependent self-construal, receiving the advance gratitude expression increased volunteering intentions, $p=0.007$ ($M_{\text{no gratitude}}=3.9$ vs. $M_{\text{gratitude}}=5.1$). Whereas, in the independent condition, advance gratitude backfired, $M_{\text{no gratitude}}=5.6$ vs. $M_{\text{gratitude}}=4.7$ $p=0.051$.

Taken together, our results suggest that advance gratitude expressions can enable charities to gain important scarce resources, without additional costs. From a theoretical perspective, we demonstrate that advance gratitude expressions heighten moral awareness, thus making contributions to the gratitude and morality literatures. We also demonstrate that the effects of advance gratitude expressions are nuanced in nature. Indeed, if the communicator fails to ensure the target audience perceives a connection with the cause, advance gratitude can lead to counterproductive consequences.

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Summary Tables of Results (Paper #4)

	<i>No Advance Gratitude</i>	<i>Advance Gratitude</i>	<i>P- value</i>
Study 1 (n=50) DV= Donation Amount	\$2.08	\$2.83	$p = 0.006$
Study 2 (n= 408) DV= Donation Intention 1= not at all, 9= very much	Low ethical credential condition: 4.4 High ethical credentials condition: 4.6	Low ethical credentials condition: 3.8 High ethical credentials condition: 5.1	$p = 0.06$ $p = 0.05$
Study 4 (n=206) DV= Volunteering Intention 1= not at all, 9= very much	Independent condition: 5.6 Interdependent condition: 3.9	Independent condition: 4.7 Interdependent condition: 5.1	$p = 0.007$ $p = 0.051$

	Gratitude Effect at Moral Identity (-1SD)	Gratitude Effect at Moral Identity (Mean Level)	Gratitude Effect at Moral Identity (+1SD)
Study 3 (n= 137) DV= Donation Intention 1= not at all, 9= very much	$b = 1.6$ $t(133) = 3.29$ 95% <i>CI</i> (0.64; 2.56) $p = .00$	$b = 0.84$ $t(133) = 2.48,$ 95% <i>CI</i> (0.17; 1.51) $p = 0.01$	$b = 0.08$ $t(133) = 0.16$ 95% <i>CI</i> (-.88; 1.03) $p = 0.87$

3.2 When Touch Meets Technology: Documenting Unintended Consumer Responses to Technology-Mediated Haptics Symposium

1) Haptic Dissonance: How Textural Fit and Misfit in Touchscreen Media Alter Consumer Product Evaluations

S. Adam Brasel (Boston College, stevan.brasel@bc.edu)

2) When Digital Gets Physical: How Haptic Feedback Improves Consumer Task Performance

Rhonda Hadi (University of Oxford, rhonda.hadi@sbs.ox.ac.uk)

Ana Valenzuela (Baruch College, CUNY & ESADE Business School, ana.valenzuela@baruch.cuny.edu)

3) Horizontal or Vertical? How Browsing Direction Affects Online Shoppers

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Ying Zhu (University of British Columbia-Okanagan, ying.zhu@ubc.ca)

Joann Peck (University of Wisconsin-Madison, joann.peck@wisc.edu)

4) The Reviewer Halo Effect: Why Where Consumers Read Reviews Matters

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Consumer engagement with technology is growing increasingly tactile in nature. Touchscreens have become the dominant mobile interface, wearable computing is strapping connectivity firmly onto our skin, and the Internet-of-Things is embedding digital capability into our tangible world. While these trends have cumulatively added multisensory richness to digital experiences, little research has explored how such shifts might influence consumer interactions with technology. Research in social psychology and marketing has long demonstrated the fundamental role haptics play in shaping consumer outcomes (Holbrook 1983, Peck and Childers 2003), but these considerations become more complex and the consequences more profound when the objects we touch are embedded with greater capabilities (e.g., allowing us to shop, communicate, and even monitor our own health).

Our symposium addresses this changing landscape by exploring a range of consumer responses to technology-mediated touch. Across four papers, we document how device-enabled haptics can have consequences in various behavioral contexts, including online shopping and browsing, word-of-mouth, and physical fitness. The papers examine various dimensions of tactile engagement, including the feel of an interface (e.g., touchscreen texture), the sensations a device might produce (e.g., vibrotactile feedback), the way consumers touch devices (e.g., based on directionality of finger swiping or scrolling), and whether or not consumers are utilizing a haptic interface

at all (e.g., mobile phone). Further, we demonstrate that these haptic interactions can influence incidental product evaluations (paper 1), physical task performance (paper 2), willingness to pay (paper 3), and reviewer halo effects (paper 4). Accordingly, while each paper individually documents the importance of device-enabled touch in a different consumer context, collectively the session demonstrates that the behavioral outcomes and contextual contingencies linked to haptic engagement with technology can be highly consequential.

In the first paper, Brasel demonstrates that textural misfits (e.g., using a smooth touchscreen to shop for cashmere sweaters) decrease product evaluations, but can also increase touch salience, making consumers use alternative information (such as text) to resolve the misfit. In the second paper, Hadi and Valenzuela demonstrate that vibrotactile sensations (delivered through mobile phones and wearables) can represent social touch, and ultimately improve consumer performance on related physical tasks. In the third paper, Chung, Zhu, and Peck find that swiping or scrolling a website vertically (versus horizontally) induces head-nodding, resulting in higher willingness to pay for displayed objects. Finally, Shalev, Shoham and Kung show that the use of haptic (mobile) versus computer interfaces exaggerates the manifestation of reviewer halo effects.

Importantly, these papers highlight that there are many different mechanisms through which haptic cues might impact responses. We accordingly draw upon various theoretical frameworks to explain the behavioral outcomes: fluency (Brasel), social presence (Hadi and Valenzuela), self-validation (Chung et al.) and halo effects (Shalev et al.). All papers are in advanced stages of completion with multiple studies. The progressive approaches and novel results are sure to induce a lively discussion, and are likely to appeal not only to researchers interested in haptic research, but to a broader audience interested in multi-channel retail and consumer interactions with technology.

Haptic Dissonance:

How Textural Fit and Misfit in Touchscreen Media Alter Consumer Product Evaluations

S. Adam Brasel

Three studies explore touchscreen textural misfit, such as shopping for cashmere sweaters on a smooth touchscreen. Haptic dissonance decreases product evaluations, but increases touch salience; alternative sensory information moderates the effect. Changing touchscreen texture can reverse the effects, and textural misfit encourages concrete versus abstract construal.

Touch is an important but under-studied sensory dimension in consumer behavior (Jansson-Boyd 2001), and digital interfaces fundamentally transform the experience of the products and media they access (Rokeby 1998). With the proliferation of smartphones and tablets, touchscreens are becoming the modal form of content interface; tablets and smartphones account for 60% of all online traffic when app traffic is included (Lella and Lipsman 2015). Prior work has shown that touchscreens activate endowment effects

(Brasel and Gips 2014), emphasize affective appeals over rational ones (Shen, Zhang and Krishna 2016) and bias product attribute judgments (Brasel and Gips 2015). Answering the call for increased research into how changes in mobile interfaces lead to changes in processing (Grewal et al 2016), this research explores how the fit (or misfit) of touchscreen versus product texture impacts consumer judgments.

Consumers have a “need for touch” (Peck and Childers 2003), and touch plays an especially large role in perceptions of product ownership. Even imagining touching a product can increase psychological ownership (Peck and Shu 2003). Using a touchscreen is a more direct physical and visual metaphor for touching a product when compared to using a mouse or touchpad, so touch effects may be highly salient for this interface. Touchscreens are glassy smooth, but many products explored via touchscreen are anything but that. We argue that textural misfit may harm product perceptions due to lack of fluency, raise the salience of the touch dimension due to the haptic dissonance, increase the search for alternative textural cues to resolve the discrepancy, and encourage concrete over abstract construal levels due to the increased salience of the sensory dimension.

In Study 1, 67 participants in a 2*2*2 used either a touchscreen monitor or a mouse to explore an assortment of either wine glasses (haptic fit with touchscreen) or cashmere sweaters (haptic misfit with touchscreen). Two versions of each assortment were created, one with additional textural cues in the product copy text, and one without. Participants were asked to choose a product out of the assortment, then asked to rate their anticipated choice satisfaction, the usefulness of the product image and product text, and finally the importance of touch in the choice process. Each participant completed the protocol twice, seeing both products and using both interfaces.

For the texturally fitting wine glass, anticipated choice satisfaction was marginally higher for the touch versus mouse interface regardless of the presence or absence of textural text cues (5.4 vs 4.8, $p < .10$). For the textural misfit (cashmere sweater) condition, there is a significant interaction between the interface and the presence or absence of textural cues in the text ($p < .05$). The touchscreen scores lower than the mouse for anticipated product satisfaction when textural cues are not present in the body text (4.3 vs 4.7), indicating that the screen-product misfit harms evaluations, but when textural cues are present in the text to resolve the misfit between screen and product, the touchscreen leads to higher satisfaction than the mouse (5.6 vs 5.0).

Haptic misfit between touchscreen and product texture raises the salience of touch. There was no difference in rated touch importance between the mouse and touchscreen conditions for the wine glasses (4.2 versus 4.5, ns); for the haptic misfit cashmere sweaters the stated importance of touch was significantly higher for the touchscreen versus mouse condition (6.0 versus 4.9, $p < .01$). It follows that the text with textural cues was rated as significantly more useful than the text without in the haptic misfit cashmere sweater condition (5.2 versus 4.3, $p < .05$), but there was no significant difference in the rated usefulness of the text between the two text manipulations for the haptic fit wine glasses (3.8 versus 3.7, ns).

Study 2 “flips” the effects of Study 1 by replicating it while 65 participants wore cashmere gloves, making the sweater a textural fit (and glasses a misfit) with the touchscreen. Here, the sweater enjoyed higher satisfaction in the touchscreen versus mouse condition (5.6 versus 5.1, $p < .05$). For the misfit wine glasses a significant

interaction ($p < .05$) presented: the touchscreen performed worse than the mouse when textural text cues were not present (4.2 versus 4.5), but the touchscreen led to higher satisfaction versus the mouse when haptic cues were present (5.0 versus 4.6). Likewise, there was no difference in touch importance between the touchscreen and mouse conditions for the textural fit sweaters (6.1 versus 5.8, ns), while touch was rated as significantly more important for the misfit wine glasses in the touchscreen versus mouse condition (4.7 versus 4.1, $p < .05$). So by using soft gloves to swap which product was a textural fit to the touchscreen, the results between the two products reversed from Study 1, reinforcing the causal role of haptic dissonance in the results.

Study 3 extends this work into construal. 45 participants explored either an assortment of dinner plates (textural fit) or cotton napkins (textural misfit) for a dinner party, followed by traditional measures of construal level (low-level concrete versus high-level abstract) and free-response measures about the products and party to measure construal level thoughts. Results suggest that textural misfit (versus fit) leads to more concrete and low-level construal overall (4.5 versus 3.8, $p < .05$), and increases the number of low-level and concrete attributes related to the product and usage scenario ($M_{\text{concrete}} = 3.2$ vs 2.0 , $p < .05$, $M_{\text{abstract}} = 2.1$ versus 3.6 , $p < .05$).

In conclusion, three studies illustrate that haptic dissonance introduced via textural misfit between touchscreen and explored products affects consumer processing. Textural misfit decreases product evaluations, but also increases the salience of the touch dimension, making consumers explore alternative information for textural cues. If the dissonance can be resolved, negative touchscreen effects reverse. Using soft gloves to swap which product is textural fit reverses the pattern of effects across products. Study 3 provides evidence that textural misfit encourages a more low-level concrete versus high-level abstract construal level.

When Digital Gets Physical: How Haptic Feedback Improves Consumer Task Performance

Rhonda Hadi and Ana Valenzuela

Device notifications are often administered with vibrotactile sensations (e.g., on mobile phones, wearables), yet little research has examined the psychological and behavioral implications of this haptic feedback. We explore how vibrotactile alerts can represent technologically-mediated social touch, and can ultimately improve consumer performance on related tasks.

Manufacturers often incorporate haptic feedback (tactile technology that applies forces, vibrations, or motions to the skin) in consumer gadgets. Vibration is by far the most widely used haptic feedback mechanism in small devices (e.g., mobile phones and wearables) due to its compact size and relatively low power usage (Bark et al. 2008). Social etiquette obliges many consumers to place mobile devices on “silent” mode, and accordingly, vibrotactile alerts often accompany the receipt of messages, call notifications, and other communications content.

However, despite the prevalence of such device-delivered haptic feedback, very little research has examined consumer responses to it. Some work has focused on

accuracy-based outcomes (e.g., keyboards that produce vibrotactile feedback upon fingertip contact lead to improved typing accuracy; Brewster, Chohan, and Brown 2007). However, we argue it is important to investigate what additional psychological and behavioral consequences might stem from these sensations. Some scholars in computer science suggest that device-delivered haptic feedback can symbolize a human's touch under very specific conditions (e.g., if users are explicitly told that the sensations represent the touch of another person, Haans and IJsselsteijn 2006), and research in social psychology has shown that incidental interpersonal touch can substantially shape people's behavior and judgments in various ways (Gallace and Spence 2010). Yet surprisingly, no research has explored how incidental haptic feedback accompanying device communications (e.g., vibrational alerts accompanying message notifications) might influence consumer responses to those messages.

Drawing from theories in social psychology, communications, and computer science, we suggest that in addition to simply alerting consumers, haptic feedback accompanying communications may also play an additional role: generating a sense of "social presence" (Qiu and Benbasat 2009) in what may otherwise feel like a cold technological exchange. This sense of social presence makes the communication itself more meaningful, and as a consequence, more effective in motivating behavioral responses.

We focus our exploration on one important area of consumer performance: physical fitness. Physical fitness is an externally-relevant context to investigate device-mediated communications given the skyrocketing adoption of health and fitness apps and wearable fitness trackers in the marketplace (Lamkin 2016), which often act as a personal trainer/coach by tracking users' performance and sending them motivational messages (Harris-Fry 2016). In addition, because we expect the potential positive effects of haptic alerts on performance to be driven by an increased sense of social presence, it was important to select a context in which social support reliably improves performance. A well-established literature has demonstrated the positive effects of social support (e.g., via a gym or workout buddy) on physical performance and exercise (for a meta-analysis, see Carron, Hausenblas and Mack 1996). Given that people show increased motivation and performance on physical fitness activities when in the physical presence of social support, it is compelling to explore whether social presence activated through technology-mediated incidental touch might also improve attitudes and increase voluntary compliance in this consequential domain.

We tested our predictions across three laboratory studies. In study 1, participants (N=60) received mobile phones set to either beep or vibrate upon receiving text messages. Participants received a series of text messages intended to provide encouragement (e.g. "You're doing great! Keep it up,") while attempting a physical challenge (balancing on one leg for 5 minutes). Binary logistic regression confirmed a significant main effect of message alert on performance ($\chi^2=4.29, p<.04$), in that participants in the vibrotactile alert condition were more likely to successfully remain on one leg for the duration of the challenge than those in the auditory alert condition.

In study 2 (N=86), we explored the impact of vibrotactile alerts in a different product category (smartwatches) and a different task (a "steps challenge," where participants marched to get as many steps as possible in five minutes). Participants again received a series of encouraging text messages. Messages were accompanied by one of

three alerts: auditory vs. vibrotactile vs. auditory+vibrotactile. Adding the third condition allowed us to test whether Study 1 effects were driven by the inclusion of vibrotactile sensation or by the absence of auditory cues. Pedometers on participants' smartwatches recorded the number of steps achieved, and ANOVA results confirmed a significant main effect of message alert on the steps achieved by participants ($p < .02$). Planned contrasts demonstrated that while there was no difference in performance between the vibrotactile vs. auditory+vibrotactile conditions, subjects in both these conditions outperformed those in the auditory condition, suggesting that improved performance was driven by the inclusion of the haptic cue.

Study 3 ($N=56$) was similar to study 2, but in addition to measuring performance, we collected several potential process measures: social presence ("Who do you think was sending the text messages?" rated on whether attribution was to an automated system/machine or a human source), message evaluation (e.g. "The text messages were nice,"), and self-reported arousal. Further, we measured technological self-efficacy as a potential moderator, since previous research suggests low self-efficacy should exaggerate the value of haptic feedback. ANOVA results confirmed a significant positive effect of vibrotactile alerts on the number of steps participants performed ($p < .02$). While there was a marginal effect of vibrotactile alerts on arousal ($p < .07$), this did not mediate the effect on performance, and the impact of vibrotactile alerts on performance was still significant when controlling for arousal ($p < .04$). We used a sequential mediated moderation model to examine the mechanism through which a message alert x technological competence interaction might influence task performance. The sequential mediation analysis (Hayes 2013, model 6) supported our hypothesized path: Message Alert x Technological Self-Efficacy interaction \rightarrow Social Presence \rightarrow Message Evaluation \rightarrow Task Performance (95% CI excluding zero). This suggests that especially for those low in technological competence, the positive effect of the vibrotactile alert on task performance was due to increased feelings of social presence and improved evaluation of the communication respectively.

In sum, our studies demonstrate that haptic alerts can increase feelings of social presence and improve user performance on related physical tasks. These findings provide applied value for mobile marketers and gadget designers, and have important implications for consumer compliance in health and fitness domains.

Horizontal or Vertical? How Browsing Direction Affects Online Shoppers

Sorim Chung, Ying Zhu, and Joann Peck

The self-validation hypothesis explains that head-nodding (up and down) signals approval while head-shaking (left and right) triggers disapproval of one's own thoughts. Based on this theory, we proposed that swiping or scrolling a website vertically (vs. horizontally) results in more positive product evaluations, higher willingness to pay (WTP), and higher purchase intentions because it involves head-nodding, which triggers favorable thoughts. Our results support the self-validation theory that vertical browsing strengthens the impact of argument types on WTP and purchase intentions more than horizontal browsing while the impact is not significant for product evaluations.

Prior research has suggested that touch is an important cue for consumer behavior (Holbrook 1983; Krishna 2006; McCabe and Nowlis 2003; Peck and Childers 2003a; Peck and Childers 2003b; Peck and Wiggins 2006; Peck and Shu 2009). In computer-mediated environments, touch sensations are usually limited to the screen surface and mouse (Brasel and Gips 2014). However, gestures for touch devices vary greatly from swiping to tapping and from scrolling to clicking, and little research has yet investigated the role played by different gestures in online-shopping environments. In this study, we are interested in how varying the hand gestures used to swipe and scroll web content affects online shoppers' purchase-related decisions.

When people browse web content on a screen, they move their hands horizontally (from left-to-right or from right-to-left) or vertically (from top-to-bottom or from bottom-to-top). Literature suggests that people tend to process information differently depending on whether content is oriented vertically or horizontally. They make better spatial judgments of vertically oriented information—for example, drawing the water line on tilted jars (Heller et al. 1999). When shoppers browse a website that has either a horizontally- or vertically-oriented layout, they move their hands to navigate the site, which often involves head movements such as nodding and shaking.

The self-validation hypothesis explains how different head movements influence thought, suggesting that a gesture of head-nodding (up and down) signals approval while head-shaking (left and right) triggers disapproval of one's own internal thoughts (Petty, Briñol, and Tormala 2002). Nodding has been found compatible with agreeable and favorable thoughts (Wells and Petty 1980), while head-shaking has been associated with disapproval and unfavorable thoughts (Darwin 1872 and 1965; Eibl-Eibesfeldt 1972). Moreover, compared to head-shaking, head-nodding leads to more favorable product evaluations of positively-valenced products (Förster 2004), better persuasion by strong arguments (Briñol and Petty 2003), stronger agreement with persuasive messages, stronger product preferences (Wells and Petty 1980), and higher product evaluations (Tom, Ramil, Zapanta, Demir, and Lopez 2006). Based on these findings, we proposed that vertical navigation is likely to result in higher willingness to pay (WTP), more positive evaluations of products, and higher purchase intentions because it involves head-nodding, which is more likely to trigger favorable thoughts. We predicted that these relationships vary by argument types, as in Petty's studies as well as by agreeableness.

Method & Data

Experiments 1 and 2. These first two experiments used a 2 (direction: horizontal vs. vertical) x 2 (device: touch vs. mouse) between-subjects design, focusing on exploring the main effects of browsing directions. In both experiments, participants browsed multiple webpages presenting product information using either a touch-screen laptop or a laptop with a mouse and a keyboard. To control for potential confounding effect of different devices, all experiments were conducted on the same DELL laptops. After the browsing session, we administered a questionnaire measuring the dependent variables and moderators. The only difference between experiments 1 and 2 was the type of product displayed. Experiment 1 used headphones, while experiment 2 used coffeemakers.

In experiment 1, participants in the vertical condition (vs. horizontal) were willing to pay higher prices for the products (\$182.1 vs. \$103.29; $F(1, 73) = 14.45, p < .001$). In

experiment 2, although WTP did not differ by directions, vertical browsing resulted in more positive product evaluations in most product evaluation criteria in the mouse condition ($p < .05$). In both experiments, attitudes, involvement, and agreeableness toward product attributes had significant moderating effects on some of the evaluation criteria ($p < .05$).

Experiments 3 and 4. The objective of experiments 3 and 4 was to examine whether the key dependent variables differ by types of product information. We used a 2 (direction: horizontal vs. vertical) x 2 (argument: strong vs. weak) between-subjects design. Incorporating the self-validation theory, we varied types of product information by level of information quality (i.e., strong vs. weak arguments) presented on a website. Dependent variables remained the same as in experiments 1 and 2, and the rest of the procedure was similar to the previous experiments, except for the product type: printers (experiment 3) and cameras (experiment 4).

Those who read the strong argument (SA) displayed significantly higher WTP than those who read the weak argument (WA) groups, and this difference was significant only under the *vertical* browsing conditions in both experiment 3 (3.44 vs. 2.35; $F(1, 158) = 5.49, p = .02$) and 4 (3.54 vs. 2.45; $F(1, 163) = 8.27, p = .042$). However, agreeable personality did not influence on WTP significantly ($p > .05$) while agreeableness toward product attributes had a significant or a marginally significant effect on WTP (E3: 3.27 vs. 2.72; $F(1, 158) = 7.35, p = .007$; E4: 3.43 vs. 2.99; $F(1, 164) = 3.30, p = .071$).

SA groups evaluated the products more favorably than did WA groups ($p < .05$) while agreeableness did not play a significant role ($p > .05$). SA groups also showed higher purchase intentions than did WA groups (E3: $F(1, 158) = 4.80, p = .03$; E4: $F(1, 163) = 14.89, p < .001$). Although interaction effects with directions were significant in experiment 4 only ($F(1, 163) = 7.19, p = .008$), SA groups' higher purchase intentions were significant in the vertical groups only in both experiments (E3: 4.73 vs. 4.01; E4: 4.50 vs. 2.38).

Key Contributions and Conclusion

This study is the first study to examine the impact of hand gestures on online shopping in the context of the self-validation theory and embodied cognition. It is also one of the first studies in marketing to introduce hand gestures and bodily movements as part of the online retail cues that influence shoppers purchase decisions. The results suggest that vertical browsing (vs. horizontal) enhances the strong argument of product information and leads to more positive final purchase-decisions. Marketers and retailers should consider this when designing their websites in order to maximize their business outcomes. For example, well-established brands may need to use a vertical layout to highlight the contrast effect whereas new brands may need a horizontal layout to minimize such effect.

The Reviewer Halo Effect: Why Where Consumers Read Reviews Matters

Edith Shalev, Meyrav Shoham, and Ellie J. Kyung

This research identifies a new halo effect where review valence influences reviewer perceptions, and, in turn, intentions to follow the reviewer in the future and product attitudes. The underlying process differs for positive versus negative reviews and is moderated by the use of haptic mobile versus computer interfaces.

Consumers often generate word-of-mouth in order to enhance their social status and gain recognition (Hennig-Thurau et al. 2004). To that end, individuals prefer to generate positive rather than negative WOM (De Angelis et al. 2012). But does the message valence affect the impression that the message receiver forms about the messenger? We propose that WOM valence can indeed affect perceptions of the source, and explore the role of interface mode—the use of haptic mobile interfaces versus computers—in this phenomenon.

Review valence affects product evaluations and sales (Babić Rosario, Sotgiu, De Valck, & Bijmolt 2016) and may also reflect upon the *reviewer's expertise* (Berger, 2014). We go further and argue that relative to a neutral review, a positive review leads to more positive impressions of the reviewer's personality and vice versa. We term this phenomenon the *reviewer halo effect*.

Halo effects occur when the evaluation of one trait imposes itself on the evaluation of other behaviors and traits attributed to the same person (Moskowitz 2005; Nisbett & Wilson, 1977). Halo effects also manifest in various perceptions in consumption contexts (Boatwright, Kalra, & Zhang, 2008; Han, 1989). We suggest that consumers attribute positive personality traits to authors of positive reviews. This, in turn, can influence whether readers intend to follow the reviewer in the future, with positive halos drawing social media followers and negative halos inhibiting a writer's reach. Reviewer halo effects can also shape product attitudes: a reviewer's image, as a prototypical user, may transfer to the product (Reed et al. 2012).

The use of haptic mobile interfaces facilitates heuristic information processing and reliance on affect (Brasel & Gips, 2014; Shen, Zhang & Krishna, 2016). Positive halo effects, like other cognitive biases, are sensitive to information processing mode (Chen & Chaiken, 1999; Petty & Cacioppo, 1986) and are magnified in situations that encourage heuristic information processing (Forgas, 2011). We thus expect a stronger *positive* reviewer halo effects when reading reviews on mobile devices as opposed to computers. In contrast, negative information elicits systematic processing and is less prone to heuristic biases. Due to the negativity bias (Cacioppo & Berntson, 1994) and because negative information tends to receive more weight and attention than positive information (Cacioppo, Gardner, and Berntson, 1999; Ito, Cacioppo, & Lang, 1998), negative reviewer halo effects should not be as susceptible to interface type.

Finally, to further test the underlying process, we predict that more positive mood also facilitates heuristic information processing and will moderate the positive, but not negative, reviewer halo effect (Forgas 1995; Park and Banaji 2000).

Study 1 examined whether review valence affects reviewer perception. We randomly assigned 161 MTurkers to read a negative, neutral or a positive hotel review. Review valence had a significant effect on perceptions of the reviewer ($F(2, 152) =$

21.98, $p < .01$). Reviewer perceptions mediated the effect of review valence on product attitudes when comparing the positive to neutral review ($B = .07$, $SE = .05$, 95% CI [.009, .225]) and the negative to the neutral review ($B = -.21$, $SE = .09$, 95% CI [-.44, -.06]). A similar pattern was found for intentions to follow the reviewer on social media ($B = -.23$, $SE = .11$, 95% CI [-.51, -.06]) and $B = .08$, $SE = .05$, 95% CI [.007, .20], respectively).

In study 2, 602 US MTurkers were randomly assigned to conditions in a 2 (user interface: computer vs. mobile) \times 3 (review valence: negative, neutral, or positive) between-subjects design, with books as the reviewed product. A 2-way ANOVA on reviewer perception revealed the expected valence effects (negative/neutral: $B = -.79$, $SE = .10$, 95% CI [-.98, -.60]; neutral/positive: $B = .39$, $SE = .10$, 95% CI [.20, .58]). Furthermore, the interface \times valence interaction was significant for the neutral vs. positive review only ($B = .35$, $SE = .14$, 95% CI [.07, .62]): the conditional effect was stronger on haptic mobile ($B = .73$, $SE = .10$, 95% CI [.53, .94]) versus computer interfaces ($B = .39$, $SE = .10$, 95% CI [.20, .58]). Moderated mediation analyses for the neutral versus positive reviews revealed larger indirect effects on mobile versus computer interfaces for both intentions to follow the reviewer and product attitudes. Simple mediation analyses for the negative versus neutral reviews showed significant indirect effects of reviewer perception for both product attitudes and following intentions.

In study 3, 288 MTurkers were randomly assigned to read a negative, neutral, or positive book review. In addition, participants rated their current mood. Review valence had a significant effect on reviewer perceptions when comparing the negative and neutral reviews ($B = -1.28$, $SE = .61$, 95% CI [-2.48, -.08]) but not when comparing positive to neutral reviews ($B = -.90$, $SE = .62$, 95% CI [-2.11, .32]). However, there was a significant interaction for mood and \times positive vs. neutral valence ($B = .24$, $SE = .11$, 95% CI [.02, .47]). Moderated mediation analyses for the latter revealed stronger indirect effects on intentions to follow the reviewer and product attitudes when mood was more positive.

Thus, across three studies, we show that review valence contributes to reviewer halos and that this process is moderated by the use of a mobile haptic interface. A positively (negatively) valenced review heightens (lowers) evaluations of the reviewer compared to a neutral review. This halo radiates to product attitudes and intentions to follow the reviewer on social media. Positive, but not negative, reviewer halo effects are amplified when the review is accessed on a mobile interface or encountered while in a good mood. Our findings are novel in demonstrating positive and negative reviewer halo effects and their downstream consequences, and highlight the role of information processing and interface mode.

The reviewer halo effect is highly notable given the increasing role of influencers in the marketplace and the greater shift towards mobile platforms. Because positive reviewer halos are amplified on mobile haptic interfaces, influencers can be especially effective when their reviews are accessed on mobile devices, and this impact can endure beyond the initial purchase decision.

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3.3 Unearthing New Biases in Decision-Making: Evaluations Gone Bad Symposium

1. **Thou Shalt Not Look! When Visual Aids in Games of Chance Bias Gambling**
2. **A Prompt 3 Months but a Prolonged 3 Days: Documenting a Reversal for Objective and Subjective Time**
3. **Mistaking the Journey for the Destination: Overestimating the Fruits of (More) Labor**
4. **Proximity Bias: Interactive Effects of Event Valence and Event Nearness on Probability Estimates**

For over three decades, behavioral research has informed social sciences about various judgement-and-decision biases to which humans fall prey. Prolonging this tradition, our session puts forward cutting-edge research into the psychology of (flawed) decision-making. Our papers unearth four biases related to money, chance, time, and effort.

The first paper documents a perceptual bias in the context of gambling. Investigating how people process quantitative information, **Duclos and Khamitov** show that manipulating the visual representation of data (not the underlying data itself) can bias gamblers' behavior. Drawing on fluency theory, four experiments re-arranged the distribution of colors on roulette wheels and managed to artificially (i.e., unduly) inflate gamblers' perception of their likelihood to win. This, in turn, escalated the amount of (real) money bet. Encouraging gamblers to process their odds numerically (rather than visually/graphically) proved useful in lessening this bias.

Maglio and Hu uncover another bias, one that applies to time perceptions. Across three studies, the authors document when and why future events appear closer vs. further in time. Thinking abstractly (concretely) leads consumers to situate future events as objectively further in time (e.g., my dentist appointment is in 28 (21) days). Paradoxically, though 28 days are objectively further away than 21 days, abstract (concrete) thinking makes said event "feel" closer (further) in time subjectively. This is because abstract (concrete) thinking favors reliance on coarser (finer) measurement units (e.g., 4 weeks (i.e., 28 days) feels sooner than 21 days).

"Sweat equity" relates to the added pleasure one derives from working hard toward a goal (e.g., assembling yourself a coffee table vs. buying it whole). Introducing new perspectives on utility *mis*forecasting, **Buechel, Morewedge, and Zhang** document why consumers overestimate the value of sweat equity. Predicting the expected utility one will derive from a product is usually done in a cold, affect-poor state. In contrast, reporting retrospectively one's actual/experienced utility is usually done in a hot, affect-rich state.

This affect asymmetry causes forecasters to misjudge (i.e., inflate) how much they'll enjoy the fruits of their labor.

Concluding the session, **Hong, Longoni, and Morwitz** unearth yet another intriguing bias, this time in the context of probability estimates. Examining the interaction of event valence and event nearness, the authors find that positive events (e.g., winning a lottery) are seen as more likely to occur if they are to take place nearby than far away (e.g., if the draw of the winning ticket is to happen close by). In contrast, negative events (e.g., failing to land a job offer) are perceived as less likely to occur if they are to take place nearby than far away (e.g., if the hiring decision is to be made locally rather than far away). Suggesting the motivated nature of this bias, physical proximity did not affect predictions made for others.

By bringing to the fore four new biases, these papers advance our understanding of (flawed) decision-making. From a theory standpoint, then, this session should interest information-processing and BDT researchers. Moreover, as exemplified by the consequential nature of our DVs and contexts, the biases unearthed here can substantially impede consumer wellbeing. Accordingly, this session may also appeal to scholars interested in policymaking and societal welfare.

SHORT ABSTRACTS

Thou Shalt Not Look! When Visual Aids in Games of Chance Bias Gambling

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We examine how gamblers visually process quantitative information (i.e., their odds), forecast their chance of winning, and bet. Across four studies, we find that manipulating the visual representation of odds (not the odds themselves) can artificially inflate gambling. Encouraging gamblers to process their odds numerically (rather than visually) helps lessen this bias. Allying both hypothetical and consequential procedures, our experiments identify fluency (i.e., ease of processing) as the underlying mechanism for our findings.

A Prompt 3 Months but a Prolonged 3 Days: Documenting a Reversal for Objective and Subjective Time

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Consumers continually consider prospects for the future. One such consideration speculates as to the occurrence of some future event, which can be made in objective ("I'll buy in three days") or subjective ("I'll buy very soon") terms. Despite an

intuitive, tacit assumption that the two should be positively correlated, we propose that the two can be negatively correlated. When thinking broadly (versus narrowly), people report later objective timing estimates but sooner subjective estimates (Study 1) via a process of using a broader scope to measure time (months over minutes) in converting from objective to subjective time (Studies 2 and 3).

Mistaking the Journey for the Destination: Overestimating the Fruits of (More) Labor

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People believe that working harder toward a goal makes achieving it sweeter. We report four studies demonstrating that people overestimate the pleasure they will derive from sweat equity, because effort is easier to consider while forecasting an outcome in an affect-poor state than while experiencing the outcome in an affect-rich state. Forecasters believed that they would be happier if they made a good or finished a job that required (or appeared to require) more than less effort. Experiencers were equally happy having made that good or finished that job, whether it required more or less effort.

Proximity Bias: Interactive Effects of Event Valence and Event Nearness on Probability Estimates

*Jennifer (Seok Hwa) Hong (New York University, USA)
Chiara Longoni (Boston University, USA)
Vicki Morwitz (New York University, USA)

We document a novel proximity bias in probability estimates. Whereas positive events are seen as more likely if they are physically close (vs. far), negative events are seen as more likely if physically far (vs. close). People predicted they would be more likely to win a lottery if the draw of the winning ticket happened nearby (vs. far away). Conversely, people deemed less likely to not get a job offer if the hiring decision happened nearby (vs. far away). Corroborating the motivated nature of this bias, physical proximity did not affect predictions made for other individuals.

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### **EXTENDED ABSTRACTS**

#### **Thou Shalt Not Look! When Visual Aids in Games of Chance Bias Gambling**

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Scant research has examined directly and experimentally how consumers absorb visually and process quantitative information to, in turn, make financial decisions (Raghubir and

Das 2010; Duclos 2015). Aiming to contribute to this literature, the present work investigates how visual biases in data-interpretation influence gamblers' perceptions of their odds of winning and, consequently, the amount of money they bet.

Breaking ground in this area, Raghubir and Das (2010) initiated a line of work dedicated to how visual displays of quantitative information bias risk-perceptions. When reviewing financial performance on a graph, investors do not consider every datapoint equally. Rather, they sample the local minima and maxima to infer variation around a trend line and, in turn, estimate risk. Accordingly, the higher the *run-length* (i.e., the greater the number of consecutive movements in the same non-horizontal direction), the further apart are the local minima and maxima. And as the distance between minima and maxima increases, so do perceptions of the underlying asset's riskiness.

Building on this work, Duclos (2015) examined how visual biases in data-interpretation impact actual risk-taking. Lo and behold, the author finds that investors attend disproportionately (and unduly) to the last trading days of a stock. Graphs depicting a stock-price closing upward (downward) foster upward (downward) forecasts for tomorrow and, accordingly, more (less) investing in the present. Coined *end-anchoring*, this bias occurs even when stock-price distributions are generated randomly (i.e., when no upward/downward trend can be identified in the data).

The present work extends the above research stream by examining (i) another form of visual aid, (ii) another form of quantitative information, and (iii) another form of financial decision. Namely, drawing on fluency theory, four experiments examine how gamblers visually process quantitative information (i.e., their odds), forecast their chance of winning, and bet.

Using variants of roulette wheels as experimental paradigm, study 1 shows that manipulating the visual (i.e., graphic) representation of odds (not the odds themselves) can artificially increase gambling. That is, wheels depicting odds in large (small) blocks led gamblers to bet more (less) even though the statistical likelihood of winning remained identical across conditions. Study 2 replicates these results using a between-subjects design and a consequential dependent variable.

Study 3 replicates these findings while shedding light on the underlying process. Namely, increasing processing fluency by lumping together (i.e., in large blocks) the odds of winning on a roulette wheel inflates the perception one has of his likelihood to win, which in turn escalates the amount of money bet. However, encouraging gamblers to process their odds numerically (rather than visually/graphically) helps lessen this bias.

Study 4 provides converging evidence for these results, this time in a simulated-casino setting (rather than by carrying out decision tasks via a computer interface). That is, whereas experiments 1-3 examined through online-tasks the biasing effects of visual processing for gambling, study 4 brings people to the lab to have them play a real-world game of roulette and finds again that manipulating the visual presentation of odds can sway gambling behavior predictably and substantially.

Methodologically, three of the four studies place participants in situations to actually win and lose money. In terms of populations surveyed, experiments 2 and 3 recruited M-Turk volunteers whereas experiments 1 and 4 relied on university students. Regardless of methods or samples, the four studies produce convergent evidence testifying to the robustness of the phenomenon and lending credence to our theorizing.

Aside from the judgment and decision-making literature, our findings contribute most notably to gambling, perception, and anchoring literatures. Most of the extant gambling literature on the topic has revolved either around the psychopathology of betting behavior (Cyders and Smith 2008; Rodda et al. 2013) or the economics of gambling (Grinols and Mustard 2001; Littlewood 2011). To date, however, relatively little is known about the context effects of gambling (e.g., how *the environment at the time of gambling* manipulates bets). To this end, the present article focused on the biasing effects of the visual representation of odds. This finding is important because it (i) documents a bias not yet accounted by the judgement and decision-making literature, and (ii) sheds much-needed light on how humans absorb and process quantitative information (Duclos 2015; Raghurir and Das 2010).

The findings reported in the present manuscript also contribute to the perception literature by documenting a novel pathway via which perceptions influence cognitions and behavior. Specifically, by documenting when and how the encoding of visual stimuli (e.g., seeing small vs. large blocks) can shape betting decisions, this article unearths and explains a context-effect not yet accounted by the literature. So doing, our work echoes and extends that of Deng et al. (2016) who also invoke processing fluency to explain why seeing products assorted horizontally (rather than vertically) is usually preferred.

In terms of our contribution to the anchoring literature, anchoring research revolves around the notion that seemingly-innocuous pieces of data encountered at time 1 have unanticipated consequences on judgement and decision-making at time 2 (Tversky and Kahneman 1974). Our results suggest that a different form of anchoring operates on decision making. This anchoring is just as spontaneous and automatic as the one described before us but its nature is more *perceptual* than cognitive. Indeed, in our paradigm, we did not rely on any heavy-handed manipulations (e.g., fixating respondents' attention on a specific number) to produce our results. Rather, we merely (dis)aggregated the visual representation of statistical data (i.e., increased or decreased the size of landing slots in roulette wheels) in order to sway processing fluency. Accordingly, our findings extend recent research by Raghurir and Das (2010) and Duclos (2015) by establishing perceptual anchoring as powerful influence on financial risk-taking, a phenomenon not yet accounted by the literature. We conclude by hoping this work will help spur interest in how people process quantitative information.

## **A Prompt 3 Months but a Prolonged 3 Days: Documenting a Reversal for Objective and Subjective Time**

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Consumers continually consider prospects for the future. One such future-oriented consideration speculates as to the occurrence of some future event: When should I enroll in that class? How much time will pass before those shoes go on sale? Questions like these can be answered in two different ways: the objective amount of time until the occurrence (milliseconds or millennia) or the subjective sense of a relatively short or long duration until the event's occurrence in the future.

As an illustration of objective timing estimates, hopeful dieters, still full from Thanksgiving dinner, promise to eat more healthfully as of January 1<sup>st</sup> of the next year (Dai, Milkman, and Riis 2014): On November 24<sup>th</sup>, they plan to stop being so gastronomically short-sighted in exactly 38 days. Subjective timing estimates, on the other hand, reveal that not all objective time is created equal. For instance, with the looming of a (constant, objective) deadline by which to finish something, those tasked with delivering a more effortful output perceive that deadline as subjectively closer (Jiga-Boy, Clark, and Semin 2010). These and other inquiries to date on timing estimates have pursued an either/or approach, considering objective or subjective timing in isolation.

We propose that just because an event may be expected to occur objectively close in time, it need not subjectively feel that way, decoupling two seemingly overlapping constructs. As a first step toward the goal of decoupling these timing estimates, we identify one established determinant of the former: level of mental construal, which attunes people to the abstract big picture or to concrete, narrow specifics (Trope and Liberman 2010). In one series of studies, participants led to think abstractly about a future event indicated that it would happen later (in objective days) relative to their concrete counterparts (Liberman and Förster 2009). But how might that later number of objective days subjectively feel? Big-picture thinking also causes people to use larger scalar units (e.g., centimeters rather than millimeters) which, when used to make measurements, cause quantities to seem smaller (Maglio and Trope 2011), consistent with a numerosity heuristic by which fewer units are readily translated to smaller magnitude (Pelham, Sumarta, and Myaskovsky 1994).

We propose a two-stage process by which abstraction might be leveraged to reveal a novel bias in timing estimation. First, people thinking abstractly (concretely) should situate unknown future events as objectively later (sooner) in time. Second, people convert these objective estimates to subjective feelings of time. Here, we predict a reversal, such that people thinking abstractly (concretely) should subjectively feel that the event is closer (farther) in time as a function of a difference in the unit of measurement applied. Despite later objective estimates, people thinking abstractly will measure that longer amount of time using an especially large unit of measurement (due to the coarse-

grained pattern of thought characteristic of it) and, as a result, see it as much shorter. Three studies test this model.

Study 1 sought to document the basic effect. Participants were first randomly assigned to a condition designed to evoke abstract or concrete thinking (i.e., considering why or how, respectively, to maintain physical health, adapted from Freitas, Gollwitzer, and Trope 2004). Thereafter, they estimated when three future activities would occur (a dentist visit, a physical exam, and filing taxes, adapted from Liberman and Förster 2009); via random assignment, they made these estimates in either objective terms (number of days) or subjective terms (a subjective rating scale, ranging from 1 to 10). We calculated an averaged timing estimate for each participant, standardized for comparison across condition. A significant interaction between the two factors emerged,  $p = .02$ , such that when the timing estimate was made objectively, participants thinking abstractly expected that the events would happen later,  $p = .10$ , but when the timing estimate was made subjectively, participants thinking concretely thought that the events felt later,  $p = .07$ .

Our model requires that, whether it is explicitly reported or not, all people first respond to questions of timing by generating an objective estimate; it is only when prompted to report a subjective estimate that they go about measuring this objective estimate using whatever measurement scale is most salient (which should differ by abstract and concrete frames of mind). Study 2 was designed to confirm these requirements. Participants were randomly assigned to a condition designed to evoke abstract or concrete thinking (in a manner identical to Study 1). They then reported, on an open-ended form, when they would begin to prepare for that semester's final exams. All but one of the 60 participants in the sample gave a response including an objective measurement (e.g., hours, months), confirming that objective estimation arises first. Further, relative to participants thinking concretely, those thinking abstractly gave responses that used larger time units,  $p = .005$ .

Given these results, Study 3 tested our full model. Participants were randomly assigned to a condition designed to evoke abstract or concrete thinking (in a manner identical to Studies 1 & 2). They then reported the unit scale of their thinking ("What was the time scope in your mind when you were doing the task?"). Next, all participants provided two timing estimates for attending a free workshop: first in objective terms (in days), then describing this objective estimate in subjective terms (on a scale ranging from 1 to 10). As in Study 1 (and despite using a within-subjects design), an interaction emerged ( $p < .01$ ) such that abstract thinkers gave later objective estimates ( $p = .06$ ) but sooner subjective estimates ( $p = .02$ ). Participants thinking abstractly also reported a larger time scope than those thinking concretely ( $p < .001$ ). Finally, a bootstrap analysis confirmed that this difference in the scale used to conceptualize time accounted for the reversal in objective and subjective time between abstract and concrete thinkers,  $p = .01$ .

That consumers can simultaneously situate the same event farther into the objective future yet also closer in the subjective future identifies a novel bias in thinking about time while also underscoring the importance of comparing and contrasting these two perspectives on time estimation.



## **Mistaking the Journey for the Destination: Overestimating the Fruits of (More) Labor**

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*You will enjoy the fruit of your labor. -- How joyful and prosperous you will be*

- Psalm 128:2 NLT

People believe in “sweat equity”—that working harder toward a goal makes attaining it sweeter. Indeed, putting effort into a good can yield utility (Buechel and Janiszewski 2014) and successfully completing a good makes people value it more (Norton, Mochon, and Ariely 2012). Even the erroneous perception that a painting, for example, took more effort to produce improves its perceived value (Kruger et al. 2004). We propose that despite these benefits, the value of sweat equity is considerably overestimated.

We argue that the bias of overestimation of sweat equity emerges due to forecasters being better able to consider effort specifications than experiencers. Outcomes are typically less affect-rich when forecasting them than when experiencing them, leading the outcome to capture less attention when forecasting it than when experiencing it (Buechel et al. 2014; Hsee and Rottenstreich 2004). We suggest that, consequently, forecasters are better able to consider abstract features of the outcome such as the effort it required to produce than are experiencers. Four experiments tested our hypotheses.

A pilot study examined whether consumers hold an explicit belief in the value of sweat equity across a variety of goals. For ten kinds of goals drawn from previous literature, (from creating art, to hiking, to completing a home renovation project) participants indicated that they would be happier achieving that goal if its achievement required more or less of their effort ( $\beta = .24$ ,  $Z = 3.58$ ,  $p < .001$ ).

Forecasters in Experiment 1 predicted their happiness and enjoyment about receiving a chocolate for unscrambling either 2 or 20 sentences. Experiencers reported their happiness and enjoyment after unscrambling 2 or 20 sentences. A 2 (role: forecaster, experiencer) x 2 (effort: high, low) interaction ( $F(1, 231) = 7.97$ ,  $p = .005$ ) revealed that forecasters predicted that they would be happier about receiving the chocolate after unscrambling 20 ( $M = 6.14$ ) than 2 sentences ( $M = 5.45$ ;  $p = .005$ ), but experiencers were equally happy independent of the effort they exerted ( $M = 6.05$ ,  $M = 6.71$ , respectively,  $p = .25$ ).

Forecasters in Experiment 2a predicted their happiness about creating a difficult (many steps) or an easy (few steps) origami animal. Experiencers reported their happiness upon creating the difficult or easy origami. A 2 (role: forecaster, experiencer) x 2 (effort: high, low) interaction ( $F(1, 218) = 8.73$ ,  $p = .003$ ) revealed

that forecasters predicted they would be happier having created the difficult ( $M = 4.83$ ) than the easy animal ( $M = 4.11$ ;  $p = .01$ ) whereas experiencers were equally happy having created the difficult or the easy animal ( $M = 1.91$  and  $M = 2.38$ ; respectively,  $p = .10$ )

Experiment 3b conceptually replicated Experiment 2, but manipulated the \*perceived\* difficulty of making the animal, while holding the actual difficulty constant via a contrast effect (i.e., all participants made the same animal instead of an easier vs. difficult animal). The results mirrored those of Experiment 2.

Providing process evidence, Experiment 3 and 4 examined whether increasing affect-richness during forecasts would reduce forecasters' sensitivity to sweat equity.

Experiment 4 manipulated the affect-richness of the task. In the control (affect-poor) condition, participants unscrambled the same 2 [20] sentences as in Study 1. In the affect-rich condition, they unscrambled sentences from the erotic romance novel "Fifty Shades of Grey". A 2 (role: forecaster, experiencer) x 2 (effort: high, low) X 2 (affect-richness: control, affect-rich) interaction revealed that the difference in sensitivity to sweat equity was moderated by affect-richness ( $F(1, 380) = 5.37, p = .02$ ). In the control condition, the results replicated the pattern from Study 1 ( $F(1, 184) = 7.63, p = .007$ ). Forecasters in the affect-rich condition predicted that they would be similarly happy regardless of the effort they exerted, therefore resembling experiencers who were equally happy regardless of the effort exerted in both conditions,  $F_s < 1$ .

In Experiment 5, all participants first unscrambled 5 or 20 sentences. They then either reported their happiness or forecasted how happy they would be about completing the same task again one week later. Forecasters in an immediate forecaster condition made their predictions immediately after completing the task (while still in an affect-rich state). Forecasters in a delayed forecaster condition made their predictions after watching a 3-minute neutral video (after their affect had subsided). Experiencers reported their happiness immediately after completing the task (while in an affect-rich state). A 3 (role: experiencer, immediate forecaster, delayed forecaster) x 2 (effort: low, high) interaction revealed that sensitivity to sweat equity was moderated by affect-richness ( $F(2, 242) = 3.47, p = .03$ ). Experiencers and forecasters without delay reported and predicted they would be equally satisfied in both the high and low effort conditions ( $p_s < .29$ ). Forecasters who made their predictions after a delay, however, predicted they would be happier in the high ( $M = 6.71$ ) than low effort condition ( $M = 5.44$ ;  $F(1, 242) = 6.16, p = .01$ ).

Together the results provide evidence for a bias whereby people overestimate the rewards of sweat equity. It emerges because an asymmetry in the affective intensity of experiences being forecasted and being had creates a difference in sensitivity to effort specifications.

## **Proximity Bias: Interactive Effects of Event Valence and Event Nearness on Probability Estimates**

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Probability judgments are ubiquitous—from estimating the chance of landing a job, to predicting the movements of the stock market—and typically plagued by numerous errors and biases (Kahneman & Tversky 1973). We add to this stream of research by identifying a novel *proximity bias* in probability judgments, whereby event valence and event nearness systematically interact in determining probability estimates.

When it comes to the relationship between event valence and probability estimates, a robust finding is people's tendency to predict that they are less likely than others to experience negative events, and more likely than others to experience positive events (Perloff & Fetzer 1986). This optimistic bias is so pervasive that some consider it an adaptive regulatory function for protecting the self (Taylor & Brown 1988).

We extend this research by uncovering a novel bias: That proximity of an event moderates people's optimistic bias in probability judgments. Specifically, we theorize that the physical nearness of an event accentuates self-enhancing tendencies when predicting positive events, and self-protective tendencies when predicting negative events. Across four studies we manipulate (a) the valence of an event (i.e., whether the outcome of an event is positive or negative) and (b) the physical proximity of this event (i.e., whether the event takes place in a location that is nearby or far away), and then measure people's probability estimates. We consistently find interactive effects of event valence and nearness, such that positive and physically close events are predicted to be more likely than positive and distant events. On the contrary, negative and physically close events are predicted to be less likely than negative and distant events. Boundary conditions underscore the motivational underpinnings of this bias.

In studies 1 ( $n = 296$ ) and 2 ( $n = 284$ ), participants read a lottery scenario. We manipulated event valence either by emphasizing the chance of winning in the positive condition (5% in study 1, 60% in study 2), or of losing (95% in study 1, 60% in study 2) in the negative condition. We manipulated proximity by describing the draw of the winning ticket as taking place in a location that was physically close or far away. We measured probability estimates as the likelihood of winning (positive condition) or losing (negative condition) the lottery. In both studies, significant two-way interactions (study 1:  $p = .04$ , study 2:  $p < .01$ ) and follow-up contrasts revealed that winning the lottery seemed more probable when the event was close than far (study 1:  $p = .04$ ; study 2:  $p = .03$ ). Conversely, losing the lottery seemed less probable when the event was close than far (study 2:  $p = .05$ ), although this difference was marginally significant in study 1 ( $p = .09$ ).

In study 3 ( $n = 485$ ), we directly examined the hypothesized motivational nature of this bias. We hypothesized that the proximity bias is due to a tendency to be self-enhancing with respect to positive outcomes and self-protecting with respect to negative outcomes. If this is indeed the case, it follows that this bias should emerge for probability estimates made for a self-relevant outcome, but not for estimates for a self-irrelevant outcome (i.e., estimates made regarding other people). In a job-offer scenario, participants read that a hiring decision would take place in either a close or far location. Participants estimated the probability of either getting an offer (positive-condition) or not getting an offer (negative-condition), for either themselves (self-relevant-outcome) or another similarly qualified candidate (self-irrelevant-outcome). Results revealed significant three-way valence  $\times$  proximity  $\times$  relevance ( $p = .01$ ) and two-way valence  $\times$  proximity interactions for the self ( $p < .01$ ) but not for other ( $p = .43$ ). As predicted, participants estimated they were more likely to get an offer when the event was close than far ( $p = .04$ ), and less likely to lose an offer when the event was close than far ( $p = .04$ ), but this effect did not emerge when estimating likelihood for another individual.

Providing converging evidence for a motivational account, in study 4 ( $n = 385$ ), we manipulated the desirability of an outcome while keeping outcome valence constant. We expected to replicate our previous results in case of a highly desirable outcome. However, we expected an attenuation of the proximity bias in case of a less desirable outcome. Using a simulation of an online-dating app (Tinder), participants viewed the profiles of two potential dates who were either nearby or far away (between-subjects), and whose attractiveness varied (within-subjects). We pretested several potential dates' profiles and selected two profiles that were both attractive and above the midpoint of the scale, with one profile more desirable than the other ( $M_{\text{moderately-attractive}} = 4.18$ ,  $M_{\text{highly-attractive}} = 5.19$ ,  $p < .001$ ). Participants estimated their probability of getting successfully matched with both dates. A RM 2  $\times$  2 ANOVA revealed a significant interaction ( $p = .02$ ). As expected, when considering a highly desirable date, participants predicted that they were more likely to be successfully matched if the potential date was nearby ( $M = 58.69\%$ ) than faraway ( $M = 50.91\%$ ;  $p < .001$ ). However, the proximity bias was weaker when considering a moderately desirable date ( $M_{\text{close}} = 48.97\%$ ,  $M_{\text{far}} = 46.37\%$ ;  $p = .34$ ).

In summary, we extend prior research on biases in probability judgments by documenting a novel proximity bias. Importantly, by corroborating the motivated nature of the effect, we demonstrate our findings cannot be accounted for by existing theories explaining how people make probability judgments, such as construal level theory (Wakslak & Trope 2009; Wakslak 2012), which is agnostic to motivated reasoning effects on predictions. This research is theoretically important, as it extends prior work on biases in judgments and decision making. From a practical perspective, this research suggests a novel yet identifiable factor that significantly impacts estimations of probability that are so ubiquitous in our daily lives.

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### **3.4 JDM: 3.141592... Numerical Processing Individual Papers**

#### **Weighting of Descending versus Ascending Attributes: The Role of Numerical Information**

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Imagine that you are interested in a new tablet. You might want one with a large screen, but this decision comes at a cost. Tablets with larger screens weigh more, and they have a higher price. As this situation illustrates, consumers often face trade-offs when having to choose between alternatives. Prior work suggests that consumers rely on different product attributes based on a number of variables, such as the context (Simonson 1989; Slovic 1995), type of decision (Coupey, Irwin, and Payne 1998), or evaluation mode (Hsee et al. 1999). For instance, Luce, Payne and Bettman (1998) found that consumers rely more on quality than price when they face more emotionally difficult trade-offs.

The present work attempts to extend this line of research by exploring whether the weighting of attributes is also influenced by the numerical precision of the values used to describe the attribute information. In particular, it looks at two types of attributes: *descending* and *ascending* attributes. Descending (ascending) attributes are defined as those that have more utility with lower (higher) values, for instance, a tablet's weight (screen size). That is, it is generally considered that, keeping all other characteristics constant, a tablet has higher utility as its weight (screen size) decrease (increase).

Drawing on past research on attribute weighting (Huber, Payne and Puto 1982; Tversky and Kahneman 1992) and numerical cognition (Dehaene 2011), we propose that consumers' reliance on descending (e.g., weight) versus ascending (e.g., screen size) attributes increases as numerical precision of the attribute information increments. Further, we propose as an explanation for this effect that consumers associate numerical precision with contraction, compression, and related concepts. That is, this association of numerical precision with contraction fits with descending attributes rather than ascending attributes because they improve by becoming smaller or contracting rather than expanding with higher values.

Numerical precision increases when a number has more decimals or fewer ending zeros (e.g., from less to more precise: 100; 99; 99.98). Why then might numerical precision be associated with contraction -the process of becoming smaller-? Several lines of research support this connection. First, precise numbers are associated with compressed scales, compared to round numbers, which are associated with expanded scales (Janiszewski and Uy 2008). This distinction leads people to make different judgments and decisions, such as believing that the performance of a product is closer to that communicated when the unit used is more precise (Zhang and Schwarz 2012). In addition, numerals can refer to a range of values, but this capacity diminishes as numerical precision increases (Dehaene 2003; Dehaene, Bossini, and Giraux 1993). For instance, the number 20 could indicate any number between 15.1 and 24.9, but 19.1 can only represent values ranging from 19.05 to 19.14. In other words, with less (more) precise numbers there is (not) room for expansion to adjacent numbers because of their

broader (compressed) confidence intervals. Further, people tend to use more precise numbers when the size of the measurement diminishes (Thomas, Simon, and Kadiyali 2010).

The connection between the level of numerical precision and contraction might have consequences for the context of multi-attribute weighting. Many times, consumers make decisions based on accessible associations related to the target under evaluation (Higgins and King 1981). For instance, Yan and Pena-Marín (2017) found that because round numbers are associated with completeness, these associations are accessible during negotiations and lead consumers to tend to close deals with round prices. We propose, thus, that more precise numbers might make contraction concepts more accessible, which fits with descending attributes because they improve by becoming smaller. In this situation, more precise numbers rather than less precise ones might lead people to focus on descending versus ascending attributes, thus increasing their attribute weighting.

Three studies support the proposed framework. First, Study 1 was designed to find initial evidence of the relationship between numerical precision with contraction and similar concepts. An Implicit Association Test (Greenwald, McGhee, and Schwartz 1998) was employed to show that participants ( $N=47$ ) associate more (vs. less) precise numbers with contraction (Mean IAT (D) score = .52,  $SD = .41$ ;  $t(46)=8.66, p<.001$ ).

In Study 2 we initially tested our main hypothesis. This study had a 2 (number precision: low vs. high) between-subjects design. Participants ( $N=165$ ) were presented with four headphones described in two attributes: wireless reach and weight; and they were asked to choose the headphones they would buy. Wireless reach (WR) is an ascending attribute (higher wireless reach is better), whereas weight (WE) is a descending attribute (lower weight is better). The values of the two attributes were crossed so there was not a dominant option (see table for details). We conducted a logistic regression, where the choices were coded as “1” if the participants chose one of the two headphones superior in WE (inferior in WR) and “2” if they chose one of the headphones superior in WR (inferior in WE). As predicted, participants tended to choose one of the two headphones superior in WE in the high precision condition compared to the low precision condition (Wald  $\chi^2(1)=6.69, p<.01$ ), with the opposite pattern for the two headphones superior in WR.

Study 3 aimed to show that the association between numerical precision and contraction drives the proposed effect. Similar to study 2, participants ( $N=196$ ) were presented with 4 tablets and they were asked to choose one. The tablets were described on one ascending attribute (consumer ratings), and one descending attribute (price). To establish the association between numerical precision and contraction concepts, participants responded to a 4-item scale ( $\alpha = .93$ ) that asked them the extent to which the numbers used to describe the attributes of the tablet were associated with: (a) 1-contraction, 7-expansion; (b) 1-reduction, 7-growth; (c) 1-decrease, 7-increase; and (d) 1-subtraction, 7-addition. As expected, respondents were more likely to select one of the two tablets with better price in the high precision condition compared to the low precision condition (Wald  $\chi^2(1)=8.37, p<.01$ ), with the opposite pattern for the two tablets superior in consumer ratings. In addition, participants were more likely to associate the numbers used to describe the products with concepts related to contraction in the high precision condition ( $M=4.76, SD=1.36$ ), compared to the low precision condition



( $M=5.18$ ,  $SD=1.15$ ;  $F(1,194)=5.43$ ,  $p=.02$ ). Finally, this association mediated the effect ( $\beta=-.10$ ,  $SE=.07$ ; 95% CI:  $[-.30, -.01]$ ).

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**Table. Summary of Results.**

| Study                    | Manipulation                                                                                                                                                                                     | Design                                                      | Results                                          |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|
| 1<br>N=47<br>36% female  | Numbers: Precise vs. Round<br>Words: Contraction vs. Expansion                                                                                                                                   | Implicit Association Test                                   | IAT score (D),<br>M=.52<br><br>t(46)=8.66,p<.001 |
| 2<br>N=165<br>42% female | Opt 1: WR: 29 (29.16), WE: 24 (24.11)<br>Opt 2: WR: 27 (27.08), WE: 22 (22.35)<br>Opt 3: WR: 25 (25.37), WE: 20 (20.11)<br>Opt 4: WR: 23 (22.91), WE: 18 (18.19)                                 | 2 (number precision: low vs. high) between-subjects design. | Wald $\chi^2$ (1) = 6.69, $p < .01$              |
| 3<br>N=150<br>45% female | Opt 1: CR: 75 (7.53), Price: \$400 (\$397.89)<br>Opt 2: CR: 80 (8.06), Price: \$450 (\$449.98)<br>Opt 3: CR: 85 (8.54), Price: \$500 (\$498.76)<br>Opt 4: CR: 90 (9.02), Price: \$550 (\$549.59) | 2 (number precision: low vs. high) between-subjects design. | Wald $\chi^2$ (1) = 8.37, $p < .01$              |

### **Anticipating Reversals: Numerical Roundness Signal Directional Change in Temporal Sequences**

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The literature on judgment under uncertainty has produced a wealth of evidence that people rely heavily on information about past behavior, particularly if it is recent (Nisbett 2003), when making predictions about a target's future behavior (Jones and Harris 1967; Monga and Rao 2006). For example, stock market investors regularly use information about a security's past performance to predict its future performance. The prevailing finding from this line of research is that people tend to believe that historical trends will continue rather than reverse direction, even when historical data is non-predictive (e.g., for random events). To illustrate, a hot [cold] hand fallacy has been observed, in which people expect a successful [unsuccessful] recent streak to persist (Gilovich et al. 1985).

The present research aims to introduce a novel factor that leads people to expect a *reversal* in a temporal sequence, namely numerical roundness. We propose that forecasters will be more likely to expect a reversal in a temporal sequence to begin at a round number (e.g., 50.00) as opposed to a precise number (e.g., 49.88, 50.12). Drawing on past research on numerical cognition (Dehaene 2011), we further suggest that this effect is a consequence of consumers' association of round numbers with beginnings, such as the origin of a temporal sequence or pattern. Finally, we show that consumers' expectations about sequence reversals can influence important financial decisions in domains where market prices vary over time, such as the stock market.

Previous research has established that round numbers differ from precise numbers in a myriad of ways. For example, round numbers tend to be better recalled (Schindler and Wiman 1989), and better liked (King and Janiszewski 2011) than their sharp number counterparts. In addition, prior work has associated round numbers with quality (Schindler et al. 2011), stability (Pena-Marin and Bhargave 2016), or completeness (Yan

and Pena-Marin 2017). In contrast, precise numbers signal confidence and competence (Jerez-Fernandez, Angulo, and Oppenheimer 2014), and are more factual (Schindler and Yalch 2006).

The present research proposes that round numbers may be symbolically associated with beginnings and related concepts. This hypothesis is supported by different lines of research. Specifically, the number zero on the real number line has special significance as it denotes a change in valence and therefore marks the beginning of both the positive number line and the negative number line. Similarly, in plane geometry, the point (0, 0) in Euclidean space is known as the origin, derived from the Latin word *originem*, which means beginning or source. Mathematical notation supports the premise that other numbers ending in zero, not just zero itself, may also be associated with beginnings. Our customary decimal system uses positional notation for each power of ten (e.g., units, tens, hundreds, etc.). As a result, the integer 10 represents the beginning of the tens digits, 100 represents the beginning of the hundreds, and so forth. Due to this convention, zero endings may become associated with beginnings.

The reversal of a trend invariably necessitates the beginning of a new sequence (i.e., in the opposite direction as the former sequence). Thus, our prediction is that consumers will be more likely to expect a reversal (i.e., a new beginning) in the direction of a temporal sequence if its present position is a round number rather than a precise number. For example, in the context of stock market forecasts, this means that investors should be more likely to expect a bull market or a bear market to reverse direction at a round number versus a precise number.

Four studies examined our predictions. Study 1 aimed to find evidence of the link between round numbers and beginning associations. We employed an Implicit Association Test (Greenwald, McGhee, and Schwartz 1998) to show that participants (N=98) associate round (vs. precise) numbers with origin. In line with our prediction, the IAT score ( $M=.33$ ,  $SD=.41$ ) is significantly greater than zero ( $t(97)=7.85, p<.001$ ), supporting the proposed association.

In Study 2 we initially tested our main proposition. Respondents (N=202) were shown an ascending (descending) graph of historical gas prices, with a current price that was either a round number (\$2.00 per gallon) or a precise number (\$2.07 per gallon). Then, they were asked the likelihood that the gas price would change its trend (1=unlikely, 7=likely). As expected, we found a main effect of type of number ( $F(1,198)=8.17, p=.005$ ). Planned contrasts revealed that among participants who had encountered a descending sequence, those in the round number condition ( $M=3.95$ ,  $SD=1.43$ ) were more likely to predict a reversal than those in the precise number condition ( $M=3.35$ ,  $SD=1.50$ );  $F(1,198)=5.10, p=.02$ . This effect also replicated among participants who had encountered an ascending sequence ( $M_{Round}=3.44$ ,  $SD_{Round}=1.25$ ,  $M_{Precise}=2.97$ ,  $SD_{Precise}=1.09$ ;  $F(1,198)=3.18, p=.07$ ).

Study 3 aimed to show that the association between round numbers and beginnings mediates these sequence reversal forecasts. Participants were shown the descending graph of a stock with a current price that was either round (\$100.00), precise below (\$97.63), or precise above (\$102.37), and they were asked to indicate their expectations of trend reversal, as well as their association of the numbers with the concepts of “origin,” “start,” “beginning,” and “initiation.” As expected, participants indicated that the stock was more likely to reverse its trend in the round compared to the

precise conditions ( $F(2,147)=5.94, p=.003$ ). In addition, round rather than precise numbers were more associated with concepts related to beginnings ( $F(2,147)=5.83, p=.004$ ), and this association mediated the effect of round versus precise numbers on expectations of trend reversal ( $B=.21, SE=.11; 95\% CI: .04, .49$ ).

Finally, study 4 showed the effect of type of number on economic decisions. Participants were shown the ascending graph of a stock with a price that was either round (\$15.00), precise below (\$14.56), or precise above (\$15.44). Then, they were asked to indicate if they would buy the stock and to indicate their expectations of trend reversal. We expected that they would be *less* likely to buy the stock in the round condition because they would anticipate a trend reversal (from uptrend to downtrend). As predicted, participants were less likely to buy the stock in the round condition ( $F(2,117)=3.75, p=.02$ ). Participants also were more likely to expect a trend reversal in the round rather than precise conditions ( $F(2,117)=2.88, p=.06$ ), and this expectation mediated the effect of round versus precise numbers on stock buying behavior ( $B=-.47, SE=.22; 95\% CI: -.91, -.04$ ).

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**Table. Summary of Results.**

| Study                    | Manipulation                                                                   | Design                                                                                                               | Results                                                                                                                             |
|--------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>N=98<br>47% female  | Numbers: Precise vs. Round<br>Words: Progression vs. Origin                    | Implicit Association Test                                                                                            | IAT score (D), M=.33<br>t(97)=7.85, p<.001                                                                                          |
| 2<br>N=202<br>42% female | Gas prices (\$2.00 vs. \$2.07) per gallon.<br>Trend: ascending vs. descending. | 2 (current price: round vs. precise) vs. 2 (direction of sequence: ascending vs. descending) between-subjects design | Descending trend:<br>F(1,198)=5.10, p=.02<br>Ascending trend:<br>F(1,198)=3.18, p=.07                                               |
| 3<br>N=150<br>45% female | Stock market price (\$100.00 vs. \$97.63 vs. \$102.37).                        | 3 (current stock price: round, precise above, precise below) between-subjects design                                 | Trend reversal:<br>F(2, 147)=5.94, p=.003<br>Round numbers as beginnings:<br>F(2, 147)=5.83, p=.004<br>Mediation:<br>95% [.04, .49] |
| 4<br>N=120<br>40% female | Stock market price (\$15.00 vs. \$14.56 vs. \$15.44).                          | 3 (current stock price: round, precise above, precise below) between-subjects design                                 | Purchase stock:<br>F(2, 117)=3.75, p=.02<br>Trend reversal:<br>F(2, 117)=2.88, p=.06<br>Mediation:<br>95% [-.91, -.04]              |

**(Af)fluent Pricing: The Interplay of Numeracy and Fluency in Consumer Price Processing**

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Research in behavioral pricing has evidenced the nonmonotonic nature of price response, with consumers exhibiting increased preference for certain price types (Kalyanam and Shively 1998). Such findings have set researchers on a quest to unearth the intricacies of consumer response to prices. While the extant findings converge on the fact that marketers must not only determine the magnitude of a price, but also what type of digits to use to achieve price optimization (Thomas and Morwitz 2009), there is still little consensus as to why certain prices are responded to more favorably than others. Receiving particular attention in this ongoing debate is the mechanism underlying 99-ending prices' proven effectiveness and a discussion concerning left vs. right digit processing (Anderson and Simester 2003; Bizer and Schindler 2005, Coulter and Coulter 2007; Schindler and Kirby 1997; Stiving and Winer 1997; Thomas and Morwitz 2005).

We advance the current literature by revealing the unique interaction of numerical processing fluency (King and Janiszewski 2011) and consumer numeracy (Peters et al. 2006) as a significant determinant of consumer response to prices. More specifically, we develop a theoretical framework that predicts and accounts for significant heterogeneity in consumer response to 99-ending prices as a function of one's numeracy and the associated fluency of the price in question—the result of less numerate individuals creating mental analog representations around 99-ending prices' left digits, and highly numerate individuals encoding 99-ending prices as their one-cent neighbor. Across two laboratory studies, an eye tracking experiment, and a secondary data analysis, we test the hypothesized interaction and find evidence for our conceptual framework. We find a significant difference in price processing among highly numerate and less numerate individuals such that highly numerate individuals are shown to fixate more frequently and for longer durations on the right digits of a price than less numerate individuals. The downstream effects of this processing difference are manifested in differential liking, purchase intentions, and actual sales for specifiable 99-ending prices as consumers respond more favorably to prices that they mentally encode around a fluent number (King and Janiszewski 2011). That is, because highly numerate individuals encode 99-ending prices (e.g., 17.99) around their one-cent neighbor (i.e., 18), they respond more favorably when 99-ending prices border a fluent number. Conversely, because less numerate individuals encode 99-ending prices (e.g., 18.99) around their left digits (i.e., 18), they respond more favorably when 99-ending prices contain fluent left digits (Figure 1).

Our research contributes to the pricing literature in multiple ways. We perform, to the best of our knowledge, the first biometric investigation into consumer multi-digit processing—providing direct evidence not only for the processing mechanism set forth in this article, but also for some of the previously inferred theoretical mechanisms in the price processing literature. Our research also constitutes the first formal investigation of numeracy in the realm of pricing—introducing this psychological construct into the pricing literature. In doing so, our results shed light on (a) the long-standing dichotomy of left- vs. right-digit price processing; (b) the mechanism driving 99-ending prices' effectiveness; and (c) the discrepancies in the literature concerning an absent or weakened 99-ending effect.

In Study 1, participants indicated their implicit liking or disliking for a series of 150 unique prices presented at random on a 20-inch computer screen using the L and D keys to provide their immediate reaction. Numeracy was measured using the Rasch-based numeracy scale developed by Weller et al. (2013). The results confirmed a significant two-way interaction of numeracy and 99-ending price type ( $F(5, 294) = 5.38, p = .021$ ), with highly numerate consumers responding more favorably to fluent-neighbor 99-ending prices (e.g., \$17.99) than disfluent-neighbor 99-ending prices (e.g., \$18.99), and less numerate participants exhibiting greater liking for fluent-base 99-ending prices (e.g., \$18.99) than disfluent-base 99-ending prices (\$17.99) (Figure 2).

In Study 2, we obtain further evidence for the underlying mechanism using eye-tracking technology that revealed that highly numerate individuals fixate more frequently ( $\beta = 5.501, p = .032$ ) and for longer durations ( $\beta = 1.296, p = .030$ ) on the right digits of prices than less numerate individuals. These findings corroborate the proposed mechanism that highly numerate individuals process the full digits and analogically

encode 99-ending prices around their one-cent neighbor, while less numerate individuals anchor and analogically encode 99-ending prices around their left digits.

In Study 3, we demonstrate the managerial relevance of these findings by extending its influence to the realm of product advertising and consumer purchase intentions. Participants evaluated a series of six print advertisements comprised of three test advertisements and three filler advertisements presented in alternating order. The test advertisements employed either fluent-base (\$18.99, \$30.99, \$90.99) or fluent-neighbor (\$17.99, \$29.99, \$89.99) prices. After viewing each ad, participants indicated their purchase intention for the advertised item on a nine-point scale. The results, once again, confirmed the two-way interaction ( $F(1,248) = 7.38, p = .007$ ) with highly numerate participants exhibiting greater purchase intentions for products advertised with fluent-neighbor 99-ending prices than those advertised with disfluent-neighbor 99-ending prices, and less numerate participants exhibiting greater purchase intentions for products advertised with fluent-base 99-ending prices than those advertised with disfluent-base 99-ending prices (Figure 3).

Finally, we conduct a secondary data analysis on the Dominick's grocery database (provided by the University of Chicago) using education-level as a proxy for numeracy. The results were consistent, indicating that UPC sales increased when priced at a fluent-neighbor price than disfluent-neighbor price for highly numerate consumers, while more UPCs were sold when priced at a fluent-base price than disfluent-base price for less numerate consumers ( $\beta = 3.144, p < .05$ ) (Table 1; Figure 4).

The findings represent a significant contribution to the price processing literature and yield substantial managerial implications.

Figure

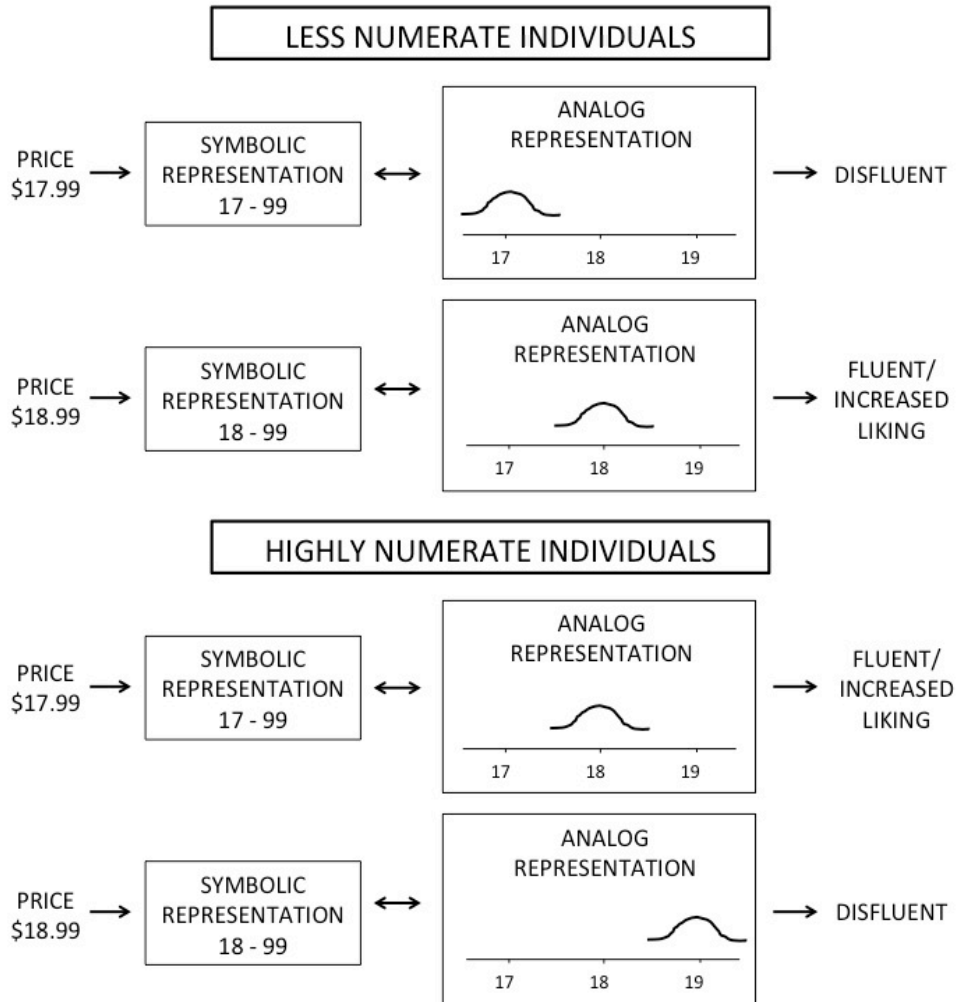




Figure 2

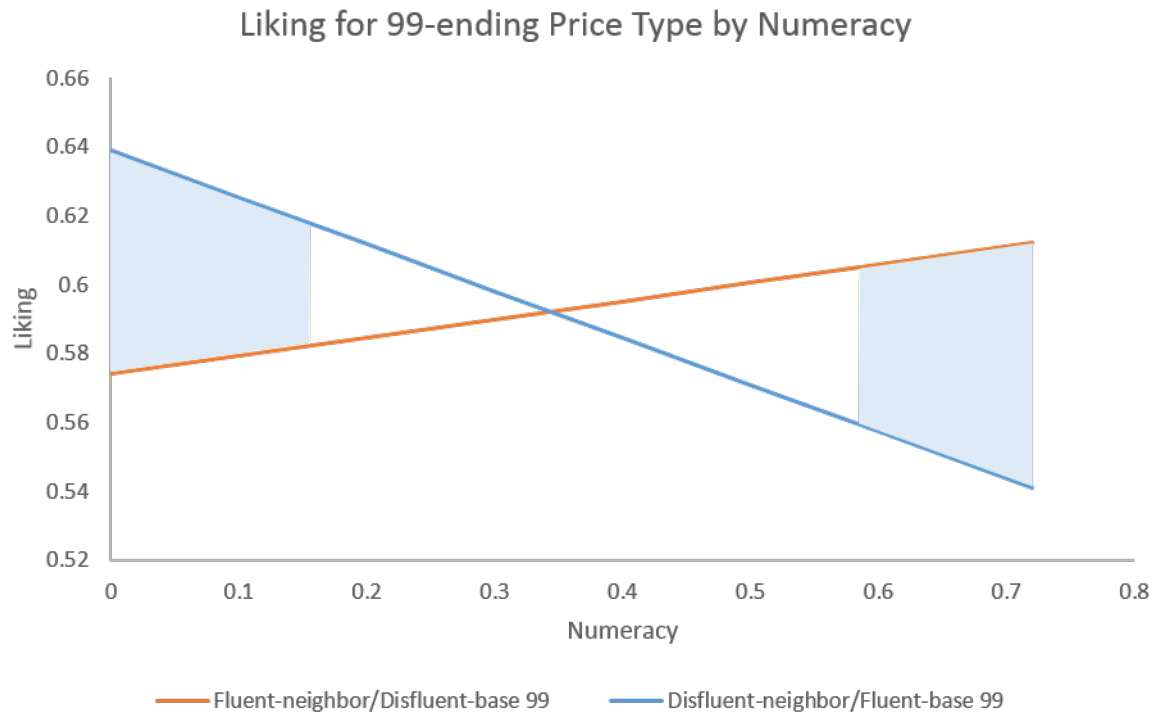
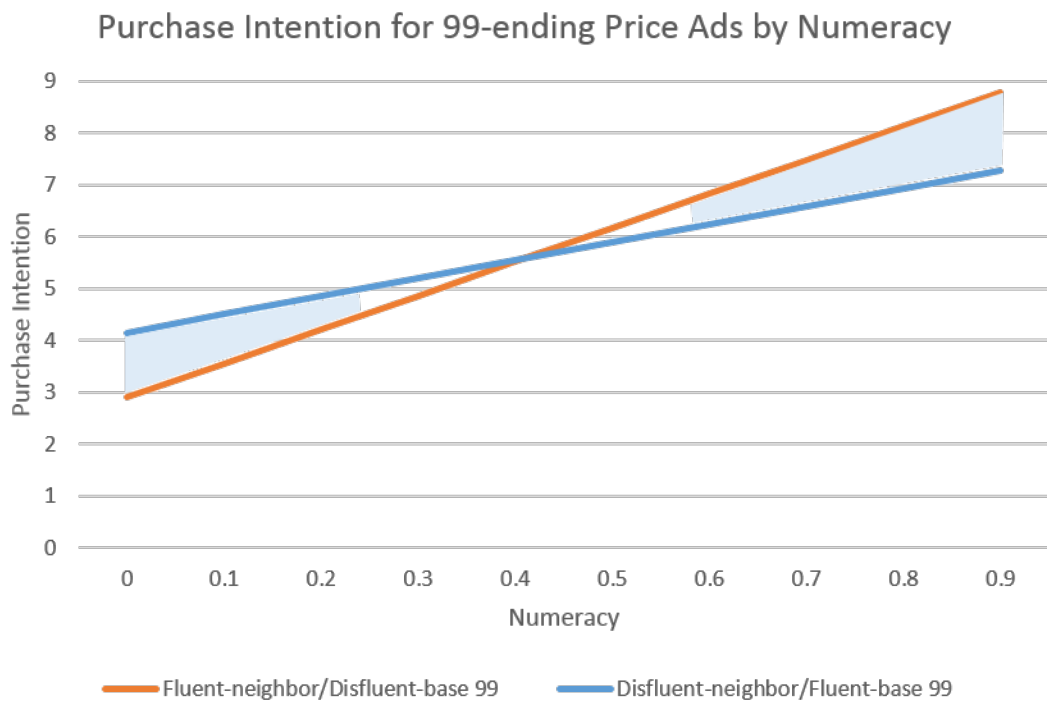


Figure 3



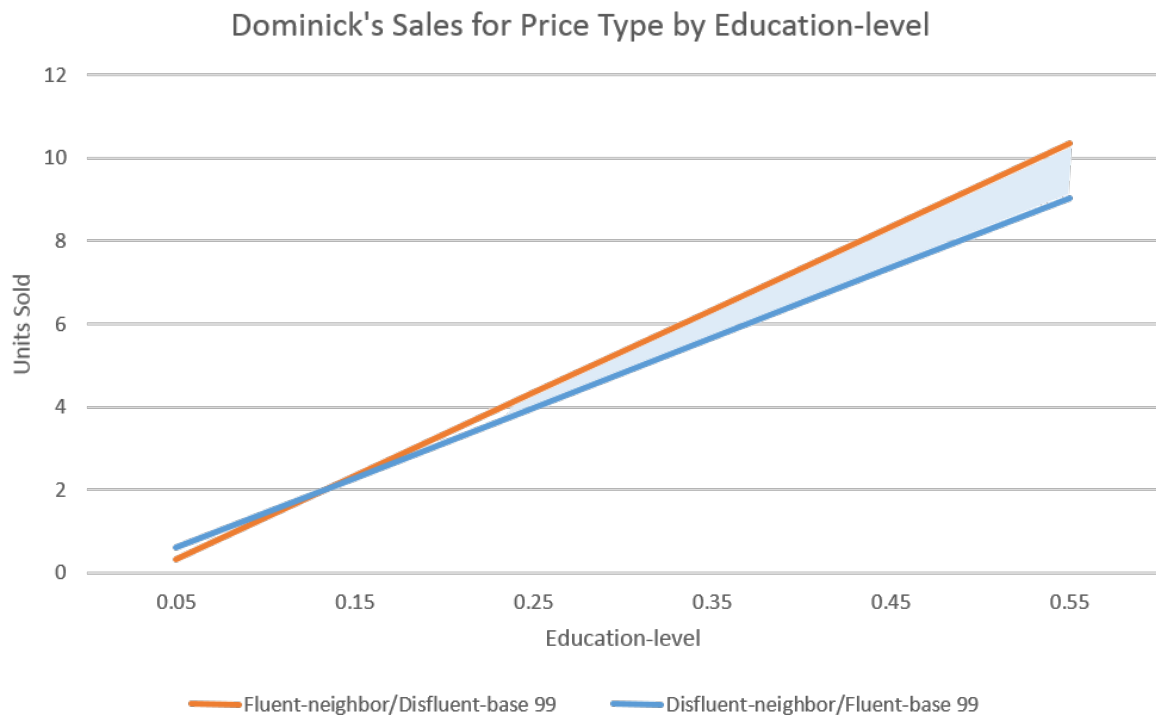
**Table 1: Dominick's Data Results**

|                              | Full Prices/UPC's      |                               | Reduced Set            |                               |
|------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|
|                              | <i>Focal Variables</i> | <i>With Control Variables</i> | <i>Focal Variables</i> | <i>With Control Variables</i> |
| <b>Variables<sup>a</sup></b> | <b>B</b>               | <b>(SE)</b>                   | <b>B</b>               | <b>(SE)</b>                   |
| Intercept                    | 1.975***(.038)         | -8.456***(1.220)              | 1.224***(0.271)        | -0.481 (6.449)                |
| Price Type                   | 0.018 (.061)           | 0.000 (0.061)                 | - .612 (0.404)         | -0.425 (0.395)                |
| Education                    | 2.354***(.146)         | 3.385***(.266)                | 10.942***(.967)        | 16.877***(1.622)              |
| Price Type*Education         | 0.760***(.238)         | 0.852***(.237)                | 3.893***(1.449)        | 3.144** (1.410)               |
| Income                       |                        | 0.683***(.132)                |                        | -0.847 (0.739)                |
| Ethnicity                    |                        | 1.655***(.139)                |                        | 2.902***(.651)                |
| Age                          |                        | 6.686***(.303)                |                        | 13.727***(1.932)              |
| Household size               |                        | 0.576***(.091)                |                        | 2.289***(.538)                |

\*\*\*<.05 \*\*\*\*<.01

<sup>a</sup>Education=% College Graduates, Income=Log of Median Income, Ethnicity=% Blacks and Hispanics, Age=% over age 60, Household size=Average Household size

Figure 4



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### **Specificity of Numbers in Attribute Framing**

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We investigate how the use of specific numbers compared to the use of rounded numbers impacts attribute framing. Traditional framing effects have indicated that individuals respond differently to different but objectively equivalent descriptions of the same problem. For instance, individuals' perceive beef to be healthier when they are told that the beef is 80% lean (positive frame) or 20% fat (negative frame).

We posit that the use of specific numbers such as '81.26' will enhance the framing effects which are traditionally shown using rounded numbers such as '80'. Specifically, we posit that the individuals will give lesser evaluations in both frames when specific numbers are used instead of rounded numbers. Moreover, the decrease in evaluations will be more in the negative frame than in the positive frame due to gain-loss asymmetry.

We base our position on the attention shift-reference point seeking process. Traditional framing effects have been said to be caused because individuals pay attention to the valence (fat Vs lean) of the statement and then form cognitive associations with the valence. So when individuals see a 20% fat or 80% lean beef, they pay attention to valence ('fat' or 'lean') of the beef and associate it with greasiness, taste etc. The association of 'fat' in comparison to 'lean' makes them judge the beef to be greasier. But, if specific numbers are used instead of rounded numbers, the attention shifts to the numbers associated with the valence from the valence. Thus, when individuals see an option of 81.26% lean beef, some attention gets diverted to 81.26% from lean because 81.26% is not a usual representation of a characteristic of beef in every day advertisements and communication messages. This attention will make the individuals think about the number associated with the valence. Individuals associate it with the leanest possible beef ie 100% lean as they seek the nearest reference point. As 81.26% lean seems less in comparison to the 100% lean, individuals rate the beef lower on all characteristics that are associated with leanness, such as healthy. A similar explanation holds for the negative frame as well. When individuals see a 19.84% fat beef instead of a 20% fat beef, their attention shifts to '19.84%' from 'fat'. They associate the 19.84% fat beef with 0% fat beef and thus, find the 19.84% fat beef on the fattier side. Thus, the individuals judge the beef to be greasy, and less healthy.

Moreover, the effect of specificity will be more in the negative frame than in the positive frame. This means that the use of 19.84% fat beef instead of 20% fat beef will have a bigger impact on the evaluations, such as greasiness and taste, than the use of 81.26% lean beef instead of 80% lean beef. This difference is caused by the gain-loss asymmetry.

We demonstrate the phenomenon in Study 1, a 2(Positive Vs Negative Frame)x2(Specific Vs Rounded Numbers) between subjects design. Participants were given five framing scenarios either in positive or negative frames, with rounded or specific numbers. As posited, results revealed that specificity of numbers brings down the evaluations significantly in the positive as well as negative frame. Significant framing\*specificity interaction validates that the decrease is significantly more in the negative frame than in the positive frame.

Study 2, where we artificially increased the focus on the numbers used in the scenarios, supported our attention shift based rationale. The 2(Positive Vs Negative Frame)x2(Specific Vs Rounded Numbers)x2 (Focus-on-Numbers: Control Vs Increased) between subjects design revealed a significant Specificity\*Focus-on-Numbers interaction. The evaluations across conditions dropped and the effect of Specificity was insignificant as attention on numbers increased. Moreover, participants in the rounded condition, gave lower responses when they increased focus on the numbers.

Study 3, an eye tracking study, verified that participants pay more attention to the numbers in a frame when the numbers are specific. In a 2(Positive Vs Negative Frame)x2(Specific Vs Rounded Numbers) between subjects design, we tracked the participants fixations while they were doing the framing task. Analysis revealed that participants fixate for significantly more time on the numbers than the valence of the frame. A significant interaction reveals that the difference is significantly more pronounced in the specific condition than in the

rounded condition. Moreover, the fixation duration on the numbers was significantly more when they were specific than when they were rounded. The results validate our attention based rationale.

As per our rationale, individuals compare, when they see specific numbers, the entity with a better standard. This comparison further leads to an overall lower valuation. In study 4, we test our position by providing the participants with a comparative standard. Participants were either given a better comparative standard such as 100%-lean-beef/0%-fat-beef or a worse comparative standard such as 60%-lean-beef/40%-fat-beef. Thus, it was a 2(Framing: Positive Vs Negative Frame)x2(Rounded Vs Specific)x3(Comparative Statistic: None Vs Better Vs Worse) between subjects design. The results indicate that participants, by default, compare the entity with a better standard which further results in lower evaluations, thus supporting our explanation.

Study 5, a response latency study, validated the comparison step. Participants rated 80% or 81.26% lean beef on healthiness and saw some statements. Participants had to either agree or disagree with the shown statement as soon as possible which was: “A healthy beef is 100% lean” (90% and 70% for the other two groups). Participants who had seen the frame with specific number were significantly faster to respond to the 100% lean beef statement than those who had seen the rounded number frame. The difference was insignificant for the statements with 90% or 70% lean beef. The results provide strong support for our comparison based rationale.

The paper contributes to the theory of attribute framing which is widely talked about in the marketing, economics and psychology literature. The findings not only lend support to the proposed process of traditional framing effects but also has practical implications for marketers who can make their communication messages more effective by changing the specificity of numbers and use this improved understanding of attribute framing.

### 3.5 Health & Social Justice: Healthy Eating (Snacks Provided) Individual Papers

#### **Pretty Healthy Food: How Prettiness Amplifies Perceived Healthiness**

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Consumers view about 4,010 food and 2,840 restaurant advertisements per year (Statista, 2017). In these ads, they continuously face foods that were extensively styled to look pretty, to appear appetizing and plentiful. But might consumers also perceive prettier foods as *healthier*? Person perception research shows that prettier targets are judged more positively on virtually all dimensions (Feingold, 1992). Aesthetics research in consumer psychology indicates that prettiness can make products seem more user-friendly (Tractinsky et al., 2000), compensate for poor functionality (Page & Herr, 2002), signal professionalism (Townsend, 2017), and suggest high production effort (Wu et al., 2017).

Surprisingly, no research has examined how prettiness of food impact consumers' judgments—although prettiness in food is distinct, as it is fleeting in consumption, and typically less designed. Clarifying the specific effect of food aesthetics on consumer judgments is critical to understanding biases in the health domain, and has implications for practitioners. Seven studies show that prettier food is judged as healthier and compare possible underlying processes.

First, prettiness may elicit a generalized halo effect. Beauty elicits positive affect (Winkielman & Cacioppo, 2001), and initial positive affective reactions often spill over into judgments of specific attributes, even when those are unrelated to the attribute inducing the initial reaction (Thorndike, 1920; Nisbett & Wilson, 1977). Thus, prettier versions of food may, indiscriminately, be judged more positively on all attributes—including healthiness.

Second, prettiness may polarize healthiness judgments. Prettier targets are usually more prototypical (Veryzer & Hutchinson, 1998), and prototypical exemplars are judged as higher on category-defining attributes (Bodenhausen & Macrae, 1998). Thus, prettier versions of healthy foods may be judged as healthier, but prettier versions of unhealthy foods as unhealthier.

Third, prettiness may induce specific inferences. Consumers engage many (often incorrect) lay theories about attribute correlation (Bruner & Tagiuri, 1954), e.g., unhealthy=tasty (Raghunathan et al., 2006) and healthy=expensive (Haws et al., 2017). Thus, if prettiness signals something that, per people's lay theory, suggests healthiness, prettier versions of food may be judged as healthier.

**Study 1** uses stimulus sampling. 803 AmazonTurk panelists (41.3% women) uploaded and evaluated photos of either a pretty or an ugly version of one of eight foods (sandwiches, pizza, lasagna, salad, omelettes, etc.). Participants rated “perceived healthiness” and, as a manipulation check, “perceived prettiness.” Participants judged the food as prettier when it was pretty than when it was ugly ( $p < .001$ ). Critically, they also judged the food as healthier when it was pretty than when it was ugly ( $p < .001$ ). This result supports the idea that people see prettier food as healthier, but contradicts the polarization hypothesis, as both unhealthy and healthy items were judged as healthier.

**Study 2A** holds constant photographic quality and content as well as price, and uses more moderate stimuli. 154 AmazonTurk panelists evaluated the same, equally

priced, cheeseburger that was either pretty or not pretty. They rated “perceived healthiness,” as well as “perceived tastiness” and “perceived amount,” because the tasty=unhealthy intuition (Ragunathan et al. 2006) and large portion size may work against the predicted effect. Finally, they rated “perceived price,” to ensure equal perceived price. Participants judged the cheeseburger as healthier when it was pretty than when it was not pretty ( $p=.014$ ), despite also viewing it as tastier ( $p<.001$ ), larger ( $p<.001$ ), and equally expensive ( $p=.966$ ). **Study 2B** fully replicates 2A with beef and fish sandwiches. Evidently, prettier food is judged as healthier, independent of tastiness, amount, and price.

**Study 3** probes whether prettiness-induced healthiness perceptions sway people’s choices. 280 AmazonTurk panelists imagined having to choose an unhealthy option for a friend needing to gain weight or a tasty option for a friend craving delicious food. They chose between a pretty and a not pretty sandwich (prettiness was counterbalanced between sandwiches). People were more likely to choose the not pretty sandwich when they sought to select unhealthy food as opposed to tasty food ( $p=.021$ ).

Studies 4A and 4B test the remaining process accounts. Per the logic of the halo effect, people with a stronger initial positive affective reaction towards prettiness should exhibit a stronger effect. **Study 4A** tests if the effect is enhanced for individuals highly attracted to beautiful aesthetics and attentive to beauty. Among 201 AmazonTurk panelists, those high in “Centrality of Visual Product Aesthetics” (Bloch et al. 2003) did *not* exhibit a stronger, but a weaker, pretty=healthy effect for the cheeseburger, contradicting the halo account.

Per the logic of lay theory-based inferences, having more information should weaken the effect. **Study 4B** tests if the effect is reduced by health-cues. Among 601 AmazonTurk panelists people only exhibited the pretty=healthy effect for the cheeseburger when given no cue ( $p=.002$ ) or an ambiguous cue ( $p=.014$ ), but not with a health-related cue ( $p=.275$ ), supporting the specific inferences account.

**Study 5** examines inferences in-depth. 301 AmazonTurk panelists evaluated lasagna that was either very pretty, moderately pretty, and not pretty. They rated “perceived healthiness,” “perceived quality,” and “perceived sophistication.” The effect of food prettiness on perceived healthiness was mediated by sequential inferences of perceived sophistication and perceived quality ( $CI=.080-.211$ ).

This research reveals not only that pretty food presentation biases healthiness judgments, but also shows that this effect is driven by specific inferences of sophistication and higher quality. Implications for consumer welfare and food branding are discussed.

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### **Don't Count Calorie Labeling Out: Calorie Counts on the Left Side of Menu Items Lead to Lower Calorie Food Choices**

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Although government-mandated calorie information on menus has been one of the United States government's main tools for combatting obesity (FDA, 2017), extensive research has found either a small effect or no effect of calorie counts (see Kiszko et al.,



2014 for a review). Accordingly, these findings have led some to call calorie labeling a policy “failure” (Carroll, 2015).

Research attempting to understand why calorie labeling has been less effective than anticipated has largely concluded that consumers lack the knowledge and/or motivation to use calorie information to make lower calorie food choices (Burton & Kees, 2012; Howlett et al., 2009). In this research, however, we propose a new explanation for calorie labeling’s seeming ineffectiveness: calorie information is currently typically displayed to the right of food items on menus (see Figure 1). Given that Americans read from left-to-right, calorie information to the right of menu items is only processed after consumers have already processed the food item’s name. This is concerning as much work finds that information encountered earlier is given greater weight than information encountered later (Asch, 1946; Hammond et al., 1998; Lee et al., 2006). Thus, the food item’s name is likely given substantially greater weight than the calorie information when making the food choice.

Accordingly, we propose that a trivially simple intervention—moving calorie information from the right to the left of menu items—can greatly increase the effectiveness of calorie information, since consumers will view the calorie information earlier, which will lead them to place greater weight on the calorie information. Three studies test this hypothesis.

In Study 1 ( $N = 157$ ), diners at a casual chain restaurant were randomly assigned to order from a menu with either no calorie information, calorie information to the left of each menu item, or calorie information to the right of each menu item. As predicted, an ANOVA on calories ordered was significant ( $F(2, 146) = 3.60, p = .030$ ), with participants in the left calories condition ordering significantly fewer calories ( $M = 654.53$ ) than participants in the no calories condition ( $M = 914.34; p = .012$ ) and the right calories condition ( $M = 865.41; p = .038$ ). There was no significant difference in calories ordered between the right calories and no calories conditions ( $p > .250$ ).

In Study 2 ( $N = 458$ ), our goal was to understand why calorie information to the left (vs. right) leads to lower calorie food orders. Accordingly, besides randomly assigning participants to order from a menu with calorie information to the left, to the right, or no calorie information, we measured when participants first saw the calorie information, and how much weight participants placed on it when ordering. We predicted serial mediation, such that participants ordering from a menu with calorie information to the left of the menu items (vs. to the right) would see the calorie information earlier, increasing the weight placed on the calorie information, thereby resulting in a lower-calorie meal order.

First, consistent with Study 1, an ANOVA of condition on calories ordered was significant ( $F(2, 428) = 6.28, p = .002$ ). Participants exposed to the menu with calorie information to the left of each item ( $M = 1182.15$ ) ordered significantly fewer calories than participants exposed to the menu with no calorie information ( $M = 1373.74; p < .001$ ) and with calorie information to the right of each item ( $M = 1302.23; p = .031$ ).

There was no significant difference in calories ordered between the no calorie and right calorie conditions ( $p = .188$ ).

Next, as Figure 2 shows, the test of serial mediation revealed that the indirect effect of calorie position on number of calories ordered through when the calorie information was seen and the extent to which calorie information influenced the food choice was significant (CI (95%) = [14.55, 87.48]).

Study 2 provided evidence that calorie information to the left (vs. right) leads to lower calorie food choices because it is seen (i.e., processed) earlier when it is in that position. However, calorie information to the left is only processed earlier than calorie information to the right because Americans read from left-to-right. Thus, if the basic effect is truly driven by the order in which information is processed, we should find that the effect is reversed for consumers who read from right-to-left. Accordingly, we conducted Study 3 (N = 254) with Hebrew speakers (who read from right-to-left) reading a menu in Hebrew, and we hypothesized that calorie information to the right (vs. left) of menu items would lead to lower calorie food orders. As predicted, a one-way ANOVA revealed a marginally significant effect of condition on number of calories ordered ( $F(2, 251) = 2.94, p = .055$ ), with participants exposed to the menu with calorie information to the right of each item (M = 1308.66) ordering significantly fewer calories than participants exposed to the menu with no calorie information (M = 1441.45;  $p = .029$ ) and participants exposed to the menu with calorie information to the left of each item (M = 1428.24;  $p = .048$ ). There was no significant difference in terms of number of calories ordered between the no calorie and left calorie conditions ( $p = .828$ ). By showing that the basic effect from Studies 1 and 2 is reversed for Israelis, who read right-to-left when reading Hebrew, Study 3 provides converging evidence supporting the process account that when calorie information is processed earlier, it has a greater impact on consumers' food choices.

Drawing from an understanding of how people process information, we identified a novel explanation for the “failure” of calorie information—it is typically presented to the right of menu items—and a simple way to make calorie counts more effective: present calorie information to the left of the food item, rather than to the right (for Americans). We believe that these findings will be of wide interest to consumer psychology researchers in diverse areas, as we bridge psychological theories with an important and timely public policy issue.

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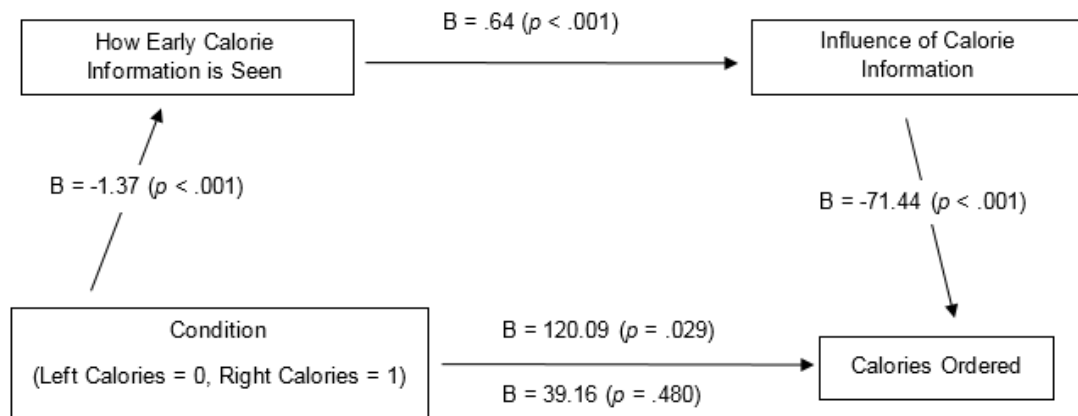
FIGURE 1

Example of a Typical Menu with Calorie Information to the Right of Menu Items (Our Research Proposes that Moving Calorie Information to the Left of Menu Items Decreases Calories Ordered)



**FIGURE 2**

Study 2: Effect of Calorie Position (Left vs. Right) on Number of Calories Ordered Through How Early Calorie Information is Seen and Extent to Which Calorie Information Influenced the Food Choice



**Sacrifices Must Be Made: The Preference for Trading off Type or Quantity Among Restrained Versus Unrestrained Eaters**

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In an ideal world, consumers would prefer to eat tasty, enjoyable foods in desired quantities. However, many consumers have health goals and thus may pursue diets (e.g., to decrease caloric intake) necessitating sacrifices to desired food intake. These sacrifices can come in two main forms: sacrificing the type(s) of food consumed or the quantity consumed. While food marketers cater to both kinds of sacrifice, and research examines each kind of sacrifice separately, little is known about how these two kinds of sacrifice differ. We present four studies examining perceptions of and preferences for sacrificing type versus quantity (holding caloric change constant), considering the moderating role of dietary restraint individual differences. We examine dietary restraint, as it is an important eating individual difference that may shape many consumer psychological phenomena (Bublitz, Peracchio, & Block, 2010).

This research thus offers a novel perspective on how two main sacrifice routes that entail the same caloric decrease are fundamentally differentially perceived, and for understanding preferences and goal-based differences between restrained and unrestrained eaters. This is important both because offerings to address both types of sacrifices exist in the marketplace and because food type and food quantity are of

theoretical interest yet typically examined separately despite being joint inputs to total intake.

Studies 1-2 test our prediction (which draws from theorizing about goals, as detailed next in Studies 3-4) that dietary restraint will be positively linked with preferring to sacrifice type over quantity, such that restrained eaters will prefer sacrificing type over quantity, whereas unrestrained eaters will prefer sacrificing quantity over type. Study 1 (N=210) tested this prediction in a marketing context in which participants respond to ads advertising either a sacrificing via type product or a sacrificing via quantity product. Using a 2 (advertisement: sacrificing type, sacrificing quantity)×dietary restraint between-subjects design, participants evaluated an advertisement ostensibly from a company traditionally selling medium-sized bags of buttered popcorn (400 calories). Participants read that the company was planning to add a new popcorn option to its portfolio and viewed an ad either advertising a product with “the same size but 94% fat-free and thus half the calories” (sacrificing type condition) or “half the size and thus half the calories” (sacrificing quantity). Participants then indicated their purchase intentions for the advertised product and completed a dietary restraint measure (Stice 1991). Analysis revealed a significant interaction ( $B=.68$ ,  $SE=.29$ ,  $t=2.38$ ,  $p=.018$ ), such that consumers with low dietary dietary restraint had higher purchase intentions for the advertised product when it promoted sacrificing quantity (vs. type), whereas consumers with high dietary restraint showed the opposite. See figure 1, which depicts a floodlight analysis (Spiller, Fitzsimons, Lynch, & McClelland, 2012).

Study 2 (N=154) replicated study 1’s findings using a preference measure explicitly pitting the options to sacrifice type versus quantity against each other. Additionally, study 2 generalizes to eight different stimuli sets involving various snacks, entrees, condiments, and desserts. For instance, participants were asked which they would switch to, from a snack of a medium bag of BBQ potato chips (250) calories (1=*Definitely a small bag of BBQ potato chips (125 calories)*, 4=*Equal preference for each option*, 7=*Definitely a medium bag of light BBQ potato chips (125 calories)*). Participants’ responses to the eight stimuli sets were averaged to form one preference index (1=sacrificing quantity, 4=equal preference, 7=sacrificing type ( $\alpha=.82$ )). Finally, participants completed the dietary restraint scale and additional eating-relevant individual differences (e.g., eating self-control, gender, BMI), enabling testing for unique differences in sacrificing preferences based dietary restraint rather than other eating-relevant individual differences. As predicted, dietary restraint positively predicted preferences to sacrifice type versus quantity ( $r=.31$ ,  $p<.001$ ). Additionally, there was distinct divergence around the preference midpoint (overall  $M=3.91$ ,  $SD=1.56$ ), indicating that restrained eaters preferred sacrificing type, whereas unrestrained eaters preferred sacrificing quantity. No other eating-relevant individual differences significantly predicted sacrificing preferences.

Studies 3 (N=104) and 4 (N=103) then tested our theorizing—which is built on integrating literature on food decision-making goals, and how such goals may differ across restrained and unrestrained eaters (Dhar & Simonson, 1999; Liu, Haws, Lambertson, Campbell, & Fitzsimons, 2015; Ogden & Wardle, 1990; Raghunathan,

Naylor, & Hoyer, 2006). Specifically, we examined whether the difference in preferences occurs because the two consumer segments have different perceptions of the sacrificing options (study 3) and different goal priorities (study 4). Specifically, study 3 tests whether both consumer segments perceive the sacrificing type option to be the healthier option and the sacrificing quantity option to be the more enjoyable option, and whether restrained eaters perceive the sacrificing type option to be the more filling option. Study 4 examines goal priorities, testing whether restrained eaters (relative to unrestrained eaters) prioritize their health goals, deprioritize their taste goals, and similarly prioritize their fullness goals when making a food choice. Study 3 had a similar design as study 2, except only one food category was used (popcorn). Specifically, participants indicated which they would rather switch to if their typical snack of a medium buttered popcorn (400 calories) were unavailable (1=*Definitely a small buttered popcorn (200 calories)*, 7=*Definitely a medium 94% fat-free popcorn (200 calories)*). To examine the perceived health, enjoyment, and fullness trade-offs involved, participants then rated each of these two foods (i.e., small buttered popcorn, medium 94% fat-free popcorn) on these three goals. Finally, participants completed the dietary restraint scale. Study 4 had a similar design, except rather than examining the perceived trade-offs, participants indicated the importance of addressing their health, taste, and hunger goals. Collectively, studies 3 and 4 show that the differing sacrificing preferences among restrained and unrestrained eaters occur because of the different weights placed on addressing health versus taste and the different perceptions of fullness of the sacrificing quantity versus type options ( $p$ 's<.05; figures 2a-2b).

These findings thus have theoretical implications for understanding two major distinct routes to decreasing caloric intake, for further understanding consumption and psychological motivational differences between restrained and unrestrained eaters, and for understanding health-taste-fullness trade-offs. Further, they have practical implications for consumer welfare and for marketers about which route to health various segments of consumers are likely to find more appealing.

## FIGURES

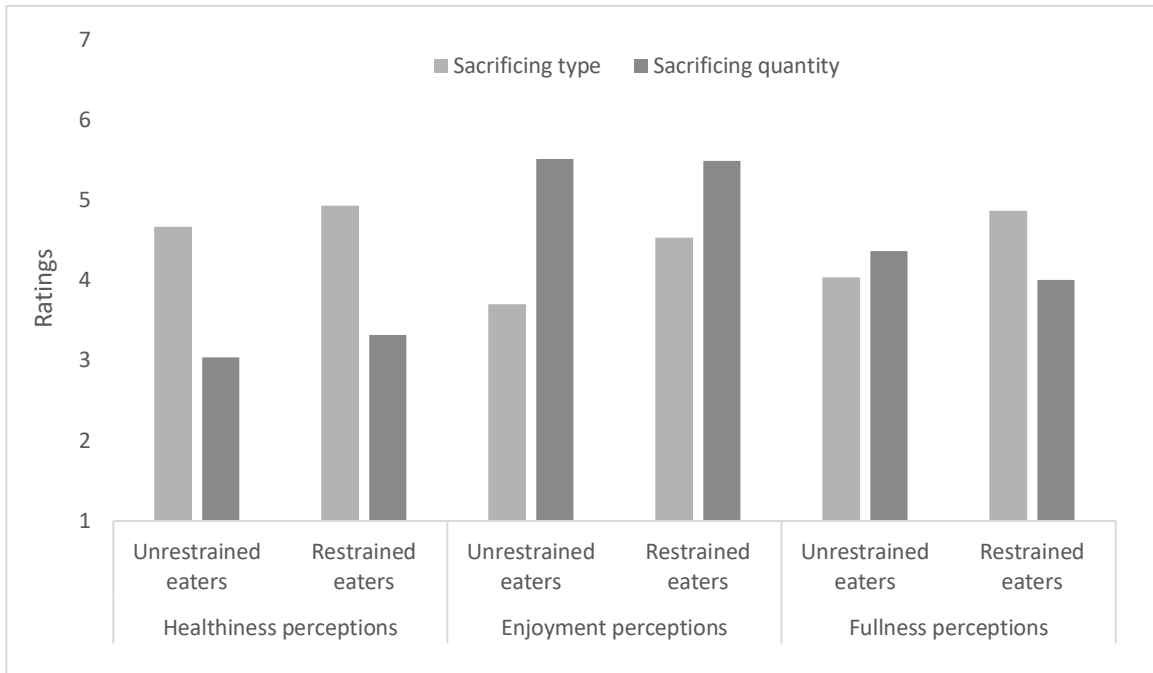
FIGURE 1: PURCHASE INTENTIONS FOR THE ADVERTISED PRODUCT BASED ON THE ADVERTISEMENT (SACRIFICING TYPE OR QUANTITY) AND DIETARY RESTRAINT



*Note.* Figure 1 depicts a floodlight of the regions of dietary restraint (filled areas below 1.43 and above 3.21) for which a spotlight test would indicate an effect of advertisement at the 90% level.

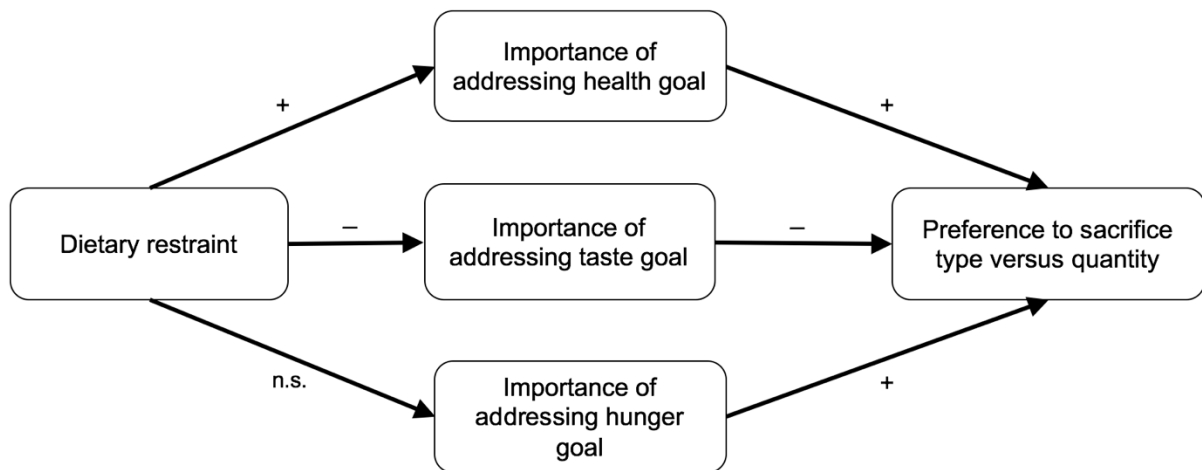
FIGURE 2A: UNRESTRAINED AND RESTRAINED EATERS PERCEPTIONS OF HOW SACRIFICING TYPE AND SACRIFICING QUANTITY ADDRESS DIFFERENT FOOD GOALS





*Note.* The figure depicts the values for the healthiness, enjoyment, and fullness perceptions of each choice option at  $\pm 1$  SD of the dietary restraint scale. These values were obtained by computing six separate linear regressions with dietary restraint as the predictor and plugging the  $-1$  SD or the  $+1$  SD value of dietary restraint into the resulting linear equation.

FIGURE 2B: HEALTH AND TASTE GOAL PRIORITIES MEDATE THE LINK BETWEEN DIETARY RESTRAINT AND PREFERENCE TO SACRIFICE TYPE VERSUS QUANTITY



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### **The Moderating Effect of Food Processing Level on the Relationship Between Organic Labels and Taste Expectations**

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In 2015, organic food reached \$43.3 billion in sales within the U.S.; a 10.8% increase from 2014. The continued growth in organic sales demonstrates the need for further research within this area (Piqueras-Fizman and Spence 2015). Given that taste expectations are one of the top factors influencing consumer food purchasing decisions (Kikulwe, Wessler, and Flack-Zepeda 2011), this research investigates how consumers form taste expectations towards organic food products. While prior research has associated organic food with perceived healthiness, the relationship between the organic label and taste expectation is less clear (Sörqvist et al. 2013; Lee et al. 2013). To reconcile the mixed findings on taste judgments of organic food, this research draws from congruency literature and introduces processing level as a moderator, suggesting that an organic label can increase or decrease taste expectations, depending on the food's processing level.

Extant research has recognized categorization can influence consumers' perceptions of food related attributes (Capaldi, Owens, and Privitera 2006). One form of food categorization is the level of processing (both mechanical and chemical change) a food has undergone. Research has found an inverse relationship between the amount of alteration a food has undergone and consumer's perceptions of healthiness (Rozin et al. 2004); suggesting that foods that are lower in processing level are expected to be healthier (Szocs and Lefebvre 2016).

We propose that for minimally processed food, which tends to be perceived as healthy, an organic label, which is also linked with healthiness, is congruent with the food categorization. As a result, an organic label is likely to increase taste expectations for minimally processed foods. In contrast, for foods that are heavily processed, which are perceived as relatively unhealthy, an organic label is perceived as incongruent with the

food categorization, and hence is likely to reduce favorable taste expectations. Three studies test the primary hypothesis and the proposed mechanism of congruency.

Study 1 aims to examine the effect of the organic label on taste expectations. Taking into consideration that there is a graded structure of category membership (Barsalou 1984), three food types across the level of processing continuum are investigated, using a 2 (organic label: present vs. absent) x 3 (processing level: minimal vs. neutral vs. high) between-subjects design. The three food items chosen were blueberries (minimal), yogurt covered raisins (neutral) and jelly beans (high). In the organic condition the product was identified as organic and no organic indication was used in the control condition (Ellison et al. 2016). Taste was measured using a two-item scale (“how do you think the [product] would taste?” and “how delicious do you think the [product] would be?”  $r = .89$ ). A significant interaction was found ( $p = .010$ ): in the minimally processed condition the organic label significantly improved taste expectations ( $p = .033$ ), whereas the organic label significantly lowered taste expectations in the highly-processed condition ( $p = .030$ ). As expected, for the neutral level of processing food the label had no effect (statistical results for all studies can be found in table 1).

Study 2 aimed to replicate study 1, by manipulating consumer perceptions of processing level of the same food product. A 2 (organic label: present vs. absent) x 2 (processing level: minimal vs. high) between-subjects study was conducted. The selected product was a lassi beverage used previously in the literature (Ragthunathan, Naylor and Hoyer 2006). In both processing conditions participants were shown an advertisement for the beverage, where the ad copy and the background visual display varied to reflect the level of processing. The beverage was claimed to contain organic ingredients in the organic condition (but not in the control condition). Consistent with the results of study 1, a significant interaction was found ( $p = .009$ ). In the minimally processed condition, the organic beverage was expected to taste better ( $p = .086$ ), and the reverse was found in the highly-processed condition ( $p = .046$ ).

In study 3, to investigate the underlying process of congruency a 2 (label: organic vs. control) x 2 (processing level: minimal vs. high) between-subjects study was conducted. To minimize confounds, the same base food product that differs along the processing dimension was used (boiled potatoes vs. French fries). For the label manipulation, the food was indicated as either “organic grade A” in the organic condition, or “grade A” in the control condition. Following the taste dependent measures, a five-item measure of congruency between the food (minimally vs. highly processed) and the respective label was included ( $\alpha = .93$ ). A significant interaction was again found ( $p < .001$ ); where for the minimally processed food the organic product was expected to taste significantly better ( $p = .01$ ), and the reverse was found for the highly-processed food ( $p = .003$ ).

To assess the conditional indirect effects model, PROCESS model 8 with 5000 bootstrap samples was conducted. Results show that congruency mediated the relationship between the label and taste expectations for minimally processed foods but not for the highly-processed foods.

This research provides theoretical contributions to congruency theory and the categorization literature, and also offers practical implications for the organic food industry.

**Table 1:** Summary of Study Statistics

| Study   | Participants | IVs                                                                                                                                          | Measures                                                                              | Main Findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study 1 | N = 189      | Organic label (present vs. absent).<br>Processing level (minimal [blueberries] vs. neutral [yogurt covered raisins] vs. high [jelly beans]). | Taste Expectation (2 item, 7 point scale).                                            | Significant interaction ( $F(1, 183) = 4.68, p = .010$ ).<br>Contrast Analyses:<br><i>Minimal processed</i> ( $M_{org} = 6.08$ vs. $M_{non-org} = 5.35, p = .033$ ),<br><i>Neutral processed</i> ( $M_{org} = 4.94$ vs. $M_{non-org} = 5.04, p = .80$ ),<br><i>High processed</i> ( $M_{org} = 4.54$ vs. $M_{non-org} = 5.21, p = .030$ ).                                                                                                                                                                                                                                                                                      |
| Study 2 | N = 340      | Organic label (present vs. absent).<br>Manipulated perception of processing level for the same lassi beverage (minimal vs. high).            | Taste Expectation (2 item, 7 point scale).                                            | Significant interaction ( $F(1, 366) = 6.94, p = .009$ ).<br>Planned Contrasts:<br><i>Minimal processed</i> ( $M_{org} = 5.78$ vs. $M_{non-org} = 5.44, p = .086$ ),<br><i>High processed</i> ( $M_{org} = 4.42$ vs. $M_{non-org} = 4.83, p = .046$ ).                                                                                                                                                                                                                                                                                                                                                                          |
| Study 3 | N = 504      | Label (organic vs. control).<br>Processing level (minimal [boiled potatoes] vs. high [French fries]).                                        | Taste Expectation (2 item, 7 point scale).<br><br>Congruency (5 item, 7 point scale). | <i>Taste Expectation</i> : Significant interaction ( $F(1, 500) = 15.31, p < .001$ ).<br>Planned Contrasts:<br><i>Minimal processed</i> ( $M_{org} = 5.15$ vs. $M_{non-org} = 4.75, p = .01$ ),<br><i>High processed</i> ( $M_{org} = 5.76$ vs. $M_{non-org} = 6.22, p = .003$ ).<br><br><i>Process Evidence (Congruency)</i> :<br>Index of Moderated Mediation: Effect: $-.121$ , 95% CI from $-.256$ to $-.033$ .<br>Conditional Indirect Effects:<br><i>Minimal processed</i> (Indirect Effect = $.145$ , 95% CI from $.070$ to $.253$ ),<br><i>High processed</i> (Indirect effect = $.024$ , 95% from $-.040$ to $.098$ ). |

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### **3.6 4P's et al.: Branding Individual Papers**

#### **How to Extend Exclusive Brands: A Brand Communities' Perspective for Understanding the Impact of Brand Extensions**

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To expand their businesses and cater to wider audiences, many luxury firms introduce substantially cheaper product lines and stretch their brands downward. Consider some examples among high-end car brands: Aston Martin launched a city car, Porsche entered the SUV segment, and Rolls Royce designed a series of Mini cars. This, often lucrative, strategy does not go unpunished in the eyes of the core users of the brand. Research on the “ownership effect” shows that owners of exclusive brands react negatively to downward stretches of their brands (Kirmani, Sood, and Bridges 1999).

But not all exclusive brands pursue downward brand extensions in the same way. To grow and target new market segments, rather than launching more accessible vehicles, Ferrari has leveraged its brand by selling branded products that are in fact quite distant from their auto-making core business, such as Ferrari clothes, watches, and sneakers. In just about 15 years, the merchandising and licensing business for Ferrari has reached the same sales figure generated by the core business of cars (about \$2.7 billion each).

In this research, we examine how exclusive brands are affected by offering downward brand extensions with varying levels of perceived closeness to the core business of the parent brand. Specifically, we propose that downward brand extensions that are relatively distant from the core business of the parent brand are less likely to dilute the brand image of the brand as compared to downward brand extensions that are close to the core business.

We use a novel brand membership perspective to explain this phenomenon. In particular, we consider the extent to which various brand extensions allow their users to claim membership status in the brand community. We suggest that extensions distant from the core offering can have a more positive impact on the parent brand because they do not allow their users to claim membership to the brand community. We test our propositions in a series of studies, most of which have been conducted with real consumers of exclusive brands, and explore boundary conditions and moderators, such as brand attachment. To ensure the generalizability of our findings across different brands and products, we consider eight brands and 23 brand extensions. Importantly, throughout the studies we control for a series of potential confounds and rule out alternative explanations (e.g., brand specificities, price of the extension, brand awareness, positioning of the extension, symbolic associations with the parent brand).

In study 1, we demonstrate that distant brand extensions can have a more positive effect than extensions close to the core product category. We examine two brands (Montblanc and Oxford University), while controlling for the specificities of the product category of the extension. In a 2x2 design, 238 lab participants considered some product extensions as either owners of Montblanc fountain pens or students at Oxford University. We manipulated the category of extension (online course on the art of writing vs. ballpoint pen). As predicted, we find a significant cross-over interaction ( $F(1, 232) =$

23.3,  $p < .001$ ), such that for Montblanc the online course (distant extension) was liked more than the ballpoint pen (close extension;  $M_{\text{course}} = 4.8$  vs.  $M_{\text{pen}} = 3.5$ ,  $t(114) = 4.4$ ,  $p < .001$ ), whereas for Oxford University the ballpoint pen (distant extension) was liked more than the online course (close extension;  $M_{\text{pen}} = 4.6$  vs.  $M_{\text{course}} = 4.0$ ,  $t(119) = 2.4$ ,  $p = .017$ ).

In Study 2 we investigate the reactions of 350 participants who completed the Tough Mudder race, a 12 mile run with military-style obstacles. We find that Tough Mudders like a distant extension (Tough Mudder gear) more than two close extensions (Soft Mudder and 5K Mudder races;  $M_{\text{distant}} = 3.3$  vs.  $M_{\text{close}} = 5.4$ ,  $t(348) = 9.2$ ,  $p < .001$ ). Moreover, we detect a significant interaction between the manipulation and the brand patriotism scale (Bellezza and Keinan 2014), a measure of attachment to the brand ( $b = .69$ ,  $t(346) = 33.1$ ,  $p = .005$ ). The positive response to the distant extension is driven by those Tough Mudders particularly attached to the brand. Moreover, in a mediation analysis, we find that the distant extensions elicit positive reactions among Tough Mudders because these products do not allow their users to claim membership to the Tough Mudders' brand community (indirect effect = .13; 95%CI = .028 to .296).

Studies 3 and 4 further demonstrate the mediating role of perceived claims of membership rights by manipulating, rather than measuring, this construct. In study 4, we examine the responses of 40 Ferrari car owners (within-subjects) to a variety of Ferrari products (Ferrari city car, videogame, museum) and show that Ferrari owners react more positively (negatively) to brand extensions in distant (close) product categories. Moreover, we manipulate between-subjects the availability of the brand extension (i.e., whether the city car is accessible to everybody or only to current Ferrari owners) and find that the Ferrari brand was partially shielded from dilution when the city car was only available to owners (all  $p < .05$ ). Study 4 conceptually replicates these findings in a 2x2 between-subjects design with 298 online participants using two other existing brands (Louboutin for female and Bally for male).

Finally, study 5 examines how distant exclusive brands can stretch and highlights a boundary condition of the positive effect of distant extensions with Ivy League students. Specifically, we test the reactions of 202 undergraduates at Columbia and Harvard to three different sets of brand extensions: online education, part-time education, summer programs (3 close); magazines, reading glasses, neckties (3 distant); shampoo, laundry bags, pajamas, sunglasses, chocolate, soft drinks (6 extremely distant). We find that distant extensions are liked more than close extensions, as long as the distance is not extreme ( $M_{\text{close}} = 4.5$  vs.  $M_{\text{distant}} = 3.5$  vs.  $M_{\text{extremely-distant}} = 2.9$ ; all  $p < .001$ ).

In conclusion, this research examines the reactions of consumers of exclusive brands to downward brand extensions with varying degree of perceived closeness to the product category of the parent brand and stresses the benefits of stretching into categories beyond the core business.

### **Too Nice to Be Dominant: How Warmth Impacts Perceptions of Market Dominance**

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While a brand's power is commonly discussed in popular business publications, the construct of power has yet to be fully explored in the academic literature. What is a "powerful brand"? In a pilot study, we discover that brands embody power through perceptions of market dominance. Perceptions of market dominance was significantly correlated with an overall perception of brand power ( $r = .62, p < .01$ ). But how are these perceptions of market dominance formed?

Research has shown that consumers are unaware of brands' market dominance (Kamins, Alpert, and Perner 2007), but even misperception as a market leader leads to positive consumer evaluations (Kamins, Alpert, and Perner 2003). Brand images are accessible to consumers and can be used as cues for inferences (Aaker and Keller 1990; Jacoby, Olson, and Haddock 1971). We hypothesize and find that when consumers are lacking knowledge about the dominance of brands in a product category, the brand's image is used as an inference cue: specifically, brands high in warmth are perceived as less market dominant.

Research shows that powerful people, a desire for leadership, and perceptions of leaders have been related to dominance and dominant behaviors (Fragale, Overbeck, and Neale 2011; Lord, De Vader, and Alliger 1986), which conflict with the kind and generous imagery of high warmth brands. We hypothesize and find that consumers perceive high warmth brands as being less market dominant. Because competitiveness is believed as necessary for market dominance (Stalk, Evans, and Shulman 1992) and warmth has been negatively related to competitiveness (Fiske et al. 2002; Russell and Fiske 2008), we further hypothesize that perceptions of the brand's competitiveness mediates this effect. Six experiments were conducted to investigate the impact of warmth on consumers' perceptions of market dominance.

In Studies 1 and 2, we use real (Study 1) and fictitious brands (Study 2) in four product categories: cough syrup and fabric softener (Study 1) and pens and adhesive bandages (Study 2). Each participant was presented with two brands from each category: a high warmth brand and a low warmth brand. In the case of the fictitious brands, participants read a brief description of the brand which had been pre-tested to position the brand as either high or low in warmth. Participants were asked to estimate the market share of each brand, as a measurement of market dominance. Consistent with our hypothesis, the high warmth brands were estimated to be less market dominant (Study 1:  $M's = 21.30$  vs  $30.73$ ,  $F(1, 103) = 26.62, p < .001$ ; Study 2:  $M's = 15.83$  vs.  $20.30$ ,  $F(1, 80) = 21.94, p < .001$ ).

Study 3 builds on Studies 1 and 2 by replicating the effect of brand warmth on market dominance and exploring the mediating role of competitiveness. This study used the cough syrup brands from Study 1 and scale measures of competitiveness and market dominance. Again, the high warmth brand was judged to be less market dominant ( $M's = 3.95$  vs.  $4.85$ ,  $F(1, 102) = 10.98, p = .001$ ). This effect was significantly mediated by perceptions of competitiveness (95% CI of the indirect effect =  $-.47$  to  $-.02$ ).

Study 4 finds that if the conflict between warmth and dominance is resolved, the negative effect of brand warmth on market dominance is attenuated. A sentence scramble task was used to manipulate the compatibility of warmth and dominance. Participants completed either a neutral sentence scramble task or one communicating compatibility of warmth and dominance (e.g. "The helpful nurse won the trophy"). The same fictitious pen brands from Study 2 were used and participants were asked for the brands' market share.



The interaction of compatibility and brand was significant ( $F(1, 99) = 4.14, p < .05$ ). The high warmth brand was judged to be less market dominant than the low warmth brand ( $M's = 19.65$  vs.  $23.74, t(99) = 1.91, p = .06$ ) in the control condition, but this effect disappeared in the compatibility condition ( $M's = 21.76$  vs.  $19.73, t(99) = 0.96, ns$ ).

In Study 5, we investigate category knowledge as a boundary condition. We used real brands in the product category, soup, where knowledge is highly variant for our college student participants. Consumers with high category knowledge should be more reliant on their own knowledge and less on inferential cues such as brand image. Therefore, we hypothesize that knowledge should positively predict perceptions of market dominance for a high warmth, market dominant brand. Participants first completed a scale measure of their knowledge of the brands in the soup product category. After several filler questions, participants then reported the market share of real high warmth and low warmth brands in the soup category. We find that category knowledge is a predictor of market dominance for a dominant, high warmth brand ( $\beta = .41, t(55) = 3.79, p < .001$ ) but not for a low warmth brand ( $\beta = .10, t(55) = .94, ns$ ).

Our final study demonstrates the downstream consequences of this effect on brand preference. Prior literature finds that dominant brands are preferred only when the choices are self-relevant (Kim et al. 2008); therefore, high warmth brands that are perceived as being low in dominance should decrease brand preference in situations where the choice is highly self-relevant. Participants chose products either to try themselves (high self-relevant) or for others to try (low self-relevant). They then viewed pairs of brand pictures for four product categories that communicated either high or low warmth. In the high warmth condition, the pictures were of a group enjoying the product, whereas in the low warmth condition, the picture was the product by itself or a single person enjoying the product. Participants responded with their brand preference on a 9 point scale (1 = Definitely Brand A, 9 = Definitely Brand B). Consistent with our predictions, the high warmth (and thus less market dominant) brands were evaluated less favorably in the high self-relevant condition ( $M's = 5.77$  vs.  $5.20, F(1, 124) = 6.35, p < .05$ ).

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### **The Makeup of Brand Character: A Field Data Analysis of Consumer Responses to 7,000 Brands Over 20 Years**

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A long standing preoccupation for marketers and academics alike has been to understand how consumers perceive brands. Twenty years have passed since Aaker (1997) first published the five dimensions of brand personality, which has been unquestionably seminal in broadening our understanding of brand perceptions. A number of important questions, however, are yet to be fully addressed. First, are the dimensions of brand personality – originally identified with a limited sample of 37 brands more than two decades ago – sufficiently representative of the many thousands of brands on the market today? Second, as Keller and Lehmann (2006) suggest, are certain dimensions more influential in driving preference, and do these dimensions evolve over time?

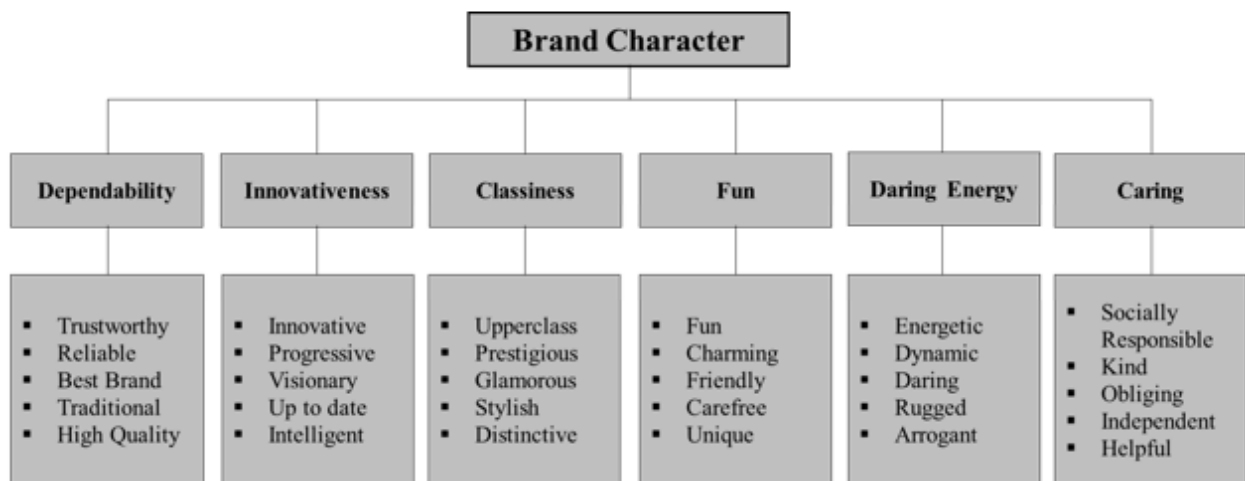
To address such questions, we leverage Brand Asset Valuator's ("BAV") proprietary survey data with consumer responses (48 brand attributes determined by BAV, and preference scores) on approximately 7,000 unique brands in over 200 categories collected during 1997 to 2016. We yield important empirical generalizations on (a) the six dimensions of brand character, (b) the differential effects of brand character dimensions on brand preference, and (c) the evolving structure of a brand's character and its implications.

### Study 1: What are the Dimensions of Brand Character?

Compared with brand personality variables, attributes measured by BAV are less personified (e.g., “good value”) and are more generally applicable to brands. Therefore, we refer to these as brand characters, not necessarily along personality dimensions. We conduct exploratory factor analyses with maximum likelihood rotation and reliability checks (see Fabrigar et al. 1999; Johnson and Wichern 2007).

We uncover six robust dimensions of brand character: Dependability, Innovativeness, Classiness, Fun, Daring Energy, and Caring. The brand character dimensions emerge as clearly distinguished factors from previous findings on brand personality (Aaker 1997; Geuens 2009; Grohmann 2009). The structure of brand character dimensions is presented in Figure 1. In particular, we emphasize the importance of identifying “innovativeness,” “fun,” and “caring” as major drivers of brand perception, each of which has been mostly overlooked in the brand personality literature.

FIGURE 1: THE SIX DIMENSIONS OF BRAND CHARACTER



### Study 2: How do Brand Character Dimensions Impact Brand Preference?

We use fixed estimation with standardized factor scores (see Estabrook and Neale 2013; Konstantopoulos 2011) of brand character dimensions to examine how each dimension impacts consumer preference. Filtering BAV data to brands with two or more years of observations, we analyze 5,536 unique brands collected during 1997 to 2016.

The results clearly show the differential effects of brand character dimensions in driving consumer preference (Table 1). Notably, we find Dependability to exert the strongest influence on preference, followed by Innovativeness, Caring, and Fun. Classiness has the weakest impact, though still positive and significant. Next, we investigate the effects of brand character dimensions across separate industries.

**TABLE 1: IMPACT OF BRAND CHARACTER DIMENSIONS ON BRAND PREFERENCE (0-100) FOR ALL INDUSTRY SECTORS**

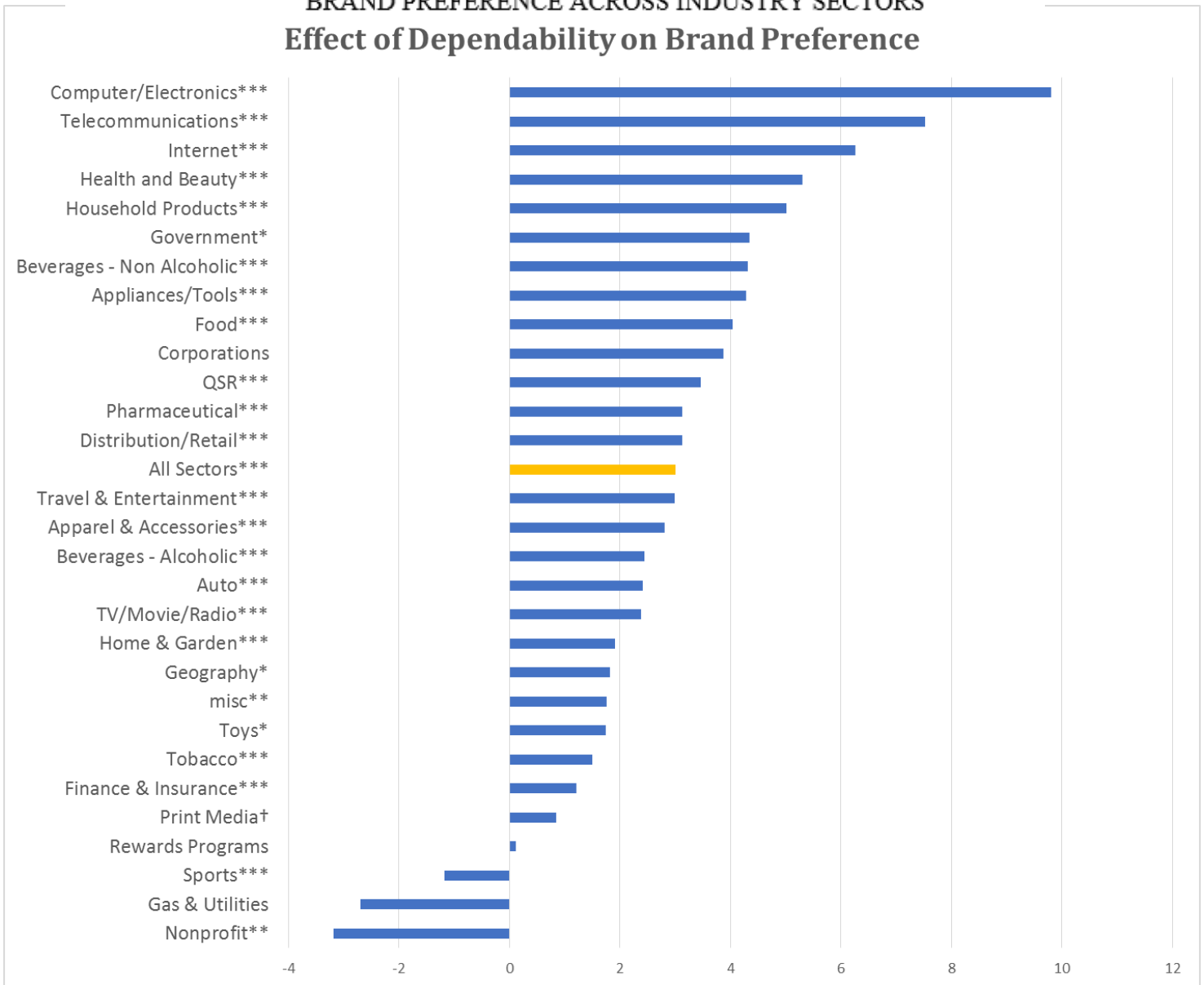
|                | Estimate | Standard Error | t-stat | p-value |
|----------------|----------|----------------|--------|---------|
| Intercept      | 34.008   | 1.035          | 32.85  | <.0001  |
| Dependability  | 3.010    | 0.093          | 32.51  | <.0001  |
| Innovativeness | 1.584    | 0.075          | 21.09  | <.0001  |
| Classiness     | 0.190    | 0.093          | 2.04   | 0.042   |
| Fun            | 0.734    | 0.073          | 10.01  | <.0001  |
| Daring Energy  | 0.583    | 0.062          | 9.38   | <.0001  |
| Caring         | 1.025    | 0.066          | 15.54  | <.0001  |
| Time (Trend)   | -0.551   | 0.006          | -94.87 | <.0001  |

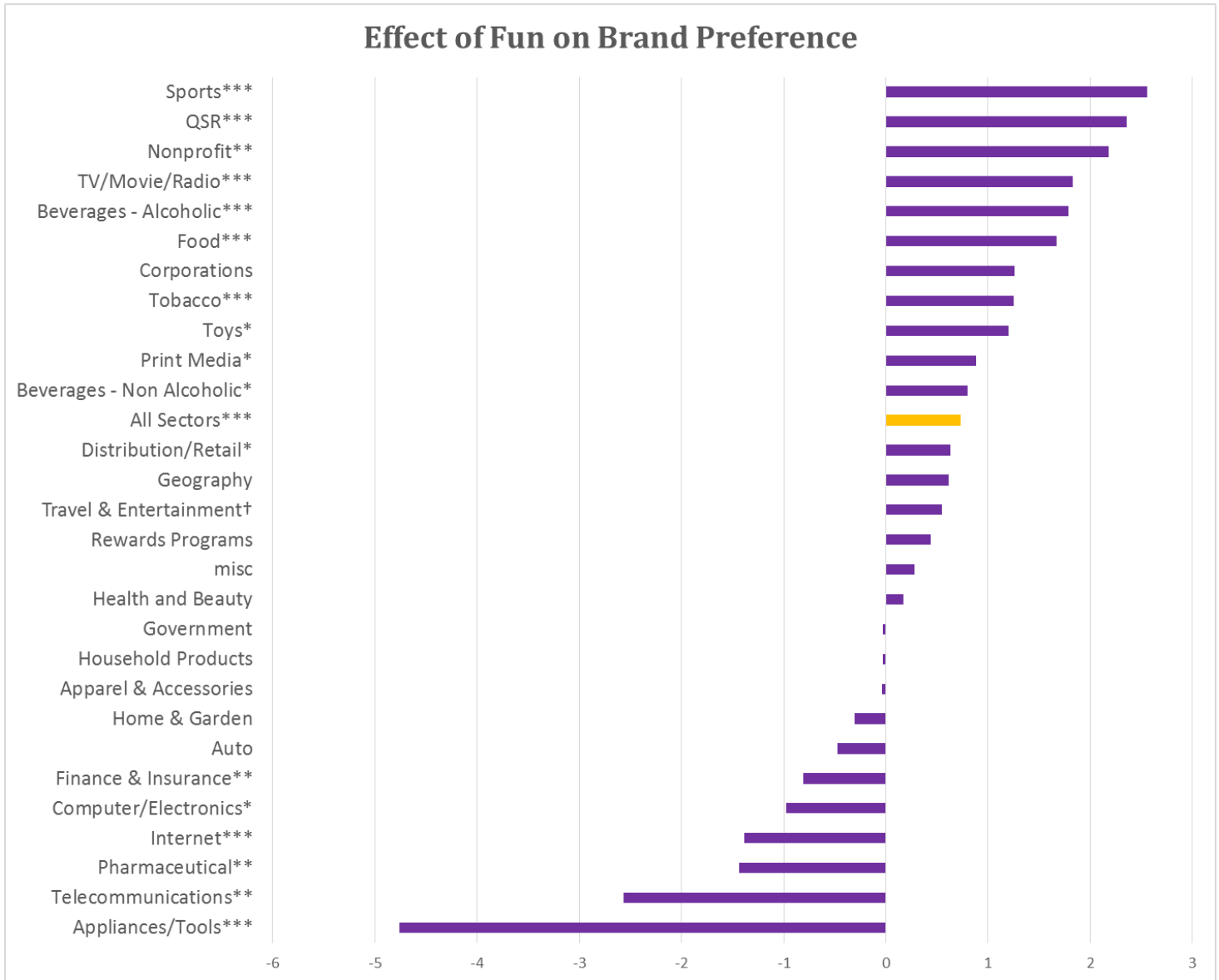
We slice the data into 29 Sectors provided by BAV and analyze each sector. The heterogeneous effect of brand character dimensions on consumer preference is unambiguous (Figure 2). For instance, “Dependability” is positive and significant for Appliances/Tools and negative for Sports. More interestingly, these signs are significantly reversed for the “Fun” brand character dimension. Similar heterogeneous effects occur throughout all 6 dimensions, though not reported here due to space limitations.

The results of this study provide valuable insights on the differential effects of brand character on preference evaluations for varying categories (Keller and Lehmann 2006), going beyond previously suggested moderators such as mature vs. young, and goods vs. service brands (Eisend and Stokburger-Sauer 2013).

**FIGURE 2: IMPACT OF SELECT BRAND CHARACTER DIMENSIONS ON BRAND PREFERENCE ACROSS INDUSTRY SECTORS**

**Effect of Dependability on Brand Preference**





#### Study 4: What Kind of Brand Character Structures are Preferred?

Next, we run cluster analyses with each year's brand character factor scores, independent of preference variables. We consistently find the same seven to eight cluster groups shown in Table 2. Interestingly, clusters with distinct one or two characters (columns 1-6) have higher preference scores than those with weak character (columns 7-8).

TABLE 2: FINAL CLUSTER CENTER VALUES OF 2013 BAV DATA

|                 | <u>Humble Dependables</u> | The Innovators | Dependable Fun Providers | The Glamorous | The Vigorous  | Involved Citizens | Forgettable Pleasures | <u>Seriously Insipids</u> |
|-----------------|---------------------------|----------------|--------------------------|---------------|---------------|-------------------|-----------------------|---------------------------|
| Trustworthiness | <b>1.1699</b>             | 0.1593         | <b>0.9988</b>            | -0.0279       | -0.6579       | 0.7821            | -0.4446               | -0.7046                   |
| Innovativeness  | -0.2619                   | <b>2.2484</b>  | -0.8069                  | -0.3657       | -0.5373       | <b>1.0465</b>     | 0.0942                | -0.0979                   |
| Fun             | -0.5886                   | 0.0631         | <b>1.3108</b>            | 0.1250        | -0.0203       | -0.5138           | 0.6873                | -0.7939                   |
| Classiness      | -0.3396                   | -0.1320        | -0.4712                  | <b>2.9818</b> | -0.1885       | 0.1374            | -0.0092               | -0.1683                   |
| Daring Energy   | -0.4043                   | 0.4066         | 0.4634                   | -0.2736       | <b>1.8785</b> | 0.7185            | -0.4554               | -0.2059                   |
| Caring          | -0.4012                   | -0.7269        | 0.2436                   | -0.3925       | -0.4265       | <b>2.7509</b>     | 0.0536                | 0.1643                    |
| # of Brands     | 541                       | 190            | 263                      | 164           | 260           | 113               | 799                   | 686                       |
| Mean Preference | 41.80%                    | 32.92%         | 45.40%                   | 22.40%        | 22.46%        | 37.25%            | 18.86%                | 17.08%                    |

Using the “peak” categorization of brand character, we examine the differences in preference scores for each group with a one-way ANOVA. The single and dual peaked brands are significantly more preferred to brands with zero peaks, with dual peaked brands having the highest preference score (Figure 4). Though not addressed in this paper, it is possible that certain pairs of peaks (e.g., Innovativeness and Classiness) are more preferred than others (e.g., Caring and Classiness). The psychological processes and consequences of such brand character formations, especially in brand and product extensions, are set aside for future research.

FIGURE 4: PREFERENCE SCORES FOR ZERO, ONE, AND TWO PEAKED BRANDS

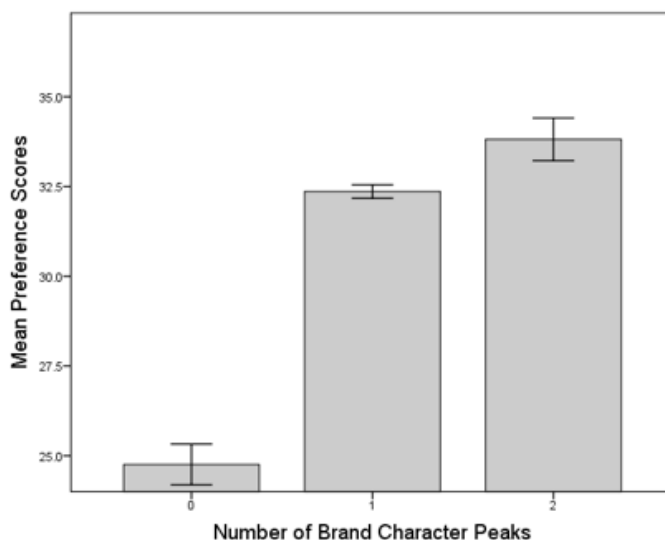
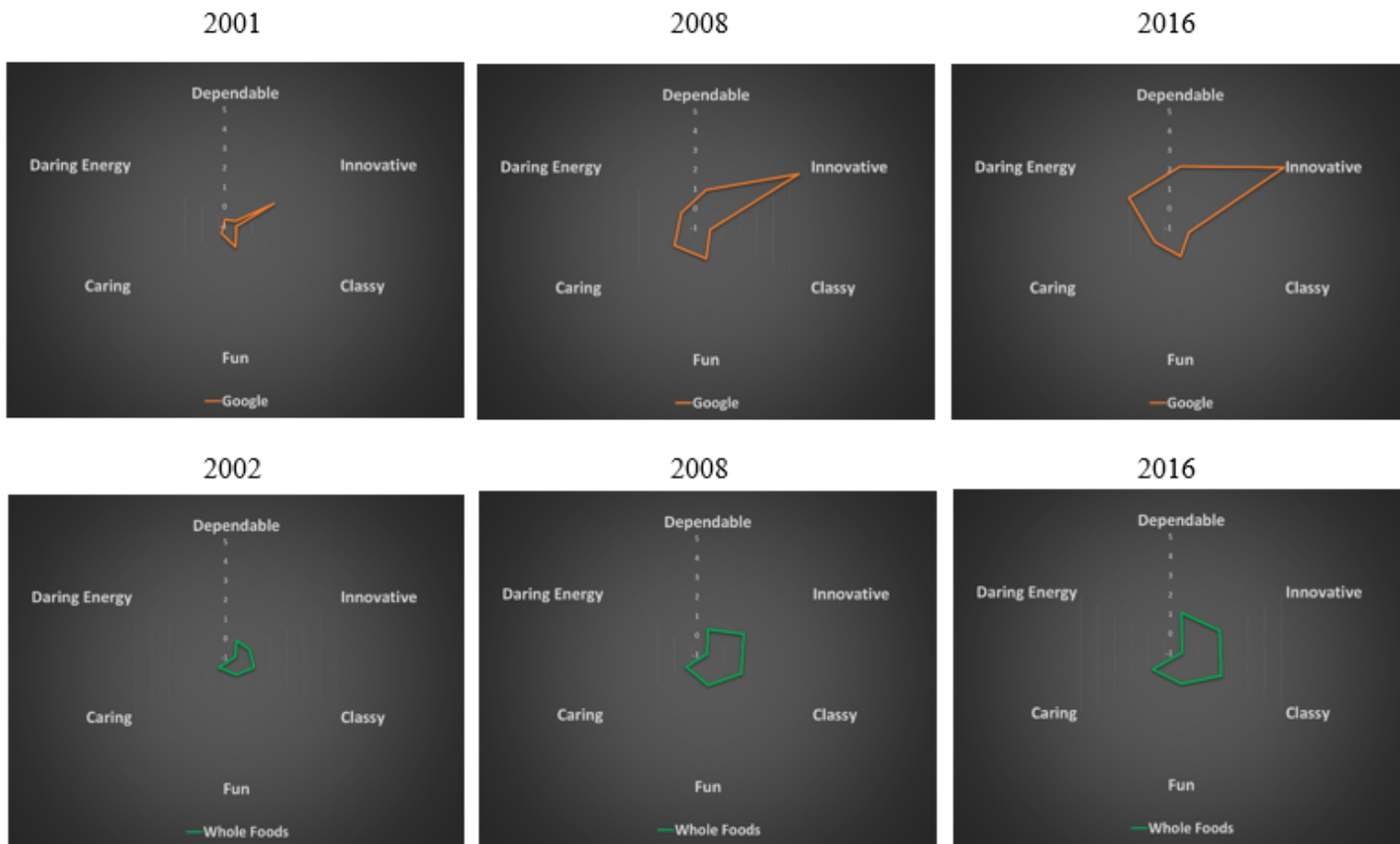


TABLE 3: NUMBER OF PEAKS FOR BRANDS WITH TWO OR MORE YEARS OF DATA

| # of Peaks | Frequency | % in Group |
|------------|-----------|------------|
| 0          | 3035      | 6.6%       |
| 1          | 38556     | 84.2%      |
| 2          | 4209      | 9.2%       |
| Total      | 45800     | 100%       |

FIGURE 3: EXAMPLES OF EVOLVING BRAND CHARACTER STRUCTURES FOR GOOGLE & WHOLE FOODS





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## Session 4

### 4.1 The Social Context of Consumption Symposium

Consumers rarely make choices without the influence of others. They often involve others in an array of ways, from choosing for others, to co-consuming with others, or to viewing others' consumption. While decision-making research has taught us much about how people make choices for themselves (e.g., Bettman, Luce, and Payne 1998), less is known about how this rich social context affects consumer choice.

Therefore, it is important for both researchers and practitioners to understand the nuances of the array of roles that others play in consumers' choices. How do the consumption choices made by and for others affect subsequent choices for oneself? How does thinking about others' consumption and our relationships with those others affect our choices?

In this symposium, four papers explore these questions by considering the multitude of roles that others play in affecting our choices. These papers address various social aspects of consumption: choosing for others, consuming with others, and considering others' consumption.

The first paper (Yang, Koo, Hwang) considers how a chooser's motivation to bond with others affects gift choices. Specifically, the authors identify two competing gifting strategies that facilitate bonding: "jollification" through experiential gifts and "commemoration" through material gifts. Although experiential gifts are more effective at facilitating bonding between the giver and the receiver (Chan and Mogilner 2017), four studies demonstrate that givers motivated to bond often miscalibrate the consequences of these strategies and choose the less effective one, endowing more material possessions than receivers would prefer.

The second paper (Gullo, Liu, Zhou, Fitzsimons) considers how aspects of a chooser's *existing* relationships with others shape the effects of initial choices for others on subsequent choices for oneself. Specifically, the authors examine how closeness and competitiveness with the other influence when choosers balance their own goal-related choices with initial personal goal-related choices made for others. Three studies show that making a virtuous (indulgent) choice for a relationally close other—such as one's child, friend, or even pet—liberates (reinforces) a subsequent indulgent (virtuous) choice for the self. Competitiveness with the other—whether or not the other is close—is identified as a boundary condition for the effect.

The third paper (Liu, McFerran, Haws) considers how choices *of* others affect choices for the self when making sequential choices. Specifically, the authors propose a new conceptual basis based on product attributes for predicting when and why consumers match their co-consumers' choices. Seven studies show that consumers are more likely to match their own choices with their co-consumers' choices on vertically-differentiated

attributes (e.g., price, portion size, or brand prestige) than on horizontally-differentiated attributes (e.g., flavor or shape).

The fourth paper (Tu and Fishbach) considers how even viewing others' consumption affects one's own consumption. Specifically, the authors propose that people can satiate on what other people eat vicariously. Five studies demonstrate that, when the other is similar to the self, people experience lower desire to consume food that is similar (rather than dissimilar) in taste to what they have viewed others consume.

Across four papers (19 studies), this session investigates decisions in an array of "others" contexts. This session is directed at a wide audience interested in social influences on choice, choices for others, gift giving, and interpersonal goal pursuit.

### MATERIAL GIFTS AS RELATIONSHIP MNEMONICS: WHY PEOPLE GIVE TOO MANY MATERIAL OBJECTS (AND TOO FEW EXPERIENCES) TO OTHERS

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Minjung Koo, Sungkyunkwan University, Korea  
Jaewon Hwang, Sejong University, Korea

The desire to form and maintain social bonds with others is among the most powerful human motives. This motive can affect the decisions people make for others, such as gift choices. We identify two distinct gifting strategies that can facilitate bonding in different ways. One is a "jollification" strategy, which prescribes experiential gifts for receiver's enjoyable consumption (Chan and Mogilner 2017), so that the giver may be thought of more favorably. The other is a "commemoration" strategy, which prescribes material gifts for receiver's possession (Belk 1979; Ruth, Otnes and Brunel 1999), so that the giver may be more accessible in the receiver's mind. Thus, when a gift is prompted by the goal to bond (instead of being prompted by social obligations or cultural expectations; Goodwin, Spiggle and Smith 1990), a tradeoff between these two bonding strategies underlies the choice between experiential gifts and material gifts.

How do givers choose spontaneous gifts between material possessions and experiential consumption, and how do these choices compare to receivers' preferences? We theorize that givers' choices may systematically deviate from receivers' preferences. Receivers may prefer experiential gifts over material gifts, because experiential purchases often lead to improved long-term welfare (van Boven and Gilovich 2003), whereas tangible possessions remind them of the giver's gifting behavior and hence, they feel indebted to the givers (Belk and Coon 1993; Greenberg 1980). Therefore, we propose that givers may be more likely to endow material possessions than receivers want them. As a result, a giver's choice of material (vs. experiential) gifts may instead impede his or her desire to bond with the receiver. We test this hypothesis in four experiments.

Study 1 employed a 2 (perspective: giver vs. receiver) between-subjects design. Participants (216 undergraduates,  $M_{age} = 22$ , 38% male) were randomly paired and

assigned to the role of a giver or a receiver. After a brief interaction and the completion of individual tasks, givers chose a surprise gift, between two options, for their partner. Receivers also indicated their preference between the same options. The options were pretested to be similar in most aspects, except that one was to be kept (a mini postcard of cartoon characters) while the other was to be consumed (a mini movie featuring the same cartoon characters). As predicted, givers were more likely to choose the mini postcard over the mini movie, relative to receivers' preferences (giver 66.4% vs. receiver 48.6%;  $\chi^2 = 6.94, p = .009, \eta = .18$ ).

Study 2 employed the same 2 (perspective: giver vs. receiver) between-subjects design. Instead of asking participants to choose from a pair of pre-selected gift options, we asked participants (149 Mturkers,  $M_{\text{age}} = 34, 53\%$  male) to list gift items they would like to give (to an acquaintance that they would like to bond with) or receive. Participants listed life achievements important to either their acquaintance or themselves, and indicated which type of gift they would prefer between material gifts and experiential gifts. They then described the specific item in mind, and indicated their reasons. As predicted, givers were more likely to choose a material gift (vs. experiential) to celebrate the receiver's achievement (48.6%), compared to receivers (31.2%;  $\chi^2 = 4.73, p = .044, \eta = .18$ ; Figure 1A). Coders rated the specific gift items on two separate scales: to what extent is the gift intended for material possession (1-5), and to what extent is the gift intended for experiential consumption (1-5). These ratings validated participants' choices of gift category ( $p < .001$ , Figure 1B). Moreover, material gifts were indeed more likely associated with the commemoration strategy than experiential gifts (31.0% vs. 5.6%,  $\chi^2 = 17.2, p < .001$ ), whereas experiential gifts were more likely associated with the jollification strategy than material gifts (75.3% vs. 34.5%,  $\chi^2 = 24.2, p < .001$ ).

This finding was successfully replicated in Study 3, a registered replication (public on AsPredicted.org). In this study, we further find that givers' stronger preferences for material gifts reflects their adoption of the commemoration strategy: material gifts were considered to increase anticipated accessibility of the giver in the receiver's mind (i.e., how easily the gift will remind the receiver of the giver) than experiential gifts ( $M_{\text{material}} = 5.27, M_{\text{experiential}} = 4.83, t = 2.73, p = .007$ ), whereas both material gifts and experiential gifts were considered similarly in terms of the anticipated favorability of the giver in the receiver's mind (i.e., how favorably, a gift will make the receiver think of the giver;  $M_{\text{material}} = 5.94, M_{\text{experiential}} = 5.90, t < 1, p > .250$ ).

In Study 4, we tested a theoretical moderator: when the spontaneous gift is associated with a negative life event instead of a positive one, givers may not adopt the commemoration strategy to avoid being remembered in association with negative emotions. This study thus employed a 2 (perspective: giver vs. receiver)  $\times$  2 (life event: positive vs. negative) between-subjects design. Participants (183 undergraduates,  $M_{\text{age}} = 23, 48\%$  male) were asked to choose a gift from 20 pre-selected gift items, either for their friend (giver perspective) or themselves (receiver perspective) who recently experienced either a positive or a negative life event. Participants coded each gift item in terms of how much it was intended for possession (1-5) and intended for consumption (1-5). A 2-way ANOVA on the coding results of the chosen gift items revealed the predicted interaction

between perspective and event valence (possession score  $F(1, 179) = 8.80, p = .003$ ; consumption score  $F(1, 179) = 5.78, p = .017$ ). In particular, when the life event was positive, the same giver-receiver preference discrepancy was found on both possession ( $M_{\text{giver}} = 2.20, M_{\text{receiver}} = 1.50, t = 3.42, p = .001$ ) and consumption score ( $M_{\text{giver}} = 3.95, M_{\text{receiver}} = 4.53, t = -3.22, p = .002$ ). In contrast, when the life event was negative, givers' preferences were similar to that of receivers, both favoring experiential gifts ( $p$ 's  $> .250$ ).

Taken together, this research sheds new light on how consumers choose between experiential consumption versus material possessions, in their interpersonal decisions.

#### ARE MY DOG'S TREATS MAKING ME FAT? THE EFFECTS OF CHOICES MADE FOR OTHERS ON SUBSEQUENT CHOICES FOR THE SELF

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Consumers often make choices for others intermixed with choices for themselves—parents choose activities for their children, coworkers grab lunch for each other, and pet owners choose snacks for their pets. While it is evident that people make choices for others differently than they do for themselves (e.g., Laran 2010; Polman 2012a, 2012b) and that observing other's choices affects our own choices (e.g., Ariely and Levav 2000; Goldstein and Cialdini 2007; McFerran et al. 2010), might choices made for others influence subsequent choices made for the self?

Building on research on sequential choices, we suggest that choices made for others influence subsequent choices for the self. Given that initial goal-relevant choices for the self affect subsequent goal-relevant choices for the self (e.g., Fishbach and Dhar 2005; Huber, Goldsmith, and Mogilner 2008), we suggest that choices made for others in the domain of one's personal goal can also affect one's subsequent goal-relevant choices for the self. Furthermore, by introducing a uniquely interpersonal relationships lens to this literature, we propose new moderators specific to the interpersonal context. Specifically, we examine the moderating role of choosing for different types of relationships and suggest that how close and how competitive the chooser feels with the other influences the effect.

Across three studies, we find demonstrate that initial goal-related choices for others affect subsequent goal-related choices for the self. When choosers have a close with the other, making an initial virtuous (indulgent) choice for the other influences the chooser to balance across their choices and are more likely to make an indulgent (virtuous) subsequent choice for themselves. However, the effect is mitigated when choosers have a competitive relationship with the close other. We propose that the effect is driven by

choosers conflating the choice for the other with their own perceived goal progress, but that the social comparison inherent in competitiveness interrupts this choice conflation.

Study 1 had a 2 (choice for other: healthy vs. indulgent) + control between-subjects design. Participants (N=556) were MTurk workers who reported having a health goal and were a parent of a child between the ages of 6 and 12 years old. As the manipulation of choice for other, the registration process had participants in the experimental conditions choose between either two healthy (e.g., whole wheat pita sandwich) or two indulgent (e.g., bacon cheese burger) lunch choices for their child to eat while at camp. Participants in the control condition chose between two health-neutral (e.g., crayons) coloring options for their child to use while at camp. Then, participants were informed that one participant would be randomly selected to receive an Edible Arrangement fruit basket of their choice. The dependent variable was whether they chose a virtuous (all fruit) or indulgent (chocolate-covered fruit) basket as their drawing prize. As predicted, parents were more likely to choose an indulgent prize for themselves if they chose a healthy lunch for their child (M=46.81%) than if they chose an indulgent lunch for their child (M=32.26%,  $p < .05$ ). Neither experimental conditions differed from control (M=39.01%, all  $p$ 's  $> .10$ ), suggesting that both experimental conditions are driving the effect, not just one (Figure 2).

Study 2 explored the moderating role of closeness with other. In this field study, we recruited dog owners (N=109) at a 50-acre off-leash dog park. The manipulation was whether participants were randomly assigned to choose between two healthy treats or two indulgent treats for their dog. The dependent variable was whether participants then subsequently chose a healthy apple or an indulgent chocolate bar as a snack for themselves. We also measured feelings of closeness with the dog (Inclusion of Other in Self, "IOS", Aron et al., 1992). As predicted, a logistic regression on snack choice for self (apple vs. chocolate) by IOS and manipulated choice for other (healthy vs. indulgent) revealed a significant 2-way interaction ( $p < .05$ ). To decompose this interaction, we used the Johnson-Neyman technique to identify the range of IOS for which the simple effect of the manipulated choice for other was significant. There was a significant effect of choice for other on the likelihood to choose chocolate as a snack for the self for any dog owner who has an IOS score of 6.62 or higher ( $p = .05$ ), but not for dog owners with an IOS score less than 6.62.

Study 3 explored competitiveness as a boundary condition and examined the effect in the context of an academic goal. We recruited academically focused business students (N=197) to participate in a 2(choice for other: indulgent vs. virtuous) X closeness(measured; continuous) X competitiveness(measured; continuous) between-subjects lab study. All participants provided the first name of a close, same gendered classmate friend. Then, they imagined picking a book for their friend to read from their friend's book bag. As the manipulation of choice for other, participants either chose between two virtuously academic business textbooks or two indulgently leisurely novels for their friend to read. Then, all participants were told that the researchers wanted them to read a *New York Times* article as part of the study. As the dependent measure, they chose between an article from the Business Section and an article from the Entertainment

Section. Finally, participants completed the same measure of relational closeness as study 2. As a measure of competitiveness, participants indicated the extent to which they view their friend as a competitor in school (1=not at all, 7=very much so).

As predicted, a logistic regression on article choice for the self (business vs. entertainment) by IOS, competitiveness, and choice for other reveals a significant 3-way interaction ( $p < .05$ ). Follow-up simple-effects analyses revealed the following pattern of results: with a highly competitive other (+1 SD), the simple 2-way interaction of IOS and choice for other is non-significant ( $p > .05$ ). However, with a low competitive other (-1 SD), the simple 2-way interaction of IOS and choice for other is significant ( $p < .05$ ). As in prior studies, participants balanced their choices with close others, but competitiveness mitigated the effect.

Across three studies, we demonstrate that, when consumers choose for close “others,” such choices can affect subsequent choices for the self.

#### MINDFUL MATCHING OF FOOD CHOICES: VERTICALLY VERSUS HORIZONTALLY DIFFERENTIATED ATTRIBUTES

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Much consumer behavior occurs in a social context involving co-consuming alongside others (Etkin 2016; Gorlin and Dhar 2012; Liu et al. 2013; Lowe and Haws 2014; McFerran et al. 2010). For instance, friends may have ice cream together, and co-workers may each have a post-dinner glass of wine. Prior consumption research has produced divergent findings on whether consumers match their co-companions' consumption choices. On the one hand, mimicry research suggests that consumers match (McFerran et al. 2010; Tanner et al. 2008). For example, McFerran et al. (2010) found that consumers matched companions' portion size selections. On the other hand, other research suggests that consumers sometimes do not match (Ariely and Levav 2000). For instance, Ariely and Levav (2000) found that consumers did not match their co-consumers' beer selections.

We propose a new conceptual basis for predicting when matching is more (and less) likely to occur, based on *product attributes*. This framework helps reconcile these apparently divergent findings and also generates new predictions. Specifically, we distinguish between attributes that are perceived to be more vertically versus horizontally-differentiated. These terms are commonly used in economics and quantitative marketing to indicate ranked/objective (vertical) versus unranked/subjective (horizontal) attributes (Lauga and Ofek 2011; Randall, Ulrich, and Reibstein 1998; Sutton 1986). We propose that consumers match co-consumers on vertically-differentiated attributes, but not horizontally-differentiated attributes.

Our rationale is that mismatching on vertically-differentiated (vs. horizontally) attributes creates social discomfort. People are highly attuned to relative rank/performance differences (Duesenberry 1949; Festinger 1954; Frank 1985). Furthermore, people both dislike being lower rank (Kuziemko et al. 2014) and dislike being an upward social comparison target (Exline and Lobel 1999). We thus propose that in the consumption context, consumers match co-consumers on vertically-differentiated attributes because occupying different positions generates discomfort. In contrast, occupying different positions on horizontally-differentiated attributes does not convey such differences and thus consumers need not match (and may even mismatch for various reasons).

Our conceptualization can thus help explain apparently divergent prior findings, which has frequently shown matching of others' portion sizes (vertically-differentiated attribute) and has also shown non-matching but typically examined flavor selections (horizontally-differentiated attribute). Seven studies tested our novel conceptualization, operationalizing the vertically-differentiated attribute and the horizontally-differentiated attribute in multiple ways to provide convergent evidence. These vertical and horizontal attributes were identified through pre-testing, in which participants were provided with definitions of horizontal and vertical differentiation and rated attributes on a scale from 1=*completely horizontally differentiated* to 7=*completely vertically differentiated*. Pre-testing showed that portion size, price, and brand level (i.e., national vs. store-brand) were more vertically-differentiated (>4), whereas flavor and shape were more horizontally-differentiated (<4).

Study 1 had a 2(friend's portion size: small, large)×2(friend's flavor: chocolate, vanilla)+1(control: friend's order not specified) between-subjects design. Undergraduate participants (N = 205) first provided a same-gender friend's name and imagined arriving at an ice creamery together. Participants viewed a four-option menu: 1 scoop chocolate, 2 scoops chocolate, 1 scoop vanilla, and 2 scoops vanilla. Depending on random assignment, participants were told that their friend ordered one of these four options. Participants then chose an option for themselves. Participants were significantly more likely to choose a large portion size themselves if their friend chose a large versus small portion size (68.4% vs. 51.2%;  $p = .028$ ), reflecting vertical-attribute-matching. Participants were similarly likely to choose the chocolate flavor if their friend chose chocolate versus vanilla (56.6% vs. 53.6%;  $p = .703$ ), reflecting no horizontal-attribute-matching. There were no interactions on choices in this study or the others ( $p$ 's > .20), and thus this is not mentioned further. Study 2 replicated these effects with actual food choices.

Study 3 had a 2(friend's price: low, high)×2(friend's flavor: fruity, earthy)+1(control: friend's order not specified) between-subjects design. MTurk participants (N = 315) provided a same-gender friend's name and imagined arriving together at a wine bar. Participants viewed a menu with four glass-of-wine options: Grenache–fruit-flavored (\$4), Malbec–fruit-flavored (\$8), Syrah–earthy-flavored (\$4), and Chianti–earthy-flavored (\$8). Participants were told that their friend ordered one of these options; participants then chose an option for themselves. Study 3 results generally replicated Study 1-2's. Participants were significantly more likely to choose a higher-priced glass if



their friend chose a higher-priced versus lower-priced glass (40.9% vs. 24.8%;  $p=.007$ ). However, participants were marginally *less* likely to choose the fruity flavor if their friend chose a fruity versus earthy flavor (60.0% vs. 71.7%;  $p=.052$ ), reflecting some mis-matching.

Study 4 had a 2(friend's brand: national, store)×2(friend's shape: penne, spaghetti)+1(control: friend's order not specified) between-subjects design. MTurk participants (N = 422) provided a same-gender friend's name and imagined grocery shopping together. Participants viewed a display with four pasta options: Barilla penne, Barilla spaghetti, Great Value penne, and Great Value spaghetti. Participants were told that their friend selected one option; participants then chose an option for themselves. Study 4's results replicated those of Study 1-2's: participants were significantly more likely to choose a national brand if their friend chose a national versus store brand (51.2% vs. 39.3%;  $p=.029$ ). Participants were similarly likely to choose penne whether their friend chose penne or spaghetti (48.2% vs. 48.2%;  $p=.994$ ).

In Studies 1-4, participants knew their friend's standing on *both* the vertically-differentiated and horizontally-differentiated attributes. Optimal distinctiveness theory (Brewer 1991) thus raises the alternative explanation that people match on just one attribute because of optimal distinctiveness. Our account, however, is that matching is dependent on the attributes themselves. Accordingly, in Study 5 (N = 378), participants only had information about their friend's standing on one attribute (size or flavor). Study 5 found matching on the vertical but not the horizontal attribute, further supporting our account.

Finally, Studies 6-7 used different approaches to show that matching on vertically-differentiated attributes occurs because consumers anticipate, and want to decrease, social discomfort associated with vertical mismatches.

Overall, consumers match co-consumers on vertically-differentiated (portion size, price, brand standing) but not horizontally-differentiated attributes (flavor, shape). These findings extend the social influences literature by offering a broad conceptual basis for predicting which attributes are matched, integrating divergent consumer research findings and also with implications for economics/quantitative models.

## THE SOCIAL PATH TO SATIATION: SATISFYING DESIRE VICARIOUSLY VIA OTHER'S CONSUMPTION

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Consumers frequently receive information on other people's food consumption, such as in food commercials and when dining together. Recently, *Mukbang* – a combination of the Korean word for eating and broadcasting – has caught on. People worldwide share “eating show” videos of themselves eating large quantities of food, attracting billions of

viewers globally (Evans 2015; Pequenino 2016). How does another's food consumption influence one's own desire for that food? Whereas it may whet one's appetite and signal the positive quality of the food (i.e., increase liking), we explore the possibility that consumers may desire the specific food others just had less momentarily (i.e., decrease wanting; Garbinsky, Morewedge, and Shiv 2014).

Building on the notion that, as social animals, people experience blurred interpersonal boundaries (Aron et al. 1991; Kelley and Thibaut 1978; Small and Simonsohn 2007), and can perceive others' traits (Goldstein and Cialdini 2007), decision conflict (Schrift and Amar 2015) and ownership (Tu and Fishbach 2015), as partially their own, we propose that other's consumption can make people feel as if they have consumed it too, which in turn leads to lower desire, postponement of consumption and switching consumption. It follows that the degree of perceived self-other overlap matters – *people will experience vicarious satiation only when self-other overlap is sufficiently large*. Crucially, we study attribute-based (rather than hunger-based) satiation, which is sensory-specific (Inman 2001; Larson, Redden, and Elder 2014) and predict *people will desire the food that is similar (rather than dissimilar) in taste to what others consumed less*. Five studies tested the theoretical framework.

Study 1 documented the vicarious satiation effect by having participants watch an adapted “eating show” video, in which the protagonist ate a whole pizza, slice by slice. Participants' desire for pizza changed over time – before watching the video, 1 minute, 3 minutes, and 4 minutes into the video ( $F(3, 120) = 8.71, p < .001$ ;  $M_{t0} = 3.93, SD_{t0} = 1.85$ ;  $M_{t1} = 4.12, SD_{t1} = 1.85$ ;  $M_{t2} = 3.49, SD_{t2} = 1.82$ ;  $M_{t3} = 3.15, SD_{t3} = 1.90$ ) and followed a linear pattern ( $F(1, 40) = 10.78, p = .002$ ). Moreover, they desired pizza less after than before watching the video ( $F(1, 40) = 9.34, p = .004$ ).

Study 2 used postponement of consumption as a behavioral marker of vicarious satiation. We recruited acquaintances-dyads and presented them with two flavors of candies. We assigned one person (1<sup>st</sup> mover) to eat one flavor [consumption], or to evaluate its wrapper design without eating it [non-consumption]. We then invited the other person (2<sup>nd</sup> mover) to eat both flavors and measured his/her consumption order. In support of our hypothesis, more participants postponed consumption of the flavor the 1<sup>st</sup> mover received when the 1<sup>st</sup> mover consumed it (73%) than not (46%;  $\chi^2(1) = 4.38, p = .036$ ).

Study 3 used switching consumption as a behavioral marker of vicarious satiation, and explored the similarities between vicarious satiation (for observers) and physiological satiation (for actors). Specifically, observers watched a video of a person either eating [consumption] or counting [non-consumption] M&M's; actors watched the same video and mimicked corresponding actions. We then asked participants to choose between three equally priced gifts: a pack of M&Ms, a pack of Skittles (a different food) or Post-it notes (non-food). We found a main effect that participants chose M&M's less in the consumption conditions (35%) than in the non-consumption conditions (57%;  $\chi^2(1) = 9.27, p = .002$ ), regardless of whether they were observers (vicarious satiation; 39% vs. 60%;  $\chi^2(1) = 4.15, p = .042$ ) or actors (physiological satiation: 32% vs. 55%;  $\chi^2(1) = 5.23, p = .022$ ).

Study 4 sheds light on the proposed mechanism—vicarious satiation happens because people treat other’s consumption as their own, meaning that the degree of self-other overlap matters. We had participants watch the same eating [consumption] or counting [non-consumption] video as in study 3, and manipulated perceived self-other overlap by informing participants that the protagonist either shares [high self-other overlap] or opposes [low self-other overlap] their political view. We measured participants’ desire for M&M’s, for something sweet, and for something chocolaty after they finished watching the video. A Behavior (consumption vs. non-consumption) x Self-other Overlap (high vs. low) ANOVA on desire for M&M’s yielded the predicted interaction ( $F(1, 292) = 5.25, p = .023$ ). Specifically, watching another person eat ( $M = 2.94, SD = 2.03$ ) rather than count ( $M = 3.72, SD = 1.97$ ) reduced desire for M&M’s ( $F(1, 150) = 5.84, p = .017$ ) but only in the high self-other overlap conditions. When self-other overlap was low, this effect disappeared ( $M_{\text{eat}} = 3.25, SD = 2.29$  vs.  $M_{\text{count}} = 2.93, SD = 2.01; F < 1$ ). Desire for something sweet and something chocolaty followed the same pattern.

Study 5 aimed to 1) explore whether vicarious satiation can happen when imagination is minimal by providing only text information and 2) document its sensory-specific nature. We had participants read either a daily food journal [consumption], in which a gender-matched person recorded that he/she had lots of Reese’s peanut butter cups, or a daily task log [non-consumption], in which the person recorded the tasks he/she performed. We then measured desire for Reese’s, for snacks that taste similarly (Snickers bar and M&M’s), and for snacks that taste differently (Doritos, Lay’s chips, and Goldfish crackers). We found that information about another person’s consumption of Reese’s (vs. daily tasks) reduced desire for Reese’s ( $M_{\text{food}} = 2.87, SD = 2.06$  vs.  $M_{\text{task}} = 3.48, SD = 2.25, F(1,220) = 4.46, p = .036$ ) and for similar snacks ( $M_{\text{food}} = 2.51, SD = 1.72$  vs.  $M_{\text{task}} = 3.11, SD = 2.04, F(1,220) = 5.57, p = .019$ ;  $M_{\text{food}} = 2.43, SD = 1.70$  vs.  $M_{\text{task}} = 3.11, SD = 1.92, F(1,220) = 7.73, p = .006$ ), but not for dissimilar snacks.

Eating is largely a social phenomenon; so much so that people are reluctant to dine alone (Ratner and Hamilton 2015). We identify a social path to satiation and discuss its implications in marketing and social coordination.

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## 4.2 This Session is Unlike Any Other! The Antecedents and Consequences of Being Unique Symposium

People often express their need to be unique through the products they choose. As consumers' quest for unique products and experiences continues to grow (Gibbons 2015; Long 2016), research examining need for uniqueness as a psychological driver of decisions is of both theoretical and substantive importance. This session presents novel insights into what leads to choices that diverge from social others, including groups consumers typically try to assimilate with (e.g. close friends and high status groups, papers 1 & 2). The session also explores how consumers with a need to be unique interpret common marketing tactics (e.g. brand names and defaults, papers 3 & 4) as signals of product popularity, subsequently choosing options that appear less popular. Jointly, these papers examine novel situational factors that influence consumers' needs for uniqueness and the choices that stem from trying to fulfill these needs.

*Lee, Diehl, and Cavanaugh* examine situations where consumers make choices that are dissimilar from those of close others. The authors show that when individuals encounter examples of customized products created by close others, they infer these close others intended to express uniqueness. Such inferences trigger individuals' own need to express uniqueness. Subsequently, in order to express their own uniqueness, individuals make customization choices that are actually more dissimilar from close others than from distant others.

*Bellezza and Berger* explore when and why high-status individuals adopt items clearly associated with low-status. The authors demonstrate that high-status individuals adopt downscale tastes to distance themselves from middle-status individuals. Because emulating low-status groups is too risky and costly for those of middle-status, such signals grant distinction to the elites. However, this strategy necessitates access to multiple signaling dimensions, allowing high-status individuals to mix-and-match high and low status signals to also differentiate themselves from those of low-status.

*Valsesia and Schwarz* examine how the ease of processing a brand name can influence perceptions of a product's uniqueness. The authors show that fluent brand names increase perceptions that a choice is highly popular. Thus, when consumers have a need to be unique, such as when choosing products that are highly identity-relevant, consumers prefer products with more disfluent brand names.

*Morgan and Townsend* investigate how consumers with independent versus interdependent self-construal evaluate options that were or were not presented as defaults. Consumers infer that defaults reflect majority-supported options. Whereas interdependent consumers prefer majority-supported options, independent consumers prefer unique options that oppose social norms. Hence, the authors find that even when holding the actual choice constant, interdependents favor their choice when the product was presented as the default, while independents heighten their choice evaluations when rejecting the default.

Together, these papers examine need for uniqueness as a crucial driver of a wide range of choice decisions. All papers are at an advanced stage of completion with multiple studies completed. This session will provide relevant and novel insights to a wide range of researchers, notably those interested in the influence of social groups and

optimal distinctiveness on choice as well as those interested in the domains of customization, status, fluency heuristics, and choice architecture.

**LET'S BE UNIQUE TOGETHER: CUSTOMIZED PRODUCT EXAMPLES  
FROM CLOSE OTHERS LEAD  
CONSUMERS TO MAKE DISSIMILAR CHOICES**

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Kristin Diehl, University of Southern California, USA  
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**SHORT ABSTRACT**

Consumers often choose products that are similar to what close others have chosen. However, across three reported studies, we find the opposite effect when others *customized*, rather than simply chose, their products. Because customization and expressions of uniqueness are closely intertwined, consumers who encounter examples of products *customized* by close others infer that these close others intended to express uniqueness. Influenced by close others, consumers subsequently suppose that they, too, should express uniqueness. Hence, consumers ultimately configure their own products to be dissimilar, rather than similar, to how their close others customized.

**EXTENDED ABSTRACT**

To aid and inspire consumers during the customization process, marketers often provide examples of how other consumers customized their products. Yet, providing such examples can seem contradictory to the fundamental rationale of customization: to deliver a product perfectly tailored to a consumer's *individual* needs. We examine how such examples (i.e., custom-made examples made by social others) influence individuals' own choices when designing products. We show that the *type of example* and the individual's *relationship with the example creator*, namely whether the creator is socially close or distant affect individuals' choices, sometimes at the detriment of matching their own preferences.

We propose that because customization and expressions of uniqueness are closely intertwined (Lynn and Snyder 2002), examples of products customized by social others may signal that these social others intended to express uniqueness. Inferences that a social other expressed uniqueness subsequently influence individuals to also express uniqueness. This is particularly true when example creators are socially close (vs. distant), as people are more influenced by close others. Subsequently, to also express *their own* uniqueness, individuals create products that are more *dissimilar* from custom-made examples linked to close (vs. distant) others. Notably, these findings constitute a boundary condition to the well-established finding that people exhibit choice similarity (homophily) with close others. We further suggest that this finding is unique to examples of *custom-made* products, as providing examples of *ready-made* (i.e., off-the-shelf, not-customized) products purchased by social others lead to homophily.

*Study 1* (N=290) tested whether example type (ready- versus custom-made) and example creator (close versus distant other) influenced individuals' propensity to make



customization decisions similar to the example. Participants imagined running into either a *close friend* or *distant acquaintance* wearing a backpack. They then viewed an image of this backpack (i.e., the product example), which was decorated with eight different patches. The backpack design was held constant and, as in all studies, was pretested to be appealing. Participants in the ready-made condition were told the backpack was designed by the retailer whereas participants in the custom-made condition were told the backpack was designed by their *close friend* [distant acquaintance]. All participants then customized a backpack by adding eight of 24 patch options onto their backpack. The number of selected patches that matched those on the example backpack served as our measure of choice similarity. A significant interaction of example type and example creator ( $F(1, 286)=9.52, p<.003$ ) emerged. For the ready-made backpack example, encountering a close other's ( $M=3.87$ ) backpack increased choice similarity with that example compared to seeing a distant other's ( $M=3.28; F(1, 286)=5.57, p<.02$ ). These findings are consistent with previous literature. However, for custom-made backpack examples, encountering examples by close others ( $M=3.03$ ) *decreased* choice similarity relative to distant others ( $M=3.49; F(1, 286)=3.98, p<.05$ ).

A series of additional studies tested the robustness of these findings. Results replicated 1) regardless of whether the original example creator became aware of how one customized, 2) when the example was a close match for one's preferences, as well as 3) for consequential choices where participants customized an actual product they kept.

**Study 2** ( $N=300$ ) tests need for uniqueness as our proposed mechanism by showing that those with chronically lower (vs. higher) needs to be unique do not exhibit the same extent of choice dissimilarity. While need for uniqueness is central to an independent self-construal, values of fitting in are central to an interdependent self-construal (Singelis 1994). Hence, our results should hold for independents but should be attenuated for interdependents. To test this prediction, participants first read an established manipulation to induce either independent or interdependent self-construal. Next, participants viewed a custom-made backpack example customized either by a close or distant other before customizing their own backpack. Replicating our previous results, independents chose less similarly to close others' custom backpacks ( $M=2.94$ ) than to distant others ( $M=3.55; F(1, 296)=6.78, p<.01$ ). However, this effect was attenuated for interdependents, with no significant difference between the close and distant conditions ( $F<1$ ). We also find that need for uniqueness mediates the effect of social distance of the example creator on choice similarity for independents (C.I.<sub>.95%</sub> =  $-.292, -.039$ ) but not interdependents. Together, this suggests that individuals' need for uniqueness does indeed play a role in how examples of social others' customized products influence one's own choices.

We further tested our theorizing that individuals infer that a close other who customized a product did so to express uniqueness, which causes individuals to also express uniqueness. In **Study 3** ( $N=404$ ), we manipulate close others' stated motivations for customizing a six-piece coaster set. Importantly, across conditions, the close other's coaster set example matched each participant's own preferences which had been solicited in an earlier, ostensibly unrelated study. In the "match preferences" condition, close others indicated they made choices that are true to their own preferences. In the "express uniqueness" condition, close others indicated they made choices that are different from others. In the unstated condition, close others simply stated they customized a product

(similar to our previous studies). Participants then customized their own coaster set.

When close others were motivated to match their preferences, participants chose significantly more similarly to the example ( $M=4.37$ ), which itself was a match to their own preferences, compared to when close others were motivated to express uniqueness ( $M=3.41$ ;  $F(2, 401)=18.07$ ,  $p<.0001$ ) and to the unstated condition ( $M=3.65$ ;  $F(2, 401)=10.25$ ,  $p<.002$ ). There was no significant difference between the express uniqueness and control conditions ( $F(2, 401)=1.07$ ,  $p=.30$ ). In other words, when close others matched their own preferences, so did participants (i.e., sticking to their own previously chosen patterns). Instead, when close others explicitly expressed uniqueness or merely indicated that they had customized, as was the case in the unstated condition, participants chose more unique options (i.e., diverging from their own previously chosen patterns).

Jointly these studies demonstrate that customized product examples affect choices differently than ready-made examples. Having customized a product signals to other consumers the intention to express uniqueness, an inclination consumers follow, particularly when expressed by close others.

## **TRICKLE-ROUND SIGNALS: WHEN LOW STATUS BECOMES HIGH**

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### **SHORT ABSTRACT**

When and why do high-status individuals adopt things associated with low-status groups? We propose a trickle-round theory of fashion and demonstrate that high-status poach from low-status groups to distinguish themselves from the middle-status. Further, consistent with our signaling approach, the presence of multiple signaling dimensions facilitates this effect, allowing highs to mix-and-match items in a way that differentiates them from lows.

### **EXTENDED ABSTRACT**

Conspicuous consumption and trickle-down theories suggest that fashions start with high-status individuals and move their way downwards (Simmel 1957; Taylor 1974; Veblen 1899/2007). But a number of examples seem to contradict these approaches. Jeans were originally worn by miners and factory workers before celebrities adopted them and famous chefs use commercial junk food in their sophisticated dishes. When and why do high-status individuals sometimes adopt tastes associated with low-status groups?

This paper proposes a trickle-round theory of fashion that explains why high-status individuals sometimes adopt items clearly associated with low-status or marginalized groups. Field and lab studies in a variety of identity-relevant contexts (e.g., food, clothing, and a stylized signaling game) demonstrate that high-status individuals adopt downscale tastes, in part, to distance themselves from the middle-status. Because emulating low-status groups is too risky and costly for middles, it grants distinction to the elites.

Importantly, this strategy hinges on the presence of multiple signaling dimensions. Rather than trying to be seen as completely low-status, high-status

individuals mix-and-match high and low signals (e.g., Lobster Mac ‘n Cheese or wearing a trucker hat with Prada loafers) as a way of distinguishing themselves from middles.

Study 1 provides a test of our trickle-round theory in the field and examines the dishes offered by different restaurants in a dataset of more than 137,000 menu items scraped from *menupages.com*. The analysis consists of three main steps. First, we systematically identify 51 traditionally lowbrow dishes (e.g., Hot Dogs and Mac ‘n Cheese). Second, we examine the distribution of these lowbrow items across different restaurant tiers. Consistent with our theorizing, we find that high-end restaurants are likely to offer these lowbrow dishes, despite the downscale connotation of these items ( $\beta = .92$ ,  $t(855) = 2.86$ ,  $p = .004$ ). Third, textual analysis shows that, as predicted, when offering lowbrow items, high-end restaurants mix-and-match them with highbrow ingredients (e.g., Kobe Beef Sliders, White Truffle Pizza) ( $M_{High-End} = 8.4\%$  vs.  $M_{Other} = 4.0\%$ ,  $\chi^2 = 95.69$ ,  $p < .001$ ).

Study 2 ( $N=410$ ) uses a more controlled design in the lab to test whether high-status individuals (with high cultural capital in fashion) are more likely to prefer downscale fashion products. Specifically, we compare the product choices of fashion-savvy respondents (i.e., high-status) to the choices of people with lower fashion knowledge. We selected four pairs of products, three of which (i.e., two bags, hats, shoes) were pretested so that one option was seen as significantly more downscale than the other, and one pair (i.e., two glasses) perceived equivalently in terms of status. In addition to an effect of status ( $Wald \chi^2 = 14.47$ ,  $p < .001$ ), results revealed the predicted interaction between product and respondents’ status ( $Wald \chi^2 = 7.74$ ,  $p = .005$ ). As expected, for choice pairs where one option was more downscale, both status ( $\beta = .12$ ,  $t(1,240) = 4.37$ ,  $p < .000$ ) and its squared term ( $\beta = .06$ ,  $t(1,240) = 2.0$ ,  $p = .046$ ) were significant predictors. Compared to middle-status people, high-status people were more likely to choose downscale products ( $M_{High} = 47\%$  vs.  $M_{Middle} = 37\%$ ,  $Wald \chi^2 = 7.56$ ,  $p = .006$ ). In categories where the two options were neutral, however, there was no effect of status on choice.

Studies 3 and 4 test the proposed mechanisms using a novel signaling paradigm. In Study 3, lab participants ( $N=301$ ) imagine a society with three types of people (highs, middles, and lows) where signaling occurs exclusively along two dimensions: shape and color. Each status grouping is associated with a certain shape and color combination (high-status people are yellow-triangle, middle-status are red-square, low-status are blue-circle). To reduce demand effects, there are also neutral shapes and colors (green-rectangle), not associated with any group. All participants are assigned to high type and are told that they will play a number of rounds of a signaling game, in which they can choose one of four colors and one of four shapes as a signal to send to an observer. If the observer correctly identifies their high status, they will win extra compensation (\$1). To test our proposed mechanism, we manipulate between rounds whether high-status signals are co-opted by the middle-status group. As predicted, while almost no one selected low-status associated options in the first round ( $M_{first-round} = 1\%$ ), in the second round, when faced with imitation from middles, a significant percentage of people switched to low-status associated options ( $M_{second-round} = 18\%$ ,  $Wald \chi^2 = 26.5$ ,  $p < .001$ ). To follow-up on Study 3, we also conducted a replication and a number of variants (Study 3b-d) to rule out alternative explanations.

Finally, Study 4 ( $N=169$ ) tests in the lab the role of multiple signaling dimensions in these effects. We use the paradigm from Study 3 and manipulate the number of status signaling dimensions available. Half the participants imagine the same society as Study 3, where two dimensions (i.e., shape and color) are available, while the other half imagine a simpler society, where signaling occurs exclusively along one dimension (i.e., shape). As predicted, the adoption of low-status associated guises in the second round ( $M_{2-dim} = 29\%$ ) is significantly reduced when the ability to express status is confined to one signaling dimension ( $M_{1-dim} = 11\%$ ;  $z = 3.12, p = .008$ ). Finally, we measure our hypothesized underlying process of distinction and find that it mediates the effect of condition on choice of low-status associated signals (indirect effect = .57; 95% C.I. = .07 to 1.15).

In conclusion, this research demonstrates that high-status individuals may purposely choose to adopt tastes and habits associated with low-status groups as an alternative signaling strategy to distinguish themselves. This work deepens understanding of signaling dynamics, support a trickle-round theory of fashion, and shed light on alternative status symbols.

## **BRAND NAME FLUENCY AND PRODUCT CHOICE – A CONFORMITY ACCOUNT**

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Norbert Schwarz, University of Southern California, USA

### **SHORT ABSTRACT**

We test whether people use the ease or difficulty of processing a brand name to infer the popularity of a product, which interacts with their conformity (versus differentiation) motives in driving product choice. Empirically, products with fluent brand names are perceived as more popular and are preferred by consumers who want to “fit in” but not by consumers who want to “stand out”. This effect holds independent of whether the motive is manipulated via instructions or assessed as an individual difference variable. Further, consumers are more likely to choose products with disfluent brand names in domains they consider highly identity-relevant.

### **EXTENDED ABSTRACT**

Previous research has put forward that consumers can use the ease or difficulty of processing and pronouncing a product name to draw inferences about the product’s attributes and desirability (for reviews, see Alter and Oppenheimer 2009; Reber et al. 2004). This work contributes to this stream of research by showing that consumers use the ease of processing a brand name to assess the popularity of a product. This, in turn, interacts with their conformity (versus differentiation) motives in driving product choice.

Choosing a product that is very popular might be very desirable in situations when consumers want to conform to the behavior of others. Conformity is highly prevalent among consumers (Cialdini & Goldstein, 2004) and often desirable, since following the lead of others might result in better and more accurate decisions (Cialdini, 2001; Crutchfield, 1955; Mackie, 1987). We put forward that a fluent brand name increases

perceptions that a choice is highly popular and that this feature will positively influence product choice in situations when consumers want to “fit-in”.

At the same time, nonconformity is an effective means through which consumers can differentiate from others and hence satisfy their need for uniqueness, a need that can be either dispositional (Snyder and Fromkin 1980; Tian et al. 2001) or situational (Griskevicious et al. 2006). For those consumer that have a particularly high chronic need for uniqueness, or in contexts where consumers benefit from differentiating from others (for instance, because they want to stand out and be noticed), we propose that a fluent brand name will lead to the conclusion that a choice is not differentiated enough and hence not particularly desirable.

Experiment 1 is a first explicit test of our hypotheses. Respondents were asked to imagine that they were new in town and had to go shopping for two new items (a winter jacket and a bicycle). For both product categories, they were asked to choose between two fictitious brands, whose names were pre-tested to significantly differ in their ease of pronounceability (a well-established measure of processing fluency, see Song and Schwarz 2009). We expected choice to be influenced by respondents’ conformity (versus differentiation) motives. Motives were manipulated via instructions: respondents were told that their goal was either “fitting in their new community” or “standing out in their new community”. Then, participants completed our key dependent variable, the brand name choice. After this choice, respondents rated the perceived popularity of the four brand names. Results show that products with fluent brand names are perceived to be significantly more popular compared to products with disfluent brand names ( $M_{\text{fluent}}=6.29$  vs.  $M_{\text{disfluent}}=3.99$ ,  $F(1,101)=123.88$ ,  $p<.01$ ). Further, compared to respondents who were given a differentiation motive, participants with a conformity motive were significantly more likely to choose the bicycle (94.2% vs 22.0%,  $\chi^2=54.91$ ,  $p<.01$ ) and the winter jacket (94.2% vs 36.0%,  $\chi^2=38.35$ ,  $p<.01$ ) with a fluent brand name. These results support the hypothesis that consumers use the ease or difficulty of processing a brand name to infer the popularity of a product. The extent to which this drives product choice depends on their conformity (versus differentiation) motives.

In Study 2 consumer motives were not manipulated via instructions but rather assessed as an individual difference variable, namely chronically high (low) consumers’ need for uniqueness. Procedures for this study replicated those of Study 1, with the exception that consumers were not given any motive before making their choices. Rather, we measured their need for uniqueness (Tian et al. 2001). We find that respondents’ need for uniqueness predicts the number of products with disfluent brand names they chose ( $\beta_{\text{Uniqueness}}=0.49$ ,  $t(1,292)=9.65$ ,  $p<.01$ ). This supports our hypothesis that consumers with a high need for uniqueness infer that a product with a highly fluent brand name is not differentiated enough and hence not particularly desirable.

Previous work has shown that individuals are more likely to diverge from the majority in domains that are used to signal and infer one’s identity (Berger and Heath 2007). We build on this literature and predict that the more identity-relevant a product category, the stronger the consumers’ preference towards products with disfluent (as opposed to fluent) brand names. Study 3 supports this prediction. Respondents were exposed to 9 product categories (e.g., jacket, sunglasses, car, CD, toolkit, dish soap, and toothpaste) and asked to assess how relevant to their identity each product category was. We then asked them, for each product category, to make a choice between two brand

names. Once again, brand names were pretested in order to significantly differ in their ease of pronounceability. We find that, in all product categories, greater identity relevance increases the likelihood of choosing the product with a disfluent brand name over the product with a fluent brand name ( $\beta_{\text{Relevance}}=0.09$ ,  $\chi^2(1,199)=9.20$ ,  $p<.01$ ).

In Study 4, we take advantage of the fact that the ecommerce website Amazon.com makes available the ranked list of their top selling products across a variety of product categories. We compared the brand name fluency of the 20 highest selling products across 18 product categories that vary in their average relevance to consumers' identity (based on a pre-test). We predicted successful products in highly identity relevant categories would have more disfluent brand names than those in less identity relevant categories. One hundred and forty mTurkers coded the fluency of the brand names in our dataset. As predicted, we found a significant correlation between Identity Relevance and Brand Name Disfluency ( $r=.21$ ,  $p<.01$ ). Successful products have more disfluent brand names the more identity relevant the product category is to consumers. Pairwise comparisons indicate that products with high identity relevance have significantly more disfluent names ( $M_{\text{High}}=3.61$ ,  $SD=1.80$ ) than products with medium ( $M_{\text{Medium}}=2.87$ ,  $SD=1.53$ ,  $F(1,245)=9.17$ ,  $p<.01$ ) or low identity relevance ( $M_{\text{Low}}=2.64$ ,  $SD=1.49$ ,  $F(1,245)=13.86$ ,  $p<.01$ ).

Taken together, our results support the hypothesis that consumers use the ease or difficulty of processing a brand name to assess the popularity of a product and that this, in turn, interacts with their conformity (versus differentiation) motives in driving product choice. These findings have important theoretical and managerial implications.

## **AFTER THE NUDGE: HOW AND WHY DEFAULTS MAKE US FEEL DISTINCT**

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### **SHORT ABSTRACT**

This research examines how the presence of a default affects how consumers evaluate their selection post choice. The presence of a default encourages thoughts about others by acting as a cue for which option is most popular. Thus, holding choice constant, whether identifying an option as a default increases or decreases subsequent valuation of it depends on consumer self-construal. Whereas interdependent consumers value others' opinions and prefer the majority-supported option, independent consumers prefer the distinctive option that opposes social norms. Across three studies, therefore, we find that interdependents (vs. independents) favor their selection when choosing (vs. rejecting) the default option.

### **EXTENDED ABSTRACT**

Literature on "choice architecture", the use of subtle variations in the decision environment to influence (i.e. nudge) consumer choices (Thaler and Sunstein 2008), has been increasingly influential across research domains (Conqvist and Thaler 2004; Levav et al. 2010; Lynch and Ariely 2000). Yet, this research area has largely stopped investigation at choice, not considering whether there may be downstream consequences of these nudges in the choice environment.

One of the most easily applied and strongest “nudges” is the use of defaults (Johnson et al. 2012). By identifying a default option, choice of that option can increase by as much as 56 percent (Gimbel 2003). This is particularly the case for opt-out defaults where consumers receive a choice option unless they explicitly choose otherwise (Brown and Krishna 2004; Johnson and Goldstein 2003). However, what happens next? When holding choice constant, can the mere presence of a default change how consumers view their choice?

This research aims to answer this question. We build on consumer self-construal research (Markus and Kitayama 1991) and the underlying process that drives default effects (Brown and Krishna 2004; Dinner et al. 2012) to suggest that, holding actual choice constant, choosing versus rejecting the default influences how consumers evaluate and reflect on their chosen option.

Defaults act as a contextual cue providing consumers with additional information about the options available within a choice set (Brown and Krishna 2004). Consistent with previous work (Tannenbaum and Ditto 2011), we posit, and confirm in a pilot study, that the presence of a default acts as a metacognitive cue for social inferences tied to the choice options. The presence of a default (1) suggests which alternative is the popular/normative option preferred by the majority and/or recommended by the firm, and thus, also (2) encourages thoughts about the views of others. As such, selecting versus rejecting the default likens to going with or against the norm. We hypothesize and find that whether selecting the default increases or decreases ones’ appraisal of the chosen option depends on the value one places on others’ opinions.

Specifically, we identify consumer self-construal as an important moderator of the influence of default identification on consumer evaluation of their chosen option. Whereas interdependent consumers are motivated to go along with others, independents are driven to avoid social influences (Singelis 1994; Markus and Kitayama 1991; White and Simpson 2013). For interdependent consumers, for whom decisions made by others are self-relevant, choosing the popular and less distinctive option increases evaluation of it, while choosing a not popular, more distinctive option decreases evaluation of it. Alternatively, for independent consumers, for whom decisions made by others are not valued, choosing a popular option decreases evaluation of it, while selecting the distinctive option increases evaluation of it. Thus, interdependents (vs. independents) favor their selection when choosing (vs. rejecting) the default option. We examine this in three studies.

In Study 1 participants rank-ordered their preferences for eight computer brands and then were primed with an interdependent (vs. independent) self-construal (Brewer and Gardner 1996). Then participants selected between three computer monitor brands, specifically the brands they had ranked third, seventh, and eighth. This way we controlled for choice, expecting participants would select their third-ranked brand. We randomly assigned participants to one of three conditions: no default present, default choice (where the third-ranked was the default), and non-default choice (where the third-ranked was not the default). After choice, participants responded to three attitude measures about their selected brand: fan of the brand, like the brand, and view the brand as very good ( $\alpha(3) = .82$ ). As expected, there was only a significant interaction between self-construal and choice task architecture among participants who chose the third-ranked brand ( $p = .002$ ;  $N = 176$ ). Interdependents held a higher attitude towards their choice when selecting

( $M=6.56$ ) versus rejecting ( $M=5.81$ ) the default ( $p = .028$ ). Independents held a higher attitude when rejecting ( $M=6.54$ ) versus selecting ( $M=5.82$ ) the default ( $p=.030$ ).

In Study 2, we replicated the focal effect, this time measuring self-construal and examining the underlying process. Participants imagined purchasing a car from an online website and chose among three brands. To control for choice, we pretested that most participants would select the same option (Toyota). We manipulated whether Toyota was the default (vs. not) or that there was no default present. After choice, respondents answered the same brand attitude measures as in Study 1 ( $\alpha(3) = .80$ ) and perceptions of choice distinctiveness (the underlying process). Finally, participants responded to a 16-item self-construal scale.

A regression of consumers' attitude towards the chosen brand (Toyota;  $N=190$ ) on condition (1 = default choice, 0 = non-default choice), chronic self-construal (mean-centered), and their interaction revealed only a significant interaction effect ( $b = .56$ ,  $t(125) = .013$ ). Using the Johnson-Neyman (1936) technique, there was a significant negative effect of choice of default when self-construal was less than  $-.88$  ( $b=.64$ ,  $p=.05$ ; i.e., more interdependent), and a significant positive effect when greater than  $2.23$  ( $b=-1.11$ ,  $p=.05$ ; i.e., more independent). Isolating this effect to the presence of a default, no significant effects occurred comparing the no default to default choice ( $p=.48$ ) or non-default choice ( $p=.104$ ) conditions, respectively. Finally, using model 7 (Process Macro; Hayes 2013), a significant moderated mediation model emerged ( $b = .12$ ,  $SE=.09$ ; 95% CI: [.0066, .3736]; supporting the notion that distinctiveness drives post-choice perceptions.

Study 3 examined behavioral consequences resulting from the primary interactive effect. Replicating the Study 1 design, we examine the influence of consumers' self-construal and default architecture on the purchase of add-on items from the brand. We predict and find that interdependents (vs. independents) are more likely to purchase add-on items from the brand when selecting (vs. rejecting) the default option.

Together, these findings provide an important first step to understanding the consequences of choice architecture. Our findings build a bridge between choice architecture and social influence research, demonstrating how desires for belonging and distinctiveness can alter consumers' perception of choice in response to a default.



### **4.3 Thy Self & Others: Meet People in this Session - Interpersonal Relationships**

#### **Individual Papers**

#### **Don't Just Venmo Me: How Digital Payments Decrease Feelings of Interpersonal Closeness**

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Paying people has never been easier. If you owe a friend money, you can choose from a myriad of digital platforms including Venmo, Facebook Messenger, PayPal, Google Wallet, Square Cash, Snapcash, and more. And of course, the more old-fashioned among us can continue to exchange the ever-reliable cash or check. Nevertheless, this inundation of digital payment platforms has certainly disrupted these more traditional means of exchange. These platforms also fundamentally differ from cash, not only in their form, but also in their apparent interpersonal and social nature. Nevertheless, it is unclear how these platforms actually affect interpersonal cognitions.

In the current work, we propose, and offer evidence to support the idea, that person-to-person electronic payments reduce perceptions of interpersonal closeness relative to cash or no person-to-person exchange. We posit that because electronic payments are relatively less familiar and fluent than cash exchanges, this decreases the salience and valuation of money transacted, thereby reducing inferences of interpersonal closeness. Accordingly, the negative effects of electronic payments are mitigated when people are more familiar with digital payment platforms (i.e. for consumers who use such platforms frequently) and/or when cash payments feel equally or more unnatural to electronic payments (i.e. if the payment amount is sufficiently large). We provide evidence for these hypotheses across three experiments.

In experiment 1, we told participants they either went to dinner with a friend and their friend covered the bill and that they would pay them back for their half or they had a personal training session and they owed the trainer for the cost of the session. In both conditions, participants owed the other person \$35 and were told they paid the person using either cash or Venmo. Next, participants indicated how natural the exchange felt as a measure of fluency, their feelings of closeness with the other person, and how often they use Venmo. Consistent with our predictions, participants in the Venmo condition thought the exchange felt significantly less natural ( $M_{\text{Venmo}} = 4.30$ ,  $M_{\text{Cash}} = 5.70$ ;  $F(1, 400) = 50.87$ ,  $p < .01$ ) and reported feeling significantly less close to the other person ( $M_{\text{Venmo}} = 4.83$ ,  $M_{\text{Cash}} = 5.34$ ;  $F(1, 400) = 9.94$ ,  $p < .05$ ). Further, the effect of payment method on perceived interpersonal closeness was significantly mediated by feelings of naturalness of the exchange, and this process was significantly moderated by familiarity with Venmo.

We demonstrated in experiment 2 that the effect persists regardless of whether the person is the giver or the receiver in the economic exchange, and we included a no person-to-person exchange control condition for comparison. In particular, we asked participants to imagine that they went to dinner with a friend and that either their friend paid the whole bill and they reimbursed them for their half, they paid the whole bill and their friend reimbursed them for their half, or they split the bill. There was no significant

main effect of role in the exchange on any of the dependent variables. Nevertheless, the results indicated a significant effect of payment method on feelings of naturalness of the exchange ( $M_{\text{Cash}} = 6.18$ ,  $M_{\text{Electronic}} = 4.92$ ,  $M_{\text{Split}} = 6.05$ ;  $F(1, 602) = 39.67$ ,  $p < .01$ ), feelings of closeness ( $M_{\text{Cash}} = 5.95$ ,  $M_{\text{Electronic}} = 5.60$ ,  $M_{\text{Split}} = 5.92$ ;  $F(1, 602) = 5.86$ ,  $p < .01$ ), and salience of the transaction of money ( $M_{\text{Cash}} = 5.96$ ,  $M_{\text{Electronic}} = 5.47$ ,  $M_{\text{Split}} = 5.87$ ;  $F(1, 602) = 8.13$ ,  $p < .01$ ). Validating our prediction of a negative effect of electronic exchanges, post-hoc analyses also indicated that the electronic exchange condition differed significantly from the cash and control conditions, but that the cash and no person-to-person exchange control condition did not significantly differ.

Further corroborating our theorization, we demonstrated in this experiment that the negative effect of electronic (vs. cash) exchanges on perceived interpersonal closeness is serially mediated by perceptions of naturalness or fluency of the exchange and subsequent reduced salience of the economic transaction, a known consequence of fluency (Alter and Oppenheimer 2008). Finally, experiment 2 replicated the results from experiment 1 such that the effect was moderated by familiarity with electronic payment platforms.

In experiment 3, we manipulated whether participants were paid a small (\$25) or large (\$520) amount of money by their friend. We predicted that when payments are sufficiently large, receiving cash will feel equally disfluent as electronic payments and will thus mitigate the negative effects of digital exchanges. We also assessed the feeling that one was fully reimbursed as an alternative to salience of the exchange as a consequence of the disfluency of electronic payments (vs. cash) and subsequent driver of feelings of interpersonal distance and discomfort. This variable is based on prior work showing that people perceive less fluent currencies as less valuable (Alter and Oppenheimer 2008a).

Consistent with our previous results and theorization, there was a significant main effect of payment method on feelings of naturalness of the exchange ( $M_{\text{Cash}} = 6.20$ ,  $M_{\text{Electronic}} = 5.22$ ;  $F(1, 402) = 38.73$ ,  $p < .01$ ), inferences of closeness ( $M_{\text{Cash}} = 6.38$ ,  $M_{\text{Electronic}} = 5.97$ ;  $F(1, 402) = 14.94$ ,  $p < .01$ ), and the extent to which people felt fully paid back ( $M_{\text{Cash}} = 6.75$ ,  $M_{\text{Electronic}} = 6.47$ ;  $F(1, 402) = 9.05$ ,  $p < .01$ ). We again demonstrated significant serial mediation of payment method on feelings of interpersonal closeness by perceived naturalness of the exchange and valuation of the transaction, and this process is mediated by familiarity with electronic payment platforms and the amount of money exchanged. Specifically, for the high payment amount (\$520), the negative effect of electronic payments persists at low electronic platform usage frequency, but becomes positive, though non-significant, at higher frequency uses.

In summary, this research shows that using new and less fluent payment methods in person-to-person exchanges reduces feelings of interpersonal closeness. Thus, this work replicates and adds to existing work on processing fluency, demonstrating that the disfluency of processes within social interactions can extend beyond evaluations of the process, affecting interpersonal perceptions of the people involved too. Further, this work offers a novel exploration of electronic payment platforms and their effect on interpersonal cognitions, breaking new ground in an important consumer domain.

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### **"I Thought People Would Be Stoked on Me": The Effect of Received Attention on Purchase Satisfaction**

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A common use of social media platforms is the sharing of consumption behaviors (Kessous 2015). Existing research has leveraged phenomena like social influence (Amblee and Bui 2012) and social proof (Cialdini 1993) to explain motivations for and outcomes of such sharing. Notably, these phenomena rely on feedback loops in which consumers use valenced referent feedback to determine others' opinions of their behaviors (Bearden and Etzel 1982). However, for many popular social media applications (Snapchat and Instagram Story), valenced feedback in the form of likes and comments is not readily available. Rather, consumers only see the number of views their post receives (e.g., the attention received). The present research leverages the attention economy framework (Davenport and Beck 2001) to examine whether consumers consider attention received from a purchase experience when developing post-hoc perceptions of said experience, even when explicit, valenced feedback is not received.

The attention economy proposes that human attention is the most scarce and valuable resource in the marketplace (Davenport and Beck 2001) due to the finite attention capacity of individuals relative to the increasing volume of marketplace information (Simon 1971). Because consumers are aware of the high value of others' attention (Falkinger 2007), we hypothesize that consumers will be more (less) satisfied with purchase experiences that attract more (less) attention. We expect that this effect will be moderated by public self-consciousness (PSC; the desire to attract attention and make good impressions; Scheier and Carver 1980) such that the effect of received attention on purchase satisfaction will occur only for those with high PSC. Additionally, based on expectation disconfirmation theory (Oliver 1980) we hypothesize a moderating effect of expected attention, such that those expecting high attention will be dissatisfied when low attention is received. Further, we hypothesize mediation by social self-esteem (Bagozzi and Heatherton) because valued attention is only "spent" on signals that are deemed worthy (Kessous 2015). Therefore, receiving high attention should result in self-affirmation (Toma and Hancock 2013), therefore increasing self-esteem (Burrow and Rainone 2017).

To test this model, participants read scenarios involving Snapchat, an application that limits feedback to the number of views received. Study 1 examined the effect of received attention on post-purchase evaluations and the moderating effect of PSC.

Eighty-eight undergraduates read that they got a haircut from a new stylist and posted a picture to their Snapchat “MyStory”. After rating initial satisfaction with the haircut, those in the high attention condition read that they noticed nearly all their friends had seen the picture and some had re-viewed the image, while those in the low attention condition read that “just some” friends viewed the image. Post-attention satisfaction, PSC, and demographic variables were then recorded. There was no difference in satisfaction prior to the attention manipulation ( $M_{HighAttn}=5.51$ ,  $M_{LowAttn}=5.71$ ;  $F(1,87)=.81$ , *NS*). An ANOVA of attention, PSC, and their interaction on post-attention satisfaction revealed a significant main effect of attention ( $F(1,84)=7.79$ ,  $p=.007$ ), qualified by the expected interaction ( $F(1,84)=4.46$ ,  $p=.04$ ). For those with high PSC, receiving high attention lead to increased purchase satisfaction ( $M_{HighAttn}=6.37$ ,  $M_{LowAttn}=5.20$ ;  $F(1,84)=11.82$ ,  $p=.001$ ), while no effect of attention was observed for those with low PSC ( $M_{HighAttn}=5.39$ ,  $M_{LowAttn}=5.23$ ;  $F(1,84)=.23$ , *NS*). Interestingly, those in the low attention condition had reduced satisfaction after the attention manipulation ( $M_{PreAttn}=5.71$ ,  $M_{PostAttn}=5.11$ ;  $t(1,47)=2.61$ ,  $p=.01$ ), suggesting that anticipated attention may impact the effect of received attention on satisfaction.

Study 2 assessed the moderating effect of expected attention. Mturk participants ( $n=425$ ) completed a 2 (high/low expected attention) x 3 (high/low/control received attention) experiment in which participants read they attended a concert and uploaded a Snapchat story of their experience. High and low received attention were manipulated as in Study 1. A control condition was added in which received attention was not explicitly mentioned. An ANOVA of expected and received attention, PSC, and their higher-order interactions on satisfaction revealed a three-way interaction ( $F(1,417)=2.90$ ,  $p=.056$ ). For those with high PSC who expected high attention, receiving low attention resulted in lower satisfaction ( $M_{LowAttn}=5.11$ ) than receiving high attention ( $M_{HighAttn}=6.33$ ), or when attention was not mentioned ( $M_{Control}=6.34$ );  $F_{Omnibus}(1,417)=13.96$ ,  $p<.001$ ), while those with high PSC and low attention expectations experienced no differences regardless of received attention ( $M_{HighAttn}=6.06$ ,  $M_{Control}=5.97$ ,  $M_{LowAttn}=5.87$ ;  $F_{Omnibus}(1,417)=.48$ , *NS*). For those with low PSC, attention received did not impact satisfaction whether attention expectations were high ( $M_{HighAttn}=6.17$ ,  $M_{Control}=6.03$ ,  $M_{LowAttn}=5.92$ ;  $F_{Omnibus}(1,417)=.28$ , *NS*), or low ( $M_{HighAttn}=6.02$ ,  $M_{Control}=5.99$ ,  $M_{LowAttn}=5.85$ ;  $F_{Omnibus}(1,417)=.22$ , *NS*).

Study 3 tested the interaction between received attention and PSC, and the mediating role of social self-esteem. Undergraduates ( $n=81$ ) completed a two-condition (high/low received attention) experiment using the stimuli from Study 2. As expected, the prior interaction between attention and PSC was replicated ( $F(1,77)=9.01$ ,  $p=.004$ ); those with high PSC reported higher satisfaction after receiving high attention ( $M_{HighAttn}=6.46$ ,  $M_{LowAttn}=5.64$ ;  $F(1,77)=6.56$ ,  $p=.01$ ), while this effect was attenuated and even slightly reversed for those with low PSC ( $M_{HighAttn}=6.16$ ,  $M_{LowAttn}=6.71$ ;  $F(1,77)=2.94$ ,  $p=.09$ ). Hayes’ (2013) PROCESS macro (Model 8, 10000 bootstrap samples) revealed that the moderated effect of attention was mediated by social self-esteem ( $B=.11$ ,  $SE=.09$ ,  $95\%CI=[.006, .34]$ ).

By separating consumer attention from valenced feedback, our findings suggest that the attention garnered by consumption behaviors is a valued purchase attribute that impacts customer satisfaction. Specifically, customer satisfaction is higher with purchase experiences that attract more peer attention. However, this effect is only observed for

those with high PSC. Additionally, customers expecting high attention are dissatisfied when their consumption does not attract as much attention as was anticipated. Further, our findings suggest that social self-esteem is the process through which attention impacts satisfaction. These findings contribute to the social influence literature by demonstrating that explicit, affirming feedback from social referents is not necessary to impact consumer perceptions. Rather, perceptions can be influenced by the attention that purchases attract, which may lead to self-affirming inferences even in the absence of explicit feedback. Our findings also have important managerial implications as they suggest managers must be conscious of the attention-garnering ability of their offerings and should actively promote this ability and facilitate consumers' efforts to garner attention during their consumption experiences. However, if expectations are set too high and customers receive less-than-expected attention, dissatisfaction is likely to occur.

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### Figures

Figure 1: Study 1 Results – Pre- and Post-Attention Satisfaction

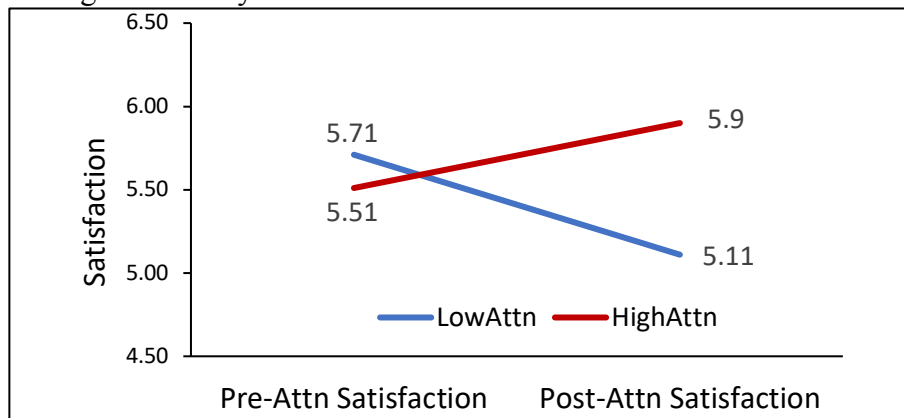
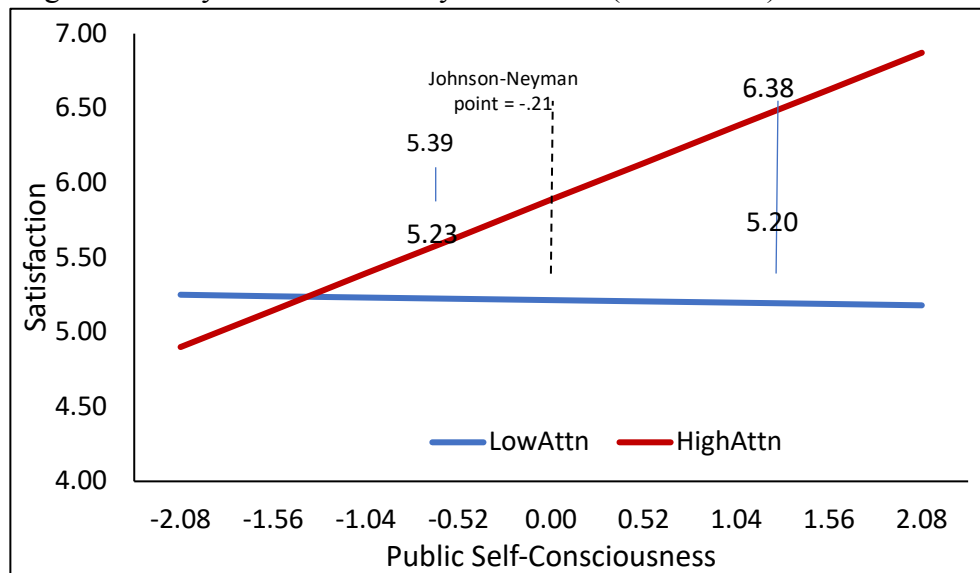
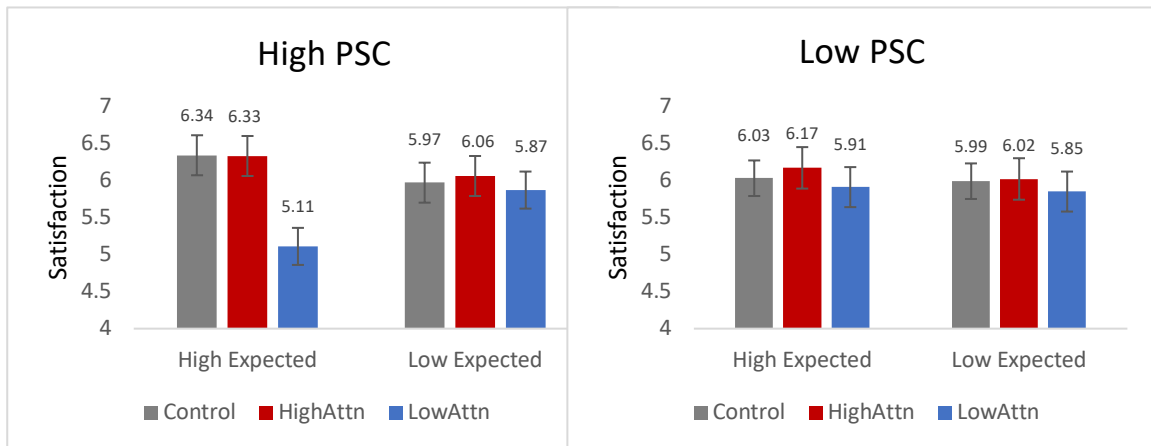


Figure 2: Study 1 Results – 2-way Interaction (Attn x PSC) on Satisfaction<sup>1</sup>



<sup>1</sup> Public self-consciousness was mean-centered ( $M=4.68$ ,  $SD=1.04$ ). The Johnson-Neyman point was 4.47 on the original 1-7 scale (-.21 when mean-centered;  $b_{JN} = .46$ ,  $SE = .24$ ,  $p = .05$ ).

Figure 3: Study 2 Results – 3-way Interaction (Expect x Attn x PSC) on Satisfaction



### **I Survived, Why Can't You? When Recalling Social Exclusion Experiences Reduces Support for Anti-Bullying Causes**

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Bullying has become a serious public health problem both online and offline (Strickland 2017), resulting in emotional distress akin to physical pain (Eisenberger et al. 2003). Thus, understanding how to increase support for anti-bullying causes is important. One strategy for increasing empathy and charitable behavior is to ask consumers to think about negative events that have affected their own lives (Small and Simonsohn 2008). However, we propose that asking consumers to recall a personal exclusion experience can backfire.

One might expect that recalling a personal exclusion experience and the resulting emotional distress would increase willingness to help others in a similar situation. Indeed, people who have experienced a distressing event tend to be more empathetic to others than those with no experience, due to greater ease in taking another's perspective (Batson 1991; Batson et al. 1996; Loewenstein and Small 2007). However, people often underestimate the level of distress they originally experienced (Loewenstein 1996). Additionally, distressing events that have already happened seem easier to cope with than those that have not (Gist and Mitchell 1992). Consequently, those who have endured distress tend to be less empathetic to others who did not manage (Ruttan, McDonnell, and Nordgren 2015). Thus, we expect that when recalling their own (vs. another's) exclusion experience, individuals will donate *less* to anti-bullying causes, especially when asked to remember the emotional distress experienced.

Drawing upon media richness theory, we expect that these effects will emerge when exclusion occurs face-to-face/offline but not online. Offline experiences convey richer information through both verbal and visual cues compared to online experiences (Daft and Lengel 1986). Consequently, individuals often feel more psychologically distant and independent from others online (Schlosser 2009). Thus, individuals may believe that (1) online exclusion is less serious, and (2) they are less affected by it than others, especially if they believe that their negative emotions should be suppressed (i.e., fortitude).

In a pilot study, we test whether online (vs. offline) exclusion is perceived as less serious with 80 MTurk participants. As expected, participants rated online (vs. offline) exclusion as less emotionally distressing ( $F(1,77)=29.78, p<.001$ ), and reported less compassion for those excluded online than offline (see Table 1).

In our first three studies, we test our hypothesis that people will donate *less* when recalling their own than another's offline exclusion (but not online exclusion), especially when emotional distress is salient. We test this by varying the target of exclusion (self vs. other), medium of exclusion (online vs offline), and salience of emotional distress. Specifically, in study 1, 179 undergraduates read an ad instructing them to recall either personally experiencing or observing someone experience exclusion either online or offline, followed by a call to visit [stopbullying.org](http://stopbullying.org). Emotional distress was manipulated by varying whether participants completed the emotional distress measure before or after reporting their donation behavior. Donation behavior was captured by asking participants to allocate five raffle tickets to win \$25 to the anti-bullying cause, an anti-pollution cause, and/or themselves. As predicted, a medium x perspective x distress interaction was significant ( $F(1,155)=4.86, p=.03$ ; see Table 2). As predicted, when distress was salient, those in the offline condition donated marginally *less* when recalling their own than another's exclusion. This difference did not occur online or when distress was not salient. Also consistent with our theorizing, the effects were specific to anti-bullying causes: there were no perspective x medium effects for anti-pollution donations ( $F(1,115)<2.51, ps>.12$ ).

In study 2, 217 participants completed the same measures and procedure that were used in study 1, except that the ad copy was presented in a video format (not text). Consistent with the findings of study 1, the medium x perspective x distress salience interaction was significant ( $F(1,205)=5.51, p=.02$ ). In study 3, 154 participants completed the same measures and procedure as studies 1-2, except that the copy was edited to remove potential biases due to the term "bullying." In addition, distress salience was incorporated into the ad, where those in the salient (not salient) condition were asked to think about the experience emotionally (objectively). Whereas a medium x perspective interaction was significant ( $F(1,145)=4.64, p=.03$ ) and the 3-way interaction was not ( $F(1,145)=1.14, p=$



.29), examination of the contrasts revealed directional support for our predictions. Specifically, in both studies, when distress was salient, those in the offline (but not online) condition donated less when recalling their own than another's exclusion (see Table 2). In both studies, the donation effects are specific to the exclusion-related cause (anti-pollution effects were nonsignificant at  $F_s < 1.73$ ,  $p_s > .14$ ).

In study 4, we (1) included a control condition (going to a grocery store), (2) focused on salient emotional distress, and (3) tested the role that fortitude beliefs play in affecting donations. Specifically, 400 MTurk participants recalled exclusion or a trip to the grocery store (Lee and Shrum 2012). Next, to manipulate fortitude beliefs, participants read an article describing the expression of negative emotions as either good or bad for well-being (i.e., fortitude beliefs challenged vs. supported, respectively). Afterwards, they viewed an ad against bullying or pollution. Finally, participants reported how much of their \$0.75 earnings they would donate to the advertised cause. As predicted, a medium x perspective x fortitude interaction was significant ( $F(2,337) = 3.68$ ,  $p = .026$ ). As before, those in the offline condition gave less when recalling their own than another's exclusion, regardless of whether fortitude beliefs were supported or challenged (see Table 2). In contrast, those in the online condition donated less when they recalled their own (vs. another's) exclusion, but only when fortitude beliefs were supported. Finally, the only conditions that led to higher donations than the control condition were (1) those who recalled another's offline exclusion experience, and (2) those who recalled another's online exclusion experience while fortitude beliefs were supported. Perhaps suggesting to participants that victims of online exclusion might suppress their distress (especially given the ease of hiding emotions online) increased support of anti-bullying causes.

Overall, these results provide important and surprising insights into how to increase support for anti-bullying causes.

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Table 1: Pilot Study Results

| Dependent Variable              | Online | Offline | F-values |
|---------------------------------|--------|---------|----------|
| Emotional Distress <sup>1</sup> | 4.23   | 5.31    | 29.78**  |
| Compassion <sup>2</sup>         | 4.46   | 5.53    | 36.99**  |

<sup>1</sup>1= not distressing at all, 7= very distressing.

<sup>2</sup>Composites of sympathy and compassion (online  $r = .93$ ; offline  $r = .95$ ), where 1= not at all, 7= extremely.

<sup>+</sup>  $p < .10$

<sup>\*</sup>  $p < .05$

<sup>\*\*</sup>  $p < .01$

Table 2: Summary of Results Across Studies (Studies 1-4)

| Study          | Emotional Distress | Fortitude  | Medium  | Self   | Other  | F-values          |
|----------------|--------------------|------------|---------|--------|--------|-------------------|
| 1 <sup>a</sup> | Salient            |            | Online  | 2.17   | 2.17   | .00               |
|                |                    |            | Offline | 1.39   | 2.42   | 3.53 <sup>+</sup> |
|                | Not Salient        |            | Online  | 1.95   | 2.45   | .88               |
|                |                    |            | Offline | 2.86   | 2.08   | 2.50              |
| 2 <sup>a</sup> | Salient            |            | Online  | 2.29   | 2.13   | .15               |
|                |                    |            | Offline | 1.40   | 2.38   | 6.39*             |
|                | Not salient        |            | Online  | 2.28   | 2.11   | .14               |
|                |                    |            | Offline | 2.37   | 1.41   | 5.60*             |
| 3 <sup>a</sup> | Salient            |            | Online  | 2.32   | 1.82   | 1.15              |
|                |                    |            | Offline | .95    | 1.91   | 4.68*             |
|                | Not salient        |            | Online  | 2.00   | 1.76   | .27               |
|                |                    |            | Offline | 1.88   | 2.13   | .22               |
| 4 <sup>b</sup> | Salient            | Supported  | Online  | \$0.05 | \$0.16 | 5.43*             |
|                |                    |            | Offline | \$0.07 | \$0.17 | 4.99*             |
|                |                    |            | Control | \$0.04 | \$0.06 | .11               |
|                |                    | Challenged | Online  | \$0.09 | \$0.04 | 1.10              |
|                |                    |            | Offline | \$0.02 | \$0.21 | 14.48**           |
|                |                    |            | Control | \$0.14 | \$0.06 | 3.17 <sup>+</sup> |

<sup>a</sup>The number of raffle sheets (ranging from 0-5) allocated to the anti-bullying cause.

<sup>b</sup>Earnings donated ranged from \$0.00 to \$0.75.

<sup>+</sup>  $p < .10$

<sup>\*</sup>  $p < .05$

<sup>\*\*</sup>  $p < .01$

## **The bittersweet symphony: Decreased evaluations and effectiveness of products given as an apology**

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Consumers often buy products for others (Belk 1976), for example, to celebrate their birthdays, or to apologize for harm done. Given products generally are positively evaluated (Ruth et al. 1999; Cheal 1987), but the reason why a product is bought may influence consumers' product evaluations. We propose that products given to apologize (so-called apology gifts) may have detrimental effects. More specifically, an apology setting will have a negative influence on receiver's product evaluations. In addition, we reveal that apology gifts work insufficiently, meaning that they are not as positively evaluated as givers expect, and insufficiently repair receiver's anger.

### **Repairing Inequities with Apology Gifts**

When someone is angry at another person, a relational inequity is experienced (Adams 1965): an angry person perceives the ratio between his outcomes and his inputs to be smaller than the ratio between the outcomes and inputs of the other person. Thus when people are harmed and feel anger towards another person they most likely feel deprived by the other person: the other person did not invest a relatively equal amount of resources in the relationship, thus reducing the harmed person's outcomes. The transgressor could give an apology gift to restore the relational equity and compensate the receiver. Although the transgressor might expect the apology gift to be a sufficient repair of the inequity, research has indicated that empathy gaps often lead to self-other differences in valuation (Kurt and Inman 2013; Van Boven et al. 2013). We argue that, against givers' expectations, apology gifts are an insufficient repair of the relational inequity perceived by the recipients. Products given as an apology therefore will have a negative connotation, leading to less positive evaluations of the gift product than products given as a spontaneous gift that do not have to restore relational equity levels.

### **Studies**

We tested the limited impact of apology gifts and the underlying process in six studies. In Study 1, participants recalled an anger-evoking event in which they were angry at someone or someone was angry at them. Afterwards they imagined receiving or giving an iPod as an apology gift. Participants who gave the gift expected the gift to be more positively evaluated than participants who received the gift ( $t(149) = 2.48, p = .014$ ).

In Study 2A & 2B, we wanted to know whether a gift is differently evaluated when it is given as an apology compared to a spontaneous gift or a gift to bright up a sad person (Study 2B). In Study 2A participants read a scenario in which they received either a spontaneous gift (no underlying motive) or an apology gift. The results indicated that gifts are

less positively evaluated ( $t(151) = 8.63, p < .001$ ) and more likely to be regifted ( $t(151) = 2.50, p = .013$ ) when given as an apology, compared to when they are given without a specific motivation. Study 2B, including a third condition describing a gift given to repair feelings of sadness, confirm Study 2A's findings and indicate that the results cannot be explained by recipients' negative feelings in general but are specific to gifts given as an apology ( $F(2,176) = 64.56, p < .001$ , see Figure 1).

Study 3 employed the same research design as Study 2A but included relationship equity scores. It appeared that the inability of an apology gift to restore the relational equity generates the negative effects on gift appreciation and intention to regift ( $b = -1.0889, -1.47 < 95\% \text{ CI} < -0.72$ ).

Study 4 measured the level of anger experienced after the apology gift has been given. When anger is prevalent after an apology gift, this indicates that the inequity is not sufficiently repaired. In addition, Study 5 compared apology gifts with another, most basic form of apologizing: a spoken apology. Participants remembered an anger-evoking event (apology-gift condition, spoken-apology condition, no-apology condition) or a normal weekday (control condition) and reported their emotions. In the apology-gift and spoken-apology condition, participants then received an apology gift or a spoken apology from the offender and reported their emotions again. The results highlighted that an apology gift slightly reduces, but does not resolve, the anger ( $t(287) = 10.01, p < .001$ , see Figure 2). Importantly, a spoken apology decreases anger more than an apology gift.

In Study 5 we conducted a behavioral experiment, contributing to the ecological validity of our findings. Feelings of anger were evoked in the apology gift condition: the researcher 'accidentally' rebooted the participants' computer during the research session, deleting their data. Therefore the participants were required to redo the first part. In the spontaneous gift condition, the research session was not interrupted by a mistake of the researcher. The second part of the research session involved a product evaluation task of mind teaser game. Participants were told that they could keep it as a gift. In the apology-gift condition, the experimenter stated that it was a gift to apologize for the mistake made earlier with the computer. In the spontaneous-gift condition, the experimenter instead stated that it was a gift to thank participants for their loyal participation in the research lab during the past academic year. We registered whether participants accepted the gift and took it with them. In the apology gift condition the gift was less often accepted (44%) than in the spontaneous gift condition (78%,  $\chi^2(1,113) = 13.440, p < .001, V = .345$ ).

## Conclusions

Although a whole apology gift market is existent and retailers advertise their products as a potential apology gift, our research points out that gifts given to apologize might not lead to the desired responses. Apology gifts appear not to meet the expectations of the givers (Study 1), be able to fully restore inequity (Study 3) or resolve anger experienced by receivers (Study 4). In addition, products given to apologize are less positively evaluated, more likely to be regifted (Study 2A and 2B) and less likely to be accepted (Study 5). Our research contributes to a more nuanced theory around gift giving and underscores the importance of giver motives in product evaluations for both consumers and marketers.

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## **4.4 JDM: Choose this Session Individual Papers**

### **The Multiplicative Role of Attention in Choice**

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Many of the decisions that we make on a daily basis — choices between foods, consumer goods, and even complex moral dilemmas, to name a few domains — are undoubtedly shaped by our attention. The decision process is often described (and modeled) as an evidence accumulation process, through which the potential options compete for the subject's choice. Visual attention is known to affect this evidence accumulation process; specifically, when people make decisions, they tend to choose the option that they have looked at more (Armel, Beaumel, & Rangel, 2008; Fiedler & Glöckner, 2012; Krajbich, Armel, & Rangel; Mormann, Navalpakkam, Koch, & Rangel, 2012; Pärnamets et al., 2015; Shimojo, Simion, Shimojo, & Sheier, 2003; Towal, Mormann, & Koch, 2013). An important open question, though, is the precise role that attention plays in choice.

Thus far, sequential sampling models (SSMs) have been successfully used to characterize the gaze-influenced decision process (see Krajbich & Smith, 2015). The general idea behind these models is that over time, evidence is noisily accumulated for each of the options; once enough evidence is accumulated for one option — relative to the other — the decision is made and the option with more evidence is chosen. The rate at which evidence is accumulated is determined by the difference in value between the options and the pattern of eye movements during the choice. However, the precise mechanism that underlies the effect of attention on the evidence accumulation process has not been established. A few (slightly) different SSMs rooted in the drift diffusion model (DDM; Ratcliff, 1978) have been proposed thus far, all of which are capable of capturing several trends in choice and eye-tracking data.

One possibility is that attention merely reflects a temporary bias favoring the looked-at option (an additive effect of gaze). Another possibility is that attention enhances and magnifies the subjective value of the looked-at alternative (a multiplicative effect of gaze). Clearly, these two models connote two different psychological mechanisms that underlie the process of choice. Distinguishing between these two models is critical to understanding the positive correlation between relative gaze time and choice.

Here, we examine data from six separate binary-choice studies in order to characterize the relationship between value, attention, and choice. Four datasets involve choices between snack foods, while the other two involve choices between probabilistically reinforced stimuli (i.e. symbols on the screen that have different probabilities of reward). We use a combination of statistical methods, including generalized linear mixed models, simulations, and model fitting, to examine the choice, response time (RT), and attentional predictions of each potential attention-choice mechanism and compare them to the observed data. However, both the additive and multiplicative accounts can capture trends found in the data and can be fit well according to traditional fitting procedures/metrics

(e.g. chi-square, maximum likelihood), so distinguishing between them requires a new approach.

Our method to tease apart the models is two-fold. First, we adapt the traditional SSM fitting procedure in order to address the effects of attention on choice and fit the multiplicative and additive models to each of the six datasets. Second, we look at qualitative trends in the data that differentiate between predictions made by the two models. Although both of the proposed mechanisms produce several observed trends in the data, they differ in two key respects. In particular, the multiplicative model predicts faster decisions for higher-value pairs of options, and it predicts a greater effect of gaze dwell time on choice for higher-value options. The additive model predicts neither of these effects. In all six datasets we find sufficient evidence for both effects: the RT effect and the attention-value interaction, indicating that the multiplicative model is a better description of the relationship between gaze and choice. In addition, although both models provide reasonable fits to the data, the multiplicative model performs better in all but one dataset (according to maximum likelihood estimation).

These results shed important light onto the exact nature of the relationship between attention and choice. We compared contrasting predictions from sequential sampling models of the decision making process (e.g. attentional drift diffusion model {aDDM}; Krajbich et al, 2010). While there are multiple models that can account for choices, RTs, and eye movements, the crucial difference between the present models rests in the value-attention interaction; while an additive model implies that the degree of attentional influence is independent of the values of the options, the (multiplicative) formulation of the aDDM requires an interaction between the two, leading to stronger positive relationships between attention and choice for high value options. We find that the attentional bias is best described by a multiplicative discount of the value for the unlooked-at option, as evidenced by the data from six choice studies. Moreover, these results provide additional support for the causal role of attention on choices (and evidence against the reverse-causality claim that choices drive attention). We ultimately conclude that visual attention interacts with the values of the choice options (as predicted by the aDDM) to produce robust, reliable attentional effects on the decision process.

### **The Impact of Alignable vs. Nonalignable Differences in Ethical Decision Making**

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Trade-off in choice often entails comparisons between alignable and nonalignable differences, such that one option is superior to the other in alignable differences but inferior in nonalignable differences. The literature provides ample evidence of “positive alignability effect” (i.e., greater impact of alignable differences vs. nonalignable differences) in a wide range of judgments and decision making (Gentner & Markman, 1994; Markman & Lowenst



ein, 2010; Markman & Medin, 1995; Zhang & Markman, 2001), with exceptions (Sun, Keh, & Lee 2012). Yet, little research has examined the impact of attribute alignability on consumers' *moral* judgments, despite the surging emphasis on ethical consumer behaviors.

## Theoretical Considerations

How would attribute alignability influence consumers' ethical judgments and decisions? First, findings on general characteristics of moral judgment processes such as quantity insensitivity (Bartels & Medin, 2007) and all-or-nothing fashion (Baron & Spranca, 1997) suggest that consumers might construe ethical features of an alternative qualitatively (as either good or bad only), ignoring the magnitude of difference between the alternatives. Second, research on choice heuristics suggests that consumers often adopt non-compensatory strategies for difficult choice tasks (Bettman, Luce, & Payne, 1988). For example, consumers may transform each difference only as +1 or -1, depending on which alternative it favors, ignoring the magnitudes, and then sum these coded differences to determine which alternative has the majority of dimensions and thus is more preferable (Riedl, Brandstätter, & Roithmayr, 2008; Russo & Doshier 1983).

The above findings together suggest that people may construe each alternative's ethical attribute independently as desirable or undesirable, ignoring the relative difference, and then determine which alternative has greater net desirability. Thus, an alignable difference may not be very impactful, unless one falls within a "good" range and the other within a "bad" range. When processing a nonalignable difference, however, consumers may notice that the difference consists of two ethicality dimensions and so decompose it, such that one alternative both has a desirable attribute that the other does not and does not have an undesirable attribute that the other does. This "decomposition" may double the impact of the nonalignable difference. Therefore, we predicted that a negative-alignability effect would occur (H1).

Note that the decomposition of a nonalignable difference requires detailed processing of information. To this extent, the negative-alignability effect would be less evident among people who are disposed to process ethical information more holistically. Since people with consequential (vs. deontological) moral thinking style are less likely to process the details of ethical information (Bartels & Medin, 2007, Greene et al., 2008), we also predicted that the negative-alignability effect would be less among deontologists than consequentialists (H2).

Five experiments confirm our predictions. All experiments (except experiment 4) were conducted online with adult participants recruited from Amazon Mturk.

## Experiments

Experiment 1 provided initial confirmation of negative alignability effect. Participants were presented with two restaurants (denoted by A and B) that were in trade off along ethical attributes. Under all-alignable conditions, the trade-off consisted of two alignable differences (e.g., the donation level was above average by A and was below average by B, whereas the usage of fair-traded produce was below average by A and was above average by B). Under mixed-alignable conditions, the trade-off consisted of one alignable difference

rence and one nonalignable difference (e.g., the donation level was above average by A and was below average by B; whereas the usage of fair-traded produce by A was below average but B has a good waste-reduction practice). All attributes used were equally important and the use of each attribute in constructing alignable vs. non-alignable difference was counterbalanced.

Participants decided which restaurant was more ethical. The choice shares of two restaurants under all-alignable conditions were equal to the chance level, confirming successful counterbalancing. Under mixed-alignable conditions, the choice of the nonalignable-superior restaurant was higher than the chance level ( $p < .05$ ), and also higher than that of all-alignable conditions ( $p < .05$ ) confirming H1.

Experiment 2 manipulated the frame (quality vs. ethical) of attributes. The stimuli of experiment 1 were used as the ethical-frame versions and were modified for the corresponding quality-frame versions (e.g., “waste-reduction effort” was modified as “cost-reduction effort”). Participants in ethical-frame (vs. quality-frame) conditions were asked to decide which restaurant was more ethical (vs. better in quality). As expected, participants under ethical frame chose the nonalignable-superior option more often than the alignable-superior one, whereas the opposite was true under quality frame ( $p < .05$ ).

Experiments 3 and 4, which were identical except for geographical locations (US vs. Korea), confirmed H1 in quality-ethicality tradeoff situations (i.e., one alternative is better in quality but poorer in ethicality than the other one). Participants were shown two alternatives in trade off such that A is ethically superior but quality-wise inferior to B. Whereas the quality difference was always alignable and fixed, the ethical difference was either alignable or nonalignable. Participants were asked to indicate which one they would like to visit. If a negative-alignability effect operates, participants should prefer the ethical-superior option more when the ethical difference was nonalignable vs. alignable. As consistent with this, participants preferred the ethical-superior option significantly more when its ethicality was superior nonalignably than alignably, in both preference ratings of experiment 3 and choices of experiment 4 ( $p$ 's  $< .05$ ).

Experiment 5 evaluated the moderating role of moral thinking style (H2). Participants were given the restaurant choice task of experiment 1 and then their moral thinking style was measured (Lammers & Stapel, 2009). The interaction of attribute alignability and thinking style was significant ( $p < .05$ ). As expected, consequentialist chose more often the nonalignable-superior option, whereas the difference was negligible among deontological thinkers.

In summary, we demonstrate a negative alignability in ethical decision making that generalizes over different tradeoffs (ethical-ethical vs. ethical-quality tradeoff) and different cultures (Eastern vs. Western). However, the effect is less evident among deontologists than consequentialists. Future research that replicates these findings in real choices is awaited.

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### **Spreading of Alternatives Without a Perception of Choice**

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Choosing products or services changes consumers' attitudes toward them. Brehm (1956) classically demonstrated this by asking consumers to first rate several toasters, and then choose between two they had rated about equally. He found that attitudes toward chosen toasters improved and rejected toasters declined upon subsequent measurement. This "post-choice spreading of alternatives" (Brehm, 1956) has been explained by cognitive dissonance (Festinger, 1957). Specifically, the negative features of a chosen toaster became dissonant with having chosen it, and choosers were motivated to relieve the dissonance by adjusting their attitudes to be consistent with their choice. The opposite logic applied to rejected toasters.

Recently, Chen and Risen (2010) argued that people are better able to articulate their (stable) preferences through sequential measurement. Because both the choice and a subsequent attitude change with respect to that choice may be driven by stable preferences, Brehm's "free-choice paradigm" exhibits a self-selection issue that a

researcher would need to eliminate to demonstrate that choosing affects attitudes (Chen & Risen, 2010).

In response, several researchers have demonstrated post-choice spreading while randomly assigning outcomes rather than allowing participants to make actual choices, eliminating the concern over self-selection (Egan, Bloom, & Santos, 2010; Johansson, Hall, Tarning, Sikstrom, & Chater, 2014; Sharot, Velasquez, & Dolan, 2010). For example, Sharot et al. asked participants to make a choice based on information ostensibly presented subliminally. The “choice” outcome was actually randomly assigned. When participants believed they had made a choice, their attitudes toward chosen options improved, but when they believed a computer had chosen, there was no change in attitude (Sharot et al., 2010). The authors concluded that a “sense of agency” was critical to observing spreading. Similarly, others have concluded that “it is not the choice per se that drives the preference change but rather the belief that a certain choice has been made” (Johansson et al., 2014, p. 288).

In contrast, we argue that neither choice nor the self-perception of having made a choice is required to observe spreading of alternatives. Rather, alternative spreading occurs when someone is psychologically committed to an outcome (Brehm, 2007; Brehm & Cohen, 1962; Kiesler, 1971), which we argue can occur without personal choice agency. We demonstrate two ways a person can become committed to an outcome absent choice: by committing to a selection *process* that does not allow agency over the actual outcome (studies 1 and 2), and by desiring to perform well at an assigned task (study 3). These processes can lead to attitude changes similar to “post-choice spreading of alternatives” absent any choice or pretense of choice.

*Study 1.* This study shows that a selection process without choice agency can lead to spreading of alternatives. Participants ( $N=295$ ) booked a hypothetical hotel room through a web site where they chose only the neighborhood of the hotel; the web site assigned them a specific hotel in that neighborhood without further input. We manipulated whether the assigned hotel performed well on two secondary characteristics: service and amenities. We expected that self-reports of the importance of those attributes should reflect the level assigned (e.g. when assigned a hotel that performed well on service and poorly on amenities, we expected participants to state that service was relatively more important than amenities following hotel assignment). We measured importance for each of four attributes: location, service, cleanliness, and amenities. As predicted, we observed a three-way interaction  $F(1,293)=11.7, p=.001, \eta^2_p=.04$  indicating that we found an interaction on the two measures we manipulated (service and amenities)  $F(1,293)=21.0, p<.001, \eta^2_p=.07$ , but not on the measures we did not (location and cleanliness)  $F<1$ . Consistent with predictions, participants assigned a hotel performing well on amenities rated amenities significantly more important ( $M=5.1, SD=1.3$ ) than service ( $M=4.8, SD=1.5$ ),  $F(1,293)=4.0, p=.046, \eta^2_p=.01$ . Participants assigned a hotel performing well on service, rated service ( $M=5.0, SD=1.3$ ) significantly more important than amenities ( $M=4.4, SD=1.5$ ),  $F(1,293)=19.9, p < .001, \eta^2_p=.06$ . Figure 1 illustrates.

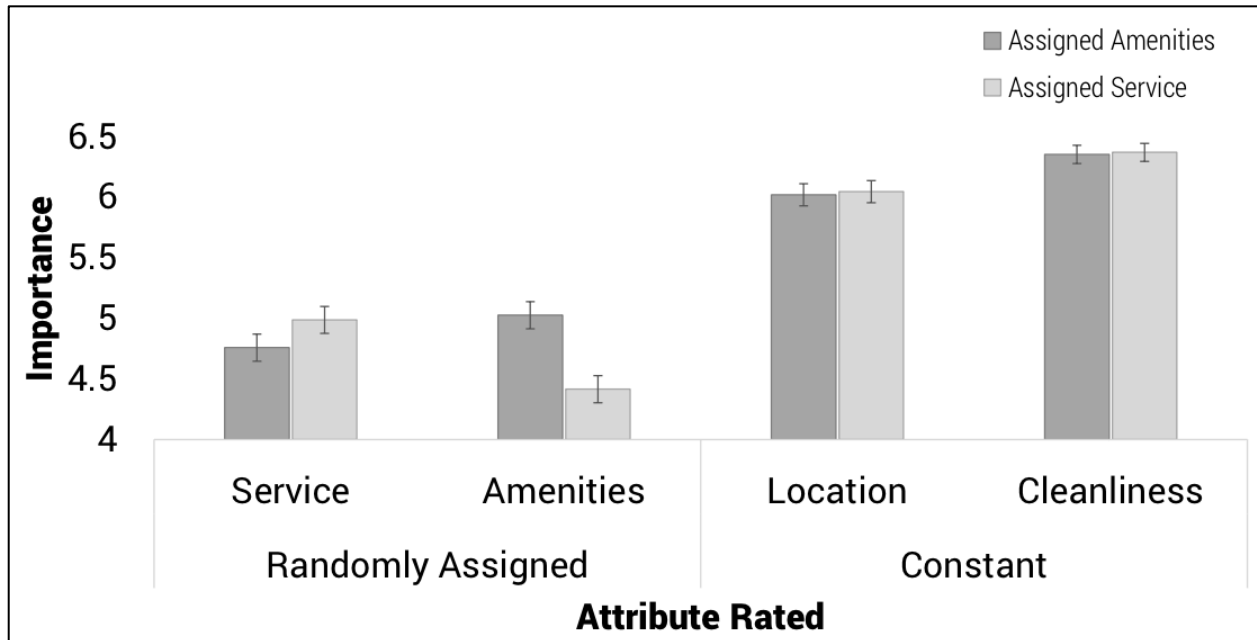


Figure 1 – Participants rated an attribute as more important when they were assigned a hotel that performed well on that attribute.

*Study 2.* To show attitude *change*, we replicated study 1 with a longitudinal design ( $N=178$ ). At time 1, we only measured importance of the four hotel attributes. At time 2 two weeks later, participants experienced the same procedure as study 1. As predicted, we observed a significant four-way interaction  $F(1,176)=4.8, p=.030, \eta^2_p=.03$ : there was a significant three-way interaction  $F(1,176)=14.1, p<.001, \eta^2_p=.07$  only at time 2. This interaction was driven by a two-way interaction on the manipulated attributes  $F(1,176)=15.7, p<.001, \eta^2_p=.08$  where participants assigned a hotel performing well on amenities, rated amenities more important ( $M=5.0, SD=1.4$ ) than service ( $M=4.8, SD=1.3$ ),  $F(1,176)=2.7, p=.103, \eta^2_p=.02$ . Participants assigned a hotel performing well on service, rated service ( $M=5.1, SD=1.3$ ) significantly more important than amenities ( $M=4.3, SD=1.5$ ),  $F(1, 176)=8.7, p=.004, \eta^2_p=.05$ .

*Study 3.* Participants ( $N=48$ ) were randomly assigned to advocate for one brand versus a competitor in a role-playing “sales game.” At time 1, we measured attitudes toward various retailer brands. At time 2 two weeks later, we randomly selected two brands each participant had rated equally, and then randomly assigned one as “assigned” and the other as “competitor.” Participants believed they were to enter a chat room to attempt to convince another participant to shop at their assigned retail brand. They would be in competition against a third participant trying to sell the competitor brand. The chat room never occurred. In contrast to past role-playing studies (Greenwald, 1969; Janis & King, 1954), participants never actually advocated for their assigned brand, nor was any additional information provided about the brands. Immediately after assignment to condition, we measured attitudes toward the retailers. As predicted, we observed a significant interaction  $F(1,47)=5.7, p=.021, \eta^2_p=.11$ . Attitudes toward assigned brands improved ( $M=2.3, SD=2.1$  from  $M=1.3, SD=2.5$ ),  $F(1,47)=6.7, p=.013, \eta^2_p=.12$ , but attitudes toward competitors did not ( $M=1.1, SD=2.6$  from  $M=1.2, SD=2.5$ ),  $F<1$ . Figure 2 illustrates.

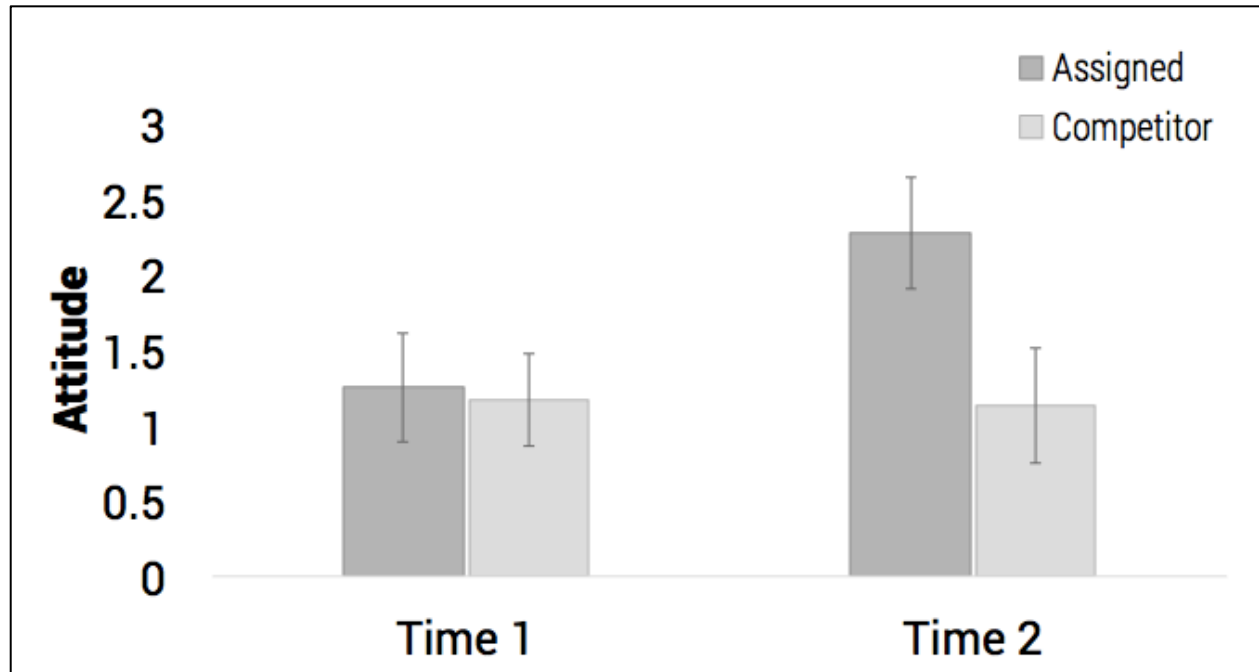


Figure 2 - Attitudes toward randomly assigned brands improved when participants believed they would advocate for them.

A perception of having freely chosen has long been assumed to be a necessary condition to for the arousal of cognitive dissonance (Linder, Cooper, & Jones, 1967; Olson & Stone, 2005). In three studies, we demonstrated a pattern of results similar to spreading of alternatives without any perceptions of choice agency.

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### **Combinations: framing completeness**

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Imagine ordering starters at a restaurant. You notice that the menu offers four items. For ease of exposition, let us refer to these items as A, B, C, and a combination comprising of half of item A and half of item B. Which product might you order? Now imagine if there were three instead of four items—A, B, and a combination comprising of half of item A and half of item B. Would the removal of option C from the choice set influence what you order? Rational choice theory predicts it would not (see Tversky and Kahneman, 1986).

We, however, argue that it might: preference for the combination will be higher in the second choice set than in the first. This occurs because the combination item in the second set is Inclusive which leads to the assessment that it is complete. This feeling of completeness not only increases selection of the combination but also leads to a completeness premium: consumers are willing to pay more for the same combination item when it is all-inclusive.

Thus, we identify a bias and show support for a preference for completeness. This completeness bias may seem related to the compromise effect (Simonson 1989). The latter effect represents an unwillingness to entirely trade off one attribute for another; this leads to the preference of an option that embodies a partial trade-off. In our studies, the choice of a combination may also reflect the unwillingness to trade off one option for another option. In that sense, the combination serves as a compromise option. Still, while the compromise effect research predicts that combinations are attractive, we show that their attractiveness crucially depends on whether they seem complete or not.

We provide support for the completeness effect in 7 studies (summarized in Table A); for brevity we restrict our discussion to 4 studies. We show robustness across

evaluation and choice, and several product domains (ranging from foods to travel packages).

| Study (N) | DV type | Effect size    | Reference point (price noncombo options) | Additional factors (measures)      | Unsupported alternative explanation                                        |
|-----------|---------|----------------|------------------------------------------|------------------------------------|----------------------------------------------------------------------------|
| *1A (262) | Choice  | 15% (d=.32)    | \$9                                      | -                                  | -                                                                          |
| *1B (262) | Value   | \$745 (d=.43)  | \$5,000                                  | -                                  | -                                                                          |
| 2 (305)   | Value   | \$1.00 (d=.30) | \$9                                      | Size; Need for Closure             | Number of options; NFC; Regret                                             |
| *3 (345)  | Choice  | 11% (d=.26)    | \$25                                     | -                                  | -                                                                          |
| 4 (286)   | Value   | \$812 (d=.30)  | \$7,500                                  | Number of excluded options         | Heightened value of excluded options                                       |
| 5 (300)   | Value   | \$984 (d=.35)  | \$7,500                                  | Superior complete combination      | Presentation of superior Inclusive combination                             |
| *6 (642)  | Value   | \$473 (d=.25)  | \$5,000                                  | Varying quality of excluded option | Quality concerns; generation of consideration set from combination; Regret |

*Table A- Overview of studies. In choice studies, Cohen's d has been obtained from chi squared and N following the calculations presented in Rosenthal and DiMatteo, 2001. \*=reported in detail in the present work*

In study 1A, we randomly assigned 262 participants to the Inclusive (containing all the single items presented) or Non-Inclusive condition. Participants in the Inclusive condition saw a menu comprising two single items (Italian starters, A and B) and their combination (half portions of both A and B). Participants in the Non-Inclusive condition saw the same three options but also an additional starter, C, which they were told was out of stock. Participants in both conditions were asked to pick one starter among A, B, and the combination option.

The choice share of the combination option increased from 61% in the Non-Inclusive condition to 76% in the Inclusive condition,  $\chi^2(1)=6.66, p<.01$ .

| Condition<br>→ | Inclusive                                               |       | Non-Inclusive |                                                         |      |
|----------------|---------------------------------------------------------|-------|---------------|---------------------------------------------------------|------|
|                |                                                         | Price |               | Price                                                   |      |
| <i>A</i>       | Prosciutto e melone                                     | \$9   | <i>A</i>      | Prosciutto e melone                                     | \$9  |
| <i>B</i>       | Burrata                                                 | \$9   | <i>B</i>      | Burrata                                                 | \$9  |
| <i>Combo</i>   | Two-plate Combo: half Prosciutto e melone, half Burrata | \$10  | <i>Combo</i>  | Two-plate Combo: half Prosciutto e melone, half Burrata | \$10 |
|                |                                                         |       | <i>C</i>      | Involtini di melanzane ( <i>not available</i> )         | \$9  |



Table B – Overview of experimental conditions of Study 1A.

In Study 1B, we extend the completeness premium to valuation. We found that showing an option not included in a combination decreased the valuation of the latter by \$748 (from \$6,463 to \$5,715),  $t(260)=3.50$ ,  $p<.001$ .

| <b>Inclusive condition</b>                        |               | <b>Non-Inclusive condition</b>                    |                |
|---------------------------------------------------|---------------|---------------------------------------------------|----------------|
| Scandinavian Coast Cruise                         | \$5,000       | Scandinavian Coast Cruise                         | \$5,000        |
| Baltic Coast Cruise                               | \$5,000       | Baltic Coast Cruise                               | \$5,000        |
| Two-Coasts Cruise: Baltic and Scandinavian Coasts | NO PRICE (DV) | Two-Coasts Cruise: Baltic and Scandinavian Coasts | NO PRICE (DV)  |
|                                                   |               | <b>British Coast Cruise</b>                       | <b>\$5,000</b> |

Table C - Overview of experimental conditions of Study 1B.

In Study 3 (N=351), participants had to choose between a bouquet of Dahlias or a bouquet of Petunias, each containing flowers of two different colors. Participants either received no additional information (Control condition) or were told that the shop also offered a total of three colors of Petunias and a total of two colors of Dahlias (Comparison condition). In other words, in the Comparison condition, participants had to choose between a Inclusive (including all the options within its category: two out of two colors) and an Non-Inclusive (excluding one option within its category: two out of three colors).

The choice share of the Petunia bouquet dropped 11% from the Control (39%) to the Comparison condition (28%),  $\chi^2(1)=4.38$ ,  $p=.036$ .

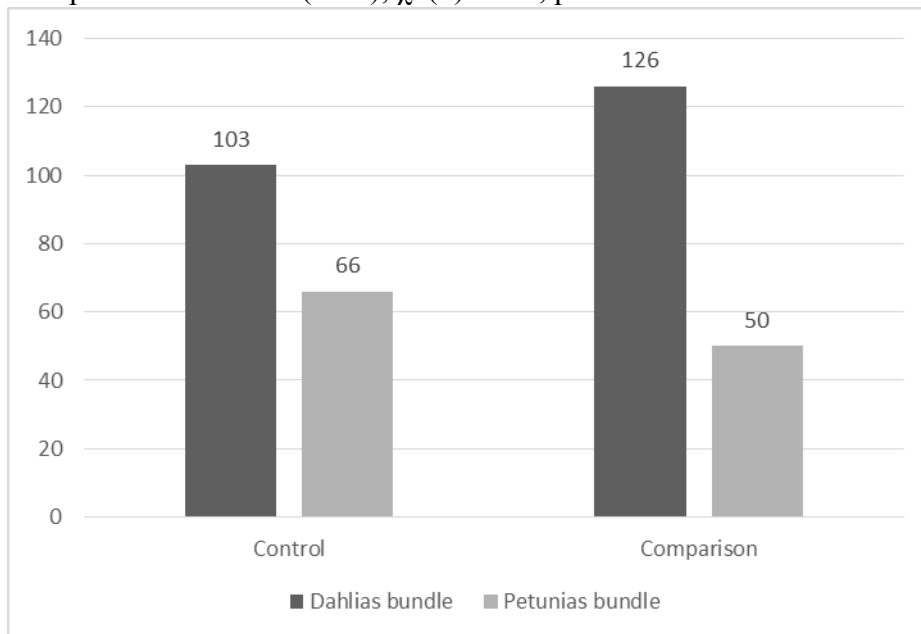


Fig. 1 – Results of Study 3.

Study 6 (N=642) contains four conditions. The Inclusive condition only presented two cruises and their combination. Three Non-Inclusive conditions presented the same two

cruises and the same combination, with the addition of an excluded cruise of varying quality (rated as 55/100, 75/100 or 95/100). This allows testing whether quality of an excluded option affects the valuation of a Non-Inclusive option. Participants had to indicate a fair value for the Combination cruise (in dollars), rate the Combination option on Completeness and to express their Regret of missing the excluded option, (both 1-7 items). These measures allowed us to test whether participants really considered the Inclusive combination as such, and whether the lowered evaluation of the Combination option in the Non-Inclusive condition was caused by heightened Regret caused by the presentation of the additional option.

| <b>Cruise Name</b>                                | <b>Price</b>     | <b>Evaluation on Cruise.com</b>                  |
|---------------------------------------------------|------------------|--------------------------------------------------|
| Scandinavian Coast Cruise                         | \$5,000          | 75/100                                           |
| Baltic Coast Cruise                               | \$5,000          | 75/100                                           |
| Two-Coasts Cruise: Baltic and Scandinavian Coasts | NO PRICE<br>(DV) |                                                  |
| <b>British Coast Cruise</b>                       | <b>\$5,000</b>   | <b>(Not present; 55/100;<br/>75/100; 95/100)</b> |

*Table D – Overview of Study 6 experimental conditions. The “British Coast Cruise” option was either not present or present with varying quality evaluations as presented.*

The valuation of the combination cruise did not vary across the three Non-Inclusive conditions,  $F(2,486)=.18$ ,  $p=.84$ , but, aggregated they did differ from the Inclusive condition,  $t(640)=2.76$ ,  $p=.006$ . The Inclusive combination was also rated more complete than the aggregated Non-Inclusive Conditions,  $t(640)=4.34$ ,  $p<.001$ ,  $d=.40$ , with no difference in completeness between the three Non-Inclusive conditions,  $F(2,486)=.30$ ,  $p=.74$ . Regret did significantly differ across conditions,  $p=.048$ , but could not explain the pattern of valuations across conditions.

In sum, the quality of the excluded option did not affect the perceived value of the Combination or the degree of completeness of the Combination. Regret regarding the excluded option does not seem like a viable explanation of the present effect.

*Conclusion.* We report a new, theoretically and managerially relevant framing effect: the same combination is considered more valuable when it contains all the options in a menu vs. excludes one or more options. This seems caused by a spontaneous preference for completeness but not by higher attractiveness of or regret for excluded options, and this preference is also not affected by the number of excluded options, or by quality comparisons between the included options and the excluded ones. In sum, we contribute to and connect three streams of literature: the framing literature (Simonson, 1989, 1992) by showing a new framing effect; to the literature on combination evaluation (Chernev and Gal, 2010); and to the literature on completeness (Arnheim, 1974). These findings suggest that managers should pay attention to how they present menus, as excluded options may influence evaluation and choice of combinations.

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## 4.5 Health & Social Justice: I Really Did Give at the Office... Donation Behavior II

### Individual Papers

#### The Lure of a Product's Origin: How Upcycling attracts Consumers

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Two billion tons of waste go to landfills every year, threatening the environment, economy and society (Brosius, Fernandez, and Cherrier 2013; Trudel and Argo 2013; White, MacDonnell, and Dahl 2011). One promising way to help counter-act this alarming trend is upcycling, the process of transforming old into new products (Braungart 2013; Emgin 2012). Despite its growing popularity, research on the topic is scarce and the market for upcycled products is still small (Sung 2015; Wilson 2016).

Across four experiments, we show how consumer demand for upcycled products may be fueled through origin appeals (telling consumers what the product used to be), which we compare to outcome appeals (telling consumers what the product is now). We provide a consumer-status-explanation (McFerran and Argo 2014) for why this is the case. Specifically, we show how upcycled products make consumers feel unique, special, and recognized because of the historical value of their original material (Emgin 2012). We further show that origin appeals are effective primarily, if they highlight what consumers cannot discern themselves, i.e., if the origin is only subtly (e.g., vases made out of insulators) vs. obviously (e.g., vases made out of light bulbs) visible. Finally, we rule out three competing explanations, authenticity, nostalgia, and sustainability, and show that our propositions are robust across products and original materials.

*Study 1* establishes the effectiveness of origin appeals in the field. Two Facebook campaigns for an upcycling store were created (to increase page likes and online promotion clicks), targeting 1.34 million potential customers between 18 and 65. The ads featured an upcycled cake stand made from pot lids, a vase made from a light bulb and a pen holder made from forks. We manipulated appeal type, as in all subsequent studies, by communicating what the products used to be (“I used to be a...pot lid, light bulb, fork”; origin) vs. what they are now (“Now I am...a cake stand, a vase, a pen holder”; outcome). *Unique* and *total like rate* (likes relative to unique and total reach) and *unique* and *total click rate* (clicks relative to unique and total reach) were our DVs. Two-sample proportions z-tests revealed that origin appeals yielded higher unique ( $Z=6.72, p<.001$ ) and total like ( $Z=4.65, p<.001$ ) as well as click rates ( $Z=1.91, p=.06; Z=4.97, p<.001$ ).

**TABLE 1**

| STUDY 1 - AD PERFORMANCE BY APPEAL TYPE                                  |                |              |                |                  |                  |                 |
|--------------------------------------------------------------------------|----------------|--------------|----------------|------------------|------------------|-----------------|
| Campaign                                                                 | Appeal Type    | Total Likes  | Unique Reach   | Total Reach      | Unique Like Rate | Total Like Rate |
| Facebook page likes                                                      | Origin Appeal  | 129          | 81,736         | 221,441          | 0.16%            | 0.06%           |
|                                                                          | Outcome Appeal | 55           | 98,078         | 196,419          | 0.06%            | 0.03%           |
|                                                                          | <i>Total</i>   | <i>184</i>   | <i>179,814</i> | <i>417,860</i>   | <i>0.10%</i>     | <i>0.04%</i>    |
| Total Clicks Unique Reach Total Reach Unique Click Rate Total Click Rate |                |              |                |                  |                  |                 |
| Voucher promotion                                                        | Origin Appeal  | 842          | 293,790        | 794,260          | 0.29%            | 0.11%           |
|                                                                          | Outcome Appeal | 699          | 268,842        | 849,597          | 0.26%            | 0.08%           |
|                                                                          | <i>Total</i>   | <i>1,541</i> | <i>562,632</i> | <i>1,643,857</i> | <i>0.27%</i>     | <i>0.09%</i>    |

*Study 2* investigates individual products, tests for moderation, establishes the process and addresses authenticity as a competing explanation (Beverland and Farrelly 2010; DeLong, Heinemann, and Reiley 2005). Ninety students (50.5% female,  $M_{age}=22$  years) were instructed to evaluate ads for a vase and a cake stand in a 2(appeal type: origin vs. outcome; between-subjects) x 2(origin visibility: subtle cake stand vs. visible light bulb vase; within-subjects) factorial mixed experiment. Items for status (McFerran and Argo 2014), authenticity (Kadirov 2015; Newman and Dhar 2014), and demand (operationalized as purchase intention; Karmarkar and Bollinger 2015) were adapted from the literature.

A repeated-measures ANOVA revealed a significant interaction between appeal type and origin visibility on purchase intention ( $F(1,88)=7.21, p<.05, \eta_p^2=.08$ ). Origin appeals increased purchase intentions for the cake stand ( $t(88)=2.47, p<.05$ ), but not for the vase ( $t(88)=-1.06, p=.29$ ). Likewise, we found the expected interaction on status ( $F(1,88)=12.21, p<.001, \eta_p^2=.12$ ). Moderated mediation analysis (Hayes 2013) established an indirect effect of origin appeals on purchase intention for the cake stand ( $CI_{95}: [.172, 1.194]$ ) but not for the vase ( $CI_{95}: [-.814, .235]$ ). Authenticity mediated neither; it did not differ across groups.

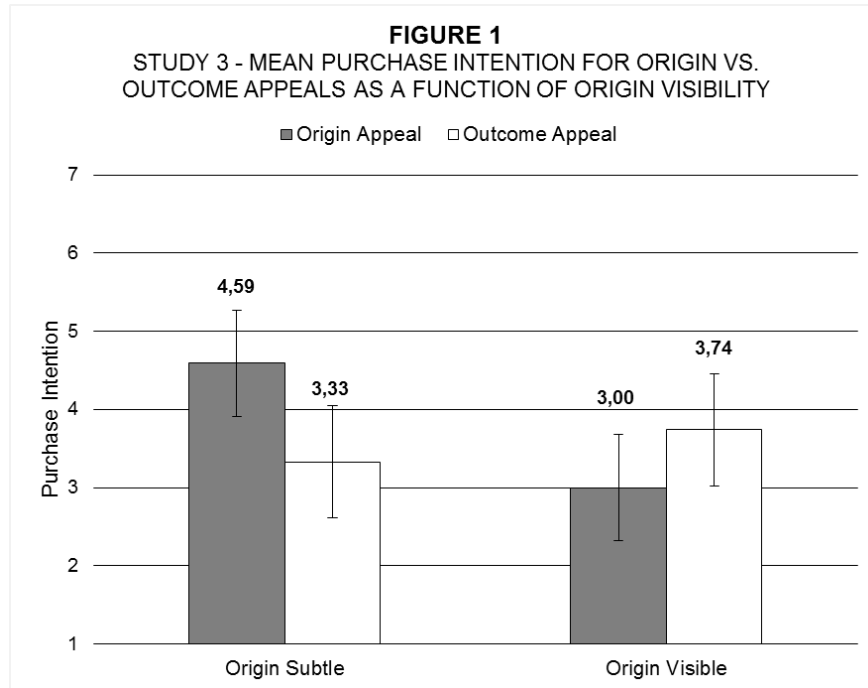
**TABLE 2**

| STUDY 2 - EFFECTS OF ORIGIN APPEALS ON PURCHASE INTENTION, CONSUMER STATUS & PERCEIVED AUTHENTICITY |                            |                |                       |                |
|-----------------------------------------------------------------------------------------------------|----------------------------|----------------|-----------------------|----------------|
| Origin Visibility                                                                                   | Cake Stand (Origin Subtle) |                | Vase (Origin Visible) |                |
| Appeal Type                                                                                         | Origin Appeal              | Outcome Appeal | Origin Appeal         | Outcome Appeal |
| Direct Effects                                                                                      | <i>M (SD)</i>              | <i>M (SD)</i>  | <i>M (SD)</i>         | <i>M (SD)</i>  |
| Purchase Intention                                                                                  | 2.84 (1.73)                | 2.04 (1.31)    | 2.82 (1.80)           | 3.24 (1.68)    |
| Consumer Status                                                                                     | 3.28 (1.57)                | 2.51 (1.24)    | 3.44 (1.38)           | 3.77 (1.63)    |
| Perceived Authenticity                                                                              | 5.17 (1.30)                | 4.65 (1.31)    | 5.19 (1.31)           | 5.08 (1.45)    |

*Study 3* focuses on a single product and rules out nostalgia, which is known to generate preferences for products with references to the past (Schindler and Holbrook 2003) as another explanation. Seventy-five female students ( $M_{age}=24$  years) evaluated an upcycled cake stand in a 2(appeal type: origin vs. outcome) x 2(origin visibility: subtle vs. visible) between-subjects experiment. One group saw a cake stand made from pot lids (subtle origin). Another group saw a stand made from old vinyl records (visible origin).

Demand and status were assessed as previously, nostalgia based on Wildschut et al. (2006).

The expected two-way interaction on purchase intention was significant ( $F(1,69)=7.69, p<.01, \eta_p^2 = .10$ ; Figure 1).



Further, origin appeals increased status for the subtle ( $M_{origin}=3.86, M_{outcome}=2.66, t(30) = 2.26, p<.05$ ), but not for the visible stand ( $M_{origin}=3.97, M_{outcome}=4.30, t(39)=-.73, p=.47$ ; two-way interaction:  $F(1,69)=4.86, p<.05, \eta_p^2 = .07$ ). A moderated mediation analysis produced an indirect effect of origin appeals on purchase intention for the subtle ( $CI_{95}: [.037, 1.154]$ ) but not for the visible stand ( $CI_{95}: [-.621, .116]$ ). Nostalgia failed to mediate the effect for both; it did not differ across groups.

*Study 4* generalizes our effects to different products and original materials, shows that status increases demand because origin disclosure imbues products with history and eliminates sustainability as another explanation (Sörqvist, Langeborg, and Marsh 2016). 482 female mTurkers ( $M_{age}=35$  years) participated in a 2(appeal type: origin vs. outcome) x 2(product type: subtle vs. visible) x 3(product category: bags, vases, bowls) between-subjects experiment.

We find the hypothesized interactions on purchase intention ( $F(1, 470)=14.52, p<.001, \eta_p^2 = .03$ ), status ( $F(1, 470)=22.48, p<.001, \eta_p^2=.05$ ) and history ( $F(1, 470)=17.20, p<.001, \eta_p^2=.04$ ) for all categories. We also find an interaction between appeal type and origin visibility on sustainability ( $F(1, 470)=7.61, p<.01, \eta_p^2 =.02$ ), making it a viable alternative account.

TABLE 2

| STUDY 4 - EFFECTS OF ORIGIN APPEALS ON PURCHASE INTENTION, CONSUMER STATUS, PERCEIVED HISTORY & PERCEIVED SUSTAINABILITY |                      |                      |                      |                      |
|--------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|
| Origin Visibility                                                                                                        | Subtle               |                      | Visible              |                      |
| Appeal Type                                                                                                              | Origin Appeal        | Outcome Appeal       | Origin Appeal        | Outcome Appeal       |
| <b>Product Category</b>                                                                                                  | <b>Shopping Bags</b> |                      |                      |                      |
| <b>Manipulation Check</b>                                                                                                | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> |
| Origin Visibility                                                                                                        | 3.10 (1.94)          | 2.69 (1.42)          | 6.01 (1.23)          | 5.53 (1.61)          |
| <b>Direct Effects</b>                                                                                                    |                      |                      |                      |                      |
| Purchase Intention                                                                                                       | 4.81 (2.02)          | 3.51 (1.90)          | 3.03 (1.94)          | 3.03 (1.90)          |
| Consumer Status                                                                                                          | 4.80 (1.40)          | 3.56 (1.50)          | 4.19 (1.59)          | 4.21 (1.45)          |
| Perceived History                                                                                                        | 5.11 (1.28)          | 3.57 (1.39)          | 5.03 (1.05)          | 4.41 (1.15)          |
| Perceived Sustainability                                                                                                 | 5.93 (.97)           | 5.49 (1.17)          | 5.55 (1.13)          | 5.32 (1.41)          |
| <b>Product Category</b>                                                                                                  | <b>Bowls</b>         |                      |                      |                      |
| <b>Manipulation Check</b>                                                                                                | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> |
| Origin Visibility                                                                                                        | 1.95 (1.40)          | 3.00 (2.00)          | 6.36 (.98)           | 6.40 (.90)           |
| <b>Direct Effects</b>                                                                                                    |                      |                      |                      |                      |
| Purchase Intention                                                                                                       | 4.08 (1.89)          | 3.55 (1.78)          | 4.15 (1.76)          | 4.66 (1.99)          |
| Consumer Status                                                                                                          | 4.19 (1.54)          | 3.86 (1.50)          | 4.75 (1.69)          | 5.32 (1.38)          |
| Perceived History                                                                                                        | 3.95 (1.25)          | 3.24 (1.14)          | 5.30 (1.26)          | 5.54 (1.09)          |
| Perceived Sustainability                                                                                                 | 5.54 (1.34)          | 5.34 (1.16)          | 5.09 (1.11)          | 5.80 (1.09)          |
| <b>Product Category</b>                                                                                                  | <b>Vases</b>         |                      |                      |                      |
| <b>Manipulation Check</b>                                                                                                | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> | <b><i>M (SD)</i></b> |
| Origin Visibility                                                                                                        | 2.78 (1.76)          | 3.57 (1.72)          | 6.05 (1.34)          | 6.58 (.69)           |
| <b>Direct Effects</b>                                                                                                    |                      |                      |                      |                      |
| Purchase Intention                                                                                                       | 4.59 (1.69)          | 3.71 (1.78)          | 3.49 (1.79)          | 4.17 (1.87)          |
| Consumer Status                                                                                                          | 4.45 (1.40)          | 3.86 (1.48)          | 4.38 (1.43)          | 4.81 (1.15)          |
| Perceived History                                                                                                        | 4.59 (1.26)          | 3.88 (1.30)          | 4.49 (1.11)          | 4.64 (1.16)          |
| Perceived Sustainability                                                                                                 | 5.73 (1.04)          | 5.28 (1.10)          | 5.00 (1.35)          | 5.24 (1.50)          |

Indirect effects of origin appeal via status on purchase intention turned significant for all products with subtle (CIs excluded 0), but not with visible origins (CIs included 0). Sustainability showed no consistent results. Sequential mediation analyses per product produced significant indirect effects from appeal type to purchase intention via history and status for all products with subtle origins (CIs excluded 0), corroborating our assumptions.

Taken together, this research is the first to present a status-based explanation for why consumers demand upcycled products after viewing origin appeals. Specifically, it suggests that upcycled products may be used as alternative signals of status (Bellezza, Gino, and Keinan 2014) because they contain history. We show that particularly under conditions of low origin visibility, marketers need not waste resources on promoting upcycled products as environmentally-friendly. Instead, they should promote their status-affording potential by showing how they can help consumers stand out from the crowd.

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## **Differences in Spending Time and Money: The Case of Charitable Giving**

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Charitable organizations rely both on monetary and time donations with recent research showing that Americans give over \$390 billion a year (Giving USA, 2017) and that 62.6 million people volunteered their time at least once a year (Bureau of Labor Statistics, 2016). Although charities may desire donations of both money and time, there is evidence that these two resources are psychologically distinct in a number of ways (Leclerc, Schmitt, & Dube, 1995; Mogilner & Aaker, 2009; Okada & Hoch, 2004; Zauberman & Lynch, 2005) and that these differences may impact consumers' behavior in a number domains, including charitable giving (Liu & Aaker, 2008).

In this research, we argue that differences in giving behavior of time and money can be attributable to how integral the donor is in the way a donation is used. We predict that individuals will feel a greater sense of control over donations of time than money because when donors give their time they are physically present for its actual consumption, which allows them to experience and shape the ultimate outcome of its use. In contrast, money is largely considered a means to an end (Lea & Webley, 2006), so once donors give money to a charity they are no longer instrumental in its ultimate usage. Since ability to control and influence outcomes is considered a primary motivator of behavior (Kelly, 1971; Miller, 1979) and individuals strive to be causal agents (deCharms, 1968), we predict that greater perceived control over donation outcomes will lead to increased donation intentions (and ultimately donation amounts) for time versus money. Four studies tested these predictions.

199 MTurk workers participating in Study 1a were told that the Humane Society had approached them about making a time or money donation depending on their condition. They were briefly told about the charity's activities and informed that their donation would be assigned to an activity based on need. Participants indicated how interested they were in donating to the Humane Society, how much they wanted to donate (on slider scale ranging from 0 = very little time/money to 100 = a lot of time/money), and how much control they felt like they had over the way their donation would be used. As predicted, those in the time condition were significantly more interested in donating ( $M_{\text{Time}} = 4.71$  vs.  $M_{\text{Money}} = 4.17$ ) and wanted to donate significantly more ( $M_{\text{Time}} = 43.23$  vs.  $M_{\text{Money}} = 32.85$ ). Further, participants who considered donating time felt significantly greater control over their donation ( $M_{\text{Time}} = 5.50$  vs.  $M_{\text{Money}} = 4.99$ ). Mediation analysis (Hayes, 2013 PROCESS Model 4) revealed that perceived control over the donation mediated interest in donating (95% CI: [-.1461 to -.0005]) and amount donated (95% CI: [-2.2152 to -.0892]). In study 1b, 274 MTurkers completed the same study utilizing a different charity, Feeding America. The results replicated with time donations leading to greater perceived control and amount donated.

Study 2 examined the predictions via moderation (Spencer, Zanna, & Fong, 2005) by directly manipulating the participants' ability to influence how their donations will be utilized. We predicted that once participants have the ability to shape their donation through other means that the difference between time and money would disappear. 185

MTurk workers (with an associate's degree or higher) were assigned to one of four conditions in a 2 (Donation Type: Time vs. Money) x 2 (Control Over Donation: Choice vs. Baseline) design. Participants were told that the alumni association of their college approached them about a new program aimed at promoting donations of time or money. Half the participants were further told that they can choose one of five charities for their donation. The other half were told that their donation would be assigned to one of these five charities based on need. All participants answered the same questions as before. We found the expected significant interaction between donation type and control where participants showed significantly more interest in donating time ( $M_{\text{Time}} = 3.93$  vs.  $M_{\text{money}} = 3.18$ ) in the baseline condition, but not when participants chose which charity their donation would be allocated to ( $M_{\text{Money}} = 4.54$  vs.  $M_{\text{Time}} = 4.23$ ). To test the role of perceived control, we conducted a moderated mediation analysis (Hayes PROCESS model 7) with resource as the IV, manipulated control via choice as the moderator, (measured) perceived control as the mediator, and donation interest as the DV that yielded significant results (95% CI: .00248 to 0.4316).

In Study 3 we provide additional evidence for our proposed process by adding a third condition which utilized another form of donation – goods. We reason that while purchased with money (and not time), goods also allow donors to have more control over how their donation will be utilized. Thus, we expected the goods condition to behave like the time condition, despite being more interchangeable with money. 181 MTurk workers considered donating time, money, or food items to Second Harvest (foodbank nonprofit) and answered the same questions as before. To test our predictions, we used orthogonal contrast codes (Rosenthal, Rosnow, & Rubin, 2000) as predictor variables. We find that consumers making a donation of time ( $M = 4.37$ ) and food ( $M = 4.81$ ) were significantly more interested in donating as compared to money ( $M = 3.77$ ), but there was no significant difference in donation interest between time and food conditions. Once again, a mediation analysis (PROCESS Model 4) revealed that perceived control mediates the relationship between donation type and interest in donating.

Taken together, the studies reported provide evidence that differences in how much control donors feel over their donation can explain why consumers prefer to give time over money. Put differently, because a time donation can only be spent with the involvement of the donor, these offerings allow the donor to take direct part in how charities use their donations. This perceived control not only increases willingness to donate, but also the amount donated. Finally, we find that other forms of donation that can allow for such control (e.g., goods) have similar beneficial effects on donation behavior.

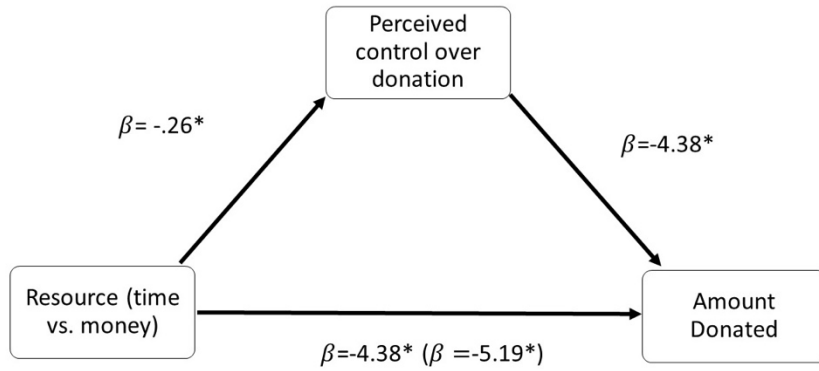
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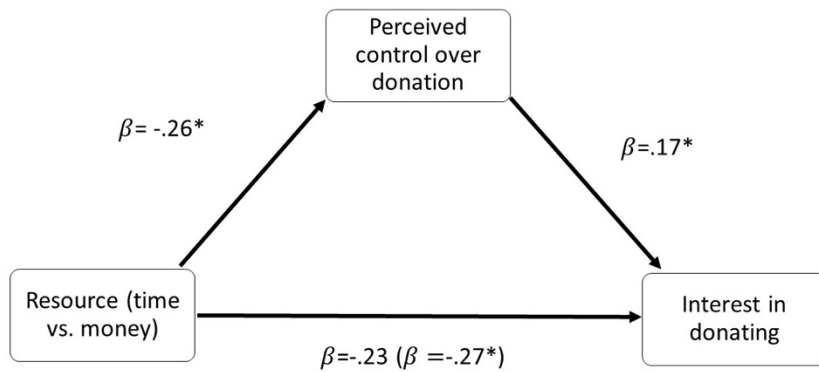
Figure 1

Study 1a: Differences in Perceived Control over How the Donation is Used Mediates Donation Intentions



Hayes Process Model 4 [95% CI]: (-2.2152, -.0892)

\* $p < .05$

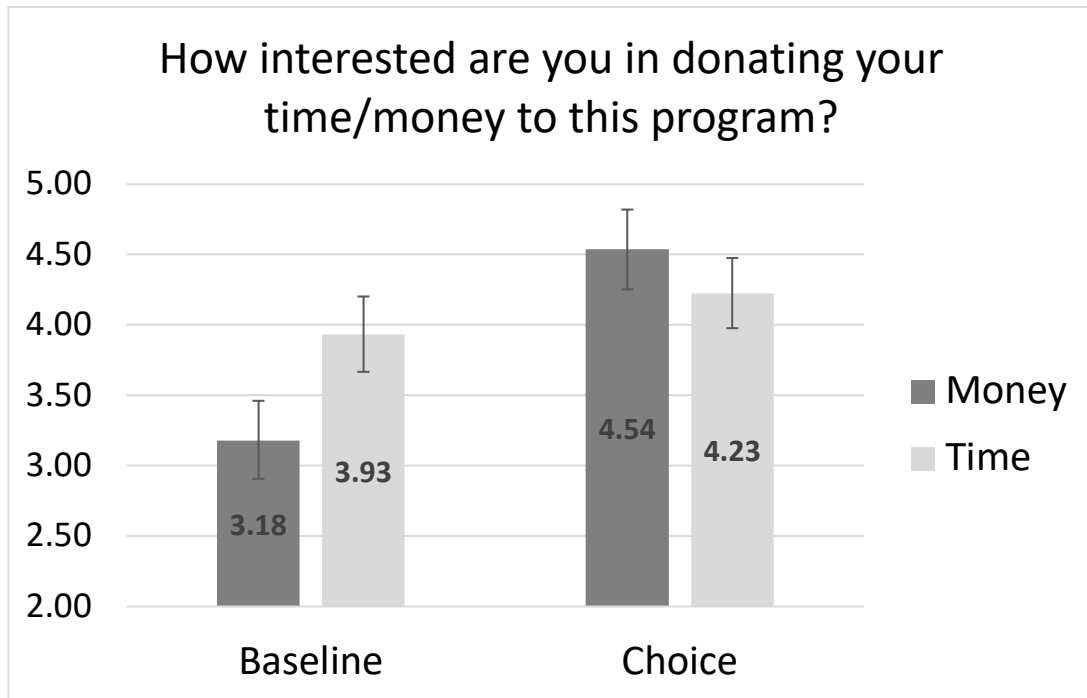


Hayes Process Model 4 [95% CI]: (-.1461, -.0005)

\* $p < .05$

Figure 2

Study 2- Interest in Donating as Function of Resource (Money vs. Time) and Control (Choice vs. Baseline)



### Who Cares What It Costs, As Long As It Fits! Why Consumers Prefer Material over Cash Donations

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When disaster strikes, consumers often lend a helping hand by making charitable donations. Although charities prefer cash donations and can efficiently manage them (e.g., by stretching dollars and leveraging economies of scale), consumers often give material goods, such as blankets for hurricane victims, prescription medicine for the sick, and food for the hungry. Although well intentioned, material donations can leave charities worse off, because they bear the costs of transporting, storing, and in many cases disposing of products with limited usefulness (Fessler 2013).

In a preliminary analysis, financial data from the 51 largest US non-profit food banks revealed that consumers donate considerably more food than cash ( $M_{Value\ of\ Donated\ Food}=\$39.1M$  vs.  $M_{Donated\ Cash}=\$6.2M$ ). This is problematic for two reasons. First, food donations are associated with greater processing, storing, and distribution costs, compared to food directly purchased using cash donations ( $M_{Per\ lb\ Cost\ of\ Donated\ Food}=\$1.98$  vs.  $M_{Per\ lb\ Cost\ of\ Purchased\ Food}=\$0.95$ ). Second, these costs actually *exceed* the estimated value of donated food ( $M_{Per\ lb\ Cost\ of\ Donated\ Food}=\$1.98$  vs.  $M_{Per\ lb\ Value\ of\ Donated\ Food}=\$1.78$ ).

The studies that follow examine the psychology underlying consumers' preference for material over liquid donations.

Consumers may prefer to give material donations because products more easily fit into the schemas they hold about the charity. That is, from a *mental accounting* perspective, it may be more desirable to give books to a literacy charity because such gifts "fit" the organization better than money does (cf. Reinholtz et al. 2015). Building on this perspective, we hypothesize that consumers may consider material donations to be more typical and frequently given than cash, because they are more schematically congruent with charities' goals.

Alternatively, the preference for material donations could be due to a type of *cost neglect*, whereby consumers focus on the intended impact of their donation (cf. Cryder et al. 2012), but fail to account for the costs organizations bear for handling/processing donations. In the personal finance domain, consumers underweight expenses relative to income when forecasting the availability of financial resources (Berman et al. 2016). If consumers exhibit a similar cost neglect for material donations, that could partially explain why they are preferable to cash.

Study 1 features a 2 groups (material vs. cash) incentive compatible between-participants design. Online participants (N=201) were asked to choose between receiving a \$0.75 bonus or donating either the bonus itself (cash condition) or an equivalently valued canned good (material condition) to Feeding America. Participants in the material condition were twice as likely to donate (36%*Material* vs. 17.8%*Cash*; logistic regression  $b = .95$ ,  $Wald = 8.18$ ,  $p = .004$ ).

In a replication study (N = 202), we asked all participants (those who donated and those who did not) to indicate how *beneficial* and *helpful* they believed donations would be (both collapsed into a single index of *impact*;  $\alpha = .94$ ). Further, to test for mechanism we asked participants to indicate how *typical* and *frequent* they believed their donation was (corresponding to a mental accounting story), and also the degree to which they believed their donation would impose costs on the organization (corresponding to the cost neglect story). Mediation analysis revealed that the material vs. cash effect on *impact* was mediated by mental accounting ( $b = .21$ , CI: .07 to .43), not cost neglect (CI includes 0).

To bolster these findings, study 2 experimentally manipulates cost salience in a 2(material vs. cash) by 2(costs salient vs. not) between-participants design. In this study, participants read about a shopper named Sam who decides to donate either books or money to help alleviate illiteracy in his community. To manipulate cost salience, half of participants were randomly assigned to elaborate on how Sam's donation imposes costs on the organization. Consistent with S1, participants again believed that material donations would be more impactful than equivalent cash donations ( $M_{Material}=5.8$  vs.  $M_{Cash}=5.4$ ;  $F(1,295)=10.59$ ,  $p=.001$ ). Participants also believed that the donation would be less impactful when costs were salient vs. not ( $M_{CostSalient}=5.4$  vs.  $M_{NotSalient}=5.7$ ;  $F(1,295)=5.41$ ,  $p=.02$ ). However, the cost salience manipulation did not interact with the

material vs. cash effect (interaction  $F < 1$ ,  $p = .48$ ). Further, moderated mediation analysis revealed that the material vs. cash effect on impact was mediated by mental accounting at both levels of the cost manipulation ( $b_{Costs\ Salient} = -.06$ , CI:  $-.16$  to  $-.01$ ;  $b_{Not\ Salient} = -.09$ , CI:  $-.23$  to  $-.02$ ). Again, however, no evidence emerged that the effect was mediated by cost neglect (all CIs include 0).

Study 3 examines a boundary condition where participants may in fact prefer cash to material donations. Charitable organizations often collect used products like computer equipment and cars for liquidation, instead of continued use. We find that when an organization intends to liquidate (vs. use) material donations, participants want Sam to donate cash ( $M_{Liquidate} = 2.8$  vs.  $M_{Use} = 3.9$ ;  $F(1, 148) = 13.47$ ,  $p < .001$ ; lower values = stronger preference for cash).

If mental accounting is driving consumers' belief that material donations are more impactful than cash, then it should be possible to diminish perceived impact by reducing the fit between the donation and the charity. Accordingly, study 4 manipulates whether Sam's donation (outdoor equipment marked for liquidation vs. cash) matches the focus of the charity (outdoor- vs. financial-education). When the material donation "fits" the charity, participants believe it will be as impactful as cash (despite planned liquidation;  $M_{Material} = 5.8$  vs.  $M_{Cash} = 5.9$ ;  $F(1, 298) < 1$ , *NS*). However, when there is a mismatch, the material good is viewed as being significantly less impactful than cash ( $M_{Material} = 5.1$  vs.  $M_{Cash} = 5.8$ ,  $F(1, 298) = 13.64$ ,  $p < .001$ ; interaction  $F(1, 298) = 3.81$ ,  $p = .05$ ).

Together, these findings suggest that consumers perceive material donations to be more impactful than equivalently valued cash donations, despite the costs organizations bear to process and handle them. This bias appears to result from mental accounting, not cost neglect, and it reverses when the donations will (1) be liquidated or (2) do not match the charity's goals. These findings can help provide managerial guidance to charities for how best to minimize the risk of receiving costly donations.

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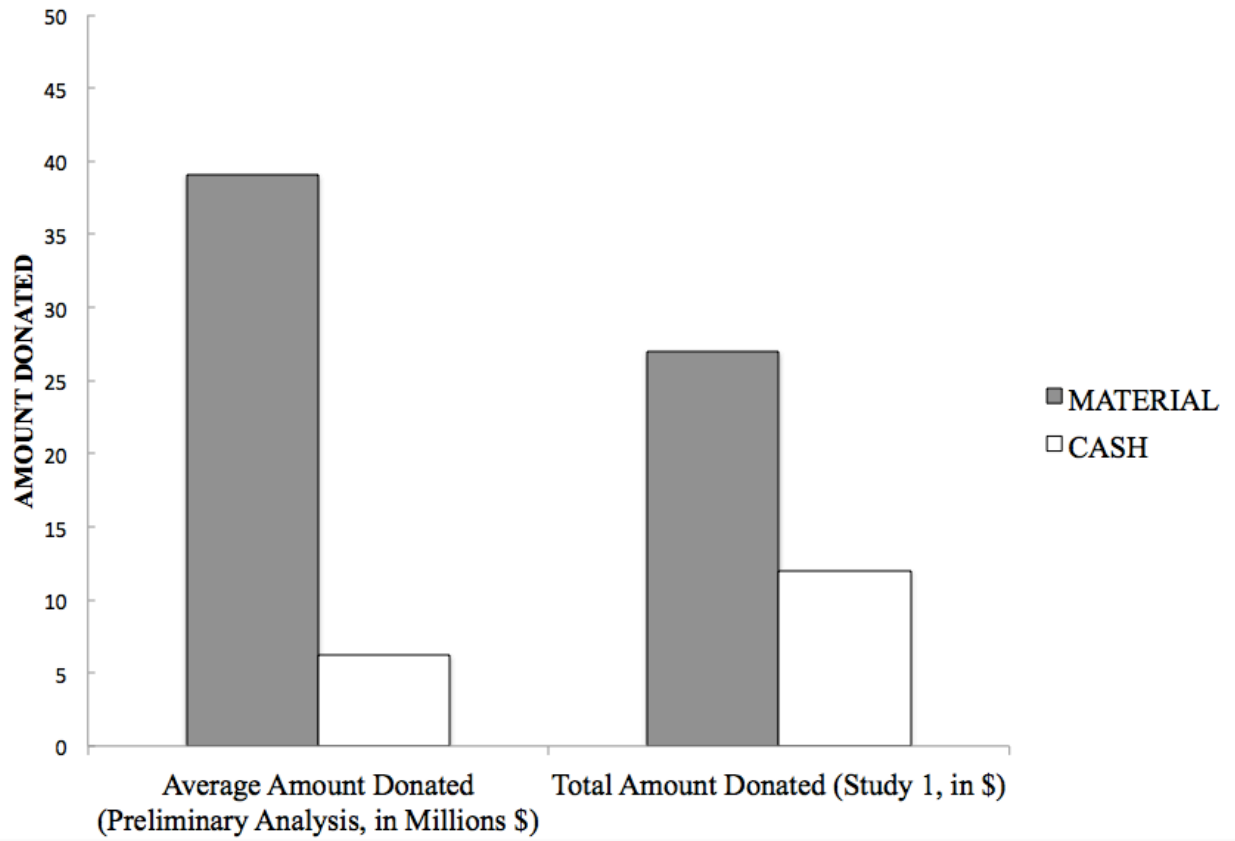


Figure 1. Average amount donated in the preliminary analysis and total amount donated in study 1.



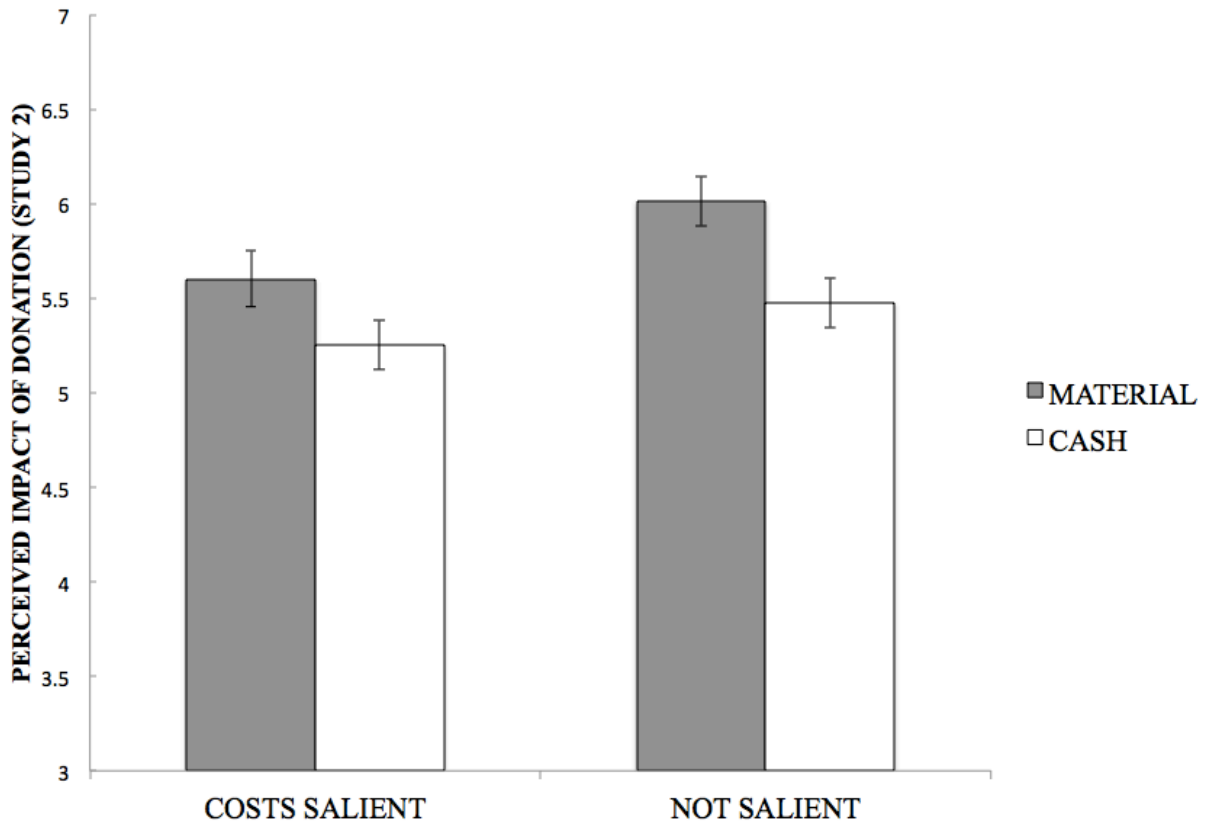


Figure 2. Effect of material vs. cash and cost salience on perceived impact of donation in study 2.

### **Persistence Through Possessions: The Impact of Mortality Salience on Desire to Give Things Away**

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Darren Dahl, University of British Columbia, Canada

Humans have a unique ability to think self-reflectively. As such, we are faced with awareness that death is inevitable; a notion that creates existential anxiety. Terror Management Theory (TMT; Greenberg, Solomon, and Pyszczynski 1997; Solomon, Greenberg, and Pyszczynski 1991) suggests that when faced with their own mortality, people engage in different forms of worldview defense that help buffer against this anxiety. For example, mortality salience (MS) has been shown to increase behaviors and attitudes that support cultural worldviews and defend against views that are counter to one's core beliefs (e.g., punishing those who disconfirm one's values; Greenberg et al. 1990).

TMT theory suggests that upholding cultural worldviews provides a sense of symbolic immortality—that one is a valuable part of something larger, more significant, and more resilient than one's own existence. In a capitalistic society, one cultural norm is to be materialistic. Thus, past work finds that MS increases materialistic tendencies (Arndt et al. 2004; Kasser and Sheldon 2000; Mandel and Heine 1999; Rindfleisch,

Burroughs, and Wong 2009). Therefore, one potential hypothesis is that MS should *decrease* willingness to give to others (either possessions or money). However, we make the more counterintuitive hypothesis that MS will lead people to *increase* the tendency to give things to others. We make this prediction by drawing on other work that suggests that possessions are a part of the extended self (Belk 1988; Price, Arnould, and Curasi 2000). We hypothesize that MS increases desire for transcendence (i.e., to be a part of something bigger than the self so one might exist beyond death) which can be attained by giving away things that are connected to the self. Thus, MS should increase giving behavior, but only when there is the potential for transcendence.

In study 1, using a 2 (MS v. Social Exclusion) x 2 (Name with Donation v. No Name) between-subjects design, we explore whether MS increases donation intentions when there is possibility of transcendence. Participants first completed a MS manipulation wherein they wrote about their own death or social exclusion (Arndt et al. 2002). After a filler task, participants were told about a campaign by the ASPCA, in which they either saw that their donation would help support animals in need (*no name condition*) or that their donation would also include their name added to a mural at their local ASPCA (*name condition*). They were then asked donation intentions (time and money). Results revealed significant main effects of experience type and significant interactions of experience and name (Table 1). Importantly, in the MS condition, the inclusion of the donor's name led to significantly higher donation intentions (Fig. 1).

Study 2 replicated the above effect examining donation of possessions. We ran a 2 (MS v. Typical Day) x 2 (Sign v. Don't Sign) between-subjects study. Prior to arriving, participants were asked to bring a book they no longer use. Participants first underwent MS manipulation and completed a filler task. They were then told that the university teamed with a local charity to do a book drive. In the *sign* condition, participants were told that the charity wanted them to write a small inscription and sign their name in the book. We presumed that by signing the book, this would enable transcendence via the product. After signing the book, they were asked whether they wanted to donate the book and, if so, to place the book in the donation bin. In the *no sign* condition, participants were simply asked to donate the book they brought. Binary logistic regression revealed a significant effect of signing ( $B = .270$ ,  $Wald(1) = 3.86$ ,  $p = .05$ ) and a significant interaction of signing and experience ( $B = -.290$ ,  $Wald(1) = 4.45$ ,  $p = .035$ ; Fig. 2). When not asked to sign, only 24% of participants in the death condition donated. When asked to sign the book, though, 49% of participants donated.

Using a 2 (MS v. Typical Day) x 2 (Immortal Group v. Transient Group) between-subjects design, study 3 explored the role of transcendence. Participants were given a MS manipulation then told that they just joined a group that would either disappear once they were gone (*transient group*) or live on after them (*immortal group*; Routledge and Arndt 2008). Finally, participants were asked how likely they would be to give a piece of clothing that was important but no longer used. Results revealed a significant interaction of experience and immortality ( $F(1, 216) = 3.851$ ,  $p = .05$ ) such that the likelihood of giving an item under MS decreased when they had other means of transcendence (Fig. 3).

Study 4 provides mediational evidence for transcendence and explores the role of extended self in giving behavior. We ran a 3 (MS v. Social Exclusion v. Typical Day) x 2 (Close Item v. Far Item) between-subject design. After undergoing the MS manipulation, participants were asked to think about items that were either reflective of

their identity (*close*) or unrelated to their identity (*far*). Participants were then asked about their likelihood to give the item away and questions about perceived transcendence. Results revealed a marginal main effect of experience ( $F(2, 488) = 2.79, p = .06$ ), a significant effect of item type ( $F(1, 488) = 4.13, p = .04$ ), and significant interaction ( $F(2, 488) = 4.07, p = .02$ ). When asked to think about far items, all participants were equally likely to give. However, when asked to think about close items, MS led to significantly higher giving (Fig. 4). Importantly, moderated mediation revealed that perceived transcendence mediated the relationship between MS and giving, but only for close items (Fig. 5).

This work provides evidence that another way to achieve symbolic immortality in the face of MS is through giving to others. Specifically, MS increases giving when possessions or donations are imbued with a sense of self and allow consumers to achieve perceived transcendence. Counter-intuitively, we find that MS prompts people to be more likely to give away items that are close to the self because this is the condition under which self-transcendence is highest.

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Figures 1a – 1b: Study 1 Graphs

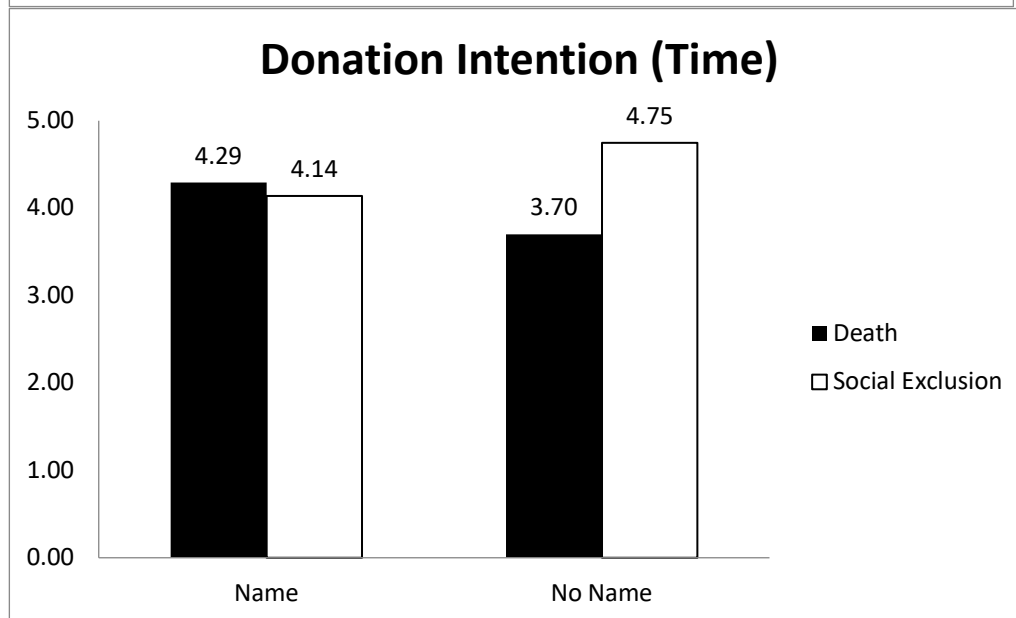
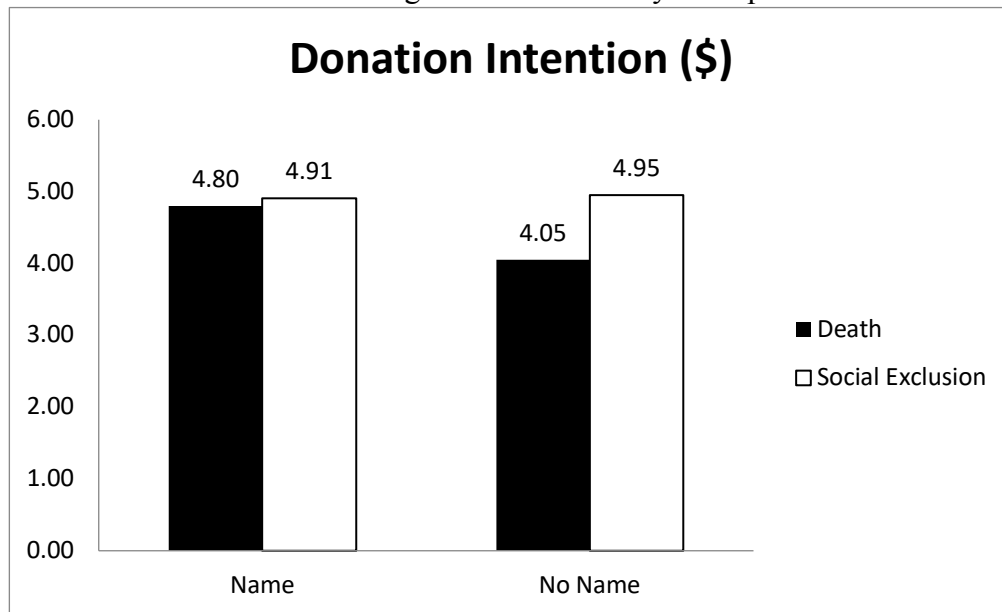


Figure 2: Study 2 – Book Donation

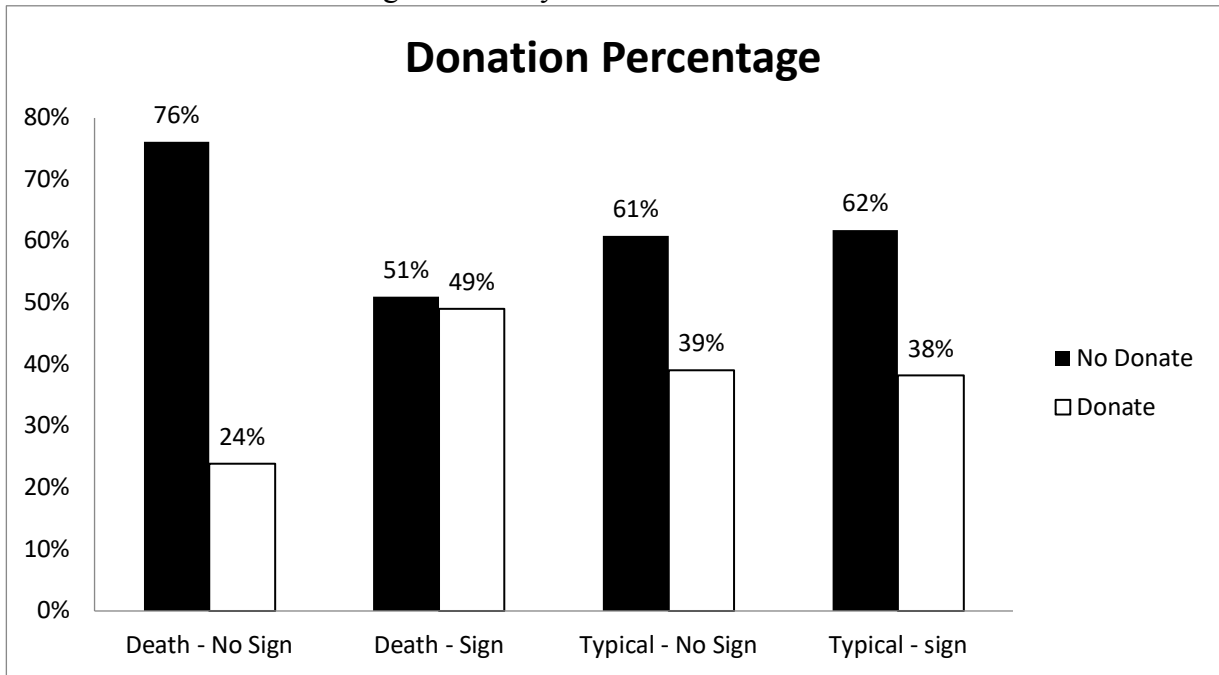


Figure 3: Study 3 – Likelihood of Giving Possession

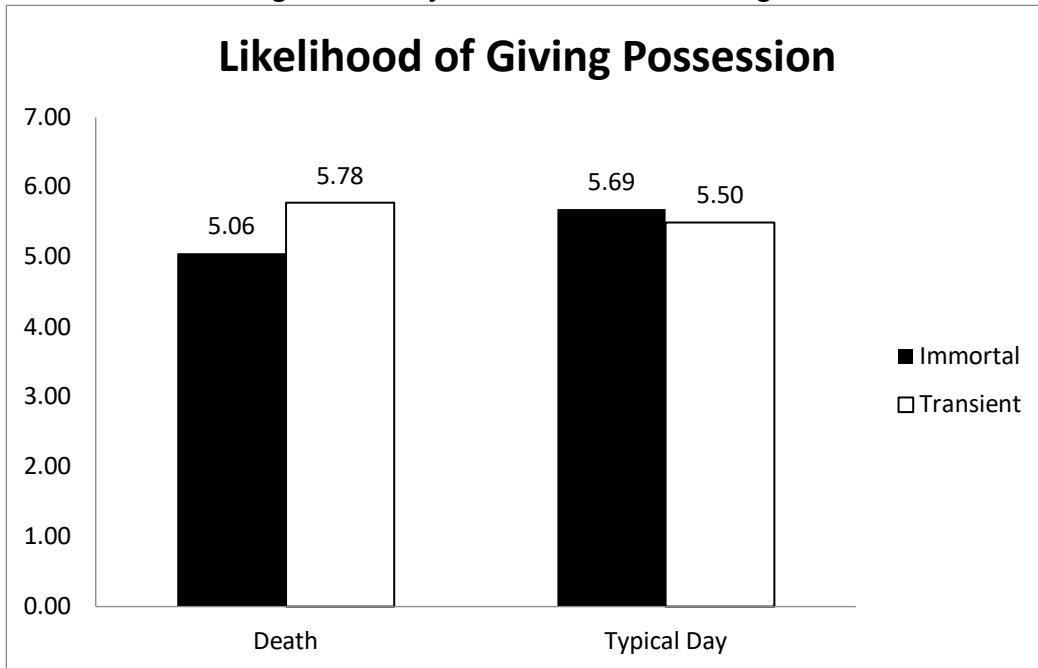


Figure 4: Study 4 – Likelihood of Giving Possession

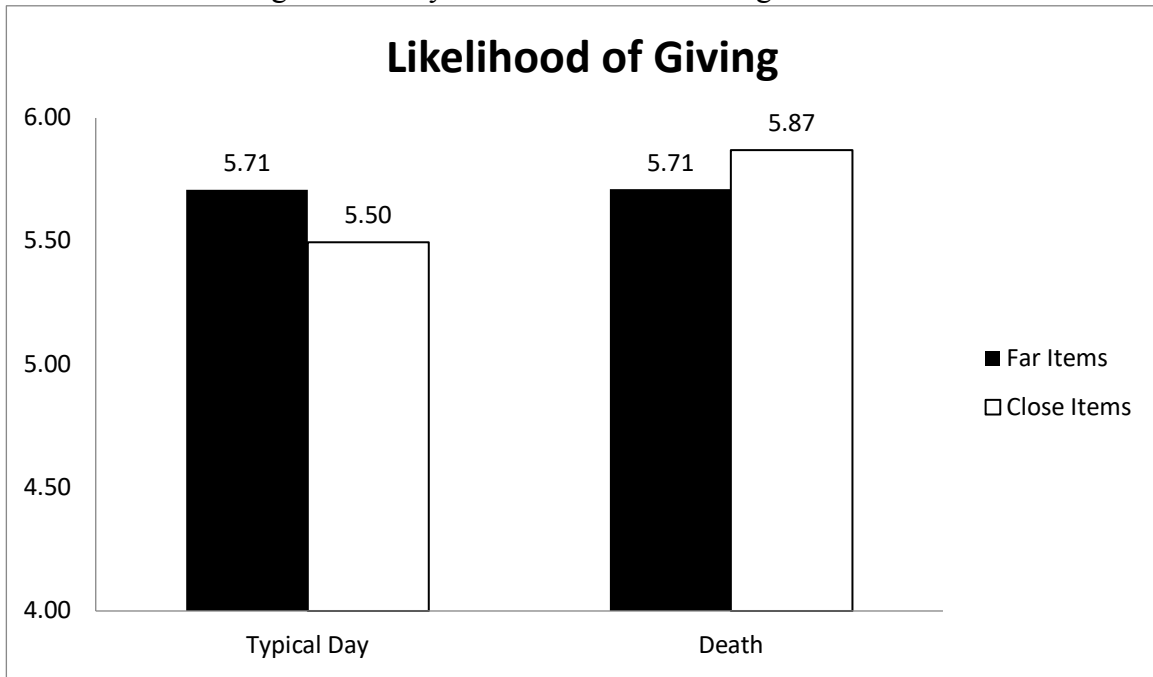
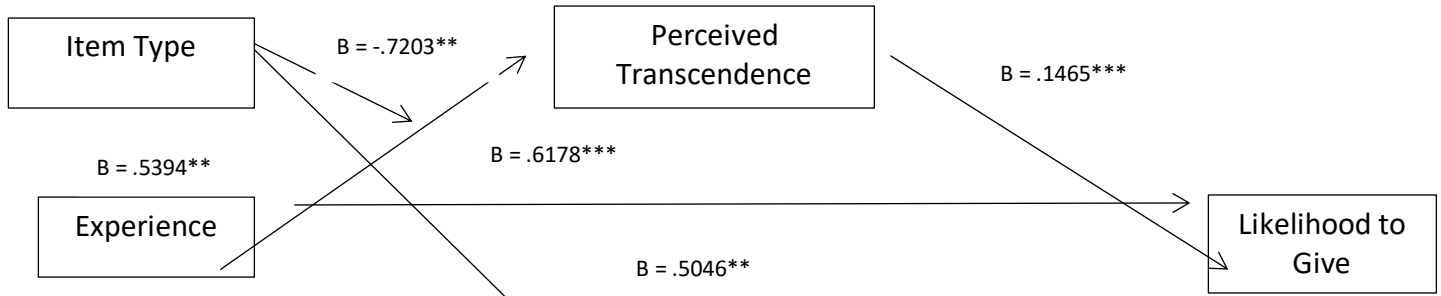


Figure 5: Study 4 – Moderated Mediation



Conditional Indirect Effects:  
 Close Items: .95BCa Confidence Interval (.0248, .1666)  
 Far Items: .95BCa Confidence Interval (-.1099, .0308)  
 \* $p < .05$   
 \*\*  $p < .01$   
 \*\*\* $p < .001$

TABLE 1: STATISTICAL RESULTS

| Study   | DV                        | Descriptive Statistics                                                                                                                                                                                                                                                 | Main Effect                                                                                                                             | Interaction                           |
|---------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Study 1 | Donation Intention (\$)   | <p><i>Death:</i> <math>M_{Name} = 4.80</math> v. <math>M_{NoName} = 4.05</math></p> <p><i>Social Exclusion:</i> <math>M_{Name} = 4.91</math> v. <math>M_{NoName} = 4.95</math></p>                                                                                     | <p><i>Name:</i> <math>F(1, 288) = 2.70, p = .10</math></p> <p><i>Experience:</i> <math>F(1, 288) = 5.33, p = .02</math></p>             | $F(1, 288) = 3.36, p = .06$           |
|         | Donation Intention (Time) | <p><i>Death:</i> <math>M_{Name} = 4.29</math> v. <math>M_{NoName} = 3.70</math></p> <p><i>Social Exclusion:</i> <math>M_{Name} = 4.14</math> v. <math>M_{NoName} = 4.75</math></p>                                                                                     | <p><i>Name:</i> <math>F(1, 288) = .004, p = .95</math></p> <p><i>Experience:</i> <math>F(1, 288) = 3.73, p = .05</math></p>             | $F(1, 288) = 6.52, p = .01$           |
| Study 2 | Book Donation             | See graph                                                                                                                                                                                                                                                              | <p><i>Signing:</i> <math>B = .270, Wald(1) = 3.86, p = .05</math></p>                                                                   | $B = -.290, Wald(1) = 4.45, p = .035$ |
| Study 3 | Likelihood of Giving      | <p><i>Death:</i> <math>M_{Immortal} = 5.06</math> v. <math>M_{Transient} = 5.78</math></p> <p><i>Typical Day:</i> <math>M_{Immortal} = 5.69</math> v. <math>M_{Transient} = 5.50</math></p>                                                                            | <p><i>Experience:</i> <math>F(1, 216) = .538, p = .464</math></p> <p><i>Immortality:</i> <math>F(1, 216) = 1.350, p = .247</math></p>   | $F(1, 216) = 3.851, p = .05$          |
| Study 4 | Likelihood of Giving      | <p><i>Death:</i> <math>M_{Close} = 5.87</math> v. <math>M_{Far} = 5.71</math></p> <p><i>Typical Day:</i> <math>M_{Close} = 5.50</math> v. <math>M_{Far} = 5.71</math></p> <p><i>Social Exclusion:</i> <math>M_{Close} = 5.07</math> v. <math>M_{Far} = 5.79</math></p> | <p><i>Experience:</i> <math>F(2, 488) = 2.79, p = .06</math></p> <p><i>Item Type:</i> <math>F(1, 488) = 4.13, p = .04</math></p>        | $F(2, 488) = 4.07, p = .02$           |
|         | Perceived Transcendence   | <p><i>Death:</i> <math>M_{Close} = 5.08</math> v. <math>M_{Far} = 3.41</math></p> <p><i>Typical Day:</i> <math>M_{Close} = 4.47</math> v. <math>M_{Far} = 3.41</math></p> <p><i>Social Exclusion:</i> <math>M_{Close} = 4.61</math> v. <math>M_{Far} = 3.50</math></p> | <p><i>Experience:</i> <math>F(2, 488) = 1.10, p = .334</math></p> <p><i>Item Type:</i> <math>F(1, 488) = 101.20, p &lt; .001</math></p> | $F(2, 488) = 3.47, p = .03$           |

## **4.6 Thy Self & Others: Me Relative to Others Individual Papers**

### **You Are What You Get: The Effects of Receiving Gifts on Reflected Appraisals, Identity, and Future Consumption**

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Gifts are an important form of consumption, representing 2% of total consumer spending (U.S. Bureau of Labor and Statistics 2013). Most research on gifting has focused on givers, as the actual purchasers of the product. Yet, despite calls for more research on the topic (Joy, 2001; Larsen & Watson, 2001), little research examines the impact of gifts on receivers.

To address this gap, we examine how gifts have the potential to change how receivers view themselves, and in turn, influence their future consumption. Prior research has focused on gift-givers' intentions to symbolically communicate their relationship with the receiver (Belk, 1996; Schwartz, 1967; Ward & Broniarczyk, 2011; 2016). We suggest that gifts can also communicate information about how the giver views the receiver, and that this information can actually change how the receiver views him or herself. Specifically, we suggest that people form reflected appraisals (Tice & Wallace, 2011) from the gifts they receive (i.e., beliefs about how the giver views them), and that these reflected appraisals have the potential to affect receivers' self-appraisals (their actual view of themselves) (Cooley, 1902; Mead, 1934; Shrauger & Schoeneman, 1979). For example, a gift of sports team merchandise may communicate to the receiver that the giver perceives them as a fan, and the belief that they are perceived this way may be sufficient to change the receivers own beliefs about the extent to which they are a fan.

If receiving gifts can alter identity, then future consumption behaviors should also align more closely with the "gifted identity." Possessions, in general, are important aspects of self-identities (Belk, 1988) and people are more attracted to brands, products, and retail environments that are congruent with their identity (e.g., Berger & Heath, 2007; Burkett, 2006; Kettle & Häubl, 2011; Oyserman, 2009). Therefore, if receiving identity-signalling gifts can influence identity through reflected appraisals, then receiving these same items as gifts should positively influence spending toward other products congruent with this identity. Overall, we predict that gifts will influence future spending and that this is mediated by reflected appraisals and identity.

### **Overview of Studies**

These ideas were tested across five experiments. Experiments 1a and 1b examined how gifts can influence identity through reflected appraisals. Experiments 2a and 2b demonstrated moderation of process, providing evidence that gifts inform reflected appraisals and that this subsequently influences identity. Experiment 3 tested this effect in a behavioral setting, and examined the influence of receiving a gift on future spending behavior.



Experiment 1 was a 3-level (Product Source: Gift, Prize, Control) between-participant design. Participants imagined receiving an item branded with either a sports team (1a) or a city (1b) that they received as a gift or a randomly drawn prize (no item received in the control condition). Receivers identified more strongly with both the sports team and the city when the item was received as a gift than a prize or in the control condition (Table 1). This effect was mediated by receivers' beliefs that the giver viewed them as possessing the identity signaled by the gift (i.e., reflected appraisals) (1a:  $CI_{95\%} = .13, 1.18$ ; 1b:  $CI_{95\%}: .49, 1.41$ ). These experiments showed that receivers' identity was more affected after receiving an item as a gift compared to incidental receipt (e.g., as a prize) and that this was mediated by reflected appraisals.

Experiment 2a replicated the previous findings and demonstrated moderation of process by manipulating the extent to which the gift could signal givers' view of the receiver (diagnosticity). We also manipulated whether the item was likely to be associated with an identity, leading to a 2(Gift Identity: Yes, No) X 2(Gift Diagnosticity) between-subjects experimental design. Participants followed a similar procedure to Experiment 1, except their gift either portrayed a specific identity (the name of a city) or was blank (Gift Identity) and was either given to only the receiver or to multiple recipients (Diagnosticity). As predicted, the gift primarily affected identity and reflected appraisals when it was associated with a particular identity and when it was given to the receiver only (vs. multiple people receiving the same gift) (Interaction:  $F(1,246) = 7.77, p < .01$ ). Similar results were found in Experiment 2b where the effect of receiving an identity-signaling gift on identity was larger when given by a socially-close (more diagnostic) vs. socially-distant (less diagnostic) other (Interaction:  $F(1,288) = 4.66, p < .05$ ). Process evidence demonstrated that the moderated effect was mediated by receivers' beliefs that the giver viewed them as possessing the identity signaled by the gift (Table 1, Figure 2, and Figure 3).

Experiment 3 replicated and extended the previous findings by observing how receiving gifts can influence future spending behavior. Following a single factor 2(Product Source: Gift, Compensation) between-participant design, all participants actually received an item (sport team branded lanyard). Participants were either led to believe the lanyard had been picked out for them as a gift by their friend (in an adjoining room) or that it had been given to everyone as compensation for participating. After filling out a questionnaire similar to that of Experiment 1, participants were asked if they wanted to buy \$1 raffle ballots for the chance to win two tickets to see a game of the same sports team branded on the lanyard. Participants purchased more raffle ballots after having received the lanyard as a gift (vs. as compensation). This was sequentially mediated through reflected appraisals and identity ( $CI_{95\%}: .03, .16$ ) (Table 1, Figure 3).

## Conclusion

Overall, by providing evidence that gifts can influence future spending, we highlight an important consequence of gifts from the receiver's perspective. Across five experiments, we provide evidence that receivers infer how the giver views them from the gift and that this alters their identity and future spending. This highlights gifts as one possible source of consumer identities, where consumers come to identify with certain brands, products, and activities because of the gifts they receive. Future research should seek to clarify the boundary conditions and longevity of this effect, continuing a focus on

understanding how gifts influence receivers more directly.

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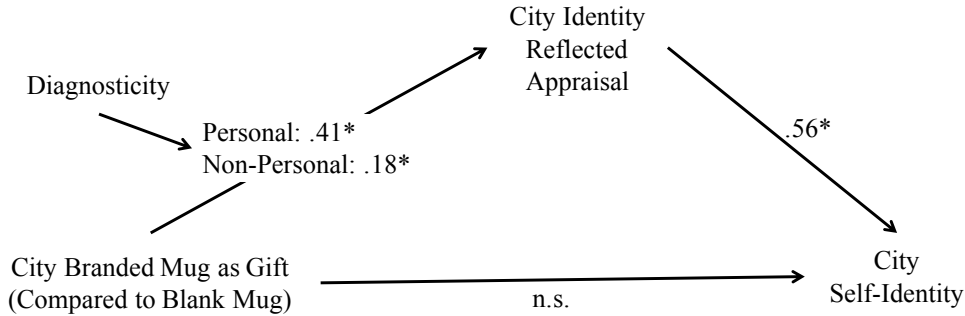
**Table 1**  
**Experimental Treatments, Means, and Standard Deviations**

| <b>Study</b> | <b>Item Signals<br/>Consumer<br/>Identity</b> | <b>Product Source</b>                      | <b>Target Reflected<br/>Appraisals</b> | <b>Target Self-<br/>Identity</b> | <b>Identity<br/>Spending</b> |
|--------------|-----------------------------------------------|--------------------------------------------|----------------------------------------|----------------------------------|------------------------------|
| 1a           | No                                            | No Item (Control)                          | 1.26 (.67) <sup>a</sup>                | 1.40 (.64) <sup>a</sup>          |                              |
|              | Yes                                           | Prize                                      | 1.58 (1.04) <sup>b</sup>               | 1.51 (.74) <sup>b</sup>          |                              |
|              | Yes                                           | Gift                                       | 4.04 (1.58) <sup>a,b</sup>             | 1.98 (1.10) <sup>a,b</sup>       |                              |
| 1b           | No                                            | No Item (Control)                          | 2.65 (1.19) <sup>a</sup>               | 2.28 (1.09) <sup>a</sup>         |                              |
|              | Yes                                           | Prize                                      | 2.75 (1.05) <sup>b</sup>               | 2.84 (1.04) <sup>b</sup>         |                              |
|              | Yes                                           | Gift                                       | 4.54 (1.35) <sup>a,b</sup>             | 3.49 (1.19) <sup>a,b</sup>       |                              |
| 2a           | No                                            | Impersonal Gift (Less Diagnostic)          | 2.88 (1.35)                            | 2.71 (1.56)                      |                              |
|              |                                               | Personal Gift (More Diagnostic)            | 2.56 (1.27) <sup>a</sup>               | 2.21 (1.20) <sup>a</sup>         |                              |
|              | Yes                                           | Impersonal Gift (Less Diagnostic)          | 3.52 (1.54) <sup>b</sup>               | 2.63 (1.23) <sup>b</sup>         |                              |
|              |                                               | Personal Gift (More Diagnostic)            | 4.03 (1.36) <sup>a,b</sup>             | 3.11 (1.46) <sup>a,b</sup>       |                              |
| 2b           | No                                            | Socially Not-Close Giver (Less Diagnostic) | 2.21 (1.31)                            | 2.18 (1.35)                      |                              |
|              |                                               | Socially Close Giver (More Diagnostic)     | 1.81 (.89) <sup>a</sup>                | 1.91 (.99) <sup>a</sup>          |                              |
|              | Yes                                           | Socially Not-Close Giver (Less Diagnostic) | 2.46 (1.29) <sup>b</sup>               | 2.73 (1.40) <sup>b</sup>         |                              |
|              |                                               | Socially Close Giver (More Diagnostic)     | 2.96 (1.67) <sup>a,b</sup>             | 3.17 (1.58) <sup>a,b</sup>       |                              |
| 3            | Yes                                           | Compensation                               | 1.65 (.85) <sup>a</sup>                | 1.49 (.63) <sup>a</sup>          | .39 (1.06) <sup>a</sup>      |
|              | Yes                                           | Gift                                       | 2.37 (1.33) <sup>a</sup>               | 2.15 (1.23) <sup>a</sup>         | 1.17 (2.01) <sup>a</sup>     |

NOTE. - Standard deviations are reported in parentheses; subscripts represents the key significant pairwise comparisons.

**Figure 1**

Experiment 2a: The Mediating Effect of Reflected Appraisals of Gifts on Identity Depending on Whether the Gift is Personal or Not



**Mediated Path:**

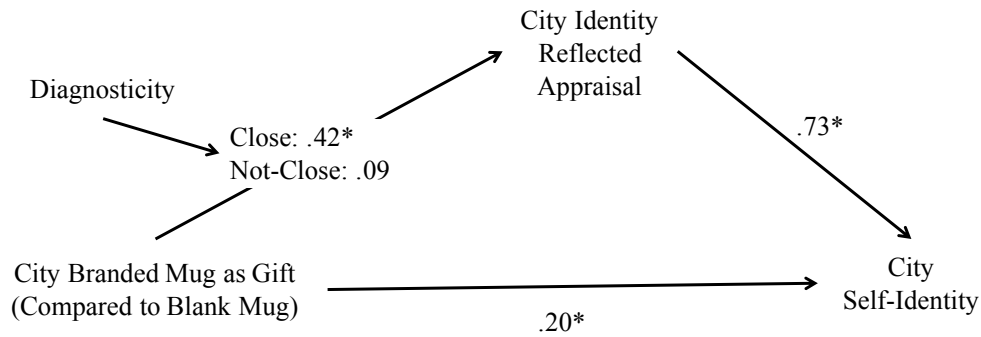
Personal [CI<sub>95%</sub>: .26; .59]; Non-Personal [CI<sub>95%</sub>: .04; .32]

Index = .23 [CI<sub>95%</sub>: .04; .47]

\*  $p < .05$

**Figure 2**

Experiment 2b: The Mediating Effect of Reflected Appraisals of Gifts on Self-Identity Depending on Gift Giver Social Closeness



**Mediated Path:**

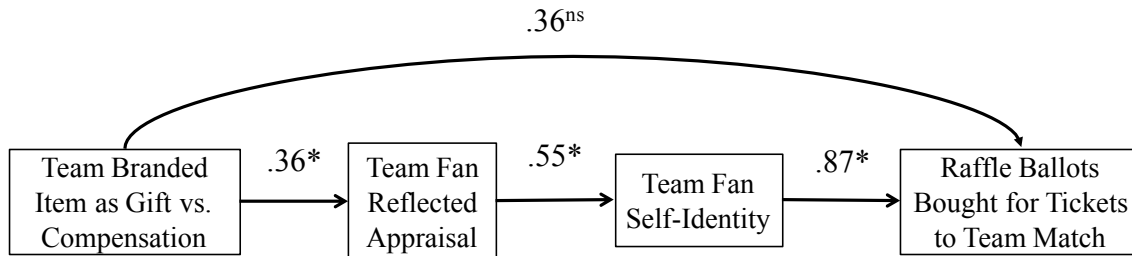
Frequent [CI<sub>95%</sub>: .26; .60]; Non-Personal [CI<sub>95%</sub>: -.07; .24]

Index = .33 [CI<sub>95%</sub>: .12; .56]

\*  $p < .05$

**Figure 3**

Experiment 3: Sequential Mediated Effect of Receiving a Gift on Identity Congruent Spending Through Reflected Appraisals and Identity



**Mediated Path:** [CI<sub>95%</sub>: .04; .40]

**Direct Path:** [CI<sub>95%</sub>: -.12; .72]

### **Seeing Openness in Solitude: Evaluations of Solo (vs. Accompanied) Consumers**

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Prior research shows that consumers are inhibited from engaging in public leisure activities alone (vs. accompanied) because they believe that others in the consumption environment would think they have fewer friends if they go solo (Ratner and Hamilton 2015). Building on this prior research, the current paper examines how people actually evaluate solo (vs. accompanied) consumers in public leisure activities, and explores the possibility that solo consumers are perceived more positively than accompanied consumers on some personality dimensions.

Building on prior research on attribution and person perception (Jones and Davis 1965; Miller and Nelson 2002; Trope 1986), we propose that while solo (vs. accompanied) consumers are perceived to have fewer friends, people are also more likely to attribute solo (vs. accompanied) consumers' attendance (e.g., visiting a museum) to the intrinsic motive of seeking intellectual or aesthetic stimulation, leading to positive inferences about solo (vs. accompanied) consumers on openness. For example, a solo consumer is more likely to visit a gallery to enjoy the aesthetic value of art, as opposed to if she goes with her friends, in which case she may simply want to socialize. The positive inferences observers make about solo (vs. accompanied) consumers on openness could compensate for the negative inferences they make about solo (vs. accompanied) consumers on number of friends, leading people to perceive solo consumers as favorably or even more favorably than accompanied consumers. Five studies tested our hypotheses.

Study1 established that openness and number of friends are the key dispositional dimensions on which solo (vs. accompanied) consumers are perceived to differ. Participants considered one of three different public leisure activities (going to a blockbuster/comedy show/public lecture) that a target consumer engaged in either alone or accompanied, and rated the consumer on the big five personality dimensions (scale: John and Srivastava 1999) and

number of friends. Across three activities, respondents perceived solo (vs. accompanied) consumers to be more open, less extraverted and have fewer friends ( $ps < .01$ ). Extraversion and perceived number of friends were positively correlated. Neither agreeableness, neuroticism nor conscientiousness emerged as significant in distinguishing people's perceptions of solo (vs. accompanied) consumers across these contexts (table 1).

Study 2 examined people's evaluations of solo (vs. accompanied) consumers on openness and number of friends, as well as their overall favorability towards the solo (vs. accompanied) consumer. Moreover, we tested the possibility that when a situational attribution can be easily made, solo (vs. accompanied) consumers were no longer perceived to be more open or have fewer friends. Participants either imagined seeing a person watch a movie *at a theater* alone or with a friend, or imagined seeing a person watch a movie *on a plane* alone or with a friend. Replicating prior findings, solo (vs. accompanied) consumers were perceived as more open ( $p = .004$ ) and have fewer friends ( $p < .001$ ) in the theater condition. However, in the plane condition where observers could easily attribute the target's behavior to a situational cause (e.g., having nothing else to do), they no longer perceived solo (vs. accompanied) consumers to be more open or have fewer friends ( $ps > .13$ ; figures 1-2). In both theater and plane conditions, solo (vs. accompanied) consumers were evaluated as favorably as accompanied consumers ( $p > .34$ ).

Studies 3-4 tested the moderating role of the accessibility of extrinsic attribution in the relationship between social context (solo vs. accompanied) and perceived openness. If observers can easily attribute a target's behavior to extrinsic rather than purely discretionary reasons, they would be less likely to attribute a solo (vs. accompanied) consumer's attendance to the intrinsic motive of seeking intellectual or aesthetic stimulation, and therefore are less likely to make positive inferences about solo (vs. accompanied) consumers on openness. Manipulation checks suggested that compared to going to a movie (study 3) or an event involving food sampling along with talks about food history and tradition (study 4), going to a restaurant were perceived to be more likely driven by physiological need (i.e., hunger) rather than purely discretionary reasons. As predicted, solo (vs. accompanied) consumers were perceived to be more open when the accessibility of extrinsic explanation was low (go to a movie or attend the food-related event;  $ps < .05$ ), an effect that disappeared in the restaurant condition where the attendance could be attributed to an extrinsic explanation ( $ps > .35$ ). The extent to which the attendance was attributed to the intrinsic motive to seek intellectual or aesthetic stimulation mediated the relationship between social context and perceived openness. Overall, solo consumers were evaluated as favorably (study 3: going to a movie), or more favorably (study 4: going to a food-related event) than accompanied consumers when the accessibility of extrinsic explanations was low, but less favorably when the accessibility of extrinsic explanations was high (i.e., restaurant; figures 3-6).

Although solo (vs. accompanied) consumers were perceived to be more open in the US, a culture that emphasizes individual autonomy, the same effect may not hold in non-Western cultures that stress interdependence and situational norms (e.g., China). In fact, prior literature suggested that compared to Americans, Chinese are less likely to attribute others' behaviors to internal traits (Miller 1984; Morris and Peng 1994). In the last study, we recruited participants from China and the US to test the moderating role of culture in the relationship between social context and perceived openness. All participants imagined seeing a person watch a movie at a theater either alone or with a friend. As predicted, solo (vs. accompanied) movie-goers were perceived to be more open by American ( $p = .016$ ) but not Chinese participants ( $p = .45$ ). Solo (vs. accompanied) consumers were perceived to have fewer friends in both cultures ( $ps < .001$ ). Overall, Chinese respondents evaluated solo (vs. accompanied) consumers less favorably

( $p=.002$ ); US respondents evaluated solo and accompanied consumers equally favorably ( $p>.57$ ; figures 7-8).

Together, these studies show that solo (vs. accompanied) consumers are perceived to have fewer friends, however solo (vs. accompanied) consumers are also perceived to be more open. The effect on perceived openness is mediated by a stronger attribution to the intrinsic motive of seeking intellectual or aesthetic stimulation, and is moderated by the accessibility of situational and extrinsic attribution, and the culture of the participant.

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## TABLES AND FIGURES

**Table 1**

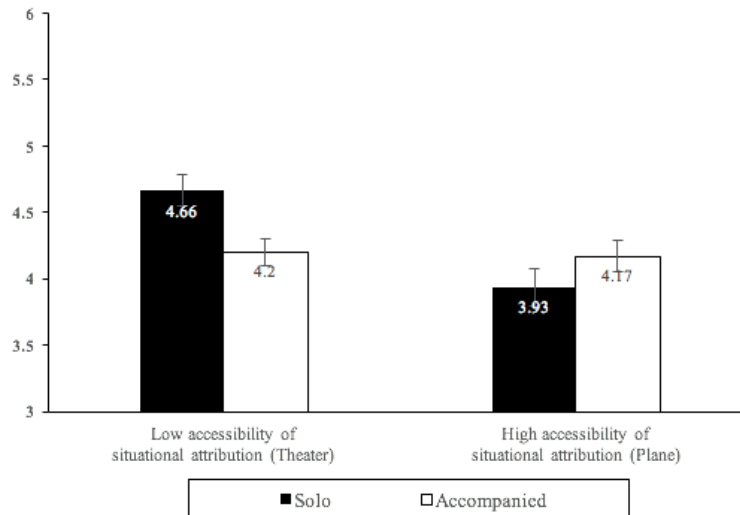
DISPOSITIONAL INFERENCES OTHERS MAKE ABOUT SOLO (VS. ACCOMPANIED)  
CONSUMERS IN STUDY 1

|                          | <b>Blockbuster</b>                                                | <b>Comedy Show</b>                                                | <b>Public Lecture</b>                                             |
|--------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Extraversion</b>      | $M_{\text{solo}} = 3.35$ vs. $M_{\text{accompanied}} = 4.34^{**}$ | $M_{\text{solo}} = 3.39$ vs. $M_{\text{accompanied}} = 4.16^{**}$ | $M_{\text{solo}} = 3.81$ vs. $M_{\text{accompanied}} = 4.47^{**}$ |
| <b>Openness</b>          | $M_{\text{solo}} = 4.32$ vs. $M_{\text{accompanied}} = 3.82^{**}$ | $M_{\text{solo}} = 4.67$ vs. $M_{\text{accompanied}} = 3.94^{**}$ | $M_{\text{solo}} = 4.65$ vs. $M_{\text{accompanied}} = 4.02^{**}$ |
| <b>Agreeableness</b>     | $M_{\text{solo}} = 4.31$ vs. $M_{\text{accompanied}} = 4.04$ (NS) | $M_{\text{solo}} = 4.23$ vs. $M_{\text{accompanied}} = 4.02$ (NS) | $M_{\text{solo}} = 4.38$ vs. $M_{\text{accompanied}} = 4.29$ (NS) |
| <b>Conscientiousness</b> | $M_{\text{solo}} = 4.33$ vs. $M_{\text{accompanied}} = 4.25$ (NS) | $M_{\text{solo}} = 4.35$ vs. $M_{\text{accompanied}} = 3.82^{**}$ | $M_{\text{solo}} = 4.54$ vs. $M_{\text{accompanied}} = 4.26$ (NS) |
| <b>Neuroticism</b>       | $M_{\text{solo}} = 3.87$ vs. $M_{\text{accompanied}} = 3.94$ (NS) | $M_{\text{solo}} = 3.74$ vs. $M_{\text{accompanied}} = 3.91$ (NS) | $M_{\text{solo}} = 3.74$ vs. $M_{\text{accompanied}} = 3.75$ (NS) |
| <b>Number of Friends</b> | $M_{\text{solo}} = 3.61$ vs. $M_{\text{accompanied}} = 4.93^{**}$ | $M_{\text{solo}} = 3.63$ vs. $M_{\text{accompanied}} = 4.83^{**}$ | $M_{\text{solo}} = 3.46$ vs. $M_{\text{accompanied}} = 4.56^{**}$ |

\*\* . Significant at 0.01 level; NS. Not significant at 0.1 level

**Figure 1**

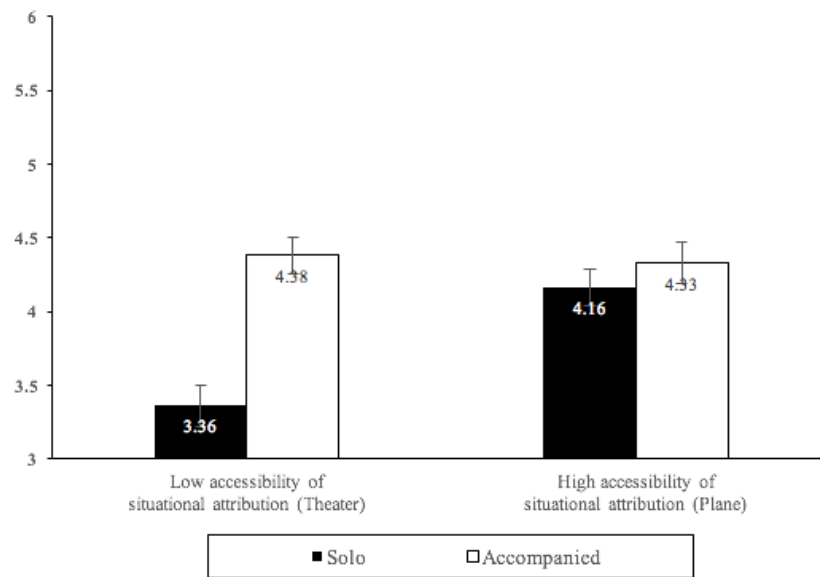
PERCEIVED OPENNESS OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 2





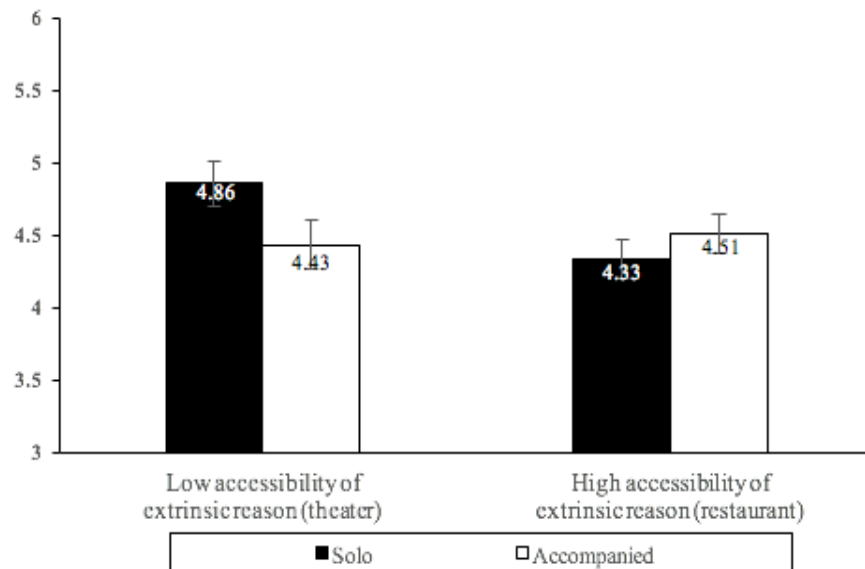
**Figure 2**

PERCEIVED NUMBER OF FRIENDS OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 2



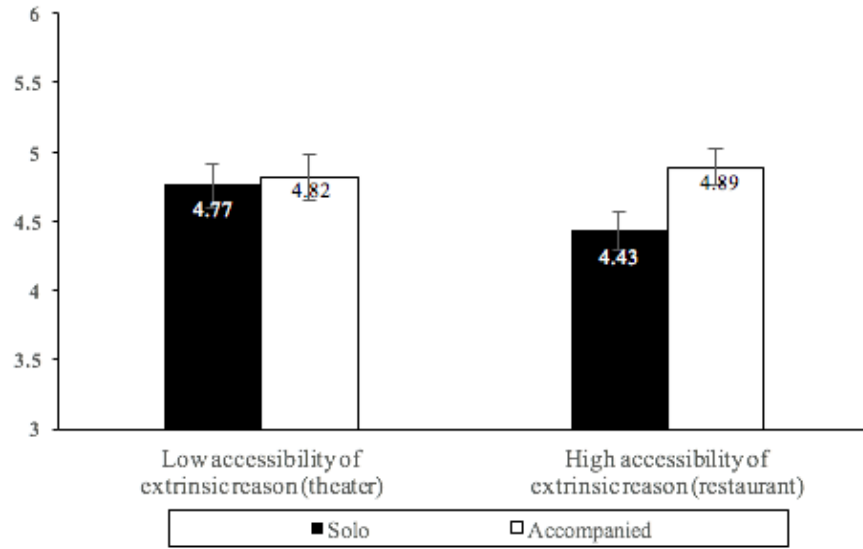
**Figure 3**

PERCEIVED OPENNESS OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 3



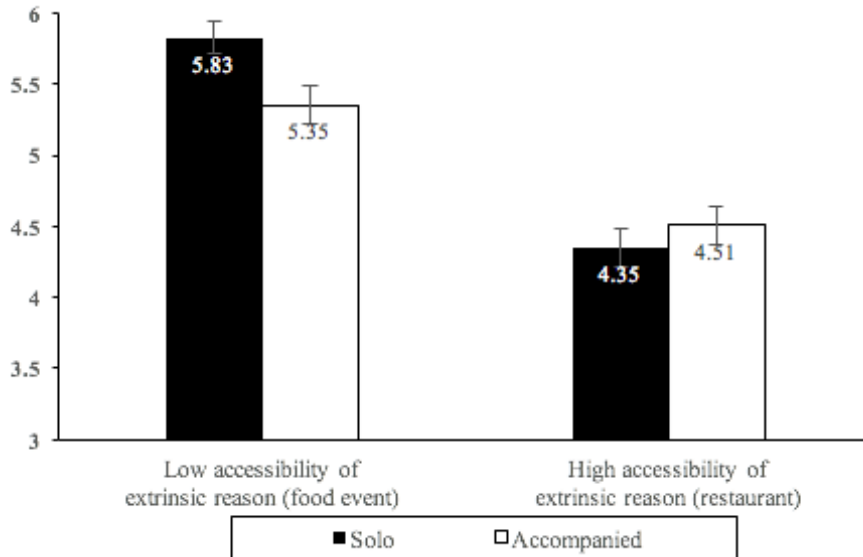
**Figure 4**

OVERALL FAVORABILITY OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 3



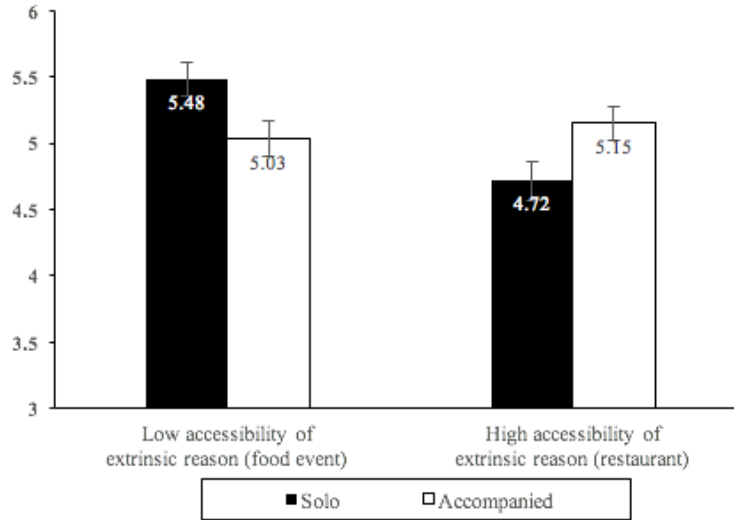
**Figure 5**

PERCEIVED OPENNESS OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 4



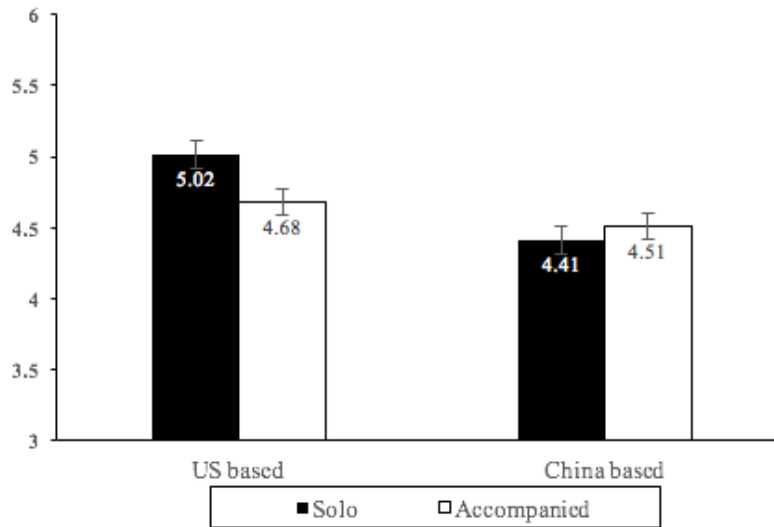
**Figure 6**

OVERALL FAVORABILITY OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 4



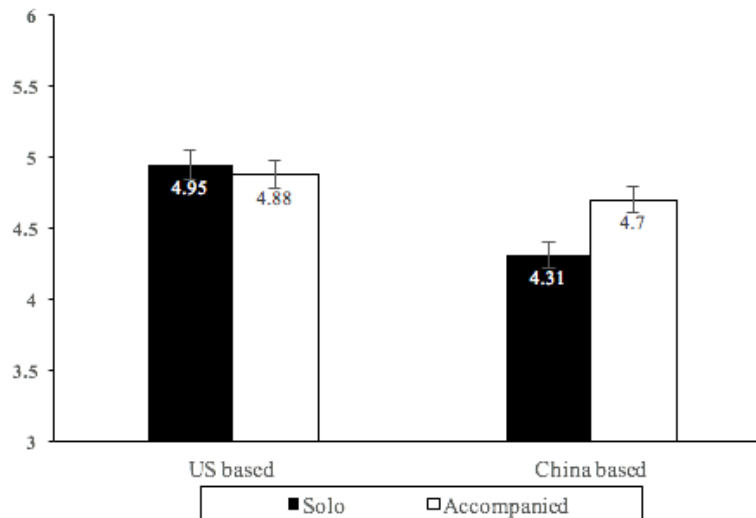
**Figure 7**

PERCEIVED OPENNESS OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 5



**Figure 8**

OVERALL FAVORABILITY OF SOLO (VS. ACCOMPANIED) CONSUMERS IN STUDY 5



### **Advice-Taking and Shared Values**

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Consumers develop expertise in some areas (Alba & Hutchinson, 1987), but are necessarily ignorant in others and are forced to defer to experts. Deference creates a trust problem because others often have their own agenda (Sperber et al., 2010), and particularly in economic contexts where money is on the line. Although advice-taking has been carefully studied in organizational contexts (Bonaccio & Dalal, 2006), little work has examined a potentially key determinant of consumers' deference to expert advice: The alignment between the consumer's and expert's values. Although values influence risk assessments in domains such as climate change (Kahan et al. 2010), little is known about how experts' values influence deference in less political contexts, such as consumer choices.

**Study 1** examined whether shared values play a role in consumer advice-taking in a hedonic domain—book recommendations. Participants ( $N=192$ ) were introduced to two book critics—one whose biography, publications, and facial features suggested more hierarchical values (e.g., deference to authority), and one who was presented as favoring egalitarian values (e.g., political equality). After answering multiple-choice questions about each advisor's biography, participants evaluated 14 books—2 for which the advisors agreed, and 12 for which they disagreed (half recommended by each advisor, counterbalanced), with their comments adapted from real reviews at lithub.com. For each book, participants reported their likelihood of reading the book (0–100 scale) and checked a box to receive more information about the book at the study's end (a link to the book's Amazon page). Finally, participants completed the value scale used in previous work (Kahan et al., 2010).

The dependent variables analyzed for Studies 1–4 were difference scores for product evaluations between the products recommended by the egalitarian advisor and the hierarchical advisor. In Study 1, participants scoring higher on egalitarianism were more likely to read the books recommended by the egalitarian advisor [ $r(190)=.32, p<.001$ ] and more likely to request further information about those books [ $r(190)=.18, p=.015$ ].

**Study 2** extended the findings to more utilitarian products (e.g., blenders, printers, dehumidifiers). Participants ( $N=196$ ) were introduced to the same advisors, whose biographies were altered so that they were product reviewers. Participants evaluated 10 products, for which the advisors disagreed about 8 (counterbalanced), with their comments based on real Amazon reviews. Participants reported the probability that they would consider purchasing each product, and checked a box to receive more information. Despite these products' quality being determined by utilitarian rather than hedonic qualities, more egalitarian participants reported a greater likelihood of purchasing the egalitarian (vs. hierarchical) recommendations [ $r(194)=.29, p<.001$ ]. Few participants asked for further information about any product ( $N=37$ ), so perhaps unsurprisingly, these requests did not significantly track participants' values [ $r(35)=.10, p=.56$ ].

**Study 3** extended these results to a new measure—willingness-to-pay—while teasing apart potential mechanisms. Participants ( $N=195$ ) completed the same task as Study 3, except they reported willingness-to-pay on a scale from \$0 to approximately twice the item's actual retail price. WTP was indeed higher for products recommended by advisors whose values accorded with the participants' egalitarianism score [ $r(193)=.19, p=.007$ ].

To tease apart possible mechanisms, participants rated their agreement with two statements about each advisor, measuring trust (“I trust [advisor] to give his objective opinion about the products”) and perceived judgment (“I believe that [advisor] has good judgment about products”). The difference between the ratings across advisors were entered into a multiple regression, along with egalitarianism, to predict WTP. Only trust was a significant predictor [ $b=2.51, p<.001$ ]. Further, a mediation analysis found that trust fully mediated the relationship between egalitarianism and WTP, 95% CI[0.71,2.66]. Thus, values appear to predict a person's propensity to take advice primarily because people trust value-concordant advisors to be honest.

**Study 4** extended these findings beyond the realm of consumer goods, to financial decision-making. In a similar paradigm, participants ( $N=183$ ) were introduced to two financial advisors, whose biographies implied differing values. Participants predicted the future prices of 14 stocks of fictitious companies, for which they were given a brief description of the company and recommendations by the advisors, who disagreed for 12 of the companies (four more “liberal-friendly” such as an electric car manufacturer, four more “conservative-friendly” such as an oil company, and four neutral, such as a retailer). Participants' predictions of future stock prices again tracked the concordance between the participants' values and those of the advisors [ $r(181)=.36, p<.001$  for predictions one year in the future], and this was true regardless of the value-orientation of the company itself.

Finally, **Study 5** tested whether these effects would extend to a more “objective” task such as estimation, using an incentivized procedure. Participants ( $N=190$ ) were introduced to two advisors (mathematicians at prestigious universities), and then completed two estimation tasks. For each estimation, participants were shown a picture of an empty jar and a picture of candy (e.g., M&Ms). Participants were asked to estimate the number of candies that would fit into the jar, and were told that the most accurate estimation would be rewarded with a \$5 bonus. After making their initial estimate, one of the two advisors (counterbalanced across the two items) described their estimation approach and indicated to the participant whether their own estimate was higher or lower (the

advice would always lead to a more accurate estimate). Even though the task required a judgment about an objective fact rather than an opinion, more egalitarian participants adjusted their estimates significantly more in accordance with the egalitarian advisor's advice [ $r(188)=.22, p=.003$ ]. Interestingly, egalitarianism did not lead to less adjustment given the hierarchical advisor's advice [ $r(188)=.07, p=.31$ ], perhaps because egalitarian participants are more trusting of academics generally.

**Implications.** Concordance of consumers' and experts' values appears to be a major determinant of deference, leading consumers to favor some products over equivalent others, with this effect generalizing across myriad product types, from blenders to books to stock picks. This is important both to practitioners and to consumer advocates. While these effects can present opportunities for marketers to better target advertisements, they also expose consumers to the risk of persuasion attempts coupled with insincere value claims, which may circumvent consumers' vigilance.

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## Agency and Communion in Consumer Behavior: Evidence for Unique Motives and their Consequences

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Bakan (1966) introduced the terms agency and communion to capture two fundamental orientations deemed to govern human thought and behavior. Agency is described as an orientation aimed at advancing the self, whereas communion refers to an orientation aimed at interacting with others (Bakan, 1966; Horowitz, 2004). Emerging research demonstrates the relevance of these constructs for consumer behavior, from consumer spending (Kurt, Inman, & Argo, 2011) to persuasion (Dubois, Rucker, & Galinsky, 2016) to compensatory consumption (Dommer, Swaminathan, & Ahluwalia, 2013).

A review of the literature suggests two rather distinct motives may underlie agency and two equally distinct motives may underlie communion. With respect to agency, agency has been described in terms of *internal agency*, such as "feelings of personal competence and efficacy" (Grant & Gino 2010, p. 947), and "practices enabling people to perform tasks, solve problems, and attain their goals" (Kervyn, Fiske, & Malone 2012, p. 169). Yet, agency has also been

defined in terms of *external agency*, such as “a person’s strivings for status and power that facilitate and protect the differentiation of the person from others” (Kurt et al. 2011, p. 743), and a “meta-concept associated with self-advancement in social hierarchies” (Trapnell & Paulhus 2012, p. 39).

With respect to communion, communion has been linked to *internal communion*, such as “the need for affiliation with others,” (Ma & Dubé 2011, p. 85) and a “particular concept associated with maintenance of positive relationships” (Trapnell & Paulhus 2012, p. 39). Communion has also been linked to *external communion*, such as “a more universalized concern for the well-being of disadvantaged, distant others, or the ecological well-being of the planet” (Frimer et al. 2011, p. 150), and “caring for others and involves such qualities like focus on others and their well-being” (Abele & Wojciszke 2007, p. 751).

Although a review of the literature supports the possibility of unique underlying motives, traditional theorizing on agency and communion in consumer behavior has focused exclusively on a two-factor model. In addition, no prior empirical work has specified the usefulness in measuring the proposed underlying motives or used them to predict divergent consumer behaviors. Therefore, the present research has three principle contributions. First, we advance the conceptualization of agency and communion by identifying two motives that underlie agency: *internal and external agency*; and two motives that underlie communion: *internal and external communion*. Second, we psychometrically validate a 20-item Communal and Agentic Motives (CAM) scale. Third, across four experiments, we demonstrate how the usefulness in specifying the specific agentic and communal motives by predicting divergent consumer behaviors, such as preferences for advertisements as well as real commercial and gift card choices.

*Study 1.* Study 1 involved using both exploratory and confirmatory factor analyses to develop a measure to capture the unique motives underling agency and communion. Results provided support for four distinct motives consistent with our conceptualization. Specifically, we found evidence for two agentic motives—internal and external agency— as well as two communal motives— internal and external communion. Fit statistics were all within acceptable parameters (e.g., all RMSEA < .08), scale internal reliabilities were above the traditionally accepted threshold (i.e., all  $\alpha > .70$ ), and test-retest reliability demonstrated high consistency over time (i.e., all  $r_s > .70$ ).

*Study 2.* Participants ( $N = 189$ ) rated their liking and purchase intentions for fictitious brands based on advertisements designed to cater to each specific motive (see Hirsh, Kang, & Bodenhausen, 2012). Controlling for shared variance across advertisement ratings, we found strong evidence for a matching effect between each of the four agentic and communal motives and the four advertisement framings. Specifically, we found that internal agency predicted liking of the efficacy-framed ad ( $\beta = .19, p = .01$ ), external agency predicted liking of the enhancement-framed ad ( $\beta = .48, p < .001$ ), internal communion predicted liking of the belonging-framed ad ( $\beta = .36, p < .001$ ), and external communion predicted liking of the nurturing-framed ad ( $\beta = .46, p < .001$ ). In addition, we find that the average variance explained was almost twice as large in the four motive model (average adj.- $R^2 = .13$ ) compared with the two-factor model of agency and communion (average adj.- $R^2 = .07$ ;  $F(2, 180) = 7.60, p < .001$ ).

*Study 3a and 3b.* Studies 3a and 3b tested the idea that the distinct agentic and communal motives can produce divergent consumption behaviors. In study 3a, participants ( $N = 275$ ) rated their preference for pairs of gift cards, with one participant being awarded one of their choices. Using ANCOVA to control for the effects of presentation order, gender, and SES, internal (vs. external) agency predicted preferences for competence (vs. status) brands (internal agency:  $F = 3.89, p = .050$ ; external agency:  $F = 20.81, p < .001$ ). In study 3b, participants ( $N = 158$ ) rated their preference for pairs of commercials, with participants watching and answering questions about one of their preferred commercials at the end of the study. Using ANCOVA as in the previous study, internal (vs. external) communion predicted preferences for relational (vs. collective) themed commercials (internal communion:  $F = 7.39, p < .01$ ; external communion:  $F = 14.37, p < .001$ ). In each study, an existing measure of agency and communion could not predict such a pattern of results [the ACV scale (Trapnell & Paulhus, 2012)].

Across four studies, we provided evidence for two distinct agentic motives, ‘internal agency’ and ‘external agency,’ and two distinct communal motives, ‘internal communion’ and ‘external communion.’ Moreover, we developed and psychometrically validated a scale (study 1), and provided predictive validity for both fictitious brands (study 2) and real, incentivized behaviors (studies 3a and 3b). These findings offer greater conceptual clarity to the distinct motives that underlie the large literature on agency and communion. Lastly, prior work has demonstrated the usefulness in tailoring persuasive messages toward the psychological orientation of the consumer (Cesario, Grant, & Higgins, 2004; Lee & Aaker, 2004). We add to this literature by demonstrating that matching on the specific agentic and communal motives (vs. the two broad constructs) increases the advertisement effectiveness.

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Saturday, 17 February 2018

## Session 5

### 5.1 Mental Accounting 2.0: New Accounts and New Consequences Symposium

#### **Paper 1: Perceived Purchasing Power of Other People's Money**

Evan Polman (University of Wisconsin-Madison), Daniel A. Effron (London Business School) and Meredith R. Thomas (University of Wisconsin-Madison)

#### **Paper 2: The i-Money Effect: A Minimalist Way to Increase Support for Projects**

Yanping Tu (University of Florida) and Charis Li (University of Florida)

#### **Paper 3: Increasing the Pain of Payment Increases Affiliation and Rapport in Collaborative but not Competitive Relationships**

Avni Shah (University of Toronto), James R. Bettman (Duke University), Tanya L. Chartrand (Duke University), Kathleen D. Vohs (University of Minnesota), and Noah Eisenkraft (University of North Carolina-Chapel Hill)

#### **Paper 4: Not all Debt is Created Equal: Subjective Wealth and Debt Preferences Depend on Debt Form**

Eesha Sharma (Dartmouth College), Stephanie M. Tully (University of Southern California), and Cynthia Cryder (Washington University in St. Louis)

\*Presenters underlined

### **Mental Accounting 2.0: New Accounts and New Consequences**

As the most important medium of transaction, money is fungible. Yet, subjectively, not all money is perceived equal. Instead, people mentally sort money into different categories, creating different mental accounts by its source (Thaler & Johnson, 1990), planned usage (Heath & Soll, 1996), affective tag (Levav & McGraw, 2009), and so on. A large body of literature on mental accounting has explored how different mental categories of money influence spending, saving, borrowing, consumption, and risk preferences (Arkes et al., 1994; Gourville & Soman, 1998; Levav & McGraw, 2009; McGraw, Tetlock, & Kristel, 2003; O'Curry, 1997; Prelec & Loewenstein, 1998; Shefrin & Thaler, 1992; Thaler, 1999; Thaler & Johnson, 1990). In concert, this symposium brings forward new discoveries on how mental labels of money shape the perception of money and the consequences of spending it in a wide array of contexts. Specifically, we focus on two types of mental labels—ownership (my money vs. other people's money; Papers 1 and 2) and form (payment form and debt form; Papers 3 and 4). We document a variety of new consequences, including how these labels change consumers' (1) beliefs of the efficacy of money (i.e., its purchasing power; Paper 1); (2) beliefs about the self (i.e., ability to repay a debt; Paper 4); (3) attitudes about the destination of their outgoing money (Paper 2); (4)

perceptions of people whom they spent money on (Paper 3); and (5) ultimately the decisions that have tangible consequences on consumers' well-being (Papers 2 and 4).

Papers 1 and 2 build on the idea that, although money does not bear the name of its owners, people draw psychological distinctions between “my money” and “others' money.” Paper 1 (Polman, Effron, and Thomas) finds in 9 studies among 4475 participants, using 49 different product categories, that people believe their own money has greater purchasing power – it can buy more (desirable and undesirable) products and help charities and governments more – than other people's money. The authors identify psychological distance as the mechanism, showing that this is because people's valuation of money shrinks as their psychological distance towards the money's owner increases.

Further examining the ownership distinction of money, Paper 2 (Tu and Li) shows, in both field and lab studies, that people tag their own money permanently by their identity (“i-money”) and thus feel involved in projects in which i-money is invested, even without actual ownership of the money or active involvement in the investment decision. Consequently, people value and invest in the projects more, an effect that is empirically stronger and more meaningful for underdog projects (e.g., research, business or civic projects with less popular appeals).

Turning from interpersonal categorization to interpersonal consequences of money labeling, Paper 3 (Shah et al.) looks at how spending different forms of money—cash versus card/voucher—influences interpersonal relationships. Findings from a quasi-field experiment and a hypothetical scenario demonstrate that spending cash over card or voucher on another person enhances interpersonal affiliation with him/her when the spender and recipient share a collaboration goal, but decreases affiliation in a competitive setting, because people experience more pain paying with cash.

In addition to payment forms, Paper 4 (Sharma, Tully, and Cryder) explores different forms of debts (i.e., credit vs. loan) and their implications for consumers' financial well-being. Specifically, because the term “credit” often sounds positive (e.g., receiving credits in games or for ideas), consumers view a debt instrument described as a “line of credit” more as a gain that improves wealth, compared with an equivalently structured “loan.” Hence, consumers perceive greater subjective wealth with access to “credit” than a “loan,” and show higher interest in acquiring the debt and lower concern for repaying it in a timely manner.

Collectively, this symposium brings together the latest work on mental accounting and its consequences that span various domains in life (purchases, finances, civic engagement, interpersonal relationships). We believe the novel findings brought to light in this symposium will appeal to a wide academic audience including those interested in mental accounting, financial decision making, financial well-being, and interpersonal relationships. With the increasing ease to transact various forms of money and the expanding supply of all forms of financial products, the exploration of new processes and implications of mental accounting will continue to be a substantial area of growing interest.

## **SHORT ABSTRACTS**

### **Paper 1: Perceived Purchasing Power of Other People's Money**

Nine studies investigated whether people believe their money has greater purchasing power than others' money. Using a variety of products from socks to clocks to chocolates, we found that participants thought their own money could buy more than the same amount of other

people's money – a pattern that extended to undesirable products. Participants also believed their money – in the form of donations, taxes, fines, and fees – would help charities/governments more than others' money. We tested six mechanisms based on psychological distance, endowment effect, wishful thinking, better-than-average biases, pain-of-payment, and beliefs about product preferences. Only a psychological distance mechanism received support.

### **Paper 2: The i-Money Effect: A Minimalist Way to Increase Support for Projects**

We propose that people categorize money by ownership (mine vs. not-mine), tagging their own money by their identity (“i-money”). Consequently, people feel more involved in projects where i-money is invested in, in the absence of any financial stake or one's active involvement in making the investment decision. We document this effect, provide process evidence, and rule out alternative explanations in four studies in both the field and the lab. This effect happens via a mere money exchange, suggesting a minimalist way to increase support for projects.

### **Paper 3: Increasing the Pain of Payment Increases Affiliation and Rapport in Collaborative but not Competitive Relationships**

Could the payment used in a social interaction—e.g. whether one treats another person using cash or debit card—influence the pain of payment and subsequently affect how connected individuals feel to one another? Using quasi-field and lab experiments, we find evidence that individuals justify using more painful forms of payment (e.g., using cash versus a debit card or gift voucher) by increasing how connected they feel to one another. However, we also show an important boundary condition: Experiencing more pain of payment can increase interpersonal connection when individuals are in desirable/collaborative settings but can decrease closeness in undesirable/competitive settings.

### **Paper 4: Not all Debt is Created Equal: Subjective Wealth and Debt Preferences Depend on Debt Form**

Although prior research has examined how different payment forms affect consumer behavior, less research has examined the psychology underlying consumer debt uptake and use. In this research, we predict and find that debt forms that are virtually identical in function, such as loans and lines of credit, can be perceived quite differently. Specifically, credit feels like more of a gain to one's finances as compared to a loan. Moreover, this difference in subjective wealth perceptions across debt forms has meaningful consequences for consumers' willingness to incur and repay the debt.

## **EXTENDED ABSSTRACTS**

### **Paper 1: Perceived Purchasing Power of Other People's Money**

The present research finds that people think a fixed quantity of their own money buys more than the same amount of others' money. As we subsequently explain, the psychological distance between the self and others plays a key role in this effect.

Previous research has found that increasing one dimension of psychological distance (e.g., spatial distance) can shrink other dimensions of psychological distance (e.g., temporal distance), such that, for example, two years seems like less time to an event when imagining that the event will occur geographically close versus far away (Maglio, Trope, & Liberman, 2013). Currently, it is unclear what causes this “distance-on-distance shrinking effect” (otherwise called *cross-dimensional subadditivity*). Despite it remains unclear, researchers do agree that cross-dimensional subadditivity hinges upon the idea that the different dimensions comprising cross-dimensional subadditivity will have the same effect on construal level (Bar Anan, Liberman, Trope, & Algom, 2007). It is well established that the more psychologically distant a stimulus is, the more abstractly it is construed (Trope & Liberman, 2010); and insofar as two dimensions share the same effect on construal level, “they share a common meaning and are seen as fitting together” (Wakslak, 2012, p. 151). Indeed, past research has found cross-dimensional subadditivity among the four dimensions of psychological distance (Maglio et al., 2013). In this vein, our research asks a different question: whether one dimension of psychological distance (i.e., social distance) can subadditively affect (i.e., shrink) perceptions of a *non*-distance dimension (i.e., the purchasing power of money).

We speculated that psychological distance can have a subadditive effect on perceptions of money’s purchasing power, because money has a likewise similar effect on construal level as the dimensions of psychological distance. That is, the larger an amount of money is, the more abstractly it is construed (MacDonnell & White, 2015). In this vein, money is a candidate non-distance dimension for cross-dimensional subadditivity, because it too influences construal level in the same manner as the other dimensions of distance. Thus, the more psychologically distant the money, the more diminished (and thus less valuable) it would seem. In other words, much like temporal distance (e.g., days) can shrink spatial distance (e.g., miles), social distance may seem to shrink money.

We conducted nine studies, among 49 different consumer products (and 57 items overall) to test whether people believe their money can buy more than others’ money. In addition to testing the role of the subadditive property of psychological distance in this effect, we examined several alternative mechanisms related to the endowment effect, wishful thinking, better-than-average bias, pain of payment, and the expensiveness of products people assume they versus others prefer to purchase (see Table 1 for the descriptive statistics and corresponding tests for each individual product-item per study).

Study 1A established the basic effect by showing that people believed their own \$50 could purchase more products than others’ \$50,  $p = .04$ ,  $d = 0.25$ . Study 1B replicated this effect when participants had a financial incentive to accurately estimate how many products \$50 could purchase,  $p = .009$ ,  $d = 0.38$ .

Studies 2 and 3 found support for a psychological distance mechanism, and its subadditive property. Study 2 manipulated the relative social distance of others from the self (with six different distances, in addition to a zero distance describing the self). The more distant the other person, the less purchasing power the money was assumed to have, Spearman’s  $\rho = -.10$ ,  $p = .003$  (see Figure 1). Moreover, as social distance increased, it had a diminishing effect on assumed purchasing power, such that the perceived purchasing power of others’ money decreased linearly at first and then flattened. In other words, we found the predicted logarithmic function that is consistent with the subadditive property of psychological distance,  $b = -0.073$ ,  $t = 2.25$ ,  $p = 0.025$ .

Study 3 again manipulated whether people judged the purchasing power of their own versus others' money, and orthogonally manipulated another dimension of psychological distance (i.e., whether the money was framed as more versus less hypothetical/uncertain). According to subadditivity, one dimension of psychological distance will have a smaller effect on judgment when instantiated at a high (vs. low) level of a different psychological distance dimension. Thus, if the psychological distance between the self and others drives our effect, then this effect should be smaller when psychological distance is already high (vs. low). Supporting this prediction, people tended to think their own money could buy more than others' money when psychological (hypothetical/certainty) distance was low,  $p < .001$ ,  $d = 0.37$ , but not high,  $p = .427$ . As we explain, the results also cast doubt on an alternative explanation based on the endowment effect.

The remaining studies replicated our basic effect in a range of different domains (e.g., charitable donations), while addressing alternative mechanisms. Studies 4 and 5 tested different versions of a "wishful thinking" mechanism, finding no support. Studies 6 and 7 tested a related mechanism that relies on the "better-than-average" effect, and found no support. Finally, Study 8 found no evidence that beliefs about the purchasing power of one's own versus others' money were driven by beliefs about how painful it is for them to spend money, or differences in the costliness of products that people imagine they versus others would purchase.

All told, we observed the effect among 4475 participants, across several changes in procedure, design, and sample characteristics. Moreover, we tested our predictions in student and non-student subject populations, among different quantities of money, in both between- and within-subjects designs, and in an incentive-compatible context. Overall, the meta-analytic effect size across our studies was small (average Cohen's  $d = 0.267$ ), but consistent. Given that money's market value does not actually depend on whether the money belongs to the self or others, and that the ability to buy goods and services is a defining property of money, an effect of this size is surprising and theoretically important (Prentice & Miller, 1992). In sum, our studies support a mechanism based on psychological distance, and cast doubt on alternative explanations.

## **Paper 2: The i-Money Effect: A Minimalist Way to Increase Support for Projects**

As probably the most fungible resource, money constantly flows out of and into one's account. Consumers not only exchange money for goods and services, but also do so merely for different forms. For instance, a consumer may break bills into quarters for laundry, swap coins for notes to save wallet space, and send a friend money electronically (e.g., via Venmo) to get cash in return. Each of these exchanges involves an outgoing flow of money and an incoming flow of resources of equivalent value. Thus where the outgoing money is spent later should be financially irrelevant to the self. For example, suppose you asked a friend to break a \$1 bill into quarters and later learned that she donated the \$1 bill to UNICEF, your behaviors regarding UNICEF shouldn't change. After all, neither was the \$1 bill yours after the exchange, nor was the donation decision. However, from a mental accounting perspective—that people treat money differently depending on its source (Thaler & Johnson, 1990), planned usage (Heath & Soll, 1996), affective tag (Levav & McGraw, 2009), and so on—we suggest that individuals' outgoing money will still have an influence on them.

Specifically, we propose that people categorize money by ownership (mine vs. not-mine), tagging money (that was once) in their hands by "i" and constructing an i-money category. This

mental tag seems to persist after money exchange, leading people to feel involved in projects their i-money goes to. Because people view objects associated with the self positively (Greenwald & Banaji, 1995), their valuation of the i-money involved project will increase. Empirically, this effect should be stronger and more meaningful for projects that do not appear attractive enough, which we refer to as underdogs. We focus on underdogs in this paper (studies 1-3) to demonstrate the prominent implication of the i-money effect, but the effect occurs regardless of the attractiveness of the projects (study 4).

We first established the external validity of this effect in the field, using a 3-cell (i-money involvement: underdog vs. top-dog vs. unspecified/baseline) between-participants design. We asked sellers in a farmer's market and customers in a food court to help break \$5 bills for us to "pay research participants." People who agreed to help learned that "their money" would be used either in the "optimal default portion size" project (perceived to be the underdog), or the "optimal nutrition label design" project (perceived to be the top-dog), or both (i.e., unspecified/baseline), and, purportedly, helped us "pick the more important project from the two." The underdog received more votes when participants learned their i-money was involved in the underdog than in both projects (62.5% vs. 28%;  $\chi^2(1) = 5.89, p = .015$ ); whereas votes for the top-dog did not differ between the top-dog and the unspecified/baseline condition (76.9% vs. 72%;  $\chi^2(1) = .16, p = .69$ ), a ceiling effect.

Study 2 followed study 1's design and replicated the effect using a behavioral DV. We asked participants to bring \$10 to the lab for a study about "bills in circulation," gave them a different \$10 bill back, and informed them that we would donate "their money" to UNICEF (perceived to be the underdog), WWF (perceived to be the top-dog), or "UNICEF and WWF" (i.e., unspecified/baseline) upon study completion. Participants then picked a charity sticker to wear to show their support. More people chose UNICEF in the underdog than unspecified/baseline condition (59.6% vs. 25.9%;  $\chi^2(1) = 12.31, p < .001$ ); whereas choices of WWF did not differ between the top-dog and the unspecified/baseline condition (81.1% vs. 74.1%;  $\chi^2(1) = .77, p = .38$ ), a ceiling effect.

Study 3 focused on the impact on underdogs and provided process evidence, using a 2-cell (i-money involvement: underdog vs. unspecified/baseline) between-participants design. Participants imagined having completed a fixed-interest financial investment with a credit union (i.e., received the principle and interest back), and learned the credit union invested in two start-ups (an underdog and a top-dog). They further learned that "their money" was invested in the underdog or did not receive any information (i.e., unspecified/baseline), and reported how personally involved they felt in each business. Participants then allocated money to buy a total of 100 shares of both companies' stocks, which had the same unit price but (apparently) different expected returns. Participants felt more involved in the underdog start-up in the underdog than the baseline condition ( $M = 3.93, SD = 1.85$  vs.  $M = 3.30, SD = 1.59$ ) and bought more underdog stocks ( $M = 37.79, SD = 18.67$  vs.  $M = 28.70, SD = 23.25$ ;  $t(100) = 2.18, p = .032$ ). Further, personal involvement mediates the impact of i-money involvement on the underdog stock shares purchased ( $\beta_{\text{indirect}} = -19.7803, SE = 4.49$ ; 95%CI [-29.21, -11.59]).

Study 4 ruled out two alternative explanations for higher support for i-money involved projects: (1) it has higher cognitive accessibility and (2) people seek to be consistent, by showing that the mental tag of the outgoing money (self vs. other) is critical. This study used a 2-cell (money invested by participant: i-money vs. o-money) between-participants design. In an interactive game, participants invested in a city bond using their own money (i-money) or on behalf of others (o-money), and learned the bond supported one of two equally attractive city

projects. They voted for the invested project to receive additional government fund more often in the i-money (61.90%) than o-money condition (43.94%;  $\chi^2(1) = 4.17, p = .041$ ), and allocated more resources to it too ( $M = 56.83, SD = 19.54$ , vs.  $M = 48.02, SD = 18.15$ ;  $t(127) = 2.655, p = .009$ ), regardless of which project was the target.

In sum, we show people differentiate their own money (i-money) from others' money (o-money) and feel more involved in the i-money involved projects and value them more, albeit they do not decide to invest in the projects and have no financial stake. This effect happens via a mere money exchange (a low friction behavior), suggesting a minimalist way to increase support for projects (that might be of great importance yet appear less attractive).

### **Paper 3: Increasing the Pain of Payment Increases Affiliation and Rapport in Collaborative but not Competitive Relationships**

If one could wish for two gifts that would substantially make life better, having money and forming close-knit relationships would be ideal candidates. Money and relationships, while being able to improve life outcomes, do so by dramatically different routes and mechanisms—and yet have significant overlap as well. For example, there are many instances where we use money as a means to form or strengthen our ties to one another. Yet, the mere concept of money has also been shown to change people's behavior for the worse, leading to behavior that is antisocial, selfish, and less thoughtful/mindful of others (Amato & Rogers, 1997; Bhattacharjee, Dana, & Baron, 2014; Vohs, Mead, & Goode, 2006).

Recently we have seen large shifts in how consumers pay for transactions, with 'plastic' payments occurring more frequently than ever before (Foster, Schuh, & Zhang, 2013). Psychologically, this is interesting because more proximal forms of payment (i.e., cash) create more *pain of payment*, in comparison to more distant forms of payment (i.e., debit card, vouchers; Gourville & Soman, 1998; Soman, 2001). There is evidence that increasing the pain of paying at the time of purchase can influence how connected individuals feel towards the product/organization post-purchase (Shah et al., 2016). But can this spillover to our interpersonal relationships? Could the payment used in a social interaction—e.g. whether one treats another person using cash or 'plastic'—affect how connected and close individuals feel to one another?

We first tested these predictions using a hypothetical dinner scenario. Participants ( $N=559$ ) went through a visual scenario in which two individuals meet up after work and go out to dinner. In one photo, participants are shown a picture of the two individuals where they are seated across from one another at the table finishing up their appetizers. In order to manipulate payment form, half of the participants are told that one of the individuals pays for the bill entirely using cash (debit card) along with corresponding picture of a bill with cash (debit card) sticking out of it. Participants are then asked to assess how close the two individuals in the scenario are sitting (based off of their memory of the one earlier photo), both implicitly by choosing the size of the table that they think is the appropriate length (shorter tables would be perceived as sitting closer) and explicitly via participants to report the physical distance of how close the two individuals were sitting. Participants also then answered questions about their perceived relationship. Paying by cash led participants to rate that two couple was sitting at a shorter table ( $p < .01$ ), physically closer ( $p < .001$ ), and more likely in a romantic relationship, saw each other more frequently, and knew each other longer (all  $p < .03$ ) as compared to paying by cash. These results were mediated by the perceived pain of payment that participants believe that the spender experienced when paying for the bill whereby cash increased perceived pain of paying,



subsequently increasing perceived closeness of the two individuals implicitly, explicitly, and relationally. These results replicated across four other studies varying the gender composition, restaurant, and meal.

Does increased pain of payment always lead to more closeness or can more pain decrease closeness in certain cases? In order to better understand the mechanism behind our effects, we ran a quasi-field experiment with dyads ( $N=176$ ), using a 2 (Relationship Frame: Collaborative or Competitive) X 2 (Payment: Cash or Voucher) X 2 (Spender or Recipient) between-subjects design using multiple measures of interpersonal connection and rapport. Participants arrived in groups of two. Half of the groups were told that they were in a COLLABORATIVE task, competing with other teams to solve the most anagrams in ten minutes for a prize. The other half of groups were told that they would be taking part in a COMPETITIVE task, competing with other individuals where the two individuals with the most solved winning a prize. Rewarding the highest two individuals controlled the amount of people who would win across conditions, also ensuring that participants could feasibly view the other person in the experiment with them as a potential resource just as in the collaborative frame. Participants were then told that before they took part in the anagram task, they would have a chance to get to know one another for 10 minutes at the student café. One person (the SPENDER) was given \$10 cash (\$10 voucher), with the voucher being a less painful payment form, to spend between the two of them on a snack and/or drink of their choice (the dyad could not keep any extra money). Dyads returned and took part in the anagram contest. Experimenters video recorded the interaction during the anagram task measuring physical distance, eye contact, smiling, and whether the pair worked together/helped one another. After the ten-minute timer rang, individuals were instructed to fill out a questionnaire regarding their experience (including explicit affiliation measures of the other participant and a pain of payment question for the spender).

Consistent with predictions, in a collaborative settings, spenders who paid with cash felt more affiliation toward their counterparts ( $M_{\text{cash}}=6.26$ ,  $M_{\text{voucher}}=5.32$ ,  $p=.001$ ), but in competitive contexts, paying cash has a negative effect on the spender's feelings of affiliation ( $M_{\text{cash}}=4.73$ ,  $M_{\text{voucher}}=5.78$ ,  $p<.001$ ). Cash increased collaboration and non-verbal affiliation in collaborative settings but decreased in competitive settings ( $p<.02$ ). Being in a collaborative versus competitive context significantly moderates the relationship between payment form and affiliation ( $F(1)=26.8$ ,  $p<.001$ ). Spenders who paid with cash reported significantly more pain than spenders who paid with voucher ( $M_{\text{cash}}=3.74$ ,  $M_{\text{voucher}}=2.02$ ,  $p<.001$ ). Finally, as expected, there was a positive relationship between pain of payment and affiliation in collaborative contexts ( $r(38)=.66$ ,  $p<.001$ ) and a negative relationship between pain of payment and affiliation in competitive contexts ( $r(38)=-0.55$ ,  $p<.001$ ).

Taken together, we find evidence that experiencing more pain of payment can increase post-transaction connection when individuals are in desirable or collaborative relationships, but can create greater interpersonal distance reducing post-transaction connection when individual are in undesirable or competitive relationships.

#### **Paper 4: Not all Debt is Created Equal: Subjective Wealth and Debt Preferences Depend on Debt Form**

Consumer revolving debt in the United States recently reached a new all-time high, surpassing levels from immediately before the 2008 financial crisis (U.S. Federal Reserve, 2017). Access to debt allows greater financial flexibility, including the ability to make larger

capital investments than consumers would otherwise be able to; however, excessive consumer debt can pose serious challenges to both individual consumers as well as to the economy as a whole. Although prior research about financial decision making has uncovered how different payment forms (e.g., cash vs. check vs. credit cards) influence pain of paying, purchasing, and consumers' post-transaction purchase connection (Feinberg, 1986; Prelec & Simester, 2001; Shah et al., 2016), less is understood about the psychology underlying consumer debt uptake and use.

In this research, we propose that debt forms that are virtually identical in function, such as loans and lines of credit, can be perceived quite differently by consumers due to their influence on subjective wealth, and ultimately, consumers' willingness to take on, use, and repay the debt. In particular, the term "credit" is used in a variety of contexts, such as receiving credits in gaming contexts or credit for an idea. In many of these situations, credit is unequivocally positive in nature. This stands in contrast to a term like "loan," which is more consistently used to refer to a debt that must be repaid and is hence more negative in nature. We suggest that these associations permeate debt decisions. Thus, we argue that consumers are more likely to view debt labeled as "credit" more favorably than debt labeled as a "loan", even when the terms of the debt are identical or favor the loan. Four studies test this proposition.

Experiments 1-3 tested whether consumers view a line of credit (or simulated debt instrument described as credit) as an improvement to their finances (subjective wealth) to a greater degree than an equivalently structured loan. Subjective wealth was measured in various ways: visual depictions of financial gains and losses (experiment 1), categorizations of debt as gains and losses (experiment 2), and ratings of one's finances using a seven-item subjective wealth scale (experiment 3).

In experiment 1, participants imagined they received either a \$500 "line of credit" or \$500 "loan" with interest and repayment terms described identically. They then were asked to imagine what their account would look like as represented by a bar graph. Next, participants viewed two bar graphs, one with a bar representing \$500 shown as a gain, and the other with the bar representing \$500 shown as a loss. Participants chose which graph was the closest to their mental image of their account. Participants in the "line of credit" condition were significantly more likely to choose the graph with the bar representing a gain than were participants in the "loan" condition,  $p < .001$ .

Experiment 2 evaluated feelings of subjective wealth by examining how consumers categorize debt instruments. Participants imagined that their bank had offered them a 1) a \$500 "loan" 2) a \$500 "credit account", or a \$500 "account" (serving as a control condition), with interest and debt repayment terms described identically across conditions. All participants then chose whether this new account would feel like: A) A gain, B) A loss, or C) No change to their financial portfolio. The "credit account" was significantly more likely to be categorized as a gain, and the "loan" account was significantly more likely to be categorized as a loss, both  $ps < .001$ .

Experiment 3 evaluated subjective wealth by collecting explicit ratings. The experiment included three between-subjects conditions. Some participants were asked to consider their current financial situation, others considered their current financial situation with access to a \$10,000 line of credit, and others considered their financial situation with access to a \$10,000 loan. Both financing conditions were otherwise ecologically equivalent. We administered seven subjective wealth questions, which were combined to form a single measure ( $\alpha = .89$ ). As predicted, there was a significant effect of condition on wealth perceptions,  $F(2, 299) = 44.14$ ,  $p$

< .001. A planned contrast demonstrated that subjective wealth perceptions were significantly higher for those considering a line of credit than for those considering personal loans,  $F(1, 299) = 23.15, p < .001$ .

Experiment 4 was designed to examine whether the observed differences in subjective wealth perceptions drive consumers' subsequent interest in incurring debt and their concern about repaying it. We ran this study over the holiday season. We informed participants that there are various ways to pay for purchases around the holidays, and that they would be reading about one potential offer, either a credit card or a personal loan. The terms of the financing offers were the same, except for the interest rate, which was twice as high for the credit card (i.e., 12.98% vs. 6.98%). Participants rated how interested they would be in applying for the offer, and how concerned they would be about repaying any amount of the funding they spent in a timely manner (1 = not at all concerned, 9 = extremely concerned). As predicted, and despite the significantly higher interest rate, participants were more interested in the offer for the credit card than for the personal loan,  $F(1, 399) = 5.76, p = .017$ . Further, they were less concerned about repaying the credit card in a timely manner,  $F(1, 399) = 4.63, p = .03$ . Both of these effects were mediated by differences in participants' subjective wealth perceptions.

In sum, this research demonstrates that not all debt is created equal—at least in the minds of consumers. Consumers feel significantly wealthier with access to credit than otherwise equivalent loans. Moreover, the preference for credit over loans persists even when it is economically in the consumers' best interest to use loans (i.e., because they have lower interest rates). This research offers a new avenue for future research to better understand factors that influence consumers' choices to both use and avoid debt.

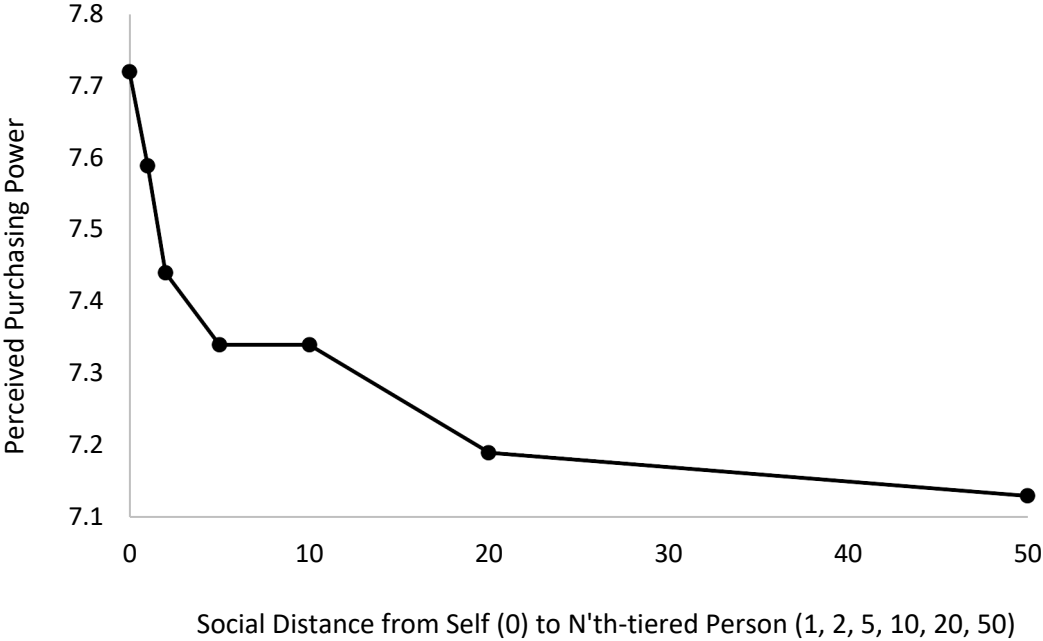
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**Figure 1:**

The Logarithmic Relation Between Perceived Purchasing Power and Social Distance



**Table 1:**

Unstandardized Scores for Number of Items That Can Be Purchased With a Fixed Sum of Money (\$50 For Studies 1A-B, 3-5, and 8; \$100 for Study 6)

|                                        | Self-Owned Money |           |               | Other-Owned Money |           |               | <i>P</i>           | Cohen's  |
|----------------------------------------|------------------|-----------|---------------|-------------------|-----------|---------------|--------------------|----------|
|                                        | <i>M</i>         | <i>SD</i> | <i>Median</i> | <i>M</i>          | <i>SD</i> | <i>Median</i> | value <sup>a</sup> | <i>d</i> |
| <i>Study 1A</i>                        |                  |           |               |                   |           |               |                    |          |
| dozen eggs                             | 28.88            | 14.80     | 25            | 24.36             | 12.37     | 20            | 0.005              | 0.33     |
| chocolate bars                         | 44.00            | 11.55     | 48            | 42.24             | 9.85      | 44            | 0.162              | 0.17     |
| toothbrushes                           | 21.07            | 10.13     | 20            | 17.30             | 8.07      | 15            | 0.000              | 0.41     |
| pairs of scissors                      | 10.79            | 5.96      | 10            | 9.80              | 4.70      | 9             | 0.114              | 0.18     |
| wool socks                             | 3.55             | 4.23      | 3             | 3.26              | 1.68      | 3             | 0.444              | 0.09     |
| Big Macs                               | 13.86            | 4.11      | 13            | 13.43             | 3.37      | 13            | 0.331              | 0.11     |
| frozen pizzas                          | 8.95             | 3.25      | 9             | 9.49              | 4.68      | 8             | (0.248)            | 0.14     |
| small lattes                           | 15.44            | 4.72      | 15            | 15.35             | 5.53      | 15            | 0.886              | 0.02     |
| light bulbs                            | 13.64            | 8.62      | 13            | 11.31             | 7.97      | 9             | 0.017              | 0.28     |
| loaves of bread                        | 22.59            | 11.07     | 20            | 20.81             | 9.69      | 20            | 0.144              | 0.17     |
| <i>Study 1B</i>                        |                  |           |               |                   |           |               |                    |          |
| 6-count Bounty paper towel rolls       | 35.81            | 30.72     | 30            | 29.42             | 27.76     | 20            | 0.126              | 0.22     |
| 8-count Energizer AA batteries         | 11.54            | 12.80     | 8             | 11.21             | 13.21     | 8             | 0.857              | 0.03     |
| 2-count Sharpie fine point markers     | 17.16            | 11.86     | 15            | 16.48             | 9.16      | 16            | 0.652              | 0.06     |
| 2-liter bottles of Coca-Cola           | 28.79            | 14.68     | 25            | 24.14             | 11.35     | 25            | 0.014              | 0.36     |
| 90-count Glad kitchen-sized trash bags | 16.30            | 45.94     | 10            | 9.64              | 6.83      | 8             | 0.155              | 0.20     |
| 6-count Scotch Brite sponges           | 19.49            | 13.48     | 16            | 14.68             | 9.54      | 12            | 0.004              | 0.41     |
| Brita water pitchers                   | 5.15             | 8.74      | 3             | 5.69              | 8.90      | 3             | (0.667)            | 0.06     |
| DiGiorno frozen pizzas                 | 12.13            | 9.37      | 10            | 9.77              | 4.96      | 9             | 0.028              | 0.32     |
| 1-liter bottles of Listerine           | 13.68            | 11.93     | 11            | 11.08             | 6.85      | 9.5           | 0.062              | 0.27     |
| 500-count Q-Tip cotton swabs           | 19.47            | 12.89     | 16            | 15.26             | 9.61      | 12            | 0.011              | 0.37     |
| <i>Study 3<sup>b</sup></i>             |                  |           |               |                   |           |               |                    |          |
| boxes of cereal                        | 16.49            | 8.85      | 13            | 15.79             | 10.43     | 13            | 0.490              | 0.07     |
| gallons of milk                        | 17.35            | 8.06      | 18            | 15.00             | 8.70      | 13            | 0.008              | 0.28     |
| magazines                              | 16.95            | 11.66     | 13            | 14.02             | 11.13     | 13            | 0.015              | 0.26     |
| one-subject notebooks                  | 32.84            | 15.74     | 33            | 27.83             | 16.41     | 28            | 0.003              | 0.31     |
| packages of pencils                    | 33.58            | 16.22     | 33            | 28.29             | 17.05     | 23            | 0.003              | 0.32     |
| Snickers bars                          | 37.77            | 14.62     | 38            | 33.06             | 15.25     | 33            | 0.003              | 0.32     |
| <i>Study 4</i>                         |                  |           |               |                   |           |               |                    |          |
| expired dozen eggs                     | 32.02            | 14.98     | 25            | 29.96             | 14.12     | 25            | 0.178              | 0.14     |
| melted chocolate bars                  | 45.73            | 10.27     | 50            | 43.25             | 9.07      | 45            | 0.015              | 0.26     |
| generic toothbrushes                   | 20.58            | 9.13      | 20            | 20.70             | 9.77      | 20            | (0.905)            | 0.01     |
| rusty pairs of scissors                | 11.87            | 5.33      | 10            | 10.51             | 4.71      | 10            | 0.010              | 0.27     |
| itchy wool socks                       | 3.46             | 1.25      | 3             | 3.64              | 3.27      | 3             | (0.491)            | 0.06     |
| day-old Big Macs                       | 14.41            | 4.48      | 14            | 13.86             | 4.36      | 13            | 0.242              | 0.13     |
| freezer-burned frozen pizzas           | 10.21            | 4.10      | 10            | 10.10             | 4.49      | 10            | 0.821              | 0.03     |
| small burnt lattes                     | 17.92            | 5.90      | 17            | 16.61             | 4.63      | 15            | 0.019              | 0.25     |
| inefficient light bulbs                | 13.84            | 8.73      | 10            | 11.11             | 7.94      | 8             | 0.002              | 0.33     |
| stale loaves of bread                  | 24.98            | 11.28     | 23            | 22.83             | 9.75      | 20            | 0.054              | 0.20     |

**Table 1 (cont.):**

|                   | Self-Owned Money |           |               | Other-Owned Money |           |               | <i>p</i><br>value <sup>a</sup> | Cohen's<br><i>d</i> |
|-------------------|------------------|-----------|---------------|-------------------|-----------|---------------|--------------------------------|---------------------|
|                   | <i>M</i>         | <i>SD</i> | <i>Median</i> | <i>M</i>          | <i>SD</i> | <i>Median</i> |                                |                     |
| <i>Study 5</i>    |                  |           |               |                   |           |               |                                |                     |
| watering cans     | 13.19            | 16.57     | 10            | 12.21             | 12.72     | 10            | 0.461                          | 0.07                |
| candles           | 77.97            | 643.68    | 10            | 29.33             | 64.76     | 10            | 0.238                          | 0.11                |
| books             | 5.55             | 10.30     | 4             | 4.05              | 8.16      | 3             | 0.078                          | 0.16                |
| greeting cards    | 39.02            | 88.13     | 20            | 31.89             | 50.85     | 20            | 0.273                          | 0.10                |
| cupcakes          | 33.92            | 43.88     | 24            | 31.20             | 24.44     | 25            | 0.397                          | 0.08                |
| <i>Study 6</i>    |                  |           |               |                   |           |               |                                |                     |
| dogs              | 6.83             | 9.68      | 4             | 5.41              | 6.69      | 4             | 0.074                          | 0.17                |
| books             | 22.47            | 24.73     | 14            | 20.16             | 21.00     | 10            | 0.289                          | 0.09                |
| trees             | 33.80            | 50.34     | 10            | 24.59             | 35.37     | 10            | 0.027                          | 0.22                |
| clothes           | 11.16            | 14.09     | 5             | 10.06             | 11.30     | 5             | 0.364                          | 0.09                |
| worms             | 797.36           | 2256.79   | 100           | 661.40            | 1902.22   | 100           | 0.492                          | 0.06                |
| <i>Study 8</i>    |                  |           |               |                   |           |               |                                |                     |
| alarm clocks      | 5.34             | 4.04      | 5             | 5.08              | 3.27      | 5             | 0.388                          | 0.06                |
| bars of soap      | 32.85            | 36.84     | 25            | 26.42             | 19.97     | 20            | 0.007                          | 0.22                |
| bottle openers    | 24.42            | 22.39     | 17            | 21.75             | 17.92     | 16            | 0.099                          | 0.13                |
| flip flops        | 12.21            | 12.97     | 6             | 9.93              | 10.43     | 6             | 0.016                          | 0.19                |
| cheeseburgers     | 25.78            | 33.04     | 18            | 23.51             | 20.68     | 15            | 0.297                          | 0.09                |
| smart phone cases | 4.65             | 7.77      | 3             | 4.57              | 6.11      | 3             | 0.887                          | 0.01                |
| trashcans         | 5.75             | 5.01      | 5             | 5.53              | 4.75      | 5             | 0.582                          | 0.05                |
| umbrellas         | 6.40             | 5.08      | 5             | 6.22              | 4.89      | 5             | 0.648                          | 0.04                |

<sup>a</sup> *p* values represent results to *t* tests between self- and other-owned money conditions (*p* values from negative tests are in parentheses).

<sup>b</sup> In Study 3, values represent results to *t* tests between self- and other-owned money in the near-hypothetical-distance condition.

## **5.2 Motivated Persistence and Avoidance Symposium**

### **On a Roll: Breaking a Streak Decreases the Likelihood of Future Behaviors**

*Jackie Silverman, [jasilv@wharton.upenn.edu](mailto:jasilv@wharton.upenn.edu), Wharton, University of Pennsylvania*

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### **Do Rewards Reinforce the Growth Mindset?: Joint Effects of the Growth Mindset and Incentive Schemes in a Field Intervention**

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### **The Effects of FOMO-Inducing Social Media Content on Consumer-Brand Relationships**

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*Barbara E. Kahn, [kahn@wharton.upenn.edu](mailto:kahn@wharton.upenn.edu), Wharton, University of Pennsylvania, USA*

### **Closing your Eyes to Follow your Heart: Avoiding Information to Protect a Strong Intuitive Preference**

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How does the persistence versus avoidance of relevant behaviors and information affect consumers' motivation to pursue goals or rewards? Consumers are sometimes motivated by persistence, such as when the proximity of a desired end goal, like a free coffee in a café loyalty program, intensifies their pursuit (Kivetz, Urminsky, and Zheng 2006). Conversely, consumers can also be demotivated by persistence. For example, persistence towards a proximal goal can lead to avoidance when consumers wish to prolong an enjoyable experience, such as a shopping trip (Koo and Fishbach 2012). The absence of proximity to a reward or goal state can also motivate compensatory persistence (Rucker and Galinsky 2008), highlighting how persistence or avoidance can both motivate reward pursuit.

In turn, the presence of rewards can increase either the persistence or avoidance of goal pursuit (e.g., Woolley and Fishbach 2016; Gneezy, Meier, and Rey-Biel 2011). Though rewards can be used to motivate persistence, they may sometimes undermine intrinsic motivation and result in avoidance (Lepper, Greene, and Nisbett 1973).

In short, the interactions between persistence, avoidance, and the presence and proximity of rewards are still not well understood, and predicting when these factors combine to motivate subsequent persistence versus avoidance is often difficult. The four papers in this session illustrate the complexity of these conceptual relationships in a novel set of lab and field contexts. Collectively, these papers examine the links between persistence, avoidance, and reward pursuit in both directions, and identify corresponding behavioral and policy consequences.



The first two papers investigate persistence as a cause and effect of reward pursuit. **Silverman and Barasch** examine how breaking a streak of rewarding behaviors, and thus disrupting persistent actions, affects future persistence. Relative to having maintained a streak, consumers who break a streak are less likely to persist in the behavior, even when the reason for missing is outside of their control. **Chao, Visaria, Mukhopadhyay, and Dehejia** show how reward systems are often necessary to motivate persistence. In a large field study conducted in India, they find that a growth mindset intervention improved student persistence towards academic achievement, but only in the presence of rewards encouraging individual autonomy. Past work on growth mindset has failed to incorporate autonomy (or a lack thereof) as an important factor in the effectiveness of such interventions because it has exclusively examined cultures in which students already typically have high autonomy.

The second two papers explore the role of avoidance or absence as a cause and effect of reward pursuit. **Rifkin, Chan, and Kahn** demonstrate how FOMO (fear of missing out) affects consumer-brand relationships. When consumers miss or avoid a branded event and see that others were able to attend, they initially feel more distant from the brand. However, they are subsequently motivated to persist in the brand relationship and avoid competitors in order to regain a sense of closeness. **Woolley and Risen** find that the pursuit of desired rewards can motivate the avoidance of relevant information. Specifically, they show that consumers avoid information that might lead them to choose a logical but less intuitively rewarding option. Thus, avoidance allows consumers to pursue intuitively rewarding goals.

These four papers highlight the counterintuitive and bidirectional relations between persistence, avoidance, and reward pursuit. Given the widespread applicability of the issues discussed, we expect this session to attract researchers interested in sequential decision-making, experiential purchases, product engagement, consumer identity, marketing and advertising, and policy interventions.

## ABSTRACTS

### **On a Roll: Breaking a Streak Decreases the Likelihood of Future Behaviors**

#### **Short Abstract**

How does a streak of consecutive behaviors affect people's likelihood of pursuing that behavior in the future? Across five studies (N=1,816), we show that missing the behavior decreases subsequent likelihood to continue that behavior, even when the miss only occurs once and cannot be interpreted as intentional. This effect is driven by disrupted momentum: after a streak is broken, people's decision of whether to continue the behavior becomes less automatic and they consider their next decision more carefully. This work contributes to existing literature on repeated behaviors by exploring a new mechanism and a new context.

#### **Extended Abstract**

From getting a daily latte to going on a run after work, people engage in a variety of repeated behaviors. How might a person's recent behavior affect how they pursue that behavior in the future?

In this work, we investigate how missing the opportunity to do a behavior influences an individual's likelihood of continuing that behavior. On the one hand, research on licensing and aspirational pursuits suggests that people may try to balance their decisions, leading them to

change their behaviors across time (Huber, Goldsmith, and Mogilner, 2008; Dai, Milkman, and Riis, 2014). This would predict that missing a behavior would make people *more* likely to do it in the future. On the other hand, prior work suggests that people often choose options that reinforce previous decisions (Dhar and Simonson, 1999; Tykocinski, Pittman, and Tuttle, 1995). This would predict that missing a behavior would lead to consistency, or that people would be *less* likely to continue the behavior.

In five studies, we find that after breaking a streak, people are less likely to continue that behavior, even when the streak is broken only once and they cannot infer an internal reason for stopping. We demonstrate that a mindset change drives this effect (Gollwitzer, 1990; Dhar, Huber and Khan 2007), such that people consider their decision regarding that behavior more carefully after breaking the streak. Our findings build on work examining goal attainment and failure (Cochran and Tesser 1996; Soman and Cheema 2004) by establishing a novel mechanism: a lack of felt momentum can explain why people do not continue behaviors even when they want to persist.

**Study 1** ( $n=150$ ) demonstrates the effect of breaking a streak on future behavior. Participants imagined that they were regular users of an app that allows them to log and rank beers, and that they had just tried several new beers at a festival. Participants were told either that they had logged those beers in their app (*streak* condition), that they could not log the beers because their phone died (*broken streak* condition), or were given no information about whether they logged their beers or not (*no information* condition). We find that participants in the *broken streak* condition were less likely to record their next beer ( $M = 5.42$ ) than participants in the *streak* ( $M = 6.32$ ;  $t(95) = 3.67$ ,  $p < .001$ ) and *no information* ( $M = 6.23$ ;  $t(101) = 3.45$ ,  $p < .001$ ) conditions (Figure 1). This effect also extends to likelihood of logging beer next month ( $F(2, 147) = 3.99$ ,  $p = .021$ ).

**Study 2** ( $n=200$ ) replicates this effect using a different dependent variable and stimuli. Participants imagined using an app to log their outdoor runs, and were told that they either logged their most recent run or missed logging due to uncontrollable circumstances (their phone died). Participants who missed logging their last run were less likely to log their next activity on the app (92.93%) than people who successfully logged their last run (99.01%;  $\chi^2(1) = 4.81$ ,  $p = .028$ ).

**Study 3** ( $n=318$ ) explores the mechanism behind this effect. Participants read about an app that lets users check into sites, and imagined they were on a trip to a new destination. Participants either read that they had checked into the first four sites on the trip (*streak* condition) or checked into the first four places but missed the most recent site (*broken streak* condition). Participants in the *broken streak* condition were less likely to check in to the next location they visited ( $M = 8.33$ ) than participants in the *streak* condition ( $M = 9.05$ ,  $F(1, 316) = 7.35$ ,  $p = .007$ ). Participants in the *broken streak* condition also reported having less momentum in their behavior (6 items,  $\alpha = 0.69$ ;  $M = 7.39$ ) than participants in the *streak* condition ( $M = 8.03$ ,  $F(1, 316) = 11.18$ ,  $p < .001$ ). Additionally, a mediation analysis (PROCESS macro; Hayes, Preacher, and Myers 2011) revealed that this decrease in felt momentum mediated the relationship between breaking a streak and a lower likelihood of continuing the behavior (indirect effect =  $-0.56$ ,  $SE = 0.17$ , 95% CI  $[-0.88, -0.23]$ ).

**Study 4** ( $n=1,025$ ) shows that, consistent with the momentum mechanism, the timing of when the streak is broken moderates the effect. Participants saw the same stimuli as Study 4 and either read that they had checked into the first four sites on the trip (*streak* condition), checked into the first four places but missed the most recent site (*recent broken streak* condition), or

checked into the first two sites and the most recent two sites but missed the third site (*non-recent broken streak* condition). Participants were less likely to check in to the next place in the *recent broken streak* condition ( $M = 9.18$ ) than in the *streak* condition ( $M = 9.65$ ,  $t(1022) = 2.85$ ,  $p = .004$ ) or in the *non-recent broken streak* condition ( $M = 9.52$ ,  $t(1022) = .035$ ,  $p = .035$ ; Figure 2). This suggests that while participants in the *non-recent broken streak* condition had the same overall rate of checking in on the trip as the *recent broken streak* condition, they could regain momentum after their miss and thus were more likely to continue the behavior in the future.

**Study 5** ( $n=123$ ) replicates the effect in a lab setting with real behavior, where participants actually became less likely to continue taste testing candies after a broken streak ( $\chi^2(1, N=123) = 20.25$ ,  $p < .001$ ).

Overall, we find that when people miss the opportunity to do a behavior due to uncontrollable circumstances, they are less likely to continue that behavior. This research adds to our current knowledge of how and why people persist in repeated behaviors, and has important implications as technology has increased consumers' awareness of when they do certain behaviors. For example, apps can track consumers' fitness activity, educational endeavors, and site-seeing, thus informing consumers when they have maintained versus broken their streaks. Our findings suggest that such technological advancements could have profound effects on consumers' activity levels under certain conditions.

### **Do Rewards Reinforce the Growth Mindset?: Joint Effects of the Growth Mindset and Incentive Schemes in a Field Intervention**

#### **Short abstract**

Much research shows that growth mindsets can help under-achievers improve performance. This research proposes that an appreciation of the context is missing in this literature because it has mostly been conducted in North America. We propose that conceptually, the growth mindset works because it is predicated on the concept of autonomy – “my own efforts will help me”. Such autonomy is missing in many third-world contexts. A field experiment in 107 schools in an Indian slum finds that a growth mindset intervention did facilitate performance via persistence, but only when reinforced by an incentive system that imparted a sense of autonomy.

#### **Extended Abstract**

“Development policy is due for a redesign... The World Development Report... demonstrates that a more realistic understanding of choice and behavior can make development interventions much more effective.”

~ World Bank, 2015

Increasingly, policy makers worldwide are paying attention to human psychology when designing evidence-based interventions to promote well-being (Halpern, 2015). Early psychological interventions in educational settings are considered as an indispensable component of this effort, because initial differences in beliefs and motivation among children have long-term implications (Blackwell, Trzeniewski, & Dweck, 2007). As Halpern (2015) puts it, “identifying school-based interventions that can boost attainment—particularly of more disadvantaged students” is a key area of active research, and “many of the most powerful interventions seem to involve fostering soft skills... and ‘thinking how to think’”.

Both the World Development Report 2015 and the Global Insights Initiative (GINI) launched by the World Bank in October 2015 have highlighted the importance of the “growth mindset intervention”, which teaches students that their abilities are malleable and can be improved, rather than fixed and unchangeable. Guided by a motivational model of achievement (Dweck & Leggett, 1988), this intervention aims to foster students’ motivation to learn and to pursue challenges by changing their mindsets. In the US, in-school (Blackwell et al., 2007; Yeager et al., 2016) and large-scale online (Paunesku et al., 2015) studies have found that such interventions encourage students to persist and to improve their performance, and that this effect is especially strong among low-achieving students.

We argue that this literature is missing two key elements. One is a wider context, because evidence mostly comes from North America. Context matters greatly in general, and there is considerable variability in self-concepts, motivation, and behavior across different populations (Henrich, Heine, & Norenzayan, 2010) and contexts (Kesebir, Oishi, & Spellman, 2010). Global policy initiatives have been advocating for implementation of the growth mindset intervention worldwide, but we know little about whether and how these results transfer to developing countries.

A second missing element is conceptual. The growth mindset leads individuals to attribute failure to the lack of personal effort rather than to inability (Blackwell et al., 2007). It connects effort and hard work to performance outcomes (Rattan et al. 2015) and increases expectancies for success by stressing that growth and improvement are within one’s own control (Dweck & Leggett, 1988). Hence the possibility of autonomy is a necessary condition for a growth mindset intervention to work.

We tested the above boundary conditions in a field experiment in 107 classrooms run by an NGO operating in slum areas of a major Indian city (N=2420, grade 3, 51% female; mean age = 8.23). Classes were randomly assigned across conditions of a 2 (mindset: growth vs. control) X 3 (reward for attendance: high autonomy vs. low autonomy vs. control) between subjects design, and were taught for one hour every week that the brain improved with effort (growth mindset condition) or about the heart (control condition). In the reward conditions, attendance during a 6-week period was either incentivized by having students choose their own rewards (from among different erasers, high autonomy), the teacher choosing for the student (low autonomy), or a no-reward control. Prior achievement was measured using previous test scores. The key dependent variables were performance on an examination conducted by an independent body, and the number of questions attempted on this examination as a measure of persistence.

Due to space restrictions, we only report the main results here. We estimated a two-level model with Mindset (dummy-coded: 1 = Growth) and Reward conditions (one dummy variable for each condition, control = 0) at Level 2 and Prior Performance at Level 1 predicting test scores. The main effect of Prior Performance was significant,  $\beta = .36, p < .001$ . The three-way interactions revealed that the growth mindset intervention interacted with personal choice and prior performance to influence test performance,  $\beta = .39, p = .01$ , but did not interact with teacher choice and prior performance,  $\beta = .08, p = .60$ . This result suggests that compared to students in the no-reward control condition, the performance of those who were in the Personal Choice condition was influenced by the mindset intervention and their prior performance. In contrast, the pattern of effects in the Teacher Choice condition did not differ significantly from the No Reward Control condition. Simple slope analyses revealed that the Mindset  $\times$  Personal Choice Reward interaction was significant when Prior Performance was high,  $\beta = 8.62, p = .04$ , but not when Prior Performance was low,  $\beta = -2.98, p = .47$ . The simple slope effects of the

Mindset  $\times$  Teacher Choice Reward interaction were not significant regardless of Prior Performance levels.

When the effects of reward and prior performance were examined by Mindset Condition separately, the results revealed that the Personal Choice Reward  $\times$  Prior Performance interaction was significant in the Growth Mindset intervention,  $\beta = .21, p = .03$ , but not in the Control Mindset condition,  $\beta = -.18, p = .14$ . The Teacher Choice Reward did not have significant effects in either condition, all  $ps > .41$ .

Finally, bootstrapping analyses revealed that the above effects were mediated by persistence, as measured by the number of questions attempted.

To summarize, the growth mindset intervention intends to enhance performance among underperforming students by emphasizing the importance of personal effort. However, we found that this intervention facilitated performance through persistence only when the incentive system was aligned with its core message, which emphasized autonomy. Furthermore, this facilitation effect only occurred among students with high prior achievement, but not among prior low performers. Incentives chosen by teachers (low-autonomy condition) did not lead to the same effect. The patterns found in the no-reward and teacher-choice reward conditions were similar, and they were both significantly different from the personal-choice conditions, in which individuals were imparted with a sense of autonomy.

Our key take-away is that researchers and policy makers should be particularly cautious when transferring psychological interventions across different populations, interactions with missing background factors may loom large.

## **The Effects of FOMO-Inducing Social Media Content on Consumer-Brand Relationships**

### **Short Abstract**

Marketers often post photos on social media of brand events (e.g., festivals, parties) both to remind participants of good times, and to potentially elicit FOMO (Fear of Missing Out) from consumers who missed out. We hypothesize that if non-participants experience negative feelings of FOMO, they will attempt to strengthen their relationship with the brand. Five studies reveal that FOMO initially distances consumers from the brand, but then motivates compensatory attempts to regain closeness (e.g., by avoiding competitive brands and re-asserting brand closeness). These effects are amplified among consumers with a stronger sense of brand community.

### **Extended Abstract**

Marketers often use social media to post about brand events they host, such as when lululemon offers yoga classes or when Yelp hosts parties. The assumption underlying these behaviors is that social media “buzz” will generate excitement and good memories for those who attended the event, and generate interest and future engagement for those who missed the event. The present research tests the latter assumption, exploring when and why marketing activities that induce FOMO (Fear of Missing Out) influence consumer-brand relationships.

Viewing social media evidence of a missed event with one’s social group elicits FOMO due to the recognition of a missed opportunity for social bonding (Rifkin, Chan, and Kahn 2017) Accordingly, we suggest that seeing photos of missed brand events containing social content

(e.g., people socializing at the event) should elicit greater FOMO among consumers than seeing photos containing non-social content (e.g., food and drink at the event; H1).

We suggest that FOMO will, in turn, influence consumer-brand relationships. Because FOMO is characterized by anxiety about social-group belonging (Rifkin et al. 2017), we predict that FOMO will initially make consumers feel more distant from the brand (H2A). However, drawing from work on compensatory responses to social exclusion threats (Dommer, Swaminathan, and Ahluwalia 2013; Duclos, Wan, and Jiang 2013; Lee and Shrum 2012; Mead et al. 2010; Wan, Ding, and Xu 2014), we also predict that consumers will subsequently attempt to restore their closeness to the brand (H2B).

Finally, because FOMO is tied to missed social *bonding* (and not the missed event itself), we suggest that the predicted effects will be amplified as brand community feelings increase—that is, when the brand event serves as an opportunity to bond with a valued social group (H3).

Study 1 tests lay intuitions about the incidence and consequences of FOMO marketing. Participants ( $N = 163$ ) indicated their familiarity with the term “FOMO” (89.6% were familiar), whether they have ever felt FOMO for a brand event (50.9% had), and how feeling FOMO for a brand event might influence them. Participants intuited the positive effect of FOMO on consumer-brand relationships, indicating that feeling FOMO for a brand event would make them more excited and positive about the brand ( $M_{\text{Excited\_Brand}} = 5.33$ ,  $M_{\text{Positive\_Brand}} = 4.60$ , both above midpoint,  $p < .05$ ), but not more positive in general ( $M_{\text{Positive\_General}} = 3.90$ ; *NS* different from midpoint).

Study 2 tests whether photos containing social content elicit more FOMO than non-social content (H1). Recent college alumni ( $N = 69$ ) imagined they missed an undergraduate alumni event, and we varied whether they imagined seeing social media photos of others from their graduating class at the event (social condition) or food and drink at the event (non-social condition). Supporting H1, compared to the non-social photos, the social photos elicited more FOMO ( $M_{\text{Social}} = 4.45$  vs.  $M_{\text{Non-Social}} = 3.75$ ,  $p = .036$ ).

Study 3 tests the effects of FOMO on consumer-brand relationships (H2-3). Participants ( $N = 204$ ) imagined they missed a brand event in their area (hosted by Nike, Athleta, Under Armour, or lululemon) and saw social media photos of the event featuring either people they knew (social condition) or people they did not know (non-social condition). We then measured how much the photos elicited FOMO (1-7) and changed their feelings of brand closeness (1-9). To capture compensatory attempts to restore closeness, we also measured their likelihood to use a gift card for the brand’s main competitor (1-7), predicting that FOMO would reduce patronage of the competition. Finally, we measured brand community feelings using 3 items (e.g., shared interests and desire to socialize with other brand users; 1-7).

We found the predicted photo content  $\times$  brand community interaction on FOMO ( $p = .02$ ; Figure 3), such that the FOMO-inducing effect of social photos was amplified among participants who had stronger brand community feelings. In turn, FOMO influenced consumer-brand relationships. As predicted, moderated mediation (Model 58) analyses revealed that the FOMO brought on by seeing social photos made participants feel more distant from the brand, and this relationship was significant when brand community feelings were moderate (95% CI [-.34, -.008]) and high (95% CI [-.56, -.10]). A similar pattern emerged for compensatory attempts to restore brand closeness: moderated mediation analyses revealed that the FOMO brought on by seeing social photos decreased participants’ likelihood to patronize the competition when brand community feelings were moderate (95% CI [-.34, -.008]) and high (95% CI [-.56, -.10]).

Overall, Study 3 supports H2-3: FOMO, and subsequent compensatory acts, are amplified when the brand event serves as an opportunity to bond with a valued social group.

Study 4 ( $N = 238$ ) uses the same procedure as study 3, employing a different measure of compensatory closeness (H2-3). If FOMO motivates attempts to regain brand closeness, people should assert that they are close to the brand if given the opportunity. Thus, while in study 3 we measured how FOMO *changed* their brand closeness (more distant vs. closer), in study 4 we simply asked participants to indicate how close they felt to the brand (lululemon or Nike). We reasoned that this framing would induce responses consistent with how participants *want* to feel regarding the brand, not how they *actually* feel. As expected, results revealed that seeing social photos elicited greater FOMO than non-social photos, which drove stronger assertions of brand closeness. As with study 3, these effects were amplified among those with a stronger sense of brand community (interactions and moderated mediation  $p < .09$ ).

Study 5 ( $N = 217$ ) conceptually replicated study 4 with two additional control conditions (photos of merchandise and photos of the event space) and revealed consistent effects.

Five studies demonstrate that seeing social online content of a missed brand event can elicit FOMO. While FOMO initially creates distance from the brand, it also motivates compensatory attempts to regain closeness. Furthermore, these effects grow stronger as brand community feelings increase, suggesting “FOMO marketing” can be leveraged to foster consumer-brand relationships within strong brand communities. These findings contribute to research on social media marketing, consumer-brand relationships, and compensatory consumption.

### **Closing your Eyes to Follow your Heart: Avoiding Information to Protect a Strong Intuitive Preference**

#### **Short Abstract**

Across five studies ( $N=1951$ ), we find that consumers avoid learning information that could encourage a financially-rational or future-oriented decision to make it easier to select an intuitively preferred option. Although consumers avoid information when facing an intuitive-deliberative conflict, they use the information when it is provided. Avoidance is moderated by the strength of the intuitive preference, and is greater before a decision is made, when information is decision-relevant, than after, when information is irrelevant for the decision. Thus, ironically, information is avoided more when consumers need to make a decision than when a decision has already been made.

#### **Extended Abstract**

Rationally, more (relevant) information is better. But consumers sometimes choose to remain ignorant. Consumer behavior research largely conceptualizes information avoidance as a means of protecting emotions (Ehrich and Irwin 2005; Zane, Irwin, and Reczek 2015). The current research broadens this view to include the goal of protecting a preference, developing a theory of information avoidance within the context of intuitive-deliberative conflict.

In studying intuitive-deliberative conflict situations, we distinguish between intuitive and deliberative processes (Sloman 2014; see also System 1 vs. System 2: Kahneman and Frederick 2002; 2005; Milkman, Chugh, and Bazerman 2009; head vs. heart: Shiv and Fedorikhin 1999). The intuitive process is automatic and relatively effortless, capturing a gut-reaction. It quickly proposes intuitive or impulsive answers to problems as they arise, often based on affective

reactions (e.g., “follow your heart”). The deliberative process on the other hand is more effortful and controlled, operating according to formal rules of logic, and is responsible for overcoming powerful stimuli that would otherwise elicit immediate, impulsive responses (e.g., “follow your head”).

We predict that when consumers have a strong intuitive desire that conflicts with their deliberative reasoning, they will avoid information in order to protect their intuitive preference. That is, if the information could encourage them to make a “rational” decision, they may avoid the information in the first place to make it easier and more likely that they will make the intuitive decision instead. Although people with an intuitive preference may also avoid information to minimize unpleasant emotions or challenges to their beliefs, we demonstrate that avoidance is driven in part by the motivation to protect the decision itself.

Across hypothetical and consequential studies, we test the prediction that people avoid information when they hold a strong intuitive preference that conflicts with a deliberative response, but use this information when it is provided. As a first test, participants in Study 1 imagined being tempted to order dessert even though they are concerned with healthy eating. Before deciding whether to order dessert, they indicated whether they want to know the dessert’s nutritional information. A majority of participants (62.7%) choose not to receive calorie information. However, when assigned to receive information (385, 550, or 700 calories), the information influenced their decision to order dessert ( $\beta = -.64$ ,  $SE = .24$ ,  $p = .007$ ), both for those who wanted to receive the information and those who wanted to avoid it (Table 1).

Study 2A examined information avoidance for a decision with real financial consequences. Participants received a choice between working on a fun task that offered no bonus payment and working on a boring task that paid a real bonus. Before deciding which task to work on, participants indicated whether they wanted to know how much the boring task paid. Even though a majority (62.7%) choose to avoid learning the value of the bonus payment, when assigned to receive this information, it influenced their decision ( $\beta = -.99$ ,  $SE = .41$ ,  $p = .017$ ; Table 2). In a follow-up (Study 2B), we find that avoidance is predicted by the strength of participants’ intuitive preference. The stronger participants’ intuitive preference for the fun task, the more likely they were to avoid the bonus information ( $\beta = .23$ ,  $SE = .07$ ,  $p = .002$ ). Again, as in Study 2A, participants were influenced by the information ( $\beta = 1.49$ ,  $SE = .43$ ,  $p < .001$ ), even for those who preferred to avoid it (Table 3).

Across Studies 3-5, participants decide whether to learn how much money they could earn by accepting an intuitively-unappealing investment (earning money if a sympathetic student performs poorly in a class or if a hurricane hits a third-world country). Although intuitively-unappealing, the investments are financially rational because they only have financial upside. In Study 3, we find that the strength of the intuitive preference moderates information avoidance. People were more likely to avoid learning how much they would win if a student performed poorly in a class than if the student performed well (57.8% vs 42.9%;  $\chi^2(1, N = 200) = 4.49$ ,  $p = .034$ ).

In Study 4A, we test whether information is avoided more when it can influence a decision (i.e., a decision has not yet been made) than when it cannot (i.e., a decision has already been made for participants). Participants imagined choosing a retirement plan from a set of plans, with one plan offering a large payout in the event of a hurricane striking a third world country. People were more likely to avoid learning how much this plan paid out when they had to make a decision about what plan to invest in than when they were automatically enrolled in the plan with this “catastrophe bond” (58.4% vs. 41.4%;  $\chi^2(1, N = 200) = 5.78$ ,  $p = .016$ ). In a follow-up



(Study 4B), learning the payout of the cat-bond influenced participants to make the financially rational decision (enroll in the plan with the cat-bond).

Study 5 tested this prediction for a consequential decision. Conceptually replicating Study 4A, participants avoided information more when they had a decision to make (i.e., to accept or refuse a bet that a student performs poorly) than if they were automatically assigned to accept the bet (61.2% vs. 43.4%;  $\chi^2(1, N = 197) = 6.25, p = .012$ ).

Overall, we find that consumers avoid information to protect an intuitive preference, and that they are most likely to do so when the information is most valuable to have. When people have a strong intuitive preference that conflicts with a deliberative response, such as wanting to order dessert when they have a health goal or wanting to refuse an upsetting investment that only has financial upside, people prefer to avoid information that would make it harder for them to follow their intuition. Despite avoiding this information, people incorporate it into their decision when it is provided, suggesting that people may make a mistake, either in avoiding information they would otherwise use, or in using information they would prefer to avoid.

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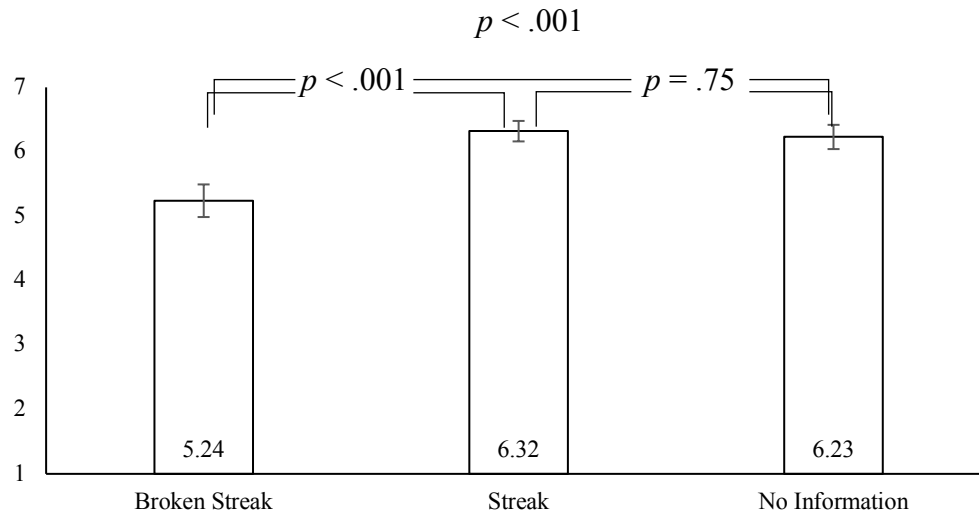
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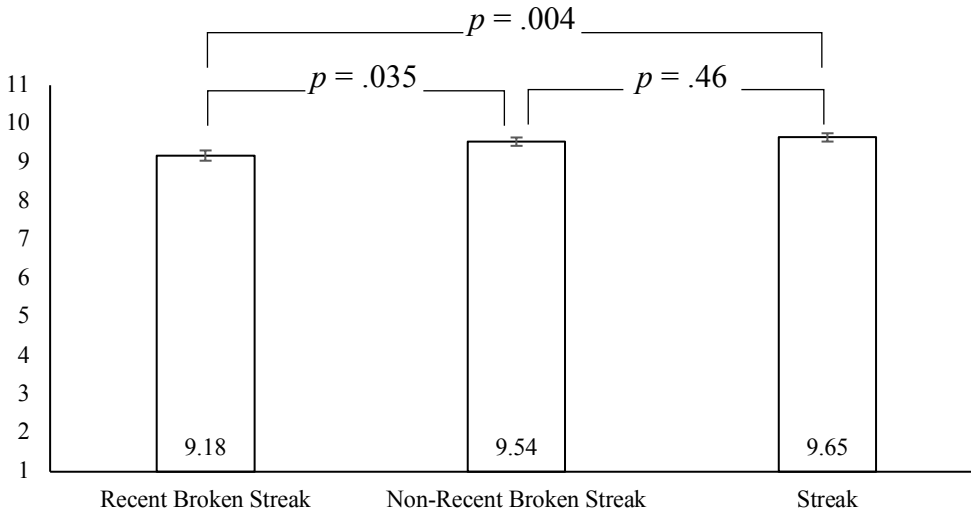
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## Figures and Tables

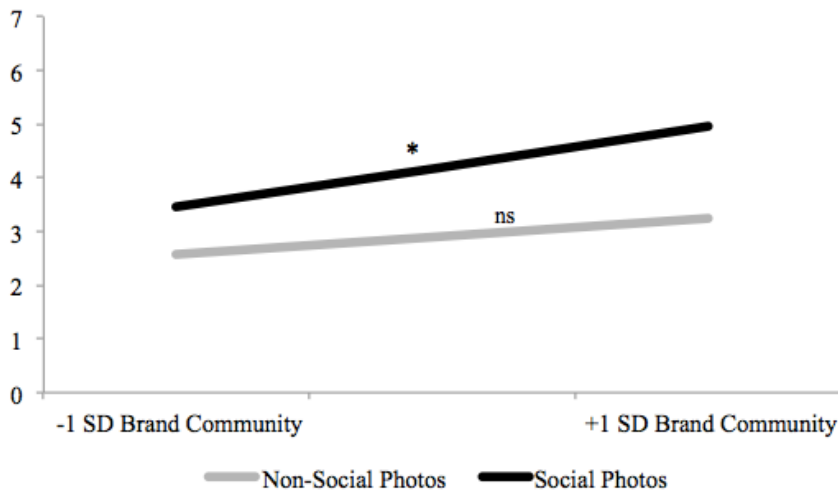
**Figure 1.** Participants' likelihood of continuing to log beers on an app based on their recent pattern of behavior (Silverman and Barasch; Study 1). Error bars are  $\pm 1$  SE.



**Figure 2.** Participants' likelihood of continuing to track sites they visit on an app based on their recent pattern of behavior (Silverman and Barasch; Study 4). Error bars are  $\pm 1$  SE.



**Figure 3.** Participants felt FOMO after missing an event, based on the content of missed-event photos and their feelings of brand community (Rifkin, Chan, and Kahn; Study 3).



**Table 1.** Percent of participants deciding to order cake as a function of calorie amount and whether they wanted to receive or avoid the calorie information (Woolley and Risen; Study 1).

|              | Wanted to receive information | Wanted to avoid information |
|--------------|-------------------------------|-----------------------------|
| 385 calories | 73.0%                         | 88.7%                       |
| 550 calories | 61.3%                         | 85.7%                       |

700 calories                      43.2%                      69.6%

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**Table 2.** *Percent of participants choosing the fun joke task as a function of bonus payment information for the boring task and whether they wanted to receive or avoid the bonus information (Woolley and Risen; Study 2A).*

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|        | Wanted to receive information | Wanted to avoid information |
|--------|-------------------------------|-----------------------------|
| \$1.00 | 90.5%                         | 86.2%                       |
| \$3.00 | 65.0%                         | 84.4%                       |
| \$5.00 | 53.3%                         | 78.8%                       |

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**Table 3.** *Percent of participants choosing the fun cartoon task as a function of bonus payment information for the boring task and whether they wanted to receive or avoid the bonus information (Woolley and Risen; Study 2B).*

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|        | Wanted to receive information | Wanted to avoid information |
|--------|-------------------------------|-----------------------------|
| \$0.05 | 78.7%                         | 96.4%                       |
| \$0.15 | 61.0%                         | 85.7%                       |
| \$0.25 | 35.8%                         | 64.7%                       |

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## 5.3 Experiences: Experiencing Experiences Experientially Individual Papers

### To Have or To Do: The Role of Implicit Beliefs

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The pursuit of happiness in our consumerist society is all about getting the biggest hedonic bang for the (limited) buck. Extant research on happiness over the last decade shows that the first principle of using money to increase happiness is to spend it on experiences instead of possessions (Van Boven & Gilovich, 2003). Experiences (e.g., going to the movies, eating out) bring more happiness than possessions (e.g., gadgets, bags, clothes).

Thus far, research seems to suggest that preference for experiences is almost universal – with the exception of a few purchaser characteristics (low income, and those high in materialism, Zhang et al., 2014) and a solitary purchase characteristic (valence of purchase, Nicolao, Irwin, & Goodman, 2009) predicting otherwise.

However, we propose that not all consumers will derive similar happiness from experiential consumption. Specifically, people's implicit (lay) beliefs about malleability (vs. fixedness) of personality will drive differential preference for experiential purchases. Incremental theorists, who believe in malleability of self and others, actively seek opportunities for self-growth and advancement (Murphy & Dweck, 2015). Hence, they are more likely to extract greater value from experiential consumption, as they believe that experiences add to their personality and help them grow as individuals. In contrast, entity theorists who believe in fixedness of the personal characteristics are less likely to value experiences as a tool for self-development, thus not preferring them to possessions.

Hence, incremental theorists will be more positively disposed towards experiences (over material goods), compared to entity theorists. Further, incremental theorists' preference for experiences will be driven by their belief that experiences contribute to self-growth and learning.

## METHODOLOGY AND RESULTS

Eight studies provide converging evidence that incremental theorists value experiences (over material possessions) more than entity theorists. We replicate the effect across multiple contexts, both for anticipatory consumption choices and preferences and retrospective post-consumption evaluations (Studies 1 & 2a-2c). Studies 3 and 4 identify experiences' ability to contribute to self-growth as the underlying mechanism. In a stricter test of the hypothesis, Studies 5 and 6 demonstrate that incremental theorists' preference for experiences holds even when a product (experience) is framed as an experience (vs. a material possession).

Study 1 asked participants to recall a recent purchase made with the intent of increasing happiness (Guevarra & Howell, 2015). Participants then rated their purchase on a scale from 1= material purchase to 7= experiential purchase. We measured implicit beliefs using the 8-item scale (Levy et al., 1998). Regressing participants' rating of the purchase on their implicit orientation revealed a significant effect ( $\beta = -.34$ ,  $F(1,155) = 4.54$ ,  $p < .05$ ). Participants with an entity orientation (+1SD) were more likely to recall a material object ( $M_{ENT} = 3.35$ ), while those with an incremental orientation (-1SD) were more likely to come up with an experiential purchase ( $M_{INC} = 4.27$ ).

Studies 2a-2c demonstrated that implicit orientation influences anticipatory choice between experiential and material options. Under a relevant cover story, participants in Study 2a were asked to pick top four most appealing options from a list of eight (four experiential, four material). Implicit beliefs were measured as in Study 1. Regression analysis showed that incremental theorists (-1SD) chose a greater number of experiential options ( $M_{INC} = 2.93$ ) vs. entity theorists (+1SD,  $M_{ENT} = 2.15$ ,  $p < .05$ ). Study 2b replicated the effect by manipulating implicit beliefs (Chiu et al., 1997). Study 2c provided behavioral evidence of choice using gift vouchers for a stationery store (material) and a movie theatre (experiential).

Studies 3 and 4 provided evidence for the underlying mechanism. For Study 3, participants were randomly assigned to recall a recent purchase, either material or experiential. They then evaluated the subjective economic value of the purchase (Guevarra & Howell, 2015). Participants' beliefs about the extent to which the purchase helped them grow as an individual, their implicit beliefs and materialism, were also measured.

Regressing type of purchase, implicit beliefs, their interaction, and materialism (as control) on subjective economic value (SEV) showed a significant interaction ( $F(2,136) = 9.46$ ,  $p < .05$ ). Incremental theorists assigned higher SEV to experiential purchases than entity theorists ( $M_{INC} = 8.00$  vs.  $M_{ENT} = 6.67$ ,  $p < .05$ ). Further, incremental theorists derived higher value from experiential purchases vis-à-vis material ( $M_{EXP} = 8.00$  vs.  $M_{MAT} = 7.15$ ,  $p < .05$ ) whereas entity theorists valued their material purchases ( $M_{MAT} = 7.59$ ) more than experiential purchases ( $M_{EXP} = 6.67$ ,  $p < .05$ , please refer Figure 1). Moderated mediation using Hayes' (2012) Model 7 was significant with self-growth as the underlying-mechanism (95%CI = [.07, .53]) only for incremental theorists (Refer Figure 2). Study 4 provided additional evidence for the mechanism in a choice context where participants chose between a jewelry and watch store voucher (material) and a travel website voucher (experiential, Goodman, Malkoc, & Stephenson, 2016).

Study 5 provided a stricter test of the hypothesis by framing a material good (HDTV) in either material or experiential terms (Carter & Gilovich, 2012). Implicit beliefs were manipulated as in Study 2b. There was a significant interaction between type of framing and implicit beliefs ( $\beta = 2.03$ ,  $F(1,121) = 20.32$ ,  $p < .001$ ) such that participants in the incremental condition expressed greater purchase intent for the HDTV when it was framed as an experiential purchase ( $M_{INC,EXP} = 5.43$ ) compared to when it was framed as a material purchase ( $M_{INC,MAT} = 4.74$ ,  $p < .05$ ). Finally, Study 6 replicated the above pattern of results by framing an experience (trip to a beauty store) in either experiential or material terms.

## GENERAL DISCUSSION

The experience-over-goods effect is thought to be near universal with few moderators investigated till date. Our research reveals that a key individual difference – i.e., implicit beliefs – determine consumers' preference for experiences. We show that the value of experiences (to incremental theorists) comes from the imbued opportunity to learn which contributes to self-growth. This research contributes to experiential vs. material consumption literature by investigating a meaningful individual difference that influences the happiness people derive from experiential consumption.

We also contribute to implicit theory literature by examining the underlying reason that drives incremental theorists' preference for experiences. Further, we add to growing consumer research that establishes implicit theory as a critical variable with noteworthy impact on preferences. Lastly, this work has interesting implications for marketers to design more

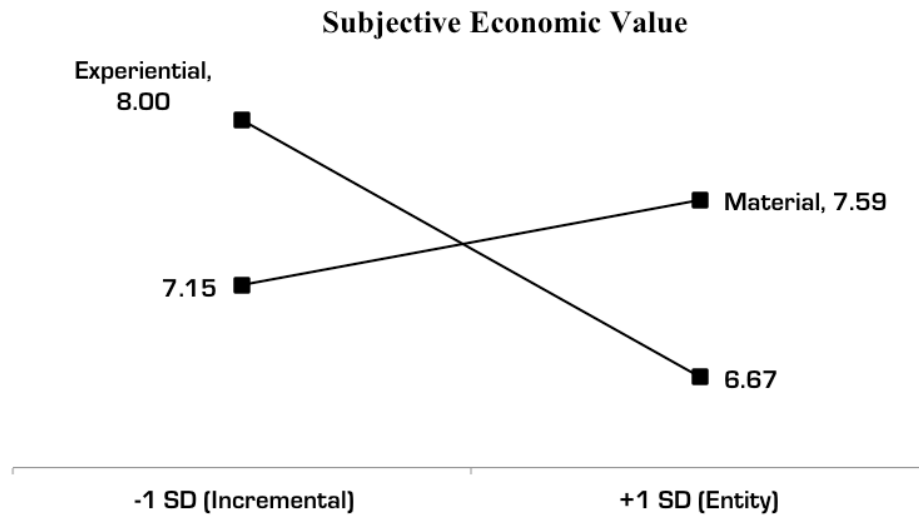
compelling communication by leveraging either the material or experiential attributes to appeal to a specific target audience.

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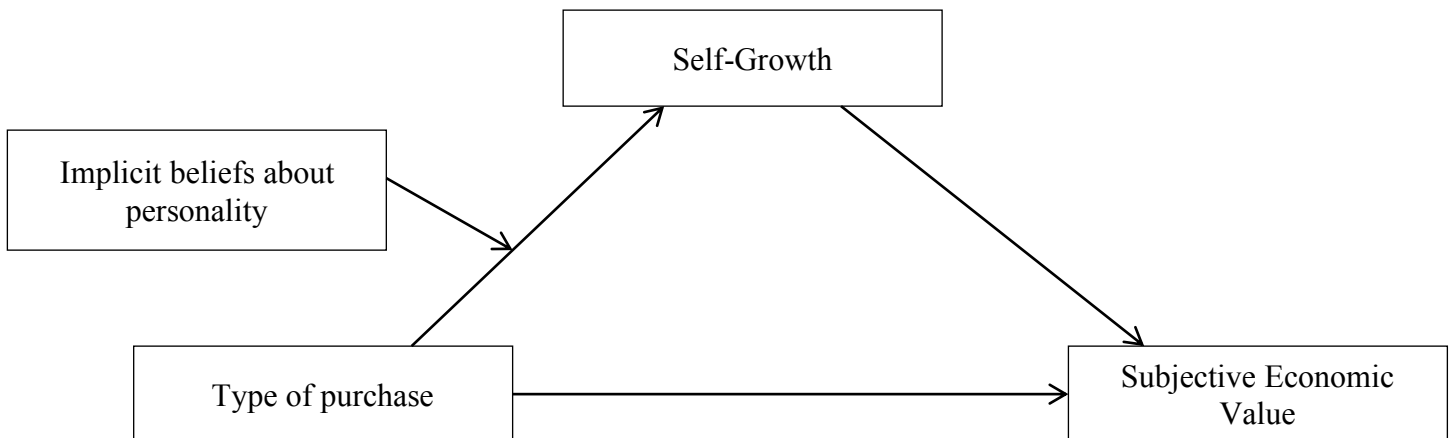


**Figure 1**



Subjective economic value assigned to type of purchase (material, experiential) by incremental (-1 SD) and entity theorists (+1 SD)

**Figure 2**



Moderated mediation: The path between experiential purchases to subjective economic value through the extent to which the purchase contributes to self-growth is significant only for incremental theorists.

## Active Consumption: How the Architecture of the Experience Activates Consumer Engagement and Enjoyment

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Prior work has established the benefits of experiential over material consumption (Nicolao, Irwin and Goodman 2009; Gilovich, Kumar and Jampol 2014), however, little attention has been devoted to the factors that enhance *the very same* experience. Two consumers may participate in the same experience, but one might enjoy it immensely, while the other feels disengaged. Holding constant the experience, what factors influence the extent to which consumers more or less enjoy it?

In this article, we propose that information about the architecture of an experience uniquely enhances enjoyment relative to other forms of knowledge. Architectural information is defined as knowledge about the structure, arrangement, and/or framework of the experience (adapted from Fischer, Winter and Aier 2010). In a song, the architectural information would be the arrangement of the chords and verses, but not the actual lyrics. In this way, architectural information is not about the content per se of the experience, but specifically about the organization or outline of it. Further, architectural information is embedded within the experience itself.

Architectural information enhances experience through encouraging consumers to “actively consume” the experience. Because architectural information is embedded within the experience itself, consumers are cued to seek it as the experience unfolds, thus activating their engagement and subsequent enjoyment throughout the experience. This is in contrast to passively receiving the experience and subsequently feeling less engaged. We find converging evidence for this phenomenon across four experiments and two archival datasets of OpenTable reviews.

Study 1 examined the basic effect by varying whether architectural, neutral, or no information was provided prior to the same experience. All participants listened to the song “Don’t Forget Me” by the Red Hot Chili Peppers. In the architecture condition, before listening to the song, participants read about the structure of the song (i.e., the chords). To control for cognitive load, participants in the neutral information condition read about an unrelated topic. Participants in the control condition had no further information provided. Consistent with our hypothesis, planned contrasts revealed that participants enjoyed the song more when they were given information about the architecture of the song ( $M = 5.56$ ,  $SD = 1.41$ ) compared to when they were given neutral information ( $M = 4.80$ ,  $SD = 1.85$ ) and when they were given no additional information ( $M = 5.12$ ,  $SD = 1.75$ ),  $t(300) = -2.86$ ,  $p = .004$ ,  $d = 0.38$ . Further, the neutral and control conditions not differ from each other,  $t(300) = 1.38$ ,  $p = .17$ .

Study 2 asked participants to predict how information about the structure of a song would influence others’ enjoyment of the song. A majority of the participants (68%) predicted that the song would be enjoyed more in the no information condition compared to the architectural information condition ( $\chi^2(1) = 29.42$ ,  $p < .001$ ). Thus, people do not intuit that architectural information will enhance enjoyment.

Study 3 both tested our proposed process and whether enhanced enjoyment uniquely relates to architectural information as opposed to knowledge more generally (architecture, general song information, and control). Indeed, participants enjoyed the song more in the

architecture condition ( $M = 5.67$ ,  $SD = 1.43$ ) compared to both the general information ( $M = 4.82$ ,  $SD = 1.64$ ) and the control ( $M = 4.98$ ,  $SD = 1.63$ ) conditions,  $t(167) = -3.04$ ,  $p = .003$ ,  $d = .51$ , which did not differ from each other,  $t(167) = .54$ ,  $p = .59$ . In addition, a serial mediation model with bootstrapping (Hayes 2013) revealed that, indeed, participants in the architecture condition sought structure more, which led them to be more actively consume the song, resulting in greater enjoyment (95% CI for the indirect effect: [.0478, .2730]).

In Study 4, we tested our process using a moderation approach by having participants learn about architecture either before or after the experience (architecture before song, architecture after song, and control). Further, we created an original song to ensure that participants would have no prior familiarity with it. Results revealed that participants enjoyed the song more in the architecture before song condition ( $M = 4.13$ ,  $SD = 1.49$ ) compared to both the architecture after song ( $M = 3.69$ ,  $SD = 1.47$ ) and the control ( $M = 3.58$ ,  $SD = 1.28$ ) conditions,  $t(242) = -2.60$ ,  $p = .01$ ,  $d = .35$ , which did not differ from each other,  $t(242) = .51$ ,  $p = .61$ . Finally, a serial mediation model confirmed that participants in the architecture before song condition sought structure more, which led them to be more actively consume the song, resulting in greater enjoyment (95% CI for the indirect effect: [.0236, .2895]).

Study 5A examined OpenTable restaurant reviews—some of which referred to knowledge of the architecture of the culinary experience (pre-fixe menu) and others which did not. A regression on the restaurant ratings with the pre-fixe dummy code as a predictor variable and with the review date and city of origin as control variables revealed that reviews referring to the pre-fixe menu (vs. without) were more positive controlling for both date of review and consumer's city of origin ( $b = .13$ ,  $SE = .06$ ,  $p = .027$ ).

Study 5B examined the effect of architecture on experience using an external determinant of whether architecture was provided. We compared reviews that were obtained during restaurant week (when the architecture of the experience was known as restaurants offered only pre-fixe options) to those obtained in weeks in which there was no set architecture of the experience (i.e., only à la Carte options were available) for a particular restaurant. A regression on the reviews with the pre-fixe dummy code as a predictor variable and with city of origin as a control variable revealed that reviews obtained when there was a set architecture in the pre-fixe weeks (vs. not) were more positive ( $b = .33$ ,  $SE = .14$ ,  $p = .018$ ).

Our work explores a novel antecedent of enhanced experiential consumption—prior information about the architecture of the experience. Understanding what facilitates consumers to move from passive to more active experiential consumption is a fruitful area for researchers and practitioners alike.

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**Table 1.** Summary of results in Studies 1- 5B.

| Dependent Variable                             | Condition                |                                    |                   | Analysis                                                                                                     |
|------------------------------------------------|--------------------------|------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------|
|                                                | Architecture             | Neutral/<br>General<br>Information | No<br>Information |                                                                                                              |
| <b>Study 1</b>                                 |                          |                                    |                   |                                                                                                              |
| Enjoyment<br><i>M</i><br>( <i>SD</i> )         | 5.56<br>(1.41)           | 4.80<br>(1.85)                     | 5.12<br>(1.75)    | $F(300) = 5.14, p = .006$                                                                                    |
| <b>Study 2</b>                                 |                          |                                    |                   |                                                                                                              |
| % Choosing the no information over structure   |                          |                                    | 68%               | $\chi^2 (df = 1, N = 232) = 29.42, p < .001$                                                                 |
| <b>Study 3</b>                                 |                          |                                    |                   |                                                                                                              |
| Enjoyment<br><i>M</i><br>( <i>SD</i> )         | 5.67<br>(1.43)           | 4.82<br>(1.64)                     | 4.98<br>(1.63)    | $F(167) = 4.87, p = .009$                                                                                    |
| Structure Seeking<br><i>M</i><br>( <i>SD</i> ) | 5.24<br>(1.54)           | 4.18<br>(1.69)                     | 4.24<br>(1.69)    | <i>Serial Mediation</i><br>Structure Seeking to Active Engagement<br>95% CI, indirect effect: [.0478, .2730] |
| Active Engagement<br><i>M</i><br>( <i>SD</i> ) | 5.71<br>(1.13)           | 5.03<br>(1.39)                     | 4.72<br>(1.66)    |                                                                                                              |
| <b>Study 4</b>                                 |                          |                                    |                   |                                                                                                              |
| Dependent Variable                             | Architecture Before Song | Architecture After Song            | No Information    |                                                                                                              |
| Enjoyment<br><i>M</i><br>( <i>SD</i> )         | 4.13<br>(1.49)           | 3.69<br>(1.47)                     | 3.58<br>(1.28)    | $F(242) = 3.54, p = .030$                                                                                    |
| Structure Seeking<br><i>M</i><br>( <i>SD</i> ) | 3.94<br>(1.91)           | 3.28<br>(1.84)                     | 3.45<br>(1.76)    | <i>Serial Mediation</i><br>Structure Seeking to Active Engagement<br>95% CI, indirect effect: [.0236, .2895] |
| Active Engagement<br><i>M</i><br>( <i>SD</i> ) | 4.16<br>(1.53)           | 3.80<br>(1.54)                     | 3.67<br>(1.34)    |                                                                                                              |
| <b>Study 5A</b>                                |                          |                                    |                   |                                                                                                              |
| Effect of Prix-Fixe on Restaurant Rating       |                          |                                    |                   | $b = .13, SE = .06, p = .027$                                                                                |

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**Study 5B**

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Effect of Restaurant  
Week on Restaurant  
Rating

$b = .33, SE = .14, p = .018$

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## **When A Minor Problem Causes a Major Trouble for Experiential Purchases**

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Research has consistently shown that experiential purchases (those made with the primary intention of acquiring a life experience) tend to produce higher satisfaction than material purchases (those made with the primary intention of acquiring a material good: a tangible object that is kept in one's possession) (Van Boven and Gilovich 2003; Carter and Gilovich 2010, 2012; Kumar and Gilovich 2015; Caprariello and Reis 2013). This past research generally focuses on purchases that are either positive or negative (i.e., single-valence purchases) (Carter and Gilovich 2010, 2012; Nicolao, Irwin, and Goodman 2009). However, single-valence purchases only constitute a portion of all purchases, the rest are often mixed-valence purchases (def. purchases with both positive and negative aspects). For example, a dining experience with great food but longer wait; a smart phone with the most advanced features but a camera of low pixels. Do experiential purchases also produce higher satisfaction in the context of mixed-valence purchases?

In the present research, we propose and find that experiential purchases compared with material purchases tend to produce significantly lower satisfaction when these purchases have minor problems and produce similar level of dissatisfaction when these purchases have major problems.

We argue that consumers tend to base their evaluation of experiential purchases on feeling and material purchases on calculation, so that they are more sensitive to qualitative differences with experiential purchases (i.e., the existence of a problem, minor or major, can cause an equally large dissatisfaction) and quantitative differences with material purchases (i.e., major problems produce larger dissatisfaction than minor problems) (Hsee and Rottenstreich 2004).

Study 1 aimed to demonstrate that consumers are more sensitive to the existence of a problem with experiential purchases and the severity of a problem with material purchases. 61 respondents rated their satisfaction levels with 18 mixed-valence purchases (9 experiential and 9 material). Each of these purchases had a problem that already existed in the market place (based on a pretest). There were 18 problems in total. Another 63 respondents rated these 18 problems in terms of their severity. Results showed that consumers were less satisfied with experiential purchases than with material purchases (4.15 vs. 4.67,  $p < .01$ ). and major problems caused lower satisfaction than minor problem (3.64 vs. 5.37,  $p < .001$ ). Moreover, the correlation between problem severity and satisfaction was significantly higher for material purchases than for experiential purchases (-.49 vs. -.46,  $B = -.81, t = -4.49, p < .001$ ), indicating that consumers were more sensitive to problem severity with material purchases than with experiential purchases.

Study 2 further examined our proposition in a 2 (purchase type: experiential vs. material) x 2 (problem severity: minor vs. major) between-subject design. Based on a pretest, dining at a

restaurant and cellphone were selected as experiential and material purchases respectively. Two minor (and two major) problems with equal severity were selected based on another pretest. Results showed that consumers were significantly less satisfied with experiential purchases than with material purchases when the problems were minor (4 vs. 5.79,  $F(1, 211)=29.47, p<.01$ ), and they were equally dissatisfied when the problems were major (2.53 vs. 2.87,  $F(1, 211)=.21, p=.65$ ). The two-way interaction was significant ( $F(1, 211)=14.52, p<.001$ ).

The design of study 3 was similar to that of study 2 with two exceptions: first, we manipulated a trip to Taiwan Island into either an experiential or material purchase (Carter and Gilovich 2012); second, participants were asked to list their thoughts below the satisfaction ratings. Two coders coded these thoughts on a 9-point continuum scale according to to what extent they were “evaluation by feeling” or “evaluation by calculation”. Results showed that consumers were significantly less satisfied with experiential purchases than with material purchases when the problems were minor (5.09 vs. 5.73,  $F(1, 221)=3.91, p<.05$ ), and they were equally dissatisfied when the problems were major (5.42 vs. 5.02,  $F(1, 221)=1.66, p=.20$ ). The two-way interaction was significant ( $F(1, 221)=5.38, p<.05$ ). Additionally, the effect of purchase type and problem severity on satisfaction was mediated by two different psychological processes (valuation by feeling vs. valuation by calculation) (the 95% confidence interval excluded zero: when the problem was minor, it was from .0920 to .5296; when the problem was major, it was from .2072 to .7244).

Study 4 was a 2(purchase type: experiential vs. material) x 2(problem severity: minor battery problem vs. major battery problem) x 3(psychological process: control vs. feeling vs. calculation) between-subject design. In this study, we manipulated a laptop purchase into either an experiential or material one. Moreover, we directly manipulated psychological processes of evaluation by asking participants to either focus on how they feel when they encountered a laptop battery problem or calculate the severity of the battery problem. Results in the control condition showed a significant two-way interaction ( $F(1, 243) = 10.93, p<.01$ ), replicating studies 1-3. However, this significant two-way interaction disappeared in both the feeling and calculation conditions. In the feeling condition, the data pattern of the material purchase became similar to that of the experiential purchase in the control condition. In the calculation condition, the data pattern of the experiential purchase became similar to that of the material purchase in the control condition. A planned contrast showed a significant two-way interaction ( $F(1, 724) = 19.44, p<.001$ ).

This research contributes to literature on experiential marketing, satisfaction, and product evaluation. It offers managerial implications regarding customer complains, product failure, and customer satisfaction.

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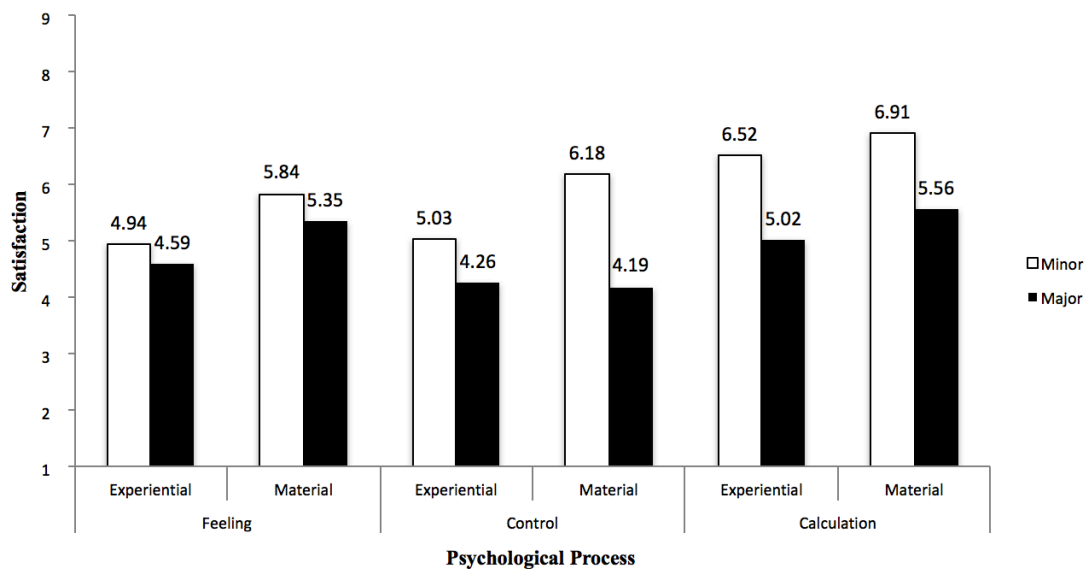
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**FIGURE 1: VALUATION BY FEELING VERSUS VALUATION BY CALCULATION (STUDY 4)**



### **Mining the Secret Life of Smart Objects: An Object-Oriented Approach to Constructing Representations of Object Experience**

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The explosive growth of smart objects across rapidly expanding categories poses a unique challenge for traditional consumer-centric frameworks that seek to evaluate consumer experience in the Internet of Things (IoT). Smart objects, owing to their agency, autonomy and authority, have their *own* unique capacities for interaction, not just with other consumers, but also with other objects. Recently, a new framework drawing on assemblage theory and object-oriented ontology (Delanda 2006) has proposed that consumer experience *and* object experience emerge from the ongoing interactions of consumers and smart objects with a consumer-object

assemblage of which consumers and objects are parts (Hoffman and Novak 2017). Consumers are able to interpret their own expressive roles in interaction and can construct perceptions of the object's behavior that represent its expressive roles in interaction. In this paper we develop an approach to construct a representation of the relationships among smart objects based on consumers' interpretations of the roles these express in interaction.

Smart objects have a secret life; there is something hidden about them that is not available to us in our interactions with them (Harman 2005). The challenge is to identify the inferential process that can serve as the translation (Bryant 2011) between the smart object's experience from its perspective and what we can interpret as humans. So, while consumers cannot directly access object experience, we believe consumers can observe and interpret smart object behavior in terms of the expressive roles those behaviors represent.

A new object-oriented approach has recently been proposed that attempts to directly elicit consumers' perceptions of the expressive roles that smart objects play in interaction with consumers (Bogost 2012; Hoffman and Novak 2017). In this approach, object experience is metaphorized. This reflective process involves taking the perspective of the object and constructing metaphors that help us understand what objects may be expressing during interaction.

Three tools can enable this object-oriented process, including 1) ontography to create visual representations, descriptive lists, and even simulations to reveal the relationships among objects, 2) invoking anthropomorphic metaphor to metaphorize the expressive roles objects play in interaction from their perspective, and 3) carpentry, the literal construction of artifacts that reveal how objects experience the environments in which they interact. We propose that while ontography represents simple description, carpentry involves a construction that takes into account the metaphors consumers use to interpret objects in interaction. In other words, anthropomorphic metaphor is the mechanism by which a carpentry can be created from an ontography.

We propose that topological data analysis (TDA) represents a promising approach for mining the secret life of smart objects. TDA (Carlsson 2009; Lum, et.al. 2012; Singh, Memoli and Carlsson 2007) uses computational topology techniques on complex high-dimensional data to produce an easily visualized topological model. We use TDA as a carpentry tool to construct a representation of object experience, based on the expressive roles that consumers assign to objects.

The data involve 3,173 unique Amazon Alexa IFTTT (If This Then That) published recipes from March 2015 to September 2016. For example, when a consumer tells the Amazon Echo, "Alexa, trigger party time," the IFTTT recipe would then turn on the Phillips Hue lights. Figure 1 shows the overall distribution of Alexa recipes over time, and Figure 2 displays the distribution of recipes by specific triggers. Figure 2 clearly shows the impact of the trigger, "say a specific phrase," introduced in November 2015 (pink distribution). This trigger allowed users, for the first time, to create recipes where they could directly ask Alexa to do things for them. Figures 1 and 2 represent a simple ontography of Amazon Alexa, but provide only the most basic insight into Alexa's experience.

Consumers construct IFTTT recipes and then uniquely title and describe them to express their roles. From the corpus of recipe titles and descriptions, we obtained binary variables for 271 n-grams with a threshold of 25 (that is, the n-grams appeared in the text of at least 25 of the 3,173 recipes). There were 149 1-grams (e.g. "Alexa"), 91 2-grams (e.g. "Alexa trigger"), and 31



3-grams (e.g. “Alexa trigger light”). We used Ayasdi 6.9 software to perform a TDA of the rectangular data matrix of 3,173 Alexa recipes by 271 n-grams.

The TDA network model, displayed in figure 3, shows a connected network of 188 nodes containing 3,173 Alexa recipes. Groups of data are represented as nodes that contain rows that are similar to each other in the high dimensional space and the edges connect nodes that share rows. Red coloring indicates a high density of recipes in a given node. Eight groups are identified with Ayasdi’s Community Algorithm (circled and labeled in Figure 3).

By coloring the nodes according to different variables, we obtain additional insights. Figure 4 colors the nodes by time, and Figure 5 by number of “adds” (a measure of a recipe’s popularity). The blue coloring of Group 4 in Figure 4 corresponds to Alexa recipes created prior to November 2015. The TDA shows that the introduction of the “say a specific phrase” trigger corresponded to an explosion of diversity in IFTTT Alexa recipes. In Figure 5, we may contrast Groups 1 and 2, which are similar in that they involve recipes where users ask Alexa to find their phone. The main difference is that in Group 1 the recipe title or direction includes the name “Alexa” (a personal request to Alexa), while in Group 2 the name Alexa isn’t included in the recipe (an impersonal request to Alexa). The red color for Group 1 (high adds) versus the blue color for Group 2 (low adds) indicates that the way the user has described their recipe has an impact on its popularity among other users. This topological model provides a much more extensive representation of Alexa’s experience, showing that Alexa appears to be used in a number of distinct ways.

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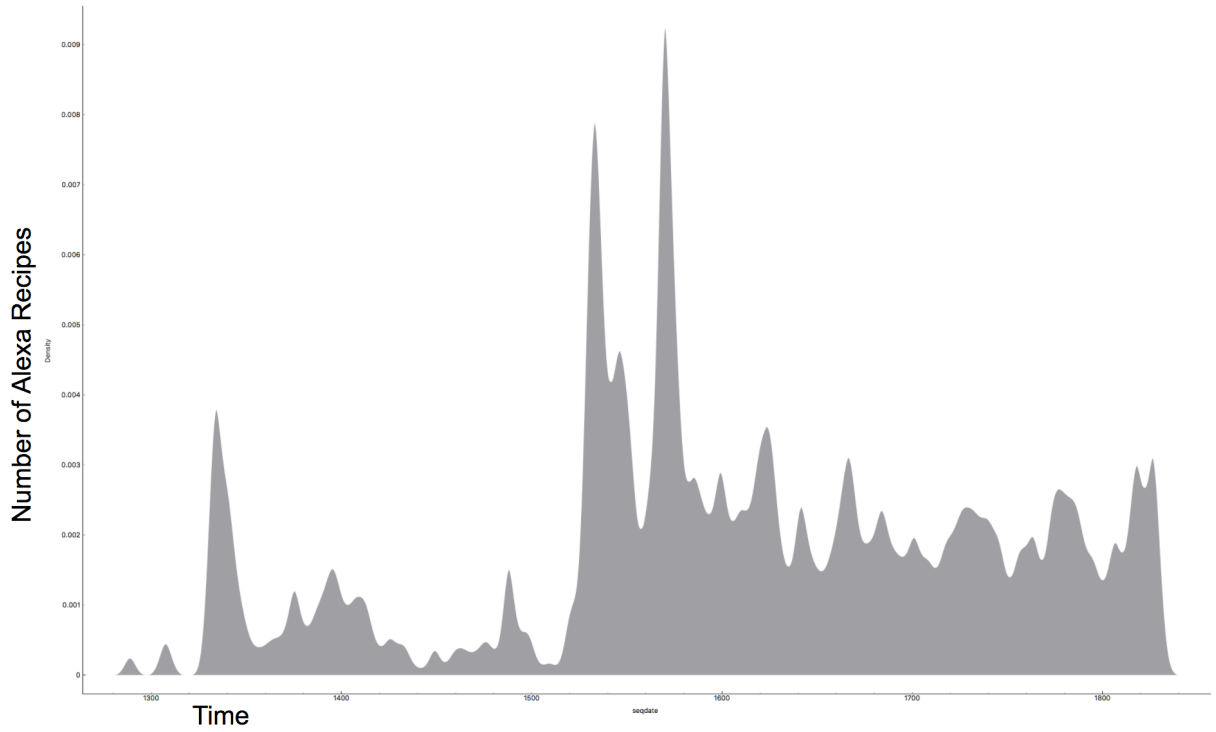


Figure 1. Distribution of 3, 173 Alexa Recipes over Time (March 2015 – September 2016)

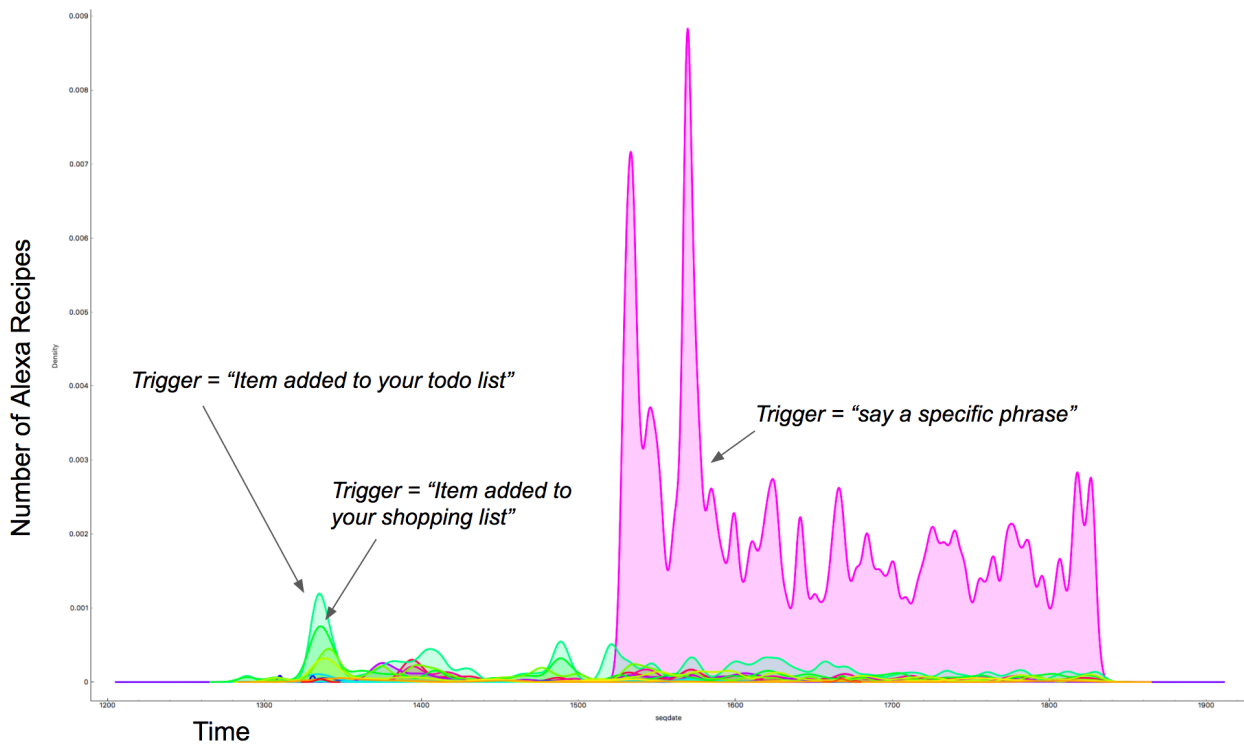


Figure 2. Distribution of 3,173 Alexa Recipes over Time, by Trigger (the trigger, “say a specific phrase,” was introduced in November 2015)

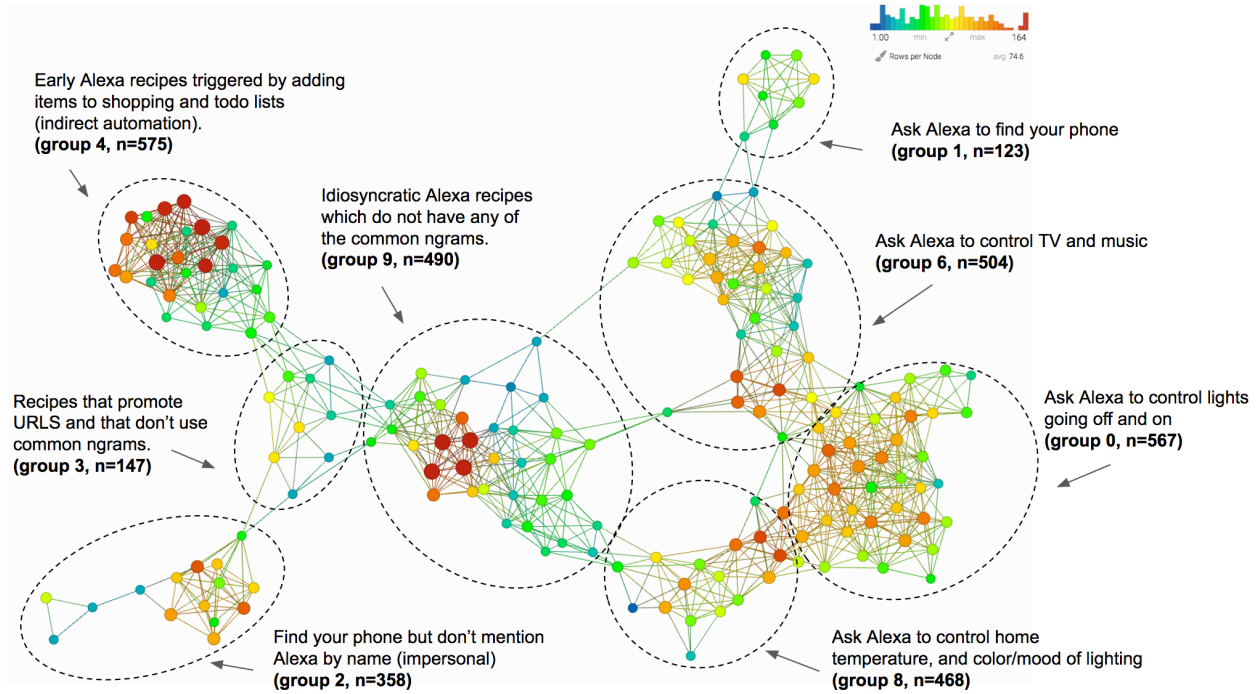


Figure 3. TDA of Alexa Recipes. Color Indicates Number of Recipes per Node (blue =1 to red = 164+). Produced with Ayasdi 6.9 using the Hamming Metric and Neighborhood Lens (resolution=30, gain=2.6).

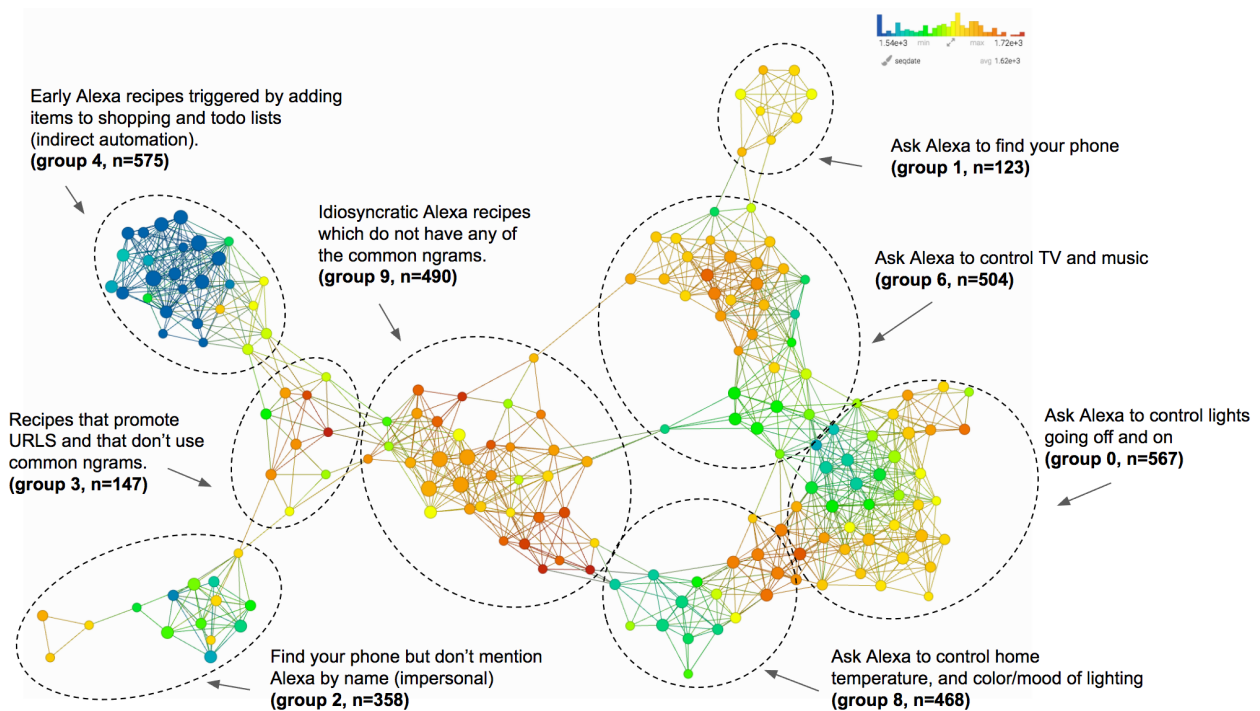


Figure 4. TDA of Alexa Recipes. Color Indicates Time (blue is March 2015 to November 2015; green through red indicates time from November 2015 to September 2016).

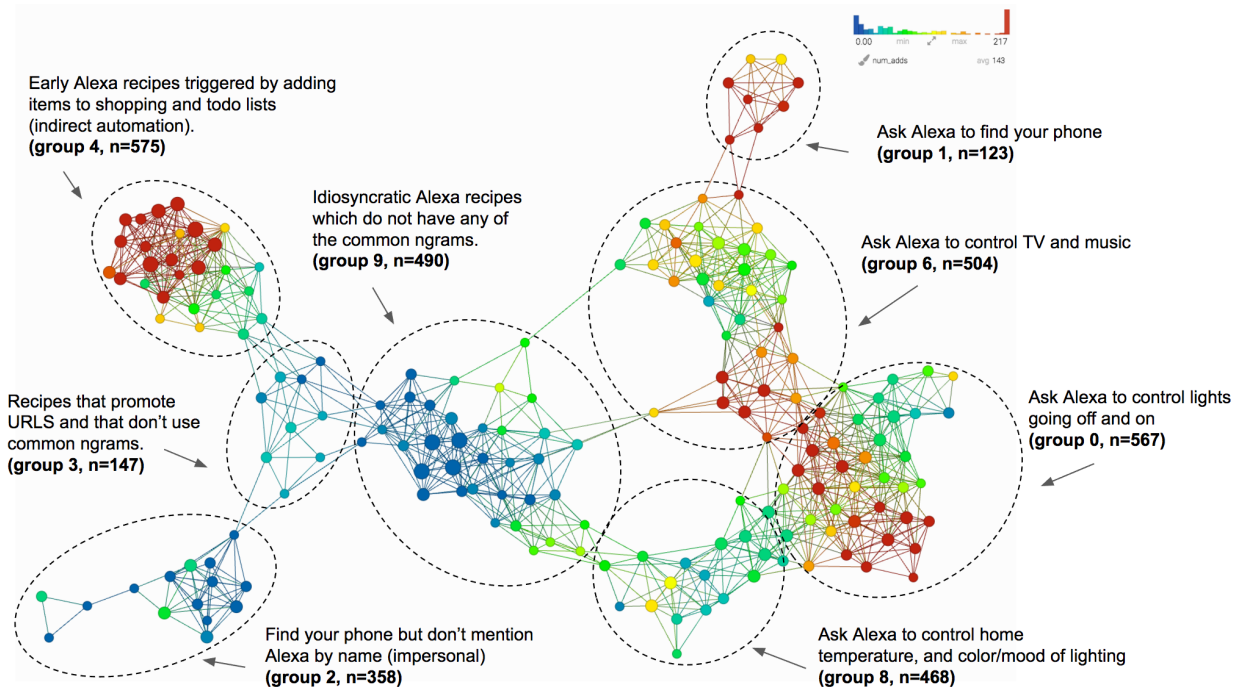


Figure 5. TDA of Alexa Recipes. Color Indicates Number of Adds (blue = 0 to red = 217+).

## 5.4 JDM: Four Great JDM Papers Individual Papers

### Breadth of Explanatory Depth

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In order to repair a parachute, a person must necessarily understand how a parachute works and how to fix it, but in order to then confidently jump out of a plane, that same person must also correctly recognize their own mastery (or lack thereof). That extra level of understanding – metacognitive skill – has been widely considered within cognitive and social psychology, with a repeated observation that people are not always so great at assessing their personal knowledge and mastery. There is ample evidence that people are imperfect at knowing how their own skills stack up in the world. Our subjective understanding for how things work is driven by incomplete folk theories; theories which, though incomplete, have a veneer of completeness. In this way, people appear to have an *illusion of explanatory depth* (or *IOED*, Rozenblit & Keil, 2002). It appears that, when asked to explain something, the feeling of knowledge is replaced with a recognition of ignorance. The central conceptualization of this phenomenon has focused on the details of the object itself. A skeletal knowledge of a sewing machine can feel complete only until it is articulated. At that point, even a novice can distinguish skeletal knowledge from complete knowledge. By this account, the insight has to date been *domain-diagnostic*: the act of explaining a sewing machine directly informs someone’s subjective assessment of sewing-machine mastery. As we summarize below, the domain-diagnostic account offers a parsimonious explanation for existing research into the IOED. It is not, however, the only possible explanation. An alternative account need not be focused on the object itself, but rather on knowledge and explanation more generally. We refer to this as the *domain-agnostic* account. This account suggests that the act of explaining a sewing machine, rather than informing the skeletal nature of knowledge for that particular device, instead informs the skeletal nature of explanations more generally. As we will demonstrate, explanations of topics far removed from the specific domain can still have a precise and significant influence within that domain.

Study 1 ( $n = 175$ ) was designed to test whether the proposed *domain-agnostic* account also exhibits an illusion of explanatory depth. Participants took the IOED task with slight variation: They either explained the same devices they rated at Time 1 or explained other, unrated (i.e. nonfocal) devices. In Condition 1, at Time 1 (T1), participants rate their understanding of three devices (sewing machine, bicycle lock, zipper) on the 7-point scale before being asked to imagine that they had “just met a person who did not understand how these three items work” and to “write as complete an explanation of how each item works as [they] can manage.” Participants were then asked to rate again how well they feel they understand the devices (T2). Condition 2 instead required that participants generate explanations for three entirely different devices (i.e. piano keys, a transistor, and a manual clutch. Analyses for this experiment were conducted with T-tests. Levels of understanding for a sewing machine ( $t(78) = 3.83, p < .001$ ), bike lock ( $t(78) = 4.18, p < .001$ ) and zipper ( $t(78) = 8.10, p < .001$ ) all decreased significantly from Time 1 to Time 2. But, in support of the domain agnostic account, levels of understanding for a sewing machine ( $t(71) = 3.38, p = .001$ ), bike lock ( $t(71) = 4.62, p < .001$ ) and zipper ( $t(71) = 5.67, p < .001$ ) all similarly decreased after explaining how piano keys, a transistor, and manual clutch work. These results were largely consistent with the domain agnostic account.

In Study 2 ( $n = 600$ ) subjects rated their understanding of six political policies. After rating the six items, we randomly inserted one of the six and asked them to explain it. We compared IOED scores for each participant’s matched items and unmatched items, controlling for within-participant variance in responding. An HLM analysis revealed a significant main effect of rating from Time 1 to Time 2 across all six models (i.e. policies), with betas ranging from  $\beta = -.45$  to  $\beta = -.25$  (all  $ps < .001$ ). This experiment offers further support for the *domain-agnostic* account. In sum, participants showed attenuated levels of

understanding for each policy from T1 to T2 independent of whether or not they explained matched vs. unmatched policies.

Study 3 ( $n = 2846$ ) sought to uncover whether explanation difficulty might moderate this effect. Conditions 1-3 escalated in explanation difficulty with regards to how well participants claim to understand how a cell phone works. Conditions 4-6 similarly escalated in difficulty, but instead asked participants to explain various functions of a television set instead of a cell phone, in line with the domain agnostic procedure. Data was analyzed with T-tests. As predicted in our preregistration, “easy” explanations did not lead to differences between Time 1-Time 2 scores for either *domain diagnostic* explanations nor *domain agnostic* explanations. However, participants did indeed report similarly low levels of understanding for a how a sewing machine works at Time 2 after hard explanations, both *domain diagnostic* ( $M_{T1} = 4.71$ ,  $M_{T2} = 3.73$ ,  $t(302) = 11.07$ ,  $p < .001$ ) and *agnostic* ( $M_{T1} = 4.56$ ,  $M_{T2} = 3.77$ ,  $t(315) = 8.99$ ,  $p < .001$ ). What’s more, contrary to our preregistered expectations, participants showed even more extreme Time 1-Time 2 difference scores in the impossible explanation condition, both in the *domain diagnostic* ( $M_{T1} = 4.61$ ,  $M_{T2} = 2.91$ ,  $t(290) = 15.49$ ,  $p < .001$ ) and *domain agnostic* conditions ( $M_{T1} = 4.66$ ,  $M_{T2} = 3.54$ ,  $t(352) = 13.55$ ,  $p < .001$ ).

Results from these experiments should be construed broadly: Explanation reduces the sense of subjective knowledge *across* domains. That is, contrary to what the *domain-diagnostic* account would predict, people do not have infinite silos of mechanistic knowledge, updated one-by-one as their level of understanding is challenged. Instead, they appear to hold a somewhat broader view for how they understand things (i.e. their level of overall mastery). When that broad view is challenged, they update not their level of mastery for a given subject, but instead all subjects.

## **The Risk of Virtue: How Corporate Social Responsibility Influences Consumer Financial Risk-Taking**

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Financial firms increasingly use their corporate social responsibility (CSR) activities in promoting their products that involve risk. For instance, Aspiration Bank advertises its financial services upon a promise, “We donate a dime out of every dollar our company earns,” and many lottery retailers (e.g., The National Lottery of UK and Illinois Lottery) promote that much of their lottery sales is donated to charities. However, no extant research investigated how such CSR information influences consumer decisions involving financial risk. Filling this gap, we explore the effect of CSR on consumers’ financial risk-taking.

Prior research demonstrates that consumers use their virtuous actions (e.g., making a donation) as a psychological license to justify their indulgent or frivolous purchases (Strahilevitz and Myers 1998; Khan and Dhar 2006). Extending this finding to consumers’ financial decisions, we propose that transacting with financial firms involved in CSR can serve as a psychological license for consumers to justify their desire to make a relatively easy fortune by investing in high-risk, high-return products. However, we expect this to happen primarily among people who believe making a fortune at one stroke is possible—i.e., those who believe they can get rewarded for things they did not work for. In other words, we propose that consumers low (vs. high) in belief in a just world (BJW; i.e., the belief in “you reap, what you sow”; Lipkus 1991) would use the CSR information as a justification to invest in high-risk, high-return products to make an easy fortune.

Our proposition was tested in four experiments. Study 1 ( $N = 130$ ) adopted a 2 (donation: present vs. absent) x BJW (continuous) design. All participants read a print advertisement of a bank. In the donation absent condition, the advertisement contained a brief introduction of the bank. In the donation present condition, it included additional information about the bank's CSR activity (i.e., ".01% of our investment return is donated to charities"). Afterwards, participants were asked to allocate \$20,000 between two hypothetical financial options: a riskier option and a safer option. Compared to the riskier option, the safer option had a lower average rate of return but the returns were less volatile. Finally, participants responded to the personal BJW scale (Dalbert 1999; BJW was not affected by the donation manipulation,  $p > .10$ ). The results revealed a significant 2-way interaction effect ( $p = .009$ ). Consistent with our proposition, participants low in BJW (1 SD below the mean) allocated more money to the riskier option when donation information was present versus when absent ( $p = .004$ ). In contrast, participants with high BJW (1 SD above the mean) did not show this difference ( $p > .10$ ).

Study 2 ( $N = 242$ ) replicated these effects in a campus raffle event that involved real financial consequences. The study adopted a 2 (donation: present vs. absent) x BJW (continuous) design. BJW was measured approximately thirty minutes prior to the raffle event. All participants received five dollars of game money and then were presented with two raffle tickets that they could purchase using the money. Raffle A provided 10% chance to win \$20, whereas raffle B offered 1% chance to win \$200. Each ticket was priced at \$1. Only in the donation present condition, participants were additionally informed that 10% of their winnings will be automatically donated to a charity. A marginal 2-way interaction was observed ( $p = .075$ ). Participants low in BJW purchased ticket B more when the donation was present than when absent ( $p = .032$ ), whereas participants high in BJW did not show the difference ( $p > .10$ ).

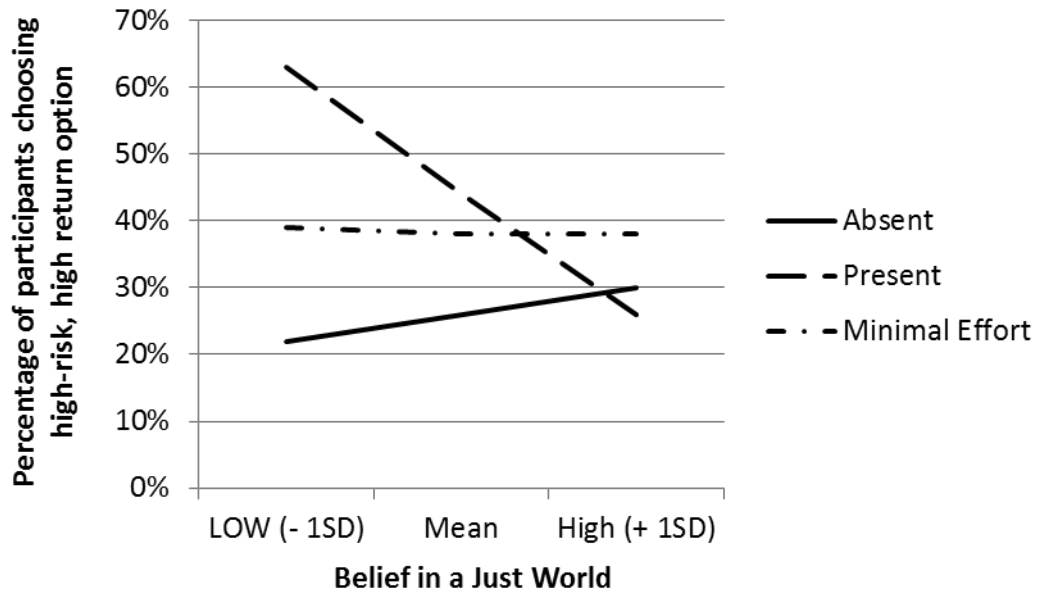
Study 3 ( $N = 201$ ) temporarily primed BJW, which resulted in a 2 (justice priming: unjust vs. just) x 2 (donation: present vs. absent) between-subjects design. Participants in the unjust [just] condition wrote about an incidence in which they had received a positive outcome that was undeserved or unfair [deserved or fair]. Participants then partook in the raffle event identical to study 3. The temporarily primed BJW interacted with the donation manipulation ( $p = .029$ ). Participants primed with an unjust belief purchased risky tickets more when the donation information was present than when absent ( $p = .024$ ), whereas those primed with justice belief did not ( $p > .10$ ).

Finally, study 4 ( $N = 257$ ) explored a boundary condition of the CSR-induced risk-taking. Specifically, the study examined if the licensing effect disappears when consumers realize that it is not them but the bank that is making the contribution. The study adopted a 3 (donation: present, absent, minimal effort) x BJW (continuous) design. The procedure was identical to study 1, except that those in the minimal effort condition were told, in addition to the CSR information, that the CSR simply required their choice, and no financial sacrifice. Afterwards, participants were asked to choose between the two options identical to those in study 1.

A significant overall interaction ( $p = .019$ ) was observed (figure 1). Also, the 2-way interaction contrast that compared the effect of BJW between the donation present condition and the absent condition was significant ( $p = .007$ ). Replicating the previous effects, participants low in BJW invested more in the risky option when the donation information was present than when absent ( $p < .001$ ), whereas participants high in BJW did not show the difference ( $p > .10$ ). Most important, the effect of BJW reliably differed between the minimal effort condition and the donation present condition ( $p = .028$ ), such that participants low in BJW invested less in the risky option when they were told of their minimal effort compared to when not told in the

donation present condition ( $p = .035$ ). This difference was not observed among those high in BJW ( $p > .10$ ). In contrast, the effect of BJW did not differ between the minimal effort condition and the donation absent condition ( $p > .10$ ). These results suggest that, once they realized that they were not the ones doing the virtuous deed, participants low in BJW could not use the CSR information as their license to invest in risky options.

FIGURE 1  
STUDY 4: PERCENTAGE OF PARTICIPANTS CHOOSING HIGH-RISK, HIGH-RETURN OPTION



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#### The neural basis of the credit card effect

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When people shop while using credit cards, they generally tend to loosen their restraints on spending relative to using cash. One reason as to why people may spend more when using credit cards is that the payment method may blunt the negative subjective feeling people experience when giving up hard earned dollars. In other words, credit cards may diminish the *pain of payment* relative to using cash.

Yet, little evidence has been offered in support of this mechanism, in part due to methodological limitations. Only a few attempts to measure differences in the pain of payment between payment methods have been reported in the literature (Shah, Eisenkraft, Bettman, & Chartrand, 2015; Thomas, Desai, & Seenivasan, 2011). While results from the experimental studies are consistent with the pain of paying hypothesis, the self-reported measures of pain of payment that were obtained after the transaction had taken place pose considerable interpretive challenges. In specific, because previous research has established that paying with credit card leads people to place less attention on cost attributes (Chatterjee & Rose, 2012) and that paying with credit impairs recall of cost information (Soman, 2001), higher self-reported displeasure of paying in cash conditions may simply reflect the relative ease with which negative cost information came to mind rather than the actual pain of paying associated with the transaction. That is, greater self-reported pain of payment may have indeed been caused by real differences in the transaction experience or may have instead been caused simply by artefact associated with biased recall. Thus, we applied fMRI methods to directly observe changes in neural activity during the purchase decision and thus overcome the many limitations inherent in self-report measurements.

To investigate how payment methods influence these neural mechanisms involved in making purchase decisions, we scanned human subjects ( $n = 27$ ) using fMRI while they viewed products and made shopping decisions. The shopping task was designed to simulate a retail shopping experience where participants browsed through different products. We collected a database of over 22,000 top selling products on Amazon.com, hierarchically organized into categories such that participants were free to shop within the departments they were most interested in, similar to a realistic retail setting. For each participant, half of the products shown were randomly determined to be available with credit card only while half were available with cash only. Participants browsed products in sequence, and for each item they were asked whether they were interested in purchasing it. If so, the product was added to the participant's shopping basket, and if not, no additions were made to the basket. After participants indicated whether or not they wanted to buy, they were shown a confirmation page and then signed off on their decision. At the end of the study, participants were asked to pay out-of-pocket using their own personal credit card or their own cash for one randomly selected trial. See Figure 1a for the trial structure.

We examined how neural activation in each *a priori* determined region of interest (ROI) differed between purchase and non-purchase decisions. ROI anatomical coordinates were determined using meta-analyses conducted across 1299 separate fMRI studies (Bartra, McGuire, & Kable, 2013; Kelly et al., 2012); see Figure 1b. While participants were more inclined to spend on high-priced items when offered for sale with credit card rather than cash, neural data revealed that increased spending was not driven by the alleviation of pain per se. Regardless of the price of the product, purchasing items with a credit card was instead associated with increased brain activation in reward networks, specifically within the striatum and ventromedial prefrontal cortex (VMPFC). Heightened reward sensitivity coincided with the onset of the credit

card cue, suggesting that credit cards may trigger a conditioned spending response in line with early theories on credit card spending (Feinberg, 1986). Moreover, after acquiring high-priced items on credit, sustained reward-related activation persisted after the purchase decision. In contrast, purchasing items with cash was associated with price-dependent neural signals in which buying high-price items was linked to deactivation in the right anterior insula cortex (rAIC), an area of the brain involved in representing price information. Results are summarized in Figures 2-3.

Theoretically these findings imply that credit cards change the evaluative criteria consumers use when making a purchase decision. Consumers may be asking simply “do I like it?” rather than stopping to question “is it worth it?” when they decide whether or not to buy (Karmarkar, Shiv, & Knutson, 2015). In addition, we found that shopping with credit did not lead to exaggerated deactivation in the rAIC, inconsistent with the idea that credit cards lessen feelings of pain experienced by their users, in contrast to what has been suggested in the behavioral literature. Buying behavior when using credit card revealed greater differential reliance upon reward networks in the brain, qualifying traditional perspectives on how credit cards facilitate spending. Credit cards appear to reduce the pain of payment not by alleviating pain sensitivity, but instead by triggering greater reward sensitivity.

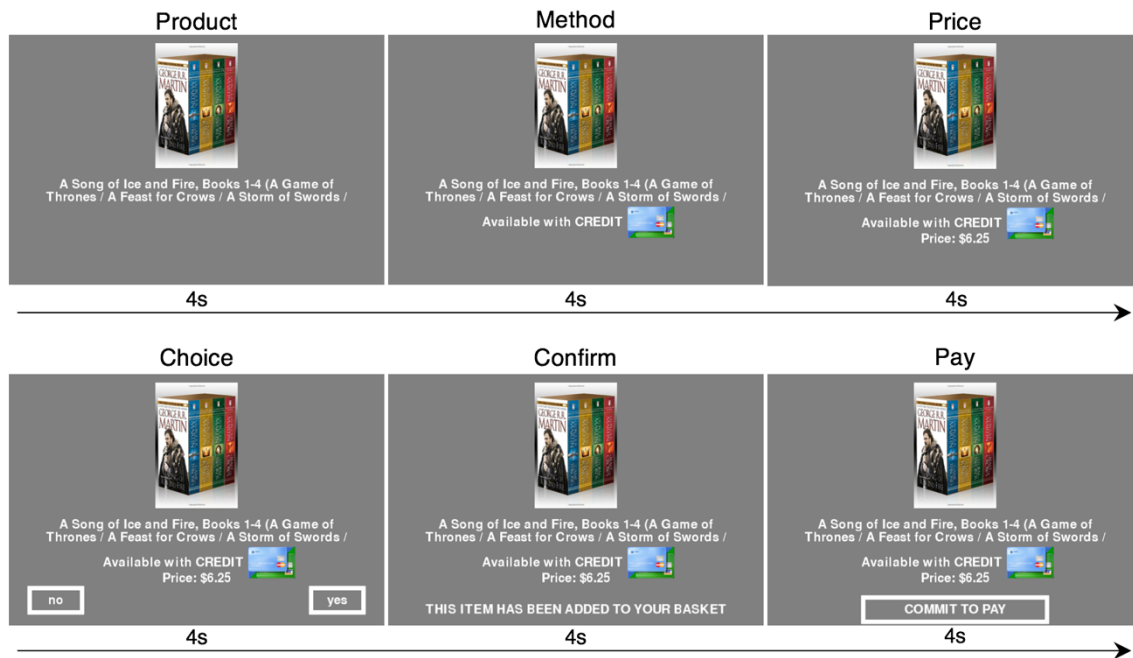
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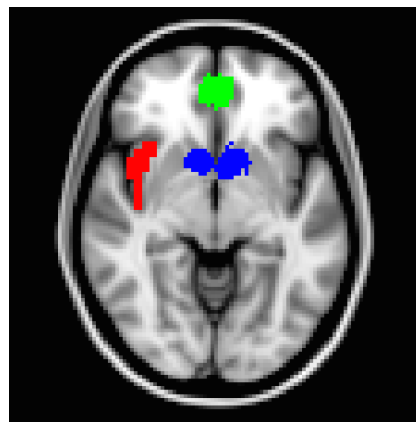
## Figures

**Figure 1a.** Shopping task trial structure. Participants viewed the product for 4s, the payment method for 4s, the price for 4s, and then made a choice to purchase within 4s. Postdecisional periods consisted of a confirmation, 4s, and a pay response, 4s. Purchase trial shown; if not

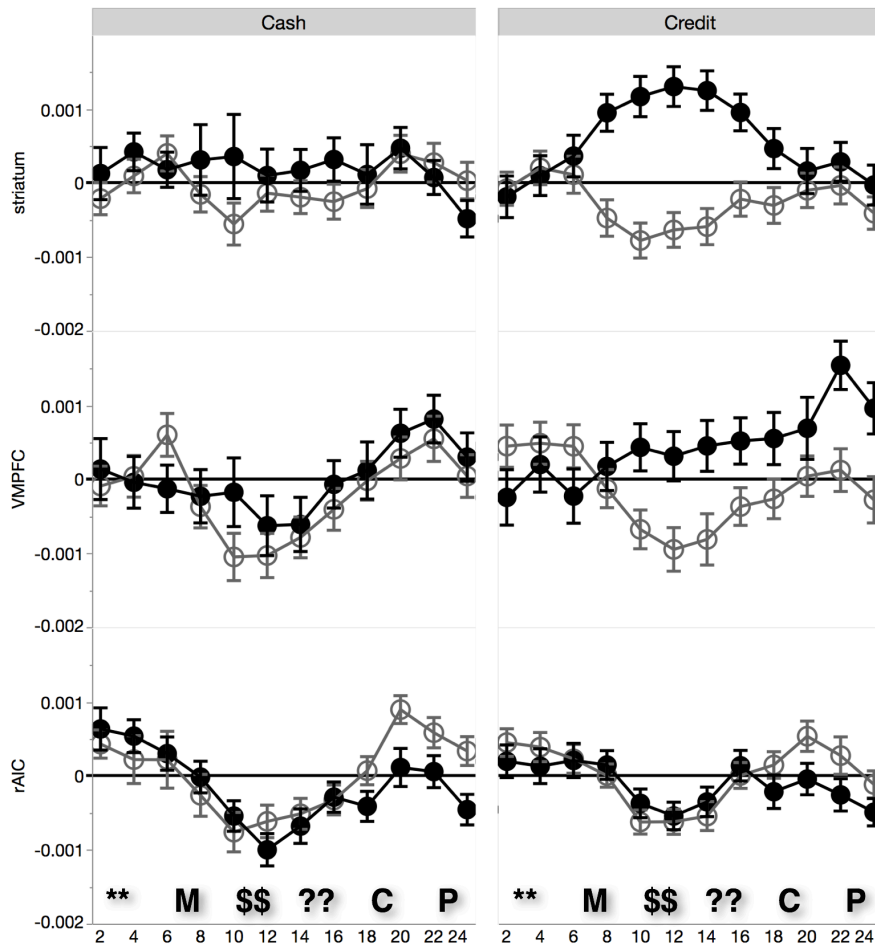
purchased, the confirmation indicated “basket unchanged” and the pay screen indicated “no payment necessary.” Intertrial interval jittered 2s-8s.



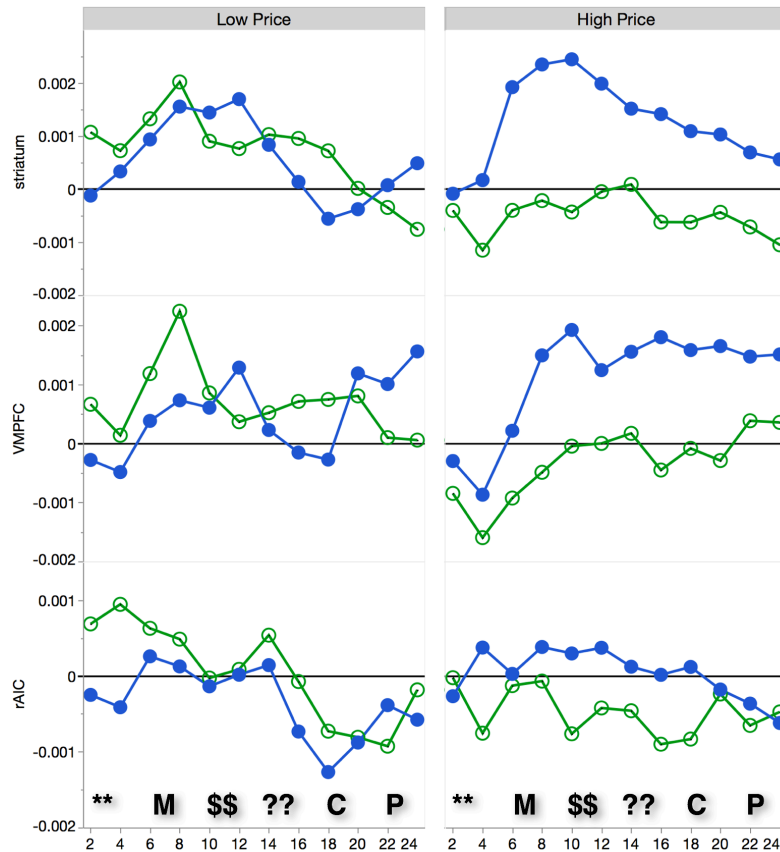
**Figure 1b.** Meta-analytically determined regions of interest: striatum (blue), VMPFC (green), rAIC (red).



**Figure 2.** *Cash vs. credit purchase decisions.* Above: ROI signal intensity time courses illustrating purchase (black) versus non-purchase (grey). Phases: \* = product, \$ = price, ? = choice, M = method, C = confirm, P = pay.



**Figure 3.** Above: ROI signal intensity time courses illustrating purchase vs. non-purchase signal differences, for credit (blue) and cash (green). Phases: \* = product, \$ = price, ? = choice, M = method, C = confirm, P = pay.



### **It Was Mine, I Tell You: Reclaiming Lost Endowment**

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The endowment has traditionally been studied as a fairly static phenomenon that occurs *within* a transaction at a specific point in time wherein the buyer/seller have differing perspectives that result in different reservation prices. There is little in prospect theory to predict any carry-over of the endowment effect to another transaction.

However, the recent evidence demonstrating differences in mental representations of the object would give us reason to make such a prediction. Nayakankuppam and Mishra (2005) find that a seller of an endowed object would have a particular accessible mental representation of the object. Since mental representations are associative networks in memory (Anderson 1983), such associations that have been primed in memory are more accessible. Greater accessibility is likely to bias subsequent information processing and judgments (Houston and Fazio 1989).

Furthermore, evidence of the pseudo-endowment effect (e.g., Ariely and Simonson 2003;

Strahilevitz and Loewenstein 1998) suggests that this mental representation would be present even when the seller never takes possession of the object. Therefore, we expect that in a later purchase decision regarding a similar object, these accessible cognitions may become diagnostic, resulting in a biasing of one's evaluative judgments. Therefore, an endowment, once experienced, may exert an influence the valuations of the same or similar objects in a subsequent transaction.

### ***STUDY 1***

We test our central thesis in online auctions – eBay.com. The key construct from prior research on single auctions has been referred to as the pseudo-endowment effect– a psychological state of (potential) ownership that is created in the leading bidder in an auction (Ariely and Simonson 2003; Heyman et al. 2004). We argue that if the bidder fails to win the item, his/her reservation price in subsequent auctions for the identical item will be higher than those bidders who never enjoyed the status of being the highest bidder. In other words, the pseudo-endowment effects are contagious to the different copies of the identical products.

#### ***Data Collection and Measures***

We collect individual auction bid history data across all postings in the same product category on eBay – iPads.

*Bidder's current willingness-to-pay (DV).* We identified the maximum bid for each individual bidder within each auction as our measure of WTP (Goes et al. 2010).

*Measures of endowment carry-over.* A dummy variable, *pseudo-endowment*, denotes whether a bidder became a top bidder during the prior auction. We also computed a continuous measure of the pseudo-endowment effect: *Top Bidder Duration*.

#### ***Results and Discussion***

Model 1 examines the effect of top bidder duration on the bid amount with a single term in the model, while Model 2 tests the endowment effect in two different cases, the solo effect (*Top Bidder Duration Open*) and the combined effect with jilting and learning (*Top Bidder Duration Lost*).

### Model 1

$$\begin{aligned} \text{Norm Bid Amount}_{ij} = & \beta_0 \\ & + \beta_1 \text{Ln Top Bidder Duration}_{ij-1} \\ & + \beta_2 \text{Norm Prev Bid}_{ij-1} + \beta_3 \text{Bidder's Feedback Score}_{ij} \\ & + \beta_4 \text{Frequency of Prev Auction}_{ij} + \beta_5 \text{Duration of Auction}_{ij} \\ & + \beta_6 \text{Norm Starting Price}_{ij} + \beta_7 \text{Norm Shipping Cost}_{ij} \\ & + \beta_8 \text{Seller's Reputation}_{ij} + \beta_9 \text{Posting Per Day}_{ij} \\ & + \beta_{10} \text{Norm BIN Price}_{ij} \\ & + \beta_{11} \text{Dum iPad\_16GB\_3G} + \beta_{12} \text{Dum iPad\_32GB} \\ & + \beta_{13} \text{Dum iPad\_32GB\_3G} + \beta_{14} \text{Dum iPad\_64GB} \\ & + \beta_{15} \text{Dum iPad\_64GB\_3G} + \varepsilon_{ij} \end{aligned}$$

### Model 2

$$\begin{aligned} \text{Norm Bid Amount}_{ij} = & \beta_0 \\ & + \beta_{1\_1} \text{Ln Top Bidder Duration Lost}_{ij-1} \\ & + \beta_{1\_2} \text{Ln Top Bidder Duration Open}_{ij-1} \\ & + \dots + \varepsilon_{ij} \end{aligned}$$

The results of both Models 1 and 2 are presented in Table. As expected, the coefficient for single pseudo-endowment (*Ln Top Bidder Duration*) is positive ( $p < .001$ ), suggesting that the pseudo-endowment effect created by being a top bidder in the prior auction is transferred to the current auction for the identical objects, and the longer a bidder has the status of being the leading bidder (i.e., the larger the pseudo-endowment effect s/he experiences), the greater increase in WTP s/he will exhibit in the subsequent auction.

### **STUDY 2**

We test our novel idea that the endowment effect carries over to different, but similar products. Everything else remained the same as Study 1.

#### **Results and Discussion**

The results of Study 2 are consistent with those found in Study 1. The overall effect of endowment in both models is positive ( $p < 0.001$ ), and both the sole ( $\hat{\beta}_{1\_2} = 0.209$ ) and the combined effects of the endowment ( $\hat{\beta}_{1\_1} = 0.614$ ) are significant at  $p < 0.001$ , which suggests that a previous top bidder for one product placed a higher bid for another similar product.

### **STUDY 3**

We prepared three different products as our stimuli: two cups and a 4GB flash drive. The two cups are our focal stimuli, which are still similar enough for the contagious endowment effects to manifest themselves.

### ***Sample and Procedures***

One hundred and twenty participants (Male=37.82%,  $M_{age}=20.94$ ) first completed a filler task and received complementary gifts. The participants in the control conditions were given the flash drives; those in the experimental conditions were given either of the cups. For the purportedly second tasks, participants were given the second booklets, along with either their smooth-finished or hammer-finished cups. In the experimental conditions, those who had previously received the smooth-finished (the hammer-finished) cups as gifts were shown the hammer-finished (the smooth-finished) cups. Participants were asked to indicate their WTPs, attitudes toward the cups on three 7-point attitude scales (Kwon and Nayakankuppam 2015), and the psychological ownership for the cup in question on the three 7-point Likert scales (Peck and Shu 2009; Pierce et al. 2001).

### ***Results and Discussion***

We conducted a single factor (experimental vs. control) ANOVA on the reported maximum WTP. The results confirmed that those who received the cups as a gift after the purported first task reported greater WTP amounts for the different cups from theirs than did those who received a flash drive as a gift ( $M_{experimental}=\$6.242$ ,  $M_{control}=\$4.990$ ;  $F(1,118)=5.829$ ,  $p=.017$ ). The same patterns emerged in the attitude ( $M_{experimental}=4.868$ ,  $M_{control}=3.961$ ;  $F(1,118)=16.495$ ,  $p<.001$ ) and psychological measures ( $M_{control}=2.776$ ;  $F(1,118)=13.668$ ,  $p<.001$ ). A test of mediation with 1,000 bootstrapped samples revealed that psychological ownership mediated the effect of endowed object manipulation on WTP in the second task ( $\beta=0.482$ , with a 95% CI exclusive of 0 [0.134,1.062]) (see **Error! Reference source not found.**). These findings show that an owner of one object is likely to develop psychological ownership to similar objects, which ultimately leads to the carryover of the “original” endowment to new, similar objects.

### ***GENERAL DISCUSSION***

We found that endowment effect, which has typically been thought of as a phenomenon at the level of the *single* object one is endowed with, is a mental phenomenon with degrees of abstraction. In other words, we could get an endowment effect, not at the level of the specific object, but with the *more abstract class of object* that a specific object happened to belong to.

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## 5.5 Health & Social Justice: Issues of Social Justice Individual Papers

### Similarity Focus and Support for Redistribution

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The inequality of wealth in the US has reached record high levels sparking a public debate about its role in the economic instability and erosion of the middle class (Piketty 2011). Despite public agreement that wealth inequality in the US is historically high, support for redistribution is not very widespread (Jost and Hunyady 2005). Resistance to redistribution is driven, to a significant extent, by individuals' belief that the unequal distribution of outcomes is fair because it results from natural differences in individuals' dispositional inputs such as hard work and motivation (Alesina and Angeletos 2005; Bénabou and Tirole 2006). But little work has examined the strategies that can effectively shift support for redistribution (Brown-Iannuzzi et al. 2014; Chow and Galak 2012).

The present research proposes a new strategy to increase support for redistribution – prompting a cognitive focus on similarity (vs. dissimilarity). We build on prior studies which showed that prompting individuals to focus on similarity (vs. dissimilarity) in an unrelated task (e.g., while evaluating pictures) can increase their perception of similarity of stimuli (e.g., numeric estimates) in subsequent judgments (Mussweiler 2001). We hypothesize that prompting a similarity focus in an unrelated task should increase support for redistribution because it boosts individuals' perceptions of how similar people are in their dispositional inputs (motivation and hard work), which, in turn, weakens the justification of unequal outcomes and the perceived fairness of an unequal income distribution. Four studies tested this prediction.

In Study 1A, 456 U.S. participants saw two pictures from previous research (Markman and Gentner 1997) and listed the similarities between the two pictures (similarity focus condition), the dissimilarities between the pictures (dissimilarity focus condition), or they described one picture in detail (control condition). Afterwards, participants indicated their support for two redistributive tax policies (a new tax on individuals earning more than \$1 million, a new tax on individuals earning more than \$5 million; from 1 = “Strongly Oppose” to 7 = “Strongly Support”;  $r = .911$ ). To check if the similarity effect was contingent upon individuals' political ideology, participants also completed a multi-item (Nail et al. 2009) and a single-item scale (Jost 2006) of political ideology. Support for redistributive tax policies was stronger in the similarity condition ( $M = 5.84$ ,  $SD = 1.27$ ) than in the dissimilarity ( $M = 5.43$ ,  $SD = 1.59$ , simple contrast  $p = .019$ , Cohen's  $d = .14$ ) and control conditions ( $M = 5.31$ ,  $SD = 1.56$ ,  $p = .002$ ,  $d = .18$ ;  $F(2, 453) = 5.313$ ,  $p = .005$ ). There was no difference between the dissimilarity and control conditions ( $p = .456$ ,  $d = .08$ ). This effect remained significant when political ideology was added to the analysis, and it did not depend on (i.e. was not moderated by) ideology.

Study 1B with 331 U.S. participants showed that the effect of similarity (vs. dissimilarity) focus (similar manipulation to Study 1A, without the no-focus condition) generalized beyond tax policies to support for redistributive spending policies (expanding programs that improve the poor's economic opportunities, expanding programs that improve the poor's living standards, and investing in initiatives that improve public services for the poor;  $\alpha = .95$ ) ( $M_{\text{similarity}} = 7.37$ ,  $SD_{\text{similarity}} = 1.90$  vs.  $M_{\text{dissimilarity}} = 6.74$ ,  $SD_{\text{dissimilarity}} = 2.24$ ,  $d = .30$ ;  $F(1, 329) = 7.585$ ,  $p = .006$ ).

Study 2 tested the psychological process behind the effect. After listing the similarities or

dissimilarities between the two pictures, 518 U.S. participants indicated their support for redistributive tax and redistributive spending policies from prior studies ( $\alpha = .87$ ). We then measured several factors that could mediate the effect of similarity. Specifically, we measured the three hypothesized mediators including the perceived similarity of individuals' dispositional inputs (motivation and hard work), justification of unequal outcomes (operationalized through just-world beliefs), and perceived fairness of an unequal distribution. We also measured potential alternative explanations: perceived similarity of external circumstances (good luck, opportunity), perceived similarity of individual outputs (income, wealth), personal gain (self-interest) from redistribution, subjective inequality (perceived inequality of the wealth distribution), and commitment to the equality principle (that all individuals deserve equal rewards regardless of their contributions). (A few participants quit the survey before completing all the scales, which resulted in slightly different degrees of freedom in the analyses of mediators.) Once again, redistribution support was higher in the similarity condition ( $M = 5.74$ ,  $SD = 1.27$ ) than in the dissimilarity condition ( $M = 5.43$ ,  $SD = 1.43$ ,  $d = .23$ ;  $F(1, 516) = 7.018$ ,  $p = .008$ ). The hypothesized factors, and not the alternative ones, mediated the effect of similarity (vs. dissimilarity) focus on redistribution support. Specifically, the serial mediation analysis confirmed that focusing on similarity (vs. dissimilarity) boosted individuals' perceptions that people are similar in their dispositional inputs (motivation and hard work), which, in turn, reduced the justification of unequal outcomes and the perceived fairness of an unequal distribution, ultimately resulting in stronger support for redistribution. Figure 1A shows how each hypothesized factor and each alternative factor affected redistribution support, and whether or not each factor mediated the similarity effect. Figure 1B summarizes the serial mediation results.

Study 3 tested if the similarity effect would hold with a more practical manipulation of similarity focus (rather than a theoretical manipulation involving abstract black-and-white pictures), which policy makers could potentially adapt to shift public preferences for redistribution. 349 U.S. participants listed how they were similar to other Americans (similarity focus condition) or different from other Americans (dissimilarity focus condition), after which they indicated their support for redistributive tax and spending policies from prior studies ( $\alpha = .87$ ). The similarity effect generalized to this practical manipulation of similarity focus ( $M_{\text{similarity}} = 5.97$ ,  $SD_{\text{similarity}} = 1.14$  vs.  $M_{\text{dissimilarity}} = 5.69$ ,  $SD_{\text{dissimilarity}} = 1.21$ ,  $d = .24$ ;  $F(1, 347) = 4.864$ ,  $p = .028$ ), thereby offering policy makers one potential route to, at least temporarily, shift redistribution support.

Our findings propose an effective strategy to increase support for redistribution. They thereby add to the emerging view that redistributive preferences and beliefs that underlie them may, to some extent, be malleable and changed by environmental stimuli.

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**Figure 1: Study 2 Process**

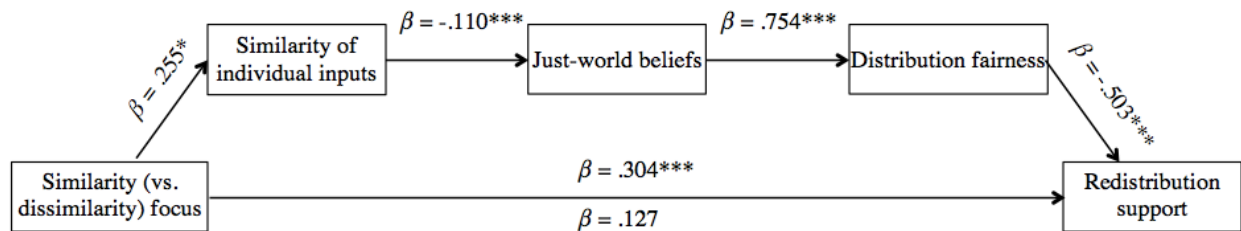
(A) Correlations, effect of similarity on each mediator, and indirect effect of similarity on redistribution support through each mediator

(B) Hypothesized serial mediation model

| Variables                           | Correlations (** $p < .01$ ; * $p < .05$ ; * $p < .1$ ) |          |          |          |          |          |         |          |   | Effect of focus<br><i>F</i> and <i>p</i> values | Model 4 Mediation<br>Indirect effect                |
|-------------------------------------|---------------------------------------------------------|----------|----------|----------|----------|----------|---------|----------|---|-------------------------------------------------|-----------------------------------------------------|
|                                     | 1                                                       | 2        | 3        | 4        | 5        | 6        | 7       | 8        | 9 |                                                 |                                                     |
| 1. Redistribution support (N = 518) | 1                                                       |          |          |          |          |          |         |          |   | $F(1, 516) = 7.018$<br>$p = .008$               |                                                     |
| 2. Individual inputs (N = 516)      | .270***                                                 | 1        |          |          |          |          |         |          |   | $F(1, 514) = 3.423$<br>$p = .065$               | $a = .0560, SE = .0322$<br>95% CI = [.0011, .1281]  |
| 3. Just world beliefs (N = 516)     | -.418***                                                | -.140*** | 1        |          |          |          |         |          |   | $F(1, 514) = 5.027$<br>$p = .025$               | $a = .1058, SE = .0501$<br>95% CI = [.0145, .2119]  |
| 4. Distribution fairness (N = 516)  | -.585***                                                | -.158*** | .609***  | 1        |          |          |         |          |   | $F(1, 514) = 4.455$<br>$p = .035$               | $a = .1407, SE = .0685$<br>95% CI = [.0141, .2839]  |
| 5. External circumstances (N = 517) | -.315***                                                | .114***  | .603***  | .502***  | 1        |          |         |          |   | $F(1, 515) = .348$<br>$p = .035$                | $a = .0330, SE = .0373$<br>95% CI = [-.0350, .0110] |
| 6. Individual outputs (N = 516)     | -.222***                                                | .289***  | .358***  | .464***  | .446***  | 1        |         |          |   | $F(1, 514) = 1.139$<br>$p = .286$               | $a = .0267, SE = .0270$<br>95% CI = [-.0214, .0860] |
| 7. Self-interest (N = 516)          | .453***                                                 | .268***  | -.290*** | -.388*** | -.163*** | -.051    | 1       |          |   | $F(1, 514) = 3.400$<br>$p = .066$               | $a = .0949, SE = .0533$<br>95% CI = [-.0037, .2055] |
| 8. Subjective inequality (N = 516)  | .104**                                                  | -.083*   | -.219*** | -.177*** | -.170*** | -.306*** | 0       | 1        |   | $F(1, 514) = 1.902$<br>$p = .168$               | $a = .0155, SE = .0146$<br>95% CI = [-.0033, .0568] |
| 9. Equality principle (N = 514)     | .354***                                                 | .360***  | -.204*** | -.224*** | -.057    | .150***  | .356*** | -.128*** | 1 | $F(1, 512) = .001$<br>$p = .981$                | $a = .0010, SE = .0409$<br>95% CI = [-.0811, .0795] |

A

B



Indirect effect of similarity (vs. dissimilarity) focus through similarity of individual inputs, just-world beliefs and distribution fairness:  $a = .0085, SE = .0060, 95\% CI = [.0005, .0259]$

\*\*\*  $p < .01, ** p < .05, * p < .1$

## Why Us?! Reactions of Ethnic Minority Viewers to Public Health Advertisements Featuring their Own Ethnic Group

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Advertising has been used to promote public health in areas like AIDS awareness and smoking cessation (Bush & Davies 1989; Mintz et al., 1997). A common practice in social marketing is targeting specific segments (Grier & Bryant, 2005) especially those who are deemed vulnerable (Frohlich & Potvin, 2008). For example, the Center for Disease Control and Prevention targets specific programs towards ethnic minorities (CDC, 2017) with the goal of ending health gaps among ethnic groups. In this research, we investigate how members of ethnic minorities respond to public health advertising that features members of their own ethnic group.

There has been a recent increase in advertising campaigns that feature ethnic minorities, especially in the USA (Zmuda, 2014). Research indicates that ethnic minority individuals prefer

advertisements that feature models belonging to their own ethnic minority group to advertisements that feature White models (e.g. Holland & Gentry, 1999; Whittler, 1991) thus positively impacting their intention to purchase the advertised products (Whittler, 1989).

However, research that has investigated how minorities react to advertising featuring minority models has used advertisements of commercial products (e.g. cell phones), while ignoring reactions to public health related messages (e.g., condom use). Public health advertising is different as it intends to promote behavior change and dissuade individuals from engaging in unhealthy behavior (Grier & Bryant, 2005). When public health advertising features minority models, individuals who belong to the featured minority group may question why their ethnic group is being asked to engage in healthier behavior, thus triggering doubts of being stereotyped by the advertisers. This may especially be true because the belief that healthcare providers engage in stereotyping of minorities is prevalent (Van Ryn & Fu, 2003). Members of ethnic minorities who perceive such stereotyping may feel threatened (Aronson et al., 2013) thus avoiding healthcare providers and the healthcare domain (Aronson et al., 2013; Burgess et al., 2010). We here expect that ethnic minority individuals are more likely to perceive that public health advertisements negatively stereotype their own ethnic group when the advertisement features members of their ethnic group than when the advertisement features White models. This perception of negative stereotyping will negatively affect intentions to act on the advice solicited by the advertisement.

Importantly, stigma consciousness may play a role in determining the expected effect. Stigma consciousness is people's tendency to anticipate being stereotyped based on their group membership (Pinel, 1999). Those with high stigma consciousness are more likely to perceive discrimination against their group (Pinel, 2004), and feel threatened in domains where their group is stereotyped negatively (Brown & Pinel, 2003) thus disengaging from such domains to protect their self-worth (Brown & Lee, 2005). Thus, ethnic minority individuals with high stigma consciousness are more likely to perceive that public health advertisements negatively stereotype their own ethnic group when the advertisement features members of their ethnic group than when it features White models. This may negatively impact their intentions to act on the advice solicited by the advertisement.

### **Study One**

In this study, participants viewed an advertisement of a website for a parenting program offering parenting tips. The advertisement featured a picture of a heterosexual couple with two children. The family was either White (Majority) or African American (Minority). Fifty nine American parents who identify as African American were recruited via Qualtrics research panel (57.6% female,  $M_{age}=48.7$ ). After viewing the advertisement, participants reported their behavioral intentions (1=strongly disagree; 7=strongly agree).

#### *Results*

Participants who viewed the advertisement featuring the minority group had lower intention to act on the advice of the advertisement than participants who viewed the advertisement featuring the majority group ( $M_{Majority}=5.78$  vs.  $M_{Minority}=5.05$ .  $t(57)=2.26$ ,  $p<.05$ ).

### **Study Two**

In this study, participants viewed an advertisement for a website promoting HIV awareness. The advertisement featured a picture of a heterosexual couple that is either White (Majority) or Latino (Minority). One hundred and twenty eight sexually active Americans who

identified as Latino were recruited via Qualtrics research panel (68.8% female,  $M_{\text{age}}=27.31$ ). After viewing the advertisement, participants answered questions that measured their behavioral intentions, perceptions of negative stereotyping, and stigma consciousness (1=strongly disagree; 7=strongly agree).

### Results

Participants who viewed the advertisement featuring the minority group were more likely to report that the advertisement negatively stereotypes their ethnic group ( $M_{\text{Majority}}=2.25$  vs.  $M_{\text{Minority}}=2.83$ ,  $t(126)=2.03$ ,  $p<.05$ ) and to indicate lower behavioral intentions ( $M_{\text{Majority}}=5.30$  vs.  $M_{\text{Minority}}=4.84$ ,  $t(126)=2.07$ ,  $p<.05$ ).

*The moderating role of stigma consciousness.* We conducted moderated mediation analysis (Hayes, 2013; SPSS PROCESS model 7) using featured ethnicity as the independent variable, stigma consciousness as the moderator, and perception of negative stereotyping as the mediator. Results revealed a significant interaction of featured ethnicity and stigma consciousness to predict perceptions of negative stereotyping ( $\beta=0.39$ ,  $t(124) = 2.14$ ,  $p<.05$ ), and a significant negative effect of perception of negative stereotyping on behavioral intentions ( $\beta=-.14$ ,  $t(125) = -2.01$ ,  $p<.05$ ). The results also revealed significant conditional negative indirect effects of featured ethnicity on behavioral intentions for participants with average ( $\beta=-.07$ ; 95% CI =  $-.217, -.007$ ) and high stigma consciousness ( $\beta=-.15$ ; 95% CI =  $-.394, -.027$ ) only. Importantly, the index of moderated mediation was significant (CI =  $-.158, -.004$ ).

A post-hoc study with seventy sexually active White university students using the same materials as study two showed that White participants did not differ in their behavioral intentions or perceptions of negative stereotyping regardless of the ethnicity of the models featured in the advertisement. These results indicate that the observed effects are unique to minority participants.

### Conclusion

This research shows that ethnic minorities respond less favorably to public health advertising that features their own group than those that feature White models. The effect is driven by perceptions of negative stereotyping by the advertisers and is moderated by stigma consciousness. This research contributes to the literature by showing that ethnic minorities do not always prefer advertising that feature their own ethnic group as has been demonstrated in the literature. These findings also add to our knowledge on the role of stigma consciousness shaping consumer reception of marketing communication. To our knowledge, no research has considered the role of this variable a marketing context.

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### **Insurance against Corporate Social Irresponsibility: Battling Consumer Suspicion**

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An increasing number of companies are involved in prosocial behaviors called Corporate Social Responsibility (CSR). By contrast, firm-induced incidents that impair social good are coined Corporate Social Irresponsibility (CSI). This research investigates how consumers evaluate a company when it is involved in both CSR and CSI, depending on the order of the two activities: the response (CSI-CSR) and the insurance (CSR-CSI) order. A prior research (Wagner, Lutz, and Weitz 2009) argues that the insurance order is viewed negatively when a CSI is highly congruent with a CSR, because consumers become suspicious about the firm's true motive for campaign initiation. Expanding upon these findings, we propose a moderating factor



that mitigates consumers' negative response to the insurance order: invested effort by the firm in the CSR.

Consumers' skepticism has been identified as an important factor that impacts how consumers evaluate a CSR and the firm (Drumwright 1996; Yoon, Gürhan-Canli, and Schwarz 2006). Although consumer suspicion about CSR motive can be derived from its temporal order in relation to a CSI (Wagner, Lutz, and Weitz 2009), we argue that having a CSR campaign initiated prior to a CSI does not negatively impact consumers' evaluation of the firm, when the company invests high effort in the campaign. Based on the previous findings that the level of firm's effort in the campaign is interpreted as the firm's commitment to the social good (Ellen et al. 2000, 2006), we argue that consumers will infer an altruistic motive from a CSR campaign with high effort in the insurance order, improving company's evaluation. Importantly, for the response order, the perceived motive will not differ based on invested effort because the motive of the campaign (i.e., to offset any wrongdoing) is more clear. And thus, ironically, investing more effort in response to a CSI that has already happened will not improve evaluations of the CSR or the company.

We present four studies testing our hypotheses. Study 1 investigates whether more effort in a CSR improves consumer reaction to it, but only in the insurance order. The study employed a 2 (order: insurance vs. response) by 2 (effort: high vs. low) between-subject design. Participants read about a company that accidentally polluted a local river. As the effort, the company either donates money only or runs a task force team for river cleaning in addition to the donation. Half of the participants read that the CSR was initiated before the CSI, whereas the other half read the opposite order. Participants then reported perceived product performance and expected campaign success. As expected, there was a significant order by effort interaction on perceived product performance ( $F(1, 204) = 3.96, p = .048$ ). Participants in the insurance condition reported marginally higher perceived product performance with high effort (vs. low), while no difference emerged for the response condition. Similar pattern was found for campaign success.

Study 2 was to replicate the effect with a different manipulation of effort. As a proxy for effort, the number of charities the firm supports was used expecting that supporting multiple (vs. single) charities would be perceived as more effortful. Participants were randomly assigned to a 2 (order: insurance vs. response) by 2 (number of charities: multiple vs. single) between-subject design. Participants read about the same scenario as study 1 except for the effort manipulation. Then, participants reported company competence with three items and the degree to which the company developed the campaign to offset the CSI incident. Finally, they rated the importance of having a CSR campaign for a company as a covariate. An ANCOVA revealed a significant order by number of charity interaction on perceived competence ( $F(1, 214) = 4.68, p = .032$ ). In the insurance condition, perceived competence was greater for the campaign with multiple (vs. single) activities, while no difference was revealed in the response condition. A moderated mediation supported our hypothesis: the indirect effect of the interaction between order and number of charity through perceived motive was negative and significant in the insurance condition, but not significant in the response condition.

Study 3 aims to replicate the effect by directly manipulating our proposed mediating factor - level of suspicion. The study employed a 2 (order: insurance vs. response) by 2 (suspicion level: high vs. low) between-subject design. The scenario described a manufacturer of cell phone cases that supports planting trees to improve biodiversity. CSI incident was a forest fire. We manipulated the low suspicion by informing that the information about CSR was

provided by a third-party (vs. company) and that the campaign has been successful. An ANOVA showed a significant interaction between order and suspicion on attitude toward the campaign ( $F(1, 256) = 4.93, p = .027$ ). As expected, third party endorsement improved the attitude on the insurance condition, but had no effect on the response condition.

Study 4 investigates whether the source of effort can differentially change firm's evaluation based on CSI-CSR order. When firms ask consumers to get involved in choosing which charity to support, the effort comes from consumers instead of company, and therefore will not have a beneficial effect for the insurance order. The study employed a 2 (order: insurance vs. response) by 2 (charity choice: consumers vs. executives) between-subject design. For the effort source, the company either let their consumers or executives choose the charity. Participants reported attitudes toward the company and the perceived motive. An ANOVA revealed a significant order by charity choice interaction on firm evaluation ( $F(1, 158) = 6.49, p = .012$ ). Participants in the insurance condition reported marginally lower evaluations with consumer (vs. executive) involvement. Interestingly, participants in the response condition reported marginally higher firm evaluation with consumer (vs. executive) involvement. Similar pattern was found for perceived firm's motive. A moderated mediation supported our hypothesis.

Contributing to the understanding of consumers' response to companies' CSR efforts, this research suggests new ways for marketing managers to mitigate the potential negative effects from engaging in CSR campaigns in light of CSI incidents.

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Table. Summary of Means

| Study 1   |        | Dependent variable            |      |                              |      |
|-----------|--------|-------------------------------|------|------------------------------|------|
|           |        | Perceived product performance |      | Expected success of the firm |      |
| Order     | Effort | M                             | SD   | M                            | SD   |
| Insurance | High   | 6.02 <sup>b</sup>             | 0.76 | 5.03                         | 0.99 |
|           | Low    | 5.68 <sup>c</sup>             | 1.00 | 4.40 <sup>b</sup>            | 0.94 |
| Response  | High   | 5.78 <sup>ab</sup>            | 1.09 | 4.68 <sup>a</sup>            | 1.24 |
|           | Low    | 5.98 <sup>ac</sup>            | 1.02 | 4.63 <sup>ab</sup>           | 1.12 |

| Study 2   |                     | Dependent variable           |      |                           |      |
|-----------|---------------------|------------------------------|------|---------------------------|------|
|           |                     | Perceived company competence |      | Perceived ulterior motive |      |
| Order     | Number of charities | M                            | SD   | M                         | SD   |
| Insurance | Multiple            | 4.43 <sup>b</sup>            | 1.33 | 3.98                      | 1.76 |
|           | Single              | 3.99                         | 1.24 | 5.00                      | 1.79 |
| Response  | Multiple            | 4.45 <sup>ab</sup>           | 1.17 | 6.27 <sup>a</sup>         | 1.03 |
|           | Single              | 4.67 <sup>a</sup>            | 1.01 | 6.31 <sup>a</sup>         | 1.02 |

| Study 3   |                 | Dependent variable           |      |
|-----------|-----------------|------------------------------|------|
|           |                 | Attitude toward the campaign |      |
| Order     | Suspicion level | M                            | SD   |
| Insurance | Low             | 5.58 <sup>b</sup>            | 1.34 |
|           | High            | 4.73                         | 1.67 |
| Response  | Low             | 5.53 <sup>ab</sup>           | 1.39 |
|           | High            | 5.50 <sup>a</sup>            | 1.48 |

| Study 4   |               | Dependent variable |      |                    |      |
|-----------|---------------|--------------------|------|--------------------|------|
|           |               | Company Evaluation |      | Perceived motive   |      |
| Order     | Effort source | M                  | SD   | M                  | SD   |
| Insurance | Consumers     | 3.01               | 1.44 | 3.09               | 1.35 |
|           | Executives    | 3.57 <sup>a</sup>  | 1.47 | 3.82 <sup>b</sup>  | 1.42 |
| Response  | Consumers     | 4.00               | 1.31 | 3.88 <sup>a</sup>  | 1.56 |
|           | Executives    | 3.45 <sup>a</sup>  | 1.31 | 3.41 <sup>ab</sup> | 1.40 |

Note: Means not sharing a superscript in the same column are significantly different from each other ( $p < .1$ ).

## **Discounting Humanity: When Consumers are Price Conscious Employees Appear Less Human**

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Recognizing others' humanity is routinely touted by politicians, ethicists, and business leaders as being essential for the creation of a just and civilized society. It follows from this principle that any activities that lead people away from this ideal can be critiqued as being a bane to the cause of moral progress, not to mention having immediate consequences for those who are perceived as being less than fully human. This process of perceiving some people as being somewhat less than human is called dehumanization (Haslam, 2006). It involves a failure to fully recognize the fundamental aspects of another person, which distinguish humans from animals (i.e., uniquely human attributes such as higher cognition) and machines (i.e., fundamental attributes of human nature such as interpersonal warmth).

There is no shortage of historical atrocities that can be traced to extreme forms of dehumanization. But we submit that dehumanization can also taint the nature of everyday marketplace interactions between consumers and employees. It can do so by reducing the extent to which consumers consider the human needs of employees. Specifically, we propose that a price conscious mentality—a singular focus on saving money and getting the cheapest deal—can lead consumers to discount the human qualities of employees and treat them more inconsiderately as a result.

There are many conditions under which people might approach a consumption experience with a price conscious mentality. Some could be internal to the consumer such as their shopping goals (e.g., finding a deal); others could be external market forces such as a brand's positioning (e.g., thrift). A price conscious mentality is characterized by a market-pricing and transactional focus (e.g., Fiske, 1992; Gasiorska, et al., 2016), which limits allowances for intimacy and social connectedness. This diminished space for connectedness leads consumers away from fully considering an employee's humanness. We conducted four studies to test our prediction that a price conscious mentality will make consumers less likely to fully recognize the humanness of employees and in turn treat them less considerably.

Study 1 employs a text-mining approach to examine consumers' humanization of employees in descriptions of their actual brand experiences. Using 2,047 webscraped reviews, we provide preliminary evidence that the positioning of a brand with a thrift (i.e., Ryanair) vs. non-thrift (i.e., Lufthansa) focus influences consumers' humanization of employees in their review language. By developing a dictionary based on prior literature (e.g., Goodwin, Piazza, & Rozin, 2014; Haslam & Bain, 2007) including 114 humanizing trait words, we found that consumers were significantly less likely ( $p < .001$ ) to humanize the employee of the thrift (vs. non-thrift) brand even after accounting for quality differences between brands ( $p = .018$ ).

The aim of study 2 was to replicate the findings of study 1 in the same consumption context while increasing experimental control. Participants were randomly assigned to a thrift (Ryanair), non-thrift (Lufthansa), or neutral control condition. Next, participants received printed, photoshopped pictures displaying the same person as brand employees or a citizen. Ratings of the person's capacity to feel, think, and plan served as our dependent measure of dehumanization (Kozak, Marsh, & Wegner, 2006). Consistent with predictions, participants in the thrift condition ascribed less humanness to the employee than those in the non-thrift ( $p = 0.006$ ) and the control condition ( $p < 0.001$ ). We also found that dehumanization was somewhat more pronounced on the human nature (i.e., capacity to feel) rather than the human uniqueness (i.e., capacities to think and plan) dimension.

The use of actual consumer brands in studies 1 and 2 might have also triggered other preexisting brand associations unrelated to a price conscious mentality. Thus, in study 3 we sought to offer a more controlled test of our central hypothesis. Therefore, we presented participants with a fictitious brand only varying its positioning via a marketing brochure ( $n = 50$ ). Using the same dependent measure, we replicated the patterns found in study 2 such that consumers were significantly more likely to dehumanize the employee of the thrift (vs. non-thrift) brand ( $p = .001$ ). Again, dehumanization was stronger on the human nature dimension.

Our final experiment (study 4) was designed to explore the downstream consequences of dehumanization in terms of increased punitiveness after service failures. By inducing a price conscious mentality unrelated to brand positioning, we thereby address alternative mechanisms that might have contributed to the dehumanization of employees such as status or sophistication spillovers from brand positioning to employees. We manipulated consumers' shopping focus to induce a price conscious mentality by randomly assigning participants ( $n = 304$ ) to focus on maximizing cost savings or their driving experience in a rent-a-car booking scenario. After having to contact customer service and experiencing a failed chat interaction, participants rated their satisfaction with the brand's customer agent on a seven-point scale from 1 (very dissatisfying) to 7 (very satisfying). Punishment was operationalized by stating that the rent-a-car firm had a policy of considering disciplinary action for agents who receive ratings of 2 or lower. Dehumanization was measured on an eight-item scale adopted from Bastian, et al. (2013). Replicating our previous studies, participants adopting a price conscious mentality were more likely to dehumanize the employee ( $p = .012$ ). Participants in the price conscious mentality (vs. control) condition were also significantly more likely to punish the employee (77.4% vs. 59.3%,  $p < .01$ ) and dehumanization mediated the effect of condition on punishment.

Fully recognizing others as human is an integral element of considerate and civilized social interactions. All individuals deserve moral consideration and treatment simply by virtue of being human. This basic notion is a cornerstone of our societal order reiterated uniformly in diverse writings from philosophers' essays to international declarations (e.g., human rights). Unfortunately, despite this basic consensus individuals sometimes fail to universally ascribe humanness to all people. While past research has primarily examined how more intentional forms of dehumanization create harm, we document how dehumanization emerges incidentally as a function of a consumption-related factor—a price conscious mentality. Specifically, an extreme shopping focus on cost savings leads consumers away from fully appreciating employees' humanness.

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## 5.6 4P's et al.: Consumer Product Choice Individual Papers

### **Doing Worse but Feeling Better: Consequences of Collective Choice**

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#### Motivation

Consumer decisions are often made together with other people (Davis 1976). Nonetheless, marketing scholars typically investigate consumers as independent individuals who chose alone, leaving joint decisions under-researched (Bagozzi 2012). However, choosing with others differs substantially from choosing alone. This paper compares the implications on decision outcome and emotions felt when either an individual or a group of two people chose from a set with many alternatives.

#### Conceptualization

Group decision is not the averaging of its members (Zajonc, Wolosin, and Wolosin 1972). When several people choose together, they frequently have different tastes and goals, which can lead them to disagreement. Despite this latent conflict, groups are typically still able to reach a decision agreement. This is possible because collective consumer decision is fundamentally cooperative in nature (Fisher, Grégoire, and Murray 2011), which implies that conflicting preferences are overcome through self-sacrifice and mutual concessions (Corfman and Lehman 1987). Therefore, knowing the consequences of cooperation and self-sacrifice on the value of the alternative selected constitutes one of the contributions of the current paper.

Iyengar, Wells, and Schwartz (2006) have demonstrated that individuals who do better in taxing decisions can actually feel worse. However, it is unclear whether these effects are also spread to collective choice. On one hand, research on individual decision-making suggests that engaging in a difficult selection process can lead to the experience of some negative emotions (Bettman, Luce, and Payne 1998). Given that group decision might imply contradictory preferences which can degenerate into affective conflict (Amason 1996), groups might experience even stronger negative emotions than individuals. Nevertheless, a group's cooperative mindset and the fact that human beings have a tendency to enjoy sharing an activity with other people (Baumeister and Leary 1995; Raghunathan and Corfman 2006) could elicit positive emotions in dyadic decision. Which of these drivers has a stronger influence on dyadic emotions experienced during choice is still unknown in the consumer literature and is the other goal of the current paper.

#### Methodology

Study 1 aimed to compare the subjective value of the alternative selected by individuals and dyads, and assess the magnitude of sacrifice in collective decisions. The participants were randomly assigned to the individual or collective condition, between subjects. They were 60 individuals (63% women) and 41 dyads (61% women; dyad members did not know each other). Every choice set had 30 alternatives of the same category. Categories were: poster, chocolate, ice cream, and desk lamp, random order. Procedure: first, each subject alone had to evaluate every alternative in the choice set (-5 = "I don't like it at all" to +5 = "I like it very much"). Afterwards, subjects ticked which alternatives they would consider from the choice set, followed by the

selection of the favorite alternative. Finally, a short questionnaire was filled. In the collective condition, both the consideration and the selection stages were done together by the two dyad members.

The goal of Study 2 was to compare the valence of the dominant emotion experienced by individuals and dyads while making a difficult decision such as choosing from a large choice set. It had the participation of 42 individuals (36% women) and 44 dyads (dyad members knew each other; 51% women), between-subjects. Movies was the only category used. Procedure: each participant alone started by evaluating every alternative on the same scale as study 1. Then, to set participants' emotions to neutrality they watched a 4-minutes documentary. Afterwards, from a choice set with 30 alternatives participants had to select their favorite movie to watch for 5-minutes in the end. This was done either individually or in dyads. Then, a short questionnaire was filled. The selection and questionnaire tasks were repeated six times. Study 2 ended with a short watching of one of the movies selected as favorite.

Along study 2, the emotions of each participant were recorded every 35 milliseconds with an automated facial recognition software. This allows to know the intensity of each of the six basic emotions (i.e., enjoyment, sadness, anger, disgust, fear, and surprise) on a 100-points scale. This information was then aggregated in two-seconds' intervals and the emotion with the highest average intensity along the interval was considered the dominant one. Then, the dominant valence was coded as positive if the strongest emotion was enjoyment or negative if the highest average intensity was sadness, anger, disgust, or fear. Surprise was out of analysis as the literature still debates if it is positive or negative.

## Major Findings

Study 1 showed that dyads typically select an item with an inferior value in comparison to individuals ( $M_{\text{dyad}} = 3.51$ ,  $SD_{\text{dyad}} = 1.29$ ;  $M_{\text{ind.}} = 4.50$ ,  $SD_{\text{ind.}} = 0.84$ ;  $\chi^2(1) = 60.27$ ,  $p < .0001$ ). This difference was the consequence of dyad members giving up his or her top-rated alternative, which implied an average sacrifice of 1.10 value points. However, despite this difference in value, dyads were not less satisfied with the option selected than their individual counterparts ( $M_{\text{dyad}} = 7.78$ ,  $SD_{\text{dyad}} = 1.76$ ;  $M_{\text{ind.}} = 7.97$ ,  $SD_{\text{ind.}} = 1.80$ ;  $\chi^2(1) = 0.62$ ,  $p = .432$ ).

Study 2 revealed that whereas individuals' selection process was dominated by negative emotions (73% of the two-seconds intervals), dyadic selection, on the contrary, was dominated by positive emotion (45% of the intervals), as we can see in table 1. Proportion tests confirmed the differences between individuals and dyads both for the negative ( $z = 44.85$ ,  $p < .0001$ ) and the positive ( $z = -34.22$ ,  $p < .0001$ ) dominant emotions. Moreover, study 2 showed that while choosing dyad members experienced a level of enjoyment that was almost five times stronger than that of individuals ( $M_{\text{dyad members}} = 26.13$ ,  $SD_{\text{dyad members}} = 15.44$ ;  $M_{\text{ind.}} = 5.67$ ,  $SD_{\text{ind.}} = 8.34$ ;  $\chi^2(1) = 44.96$ ,  $p < .0001$ ).

Overall, this paper demonstrated that although dyads typically choose an alternative of inferior value in comparison to individuals, they do not report a lower level of satisfaction. Moreover, the selection process is much more enjoyable for collective consumers than for individual consumers. That is, while dyads do worse, they feel better.



**TABLE 1**  
DOMINANT EMOTIONS DURING THE SELECTION

| Type of Emotion                      | Individuals       | Dyads Members     |
|--------------------------------------|-------------------|-------------------|
| <b>Negative Emotions</b>             | <b>73% (2259)</b> | <b>30% (4321)</b> |
| a. Anger                             | 31% (971)         | 6% (870)          |
| b. Sadness                           | 21% (639)         | 10% (1444)        |
| c. Disgust                           | 20% (626)         | 11% (1511)        |
| d. Fear                              | 1% (23)           | 3% (496)          |
| <b>Positive Emotion</b>              | <b>12% (368)</b>  | <b>45% (6477)</b> |
| e. Enjoyment                         | 12% (368)         | 45% (6477)        |
| <b>Non Negative/Positive Emotion</b> | <b>15% (460)</b>  | <b>25% (3574)</b> |
| f. Surprise                          | 15% (460)         | 25% (3574)        |

Note. - Cell sizes are given in parenthesis

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## Uncertain Reward Campaigns Impact Product Size Choices

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Many companies annually launch uncertain reward campaigns, where consumers are given a chance to win one of the gradients of prizes with each purchase. For example, during Tim Hortons coffee chain's *Roll Up the Rim* campaign, each hot beverage purchased gives consumers a one in six chance to win prizes ranging from hot beverages and donuts to a new car (Roll Up the Rim Official Website, 2017). One common aspect to these campaigns is that consumers can participate in them regardless of the size of the product they purchase. As an example, one gets the same objective odds of winning a prize whether they buy the small or the extra-large cup size for their beverages during the "Roll up the Rim" campaign. Although the objective odds do not vary by product sizes, there is interesting anecdotal evidence to suggest that consumers seemingly behave as if it does, and thus supersize their product orders during the Roll up the Rim promotional campaign (Yum 2013).

If anecdotal evidence is correct, however, this reported tendency would represent a special case of a suboptimal behavior. Specifically, normative economic theories (e.g., Expected-Utility Theory; von Neumann and Morgenstern 1945) argue that, when the objective odds of winning do not vary based on product size, consumers interested in increasing their odds of winning would be better off purchasing the smallest, rather than the largest, product offering. That is, buy two smalls for the cost of one extra-large, and double your odds of winning. Hence, from a rational standpoint, choosing the largest product alternative more during uncertain reward campaigns represents an economically suboptimal behavior.

In the current article, we explore the validity of media reports that propose a supersizing tendency that is activated during uncertain reward campaigns. In so doing, we add to growing body of literature that examines consumers' biased probability estimations and behavioral tendencies during uncertain events. Accordingly, consumers' probability estimation for uncertain events are often impacted by contextual cues (Windschitl and Wells 1998). For example, the ratio-bias suggests that when choosing between two bowls, each of which provide a 10% chance of drawing a winning bean, people prefer to draw from a larger bowl (containing 10 winning and 90 losing beans) than a smaller bowl (containing 1 winning and 9 losing beans; Kirkpatrick and Epstein 1992). It thus appears that consumers prefer larger numerical values during probabilistic events, as they infer them to subjectively enhance their odds of winning (Windschitl and Wells 1998).

While not directly expressing consumers' chances of winning, the volumes of product options similarly represent a range of numerical values attached to uncertain reward campaigns, which provide a chance to win prizes. The extra-large cup of coffee, for example, represents the greatest numerical value regarding product volume compared to its alternatives. If consumers infer that greater numerical values attached to probabilistic events bring them better odds of winning, they may be drawn to purchasing the largest available product size more during uncertain reward campaigns.

Across three experiments, we tested the hypotheses that consumers associate greater product volumes with greater odds of winning, and are nudged to buying the largest available

product size during uncertain reward campaigns. Across all the experiments, we informed participants that all products provide the same objective odds of winning probabilistic rewards.

Study 1 (N=105) featured a 4 (Likelihood Ratings for Product Size: small/medium/large/extra-large) within subjects design. In this study, all participants were provided with information regarding a coffee chain and its uncertain reward campaign. They then rated how likely they felt it was that each coffee cup size contained a reward (1 = Not likely at all, 11 = Certain). A repeated measures ANOVA showed a linear relationship between cup size and likelihood ratings ( $F(3, 416) = 46.15, p < .05$ ), where participants believed the extra-large coffee cup provided them the best odds of winning a reward (see Figure 1).

Study 2 (N=161) featured a 2 (Control/Reward) main effect design, and intended to explore whether the beliefs reported in Study 1 extended to consumers' choices. Participants were either informed of the same uncertain reward campaign as Study 1 (reward condition) or were not provided with any information related to the campaign (control condition). They then chose their product size order between the four available size options. As expected, a binary logistic regression revealed that participants were more than seven times more likely to choose to the extra-large cup size during an uncertain reward campaign compared to the control condition, Wald = 3.63,  $\beta = 2.06$ , SE = 1.08,  $p = .057$ , OR = 7.83.

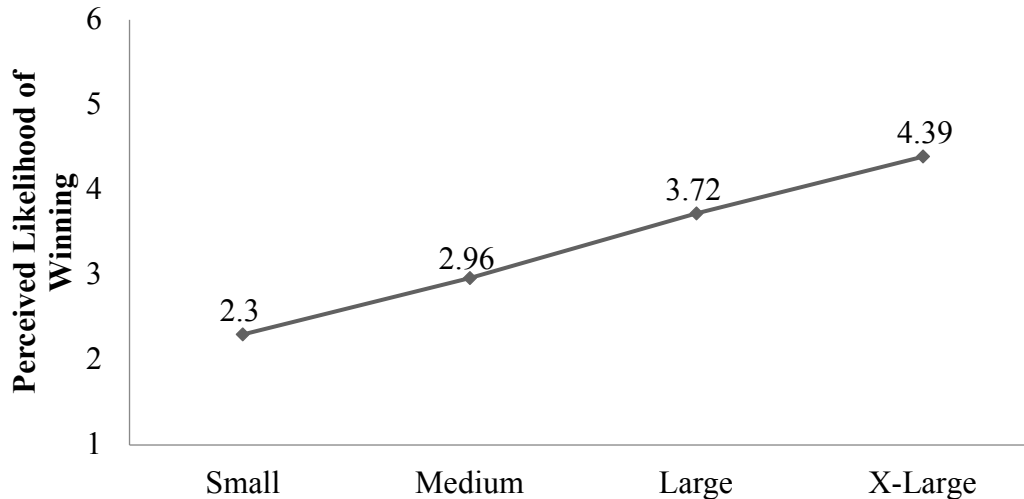
Although the results of Study 1 and 2 converged with our hypotheses, by design, they were confounded by the different prices of product sizes (i.e., larger product = greater price). It is possible that participants generated the theory that companies strategically put more rewards in the largest, and thus costliest, product options. If so, the theory itself may be questionable, but the choice behavior that stems from the theory would be completely rational. In Study 3 (N=148), we removed the greater cost implication of larger products, and thus the rationality of consumers' choice to supersize more during uncertain reward campaigns. Specifically, all participants chose the size of their current order when all product sizes are explicitly told to be priced equally, in a 2 (Control/Reward) main effect design. Replicating the results of Study 2, a binomial logistic regression revealed that participants were almost two times more likely to choose the largest available cup size during an uncertain reward campaign compared to the control condition, Wald = 3.86,  $\beta = .66$ , SE = .33,  $p = .05$ , OR = 1.93.

In sum, our results reveal a novel size bias that is activated during uncertain reward campaigns. From a theoretical lens, our results add to subjective probability literature (e.g., Windschitl and Wells 1998). From a practical standpoint, our results suggest that by nudging their consumers to supersize their product orders, brands interested in launching uncertain reward campaigns may be able to increase their bottom-line.

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Figure 1: Perceived Likelihood Ratings for Study 1



### **Design a Package to Upgrade Your Brand: The Effect of Package Shape on Brand Status Perception and Product Choice**

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Shape has received increasing attention in consumer research as one of the most important features in packaging design. Prior research has shown that package shape affects consumer beliefs about product attributes and performance, such as volume estimation (Raghubir & Krishna, 1999; Wansink & Van Ittersum, 2003) and sensory expectations (Ares & Deliza, 2010). More recently, a small and rather disparate group of studies have explored the effect of package shape on symbolic associations consumers form with a product (Orth & Malkewitz, 2008; Raghubir & Greenleaf, 2006). However, these are exploratory studies that do not explain how and why particular package shapes influence brand perception. Our research extends the current literature by examining the effect of package shape on brand status perception, a new symbolic function of packaging design that has not been explored before, and exploring the underlying process in terms of lay beliefs.

Lay belief refers to common-sense beliefs or intuitions that people use to explain their environment (Haws, Reczek, & Sample, 2016). We propose that people have a lay belief associating individuals' body shapes with their socioeconomic status: specifically that tall, thin individuals are more likely to be members of the upper classes because they are more physically attractive than short, chubby individuals (Garner et al., 1980; Tyrrell, et al., 2016). Previous research suggests that consumers tend to treat products as if they were human beings, applying

knowledge from the social world to the inanimate world (Kervyn, Fiske, & Malone, 2012; Wen, Peng, & Jin, 2017). We thus predicted that consumers would perceive products as higher in brand status when they were presented in a tall and slender (vs. short and wide) package, just like they infer social status from a person's body shape.

Experiment 1 ( $n = 106$ ) provided initial evidence in support of our prediction. Participants were shown a new shampoo either in a tall and slender package or in a short and wide package, and they were asked to choose a suitable market for the product (1 = definitely low-end market, 7 = definitely high-end market). As predicted, participants reported that the new product was more suitable for the high-end market when it was in the tall and slender (vs. short and wide) package (5.56 vs. 5.02;  $F(1, 104) = 7.97, p = .006$ ).

Experiment 2 ( $n = 216$ ) examined whether the proposed effect is moderated by the lay belief associating body shape with socioeconomic status. The experiment was identical to experiment 1 except that we also measured individual differences in the proposed lay belief. Confirming our hypothesis, the results indicated a package shape  $\times$  lay belief interaction such that package shape affected brand status perception only for participants with strongly held the lay belief ( $M_{\text{lay-belief}} \geq 4.52, \beta = .26, SE = .13, p \leq .05$ ).

Experiment 3 ( $n = 110$ ) examined perceived attractiveness as the underlying mechanism of the proposed effect. The design and questionnaire for this experiment were similar to those for experiment 1 except that we also measured perceived attractiveness of the product. The results supported our prediction, revealing that the product in the tall and slender (vs. short and wide) package was perceived as more suitable for the high-end market (4.6 vs. 4.1,  $F(1, 108) = 3.81, p = .054$ ), and perceived attractiveness mediated this effect ( $Effect = .49, 95\% CI = .08 \sim .93$ ).

Experiment 4 investigated the boundary condition of the proposed effect using a 2 (package shape: tall-and-slender vs. short-and-wide)  $\times$  2 (product users: adults vs. babies) design. We predicted that consumers would rely less on a product's package shape to judge its brand status when the product was produced for babies because the association between body shape and socioeconomic status is less applicable to babies than to adults. Participants ( $n = 187$ ) were shown a new juice product in a tall and slender bottle or in a short and wide bottle. They were then told that the product was produced for either adults or babies, and were asked to choose which market was more suitable for the product. As hypothesized, a significant interaction emerged between package shape and product users ( $F(1, 183) = 7.12, p = .008$ ). Specifically, the effect of package shape on brand status perception was replicated when the product was for adults (5.24 vs. 4.71;  $F(1, 183) = 4.2, p = .042$ ) but not when it was for babies (4.90 vs. 5.33;  $F(1, 183) = 2.95, p = .087$ ).

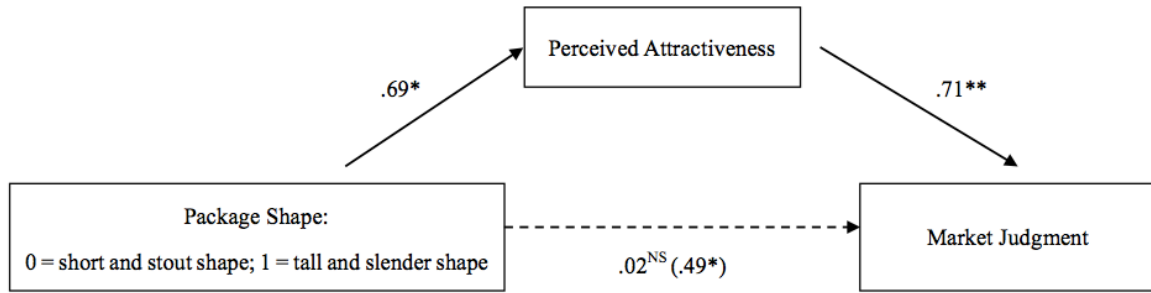
Experiment 5 explored the downstream implications of the proposed effect by examining consumer product choices in the gift-buying context, where brand status plays a determining role in consumer choices (Yang & Paladino, 2015). Participants ( $n = 105$ ) were instructed to imagine that they wanted to buy a bottle of wine as a gift for a friend and they were shown two bottles of wine, namely LEGENDE and SCHUG. In one condition, LEGENDE was presented in a tall and slender bottle whereas SCHUG was in a short and wide bottle. In the other condition, we switched the package design for the two brands. Participants were asked to indicate their relative preference and perceived brand status for the two brands. As predicted, they were more likely to prefer the brand when it was in a tall and slender (vs. short and wide) package (9.51 vs. 7.62;  $F(1, 103) = 5.63, p = .019$ ), and perceived brand status mediated this effect ( $Effect = 1.72, 95\% CI = .88 \sim 2.75$ ).

In sum, our research is the first to demonstrate the effect of package shape on brand status perception and to reveal its underlying process in terms of lay beliefs. Our findings advance the current understanding of the symbolic functions of packaging design and provide empirical support for marketers' growing attention to visual information as a vehicle for brand communication (Lindstrom, 2006). Moreover, our research contributes to the lay theory literature by revealing a novel lay theory held by consumers and showing that this lay theory has considerably broad ramifications in informing consumer perceptions and decisions.

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**Figure 1: Results of Experiment 3**



NOTE.—\* =  $p < .05$ ; \*\* =  $p < .01$

**Table 1: Summary of Experiment Results**

| Experiment | n   | M                      | SD   | <i>p</i> |
|------------|-----|------------------------|------|----------|
| 1          | 106 | Tall-and-slender: 5.56 | .95  | .006     |
|            |     | Short-and-wide: 5.02   | 1.02 |          |
| 2          | 216 | Tall-and-slender: 5.37 | 1.04 | .044     |
|            |     | Short-and-wide: 5.10   | .94  |          |
| 3          | 110 | Tall-and-slender: 4.60 | 1.26 | .054     |
|            |     | Short-and-wide: 4.08   | 1.48 |          |
| 4          | 187 | Tall-and-slender: 4.90 | 1.32 | .087     |
|            |     | Baby products          |      |          |
|            |     | Short-and-wide: 5.33   | 1.14 |          |
|            |     | Adult products         |      |          |
| 5          | 105 | Tall-and-slender: 5.24 | 1.28 | .042     |
|            |     | Short-and-wide: 4.71   | 1.17 |          |
| 5          | 105 | Tall-and-slender: 9.51 | 3.89 | .019     |
|            |     | Short-and-wide: 7.62   | 4.29 |          |

### **The Impact of Power on Reliance on Feelings versus Reasons in Decision Making**

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Power refers to the asymmetric control over other individuals or valued resources in social relations (Magee and Galinsky 2008). Recent research suggests that power can translate directly into a psychological state that influences individuals' attitudes and behaviors. For example, possessing power liberates people to express their true attitudes and pursue their personal goals (e.g., Anderson and Berdahl 2002; Galinsky, Gruenfeld, and Magee 2003) and decreases attention paid to others (Goodwin et al. 2000; Lammers et al. 2013). Relatively less research, however, has investigated the impact of power on consumer decision making. In this research, we propose that consumers who feel powerful (vs. powerless) would exhibit a greater relative reliance on feelings in decision making.

We suggest that this occurs because when consumers feel powerful (vs. powerless), they are more likely to feel confident (vs. doubtful) in their decision making, increasing the tendency to rely more (less) on affective feelings in their decisions. Our hypothesis is supported indirectly by previous research. First, consistent with the notion that power increases a sense of confidence, research has demonstrated that high-power individuals are more likely to exhibit overconfidence in decision making (Fast et al. 2011), express their attitudes (Anderson and Berdahl 2002), and take actions rather than stay put (Galinsky, Greunfeld, and Magee 2003) compared to low-power individuals. Experiencing power also leads to confidence-related states such as optimism (Anderson and Galinsky 2006), risk taking (Anderson and Galinsky 2006), and illusionary control (Fast et al. 2009). Second, extant research has provided preliminary evidence that an elevated sense of confidence associated with high (vs. low) power states might influence consumers' relative reliance on feelings and phenomenal experiences. For example, people are more likely to rely on their cognitive feelings (e.g., the ease-of-retrieval heuristic) under conditions of high (vs. low) personal certainty (Greifeneder et al. 2010; Müller et al. 2010) and rely on their emotional reactions if they have high (vs. low) chronic self-esteem (Harber 2005). To the extent that cognitive feelings and emotional reactions are more likely to enter consumer decisions under conditions of high certainty and self-esteem (Harber 2005) and that certainty and self-esteem are closely related with confidence (Pelham 1991), consumers with more power should experience higher confidence, thereby more likely to rely on affective feelings in making decisions.

We tested our hypothesis in five experiments. To provide initial evidence for our hypothesis, experiment 1A first manipulated power using episodic recall (see Galinsky, Gruenfeld and Magee 2003). Sixty-six participants indicated their relative preference between an affectively superior and a cognitively superior laptop. Results showed that participants in the high-power condition exhibited a stronger preference for the affectively superior laptop ( $M = 4.53$ ) than those in the low-power condition ( $M = 3.56$ ;  $F(1, 64) = 4.17, p = .045$ ). (Additional confounding and manipulation checks are collected in all experiments; due to space constraint, they are not reported here.)

Experiment 1B with 77 undergraduate participants replicated the result of experiment 1A ( $M_{\text{high-power}} = 4.59, M_{\text{low-power}} = 3.58$ ;  $F(1, 75) = 6.13, p = .016$ ) using a word-fragment-completion task to manipulate power (see Magee et al. 2007). Furthermore, experiment 1B directly measured participants' relative reliance on feelings in making their choices. Mediation analysis confirmed that the observed effect of power on the laptop preference was driven by participants' differential reliance on feelings versus reasons in decision making ( $B = 0.11, 95\% CI = .003 \text{ to } .311$ ).

Experiment 2 tested the hypothesized effect by manipulating 281 participants' incidental feelings and power states orthogonally. Based on prior research (Schwarz and Clore 1983), we hypothesized that incidental moods should exert a greater influence on product evaluation for high-power participants than low-power participants. Results revealed a significant interaction between mood and power ( $F(1, 277) = 4.45, p = .036$ ): High-power participants indicated higher willingness-to-pay (WTP) for the product in the positive-mood condition ( $M = \$57.31$  SD) than in the negative-mood condition ( $M = \$42.24$ ;  $t(277) = 2.49, p = .013$ ). In contrast, low-power participants indicated comparable WTP across mood states ( $M_{\text{positive}} = \$48.67, M_{\text{negative}} = \$47.45$ ;  $t(277) = .20, p = .830$ ).

Testing the mechanism underlying our prediction, experiment 3 ( $N = 273$ ) manipulated power and participants' felt confidence through bogus feedback before observing their preference between an affectively versus cognitively superior apartment. The analysis yielded a

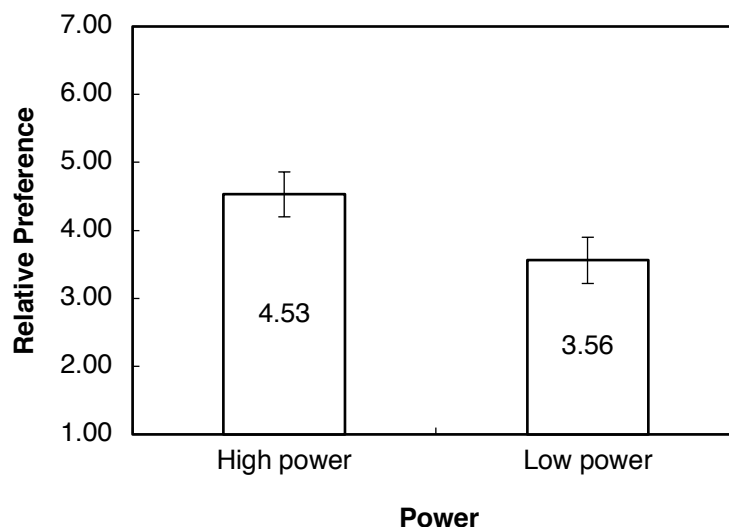


significant interaction effect ( $F(1,268) = 6.83, p = .009$ ). Consistent with our prediction, for participants in the high-confidence condition, high power led to greater relative preference for the affectively (vs. cognitively) superior option ( $M_{\text{high-power}} = 4.83, M_{\text{low-power}} = 4.15; t(268) = 2.04, p = .042$ ), replicating our prior findings. However, for participants in the low-confidence condition, the effect of power was eliminated ( $M_{\text{high-power}} = 4.21, M_{\text{low-power}} = 4.56; t(268) = 1.04, p = .303$ ).

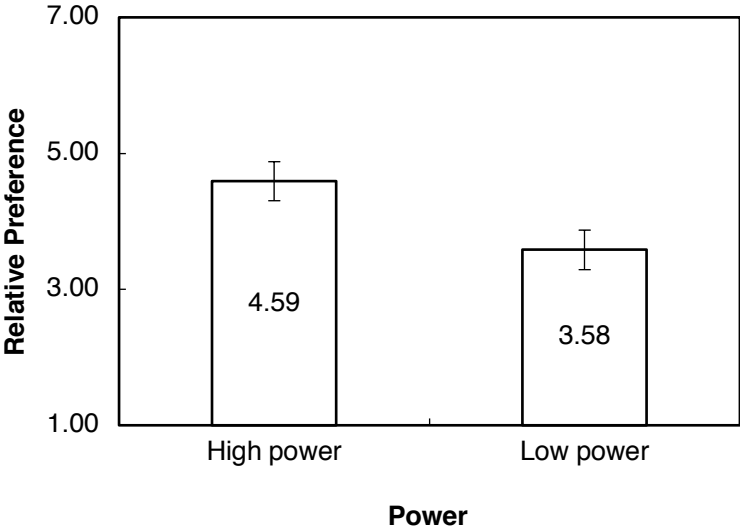
Experiment 4 tested an implication of the hypothesized effect. Hsee and Rottenstreich (2004) suggest that valuation based on affect is less sensitive to the quantitative scope of the evaluative stimulus than those based on cognition, known as scope insensitivity. If high- (vs. low-) power states promote a greater relative reliance on feelings, high-power consumers should be more likely to exhibit scope insensitivity compared to low-power consumers. One hundred forty-five participants whose power states were varied were shown a one-day travel package containing one or four tourist spots, and asked for their WTP for the travel package. Results showed a significant interaction between power and scope ( $F(1, 141) = 6.02, p = .015$ ). For low-power participants, their WTP was higher for the four-spot package than for the one-spot package ( $M_{4\text{-spot}} = \$211.15$  vs.  $M_{1\text{-spot}} = \$101.67; t(141) < 4.24, p = .001$ ). However, for high-power participants, their WTP exhibited scope-insensitivity that is often attributed to affect ( $M_{4\text{-spot}} = \$140.86$  vs.  $M_{1\text{-spot}} = \$130.97; t(141) < 1, p = .49$ ).

Our research contributes to the literature on power by following an emerging stream of research that examine how power might influence decision-making processes. Our research offers practical suggestions for designing advertisements as well: campaigns with largely emotional (functional) appeals might be more effective for a high-power (low-power) audience.

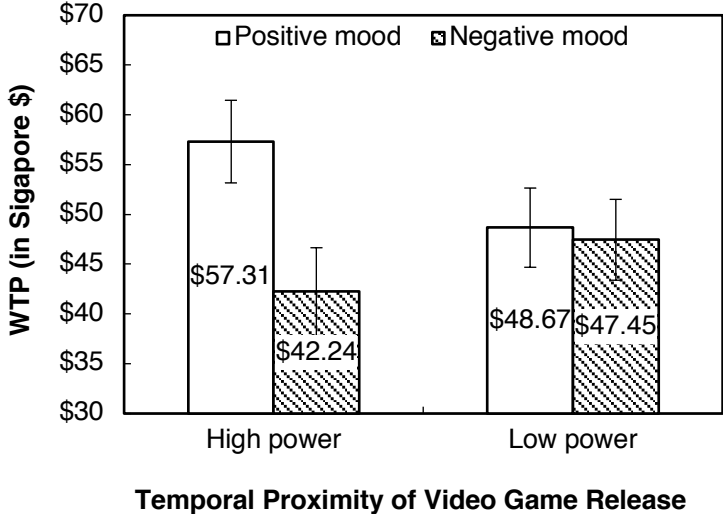
**FIGURE 1 (EXPERIMENT 1A)**  
**POWER AND PREFERENCE BETWEEN AN AFFECTIVELY SUPERIOR VERSUS A COGNITIVELY SUPERIOR LAPTOP**



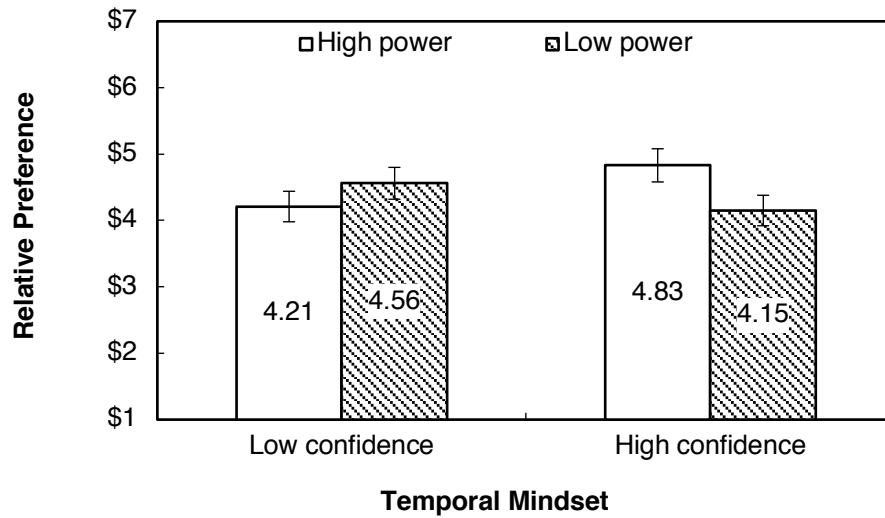
**FIGURE 2 (EXPERIMENT 1B)**  
**POWER AND PREFERENCE BETWEEN AN AFFECTIVELY SUPERIOR VERSUS A**  
**COGNITIVELY SUPERIOR LAPTOP**



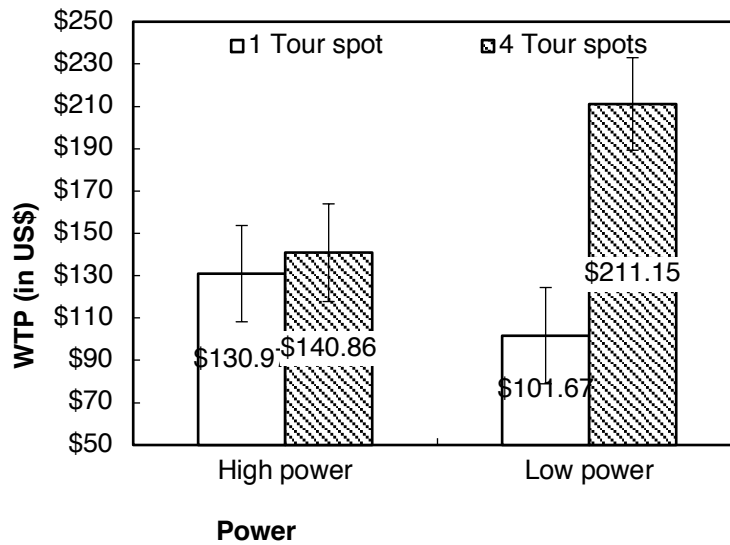
**FIGURE 3 (EXPERIMENT 2)**  
**THE INTERACTIVE EFFECT OF POWER AND MOOD ON WILLINGNESS-TO-PAY**  
**FOR HEADPHONES**



**FIGURE 4 (EXPERIMENT 3)**  
**THE INTERACTIVE EFFECT OF POWER AND CONFIDENCE ON PREFERENCE**  
**FOR AFFECTIVELY SUPERIOR VERSUS COGNITIVELY SUPERIOR APARTMENT**



**FIGURE 5 (EXPERIMENT 4)**  
**THE INTERACTIVE EFFECT OF POWER AND SCOPE ON WILLINGNESS-TO-PAY**  
**FOR TRAVEL PACKAGES**



## SUMMARY OF EMPIRICAL RESULTS

| <b>EXPERIMENT 1A</b>                                                                                                                                                                                                                |                              |                             |                             |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------|----------------------------|
|                                                                                                                                                                                                                                     | High Power                   | Low Power                   | <i>p</i> values             |                            |
| <b>Relative preference for a cognitively (1) versus an affectively superior laptop (7)</b>                                                                                                                                          | 4.53                         | 3.56                        | <i>p</i> = .045             |                            |
| <b>EXPERIMENT 1B</b>                                                                                                                                                                                                                |                              |                             |                             |                            |
|                                                                                                                                                                                                                                     | High Power                   | Low Power                   | <i>p</i> values             |                            |
| <b>Relative preference for a cognitively (1) versus an affectively superior laptop (7)</b>                                                                                                                                          | 4.59                         | 3.58                        | <i>p</i> = .016             |                            |
| <b>EXPERIMENT 2</b>                                                                                                                                                                                                                 |                              |                             |                             |                            |
|                                                                                                                                                                                                                                     | High Power + Positive Mood   | High Power + Negative Mood  | Low Power + Positive Mood   | Low Power + Negative Mood  |
| <b>Willingness-to-pay (SG\$)</b>                                                                                                                                                                                                    | 57.31 <sup>a</sup>           | 42.24 <sup>b</sup>          | 48.67 <sup>b</sup>          | 47.45 <sup>b</sup>         |
| <i>Note.</i> The two-way interaction is significant. Planned comparisons within each power condition are performed, different superscripts indicate significant differences between the mood conditions, with <i>p</i> < .05.       |                              |                             |                             |                            |
| <b>EXPERIMENT 3</b>                                                                                                                                                                                                                 |                              |                             |                             |                            |
|                                                                                                                                                                                                                                     | High Confidence + High Power | High Confidence + Low Power | Low Confidence + High Power | Low Confidence + Low Power |
| <b>Relative preference for a cognitively (1) versus an affectively superior apartment (7)</b>                                                                                                                                       | 4.83 <sup>a</sup>            | 4.15 <sup>b</sup>           | 4.21 <sup>b</sup>           | 4.56 <sup>b</sup>          |
| <i>Note.</i> The two-way interaction is significant. Planned comparisons within each confidence condition are performed, different superscripts indicate significant differences between the power conditions, with <i>p</i> < .05. |                              |                             |                             |                            |
| <b>EXPERIMENT 4</b>                                                                                                                                                                                                                 |                              |                             |                             |                            |
|                                                                                                                                                                                                                                     | High Power + 4-spot          | High Power + 1-spot         | Low Power + 4-spot          | Low Power + 1-spot         |
| <b>Willingness-to-pay (US\$)</b>                                                                                                                                                                                                    | 140.86 <sup>a</sup>          | 130.97 <sup>a</sup>         | 211.15 <sup>b</sup>         | 101.67 <sup>a</sup>        |
| <i>Note.</i> The two-way interaction is significant. Planned comparisons within each power condition are performed, different superscripts indicate significant differences between the scope conditions, with <i>p</i> < .05.      |                              |                             |                             |                            |

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# Session 6

## 6.1 Charitable Giving: Roadblocks and How To Overcome Them Symposium

### 1. Justified Selfishness: Explaining Donation Decisions Reduces Donations

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### 2. When Does Public Recognition for Charitable Giving Backfire? The Role of the Independent Self

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### 3. Overcoming Overhead Aversion with Choice

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### 4. Name Similarity Encourages Generosity: A Field Experiment in Email Personalization

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## SYMPOSIUM PROPOSAL

Although giving enhances not only social welfare but also emotional well-being (Dunn, Aknin, & Norton, 2008; Harbaugh, Mayr, & Burghart, 2007), consumers are often conflicted about giving. While policy makers and non-profit organizations seek to persuade consumers to contribute more, their strategies often turn out to be ineffective or can even backfire by triggering consumers' skepticism. This session brings together four papers that examine the psychological roadblocks that prevent consumers from giving, and how to effectively reduce consumers' negative reactions and increase their support.

The first two papers in the session focus on previously unexplored roadblocks. Zwebner, Mislavsky, and Small uncover a new psychological barrier that might inhibit donation likelihood. Specifically, giving potential donors the option to explain a giving decision decreases donation likelihood. Interestingly, judges evaluate donors who provide donation reasons more positively,



indicating that people may use justifications to both behave selfishly yet appear moral.

Simpson, White and Laran document another novel roadblock: the desire to be perceived as independent. If donating publicly feels like a social pressure to donate, those with an independent self-construal are less likely to donate compared to donating privately. Across four studies the authors reveal a previously undocumented barrier to charitable giving and outline the conditions under which it is overcome.

The second and third papers propose solutions to known roadblocks. Keenan, Saccardo, and Gneezy focus on overcoming “overhead aversion,” where using donations to cover administrative expenses decreases donation (Gneezy, Keenan & Gneezy, 2014). The authors show that giving potential donors the choice of whether or not their donation can be used to cover overhead expenses effectively encourages higher donations.

Finally, Munz, Jung, and Alter uncover a novel way to promote donations. Overcoming privacy concerns, the authors show that matching a donor’s surname with the name of a beneficiary results in higher donations. These results were obtained in a large field experiment. Interestingly, merely sharing the first letter of surname is enough to increase donation, a finding that theoretically supports research on implicit egotism (Pelham, Carvallo & Jones, 2005).

Overall, all of these papers are at advanced stages, and employ a range of methods, from lab experiments to large field studies. Taken together, this symposium contributes to our understanding of the barriers to charitable giving. Audience members should gain a more nuanced understanding of the factors that affect charitable donations, and how manipulating these factors can affect actual donation likelihood and decisions.

The symposium will broadly appeal to theorists interested in moral decision making, and attract researchers who work in the substantive area of charitable giving. It contributes to a broad understanding of the conditions that may make it less likely for a consumer to donate, and how to overcome the associated psychological barriers.

## ABSTRACTS

### **Justified Selfishness: Explaining Donation Decisions Reduces Donations**

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#### *SHORT ABSTRACT*

Donation requests create conflict between behaving selfishly or altruistically. The current research examines how providing reasons for the decision to donate or not donate influences participants’ willingness-to-donate and others’ perceptions of their generosity. In four studies (Total  $N=2151$ ), we find that participants who have an opportunity to explain their decisions are less likely to donate than those who do not have this opportunity. However, these explanations improve the moral image of non-donors, regardless of whether the explanations are moral or selfish. This suggests that people successfully use justifications to both behave selfishly, yet appear moral.

#### *EXTENDED ABSTRACT*

A decision of whether to donate inherently involves a trade-off between self-interest and morality. Even if a person prefers to be selfish, there may be self-presentation benefits from giving that outweigh the monetary benefits of not giving. For example, people are typically more prosocial in public decisions than in private ones (Ariely, Bracha, & Meier, 2009) and are less generous when the causal link between their decision and the actual outcome is unclear (also known as the “wobble room”; Dana, Weber, & Kuang, 2007). In fact, this selfish-moral tension is so strong that people often prefer to avoid making direct trade-offs between self and other, if they can (Dana, Cain, & Dawes, 2006; Lin, Schaumberg, & Reich, 2016). However, some prosocial requests cannot be avoided. We propose that the opportunity to provide a reason for one’s choice tilts the balance toward not donating.

Across 4 studies with real choice, we find that fewer participants choose to donate money when they have the opportunity to explain their decisions. This occurs whether they can freely explain their decision or select an explanation out of several pre-determined reasons. Finally, explaining a self-interested decision increases the moral image of the decision-maker regardless of whether the explanation signals generosity (“I donated recently”) or self-interest (“I need the money”). Thus, giving prospective donors the opportunity to explain their decision reduces donations, because it allows individuals to behave selfishly while maintaining their moral image.

In Study 1 (MTurk;  $N=198$ ) participants had the opportunity to donate a portion of a \$0.25 bonus to charity (“Save the Children”). They read a description of the charity and were randomly assigned to one of two conditions (*explanation* vs. *control*). To account for deliberation effects, participants in both conditions were told to take time to think about their decision. However, in the *explanation* condition, participants were given an open-ended response box where they could explain their decision, while they did not have this option in the *control* condition. All participants then made their donation decision. Fewer participants donated in the *explanation* condition ( $M=44.3\%$ ,  $SD=.50$ ) than in the *control* condition ( $M=58.4\%$ ,  $SD=.50$ );  $\chi^2=3.93$ ,  $p=.047$ ).

We sought to replicate and extend this test to a different prosocial context in Study 2 (MTurk;  $N=789$ ). Participants were assigned to one of 4 conditions in a 2 (*explanation* vs. *no explanation*) x 2 (*charity* vs. *dictator game*) design. In the *dictator game* conditions, all participants were assigned to be “senders” and could give a portion of a \$0.25 bonus to a receiver. The *charity* condition and explanation manipulations were similar to those used in Study 1. Replicating our previous finding, the ability to explain a charity decision significantly decreased the percentage of participants who donated ( $M=44.04\%$ ,  $SD=.50$ ) compared to the no explanation condition ( $M=62.6\%$ ,  $SD=.49$ );  $\chi^2=13.57$ ,  $p<.001$ ). We find the same pattern in the dictator game context, where participants in the *explanation* condition were less likely to give ( $M=56.8\%$ ,  $SD=.50$ ) compared to those in the *no explanation* condition ( $M=66.33\%$ ,  $SD=.47$ );  $\chi^2=3.8$ ,  $p=.050$ ), suggesting this effect generalizes across decisions between self-interest and generosity.

In Study 3 (MTurk;  $N=776$ ), we further rule out the influence of deliberation and writing per se on this effect. We assigned participants to one of 4 conditions, all of which used the charitable giving context from Studies 1 and 2. Two of the conditions were similar to those used previously, where participants made a donation decision without providing an explanation (*control*) or with an open-ended explanation (*open explanation*). In a third condition (*closed explanation*), participants could choose one of nine explanations (developed from the reasons given by participants in the previous studies) that best describes their decision to donate or not to donate. Finally, participants in the *unrelated writing* condition were asked to write about an

unrelated topic before making their donation decision. Participants in the *control* condition were most likely to donate ( $M=64.5\%$ ,  $SD=.48$ ), although they were not significantly more likely to donate than those in the *unrelated writing* condition ( $M=61.4\%$ ,  $SD=.49$ ;  $p=.52$ ). However, participants in both the *open explanation* ( $M=52.1\%$ ,  $SD=.50$ ) and *closed explanation* ( $M=55.6\%$ ,  $SD=.50$ ) conditions were less likely to donate than those in the control condition,  $ps=.013$  and  $.069$ , respectively.

Study 4 (MTurk;  $N=388$ ) tests whether explaining selfish behavior indeed increases moral image. In this study, participants read about four other MTurk workers (counterbalanced within-subjects) who had the opportunity to donate any amount of their \$0.25 bonus to charity, and each made a different donation decision: One donated the entire \$0.25 bonus, one did not donate anything and did not give an explanation, one did not donate and gave a selfish reason (“I need the money”), and the last did not donate and gave a generous reason (“I already donated recently”). Participants then rated how moral each of these MTurkers are compared to the average person ( $1=Much\ less$  to  $7=Much\ more$ ) using four items (nice, altruistic, kind, and generous; adapted from Lin-Healy & Small, 2012; Cronbach  $\alpha$ 's  $>.88$ ). Unsurprisingly, participants rated workers who donated the entire bonus as the most moral ( $M=5.37$ ,  $SD=1.06$ , all  $ps$  vs. non-donors  $<.001$ ). However, participants that gave either a self-interested ( $M=3.55$ ,  $SD=.85$ ) or generous ( $M=3.90$ ,  $SD=.96$ ) reason were both rated as more moral than those who gave no reason ( $M=3.29$ ,  $SD=.93$ ),  $ps<.001$  (giving a generous reason were rated as more moral than giving a selfish reason,  $p<.001$ ). These results suggest that indeed by explaining a self-interest decision, individuals can act selfishly but appear moral.

To summarize, we find that explaining a decision enables people to behave selfishly while signaling morality. Specifically, giving prospective donors an opportunity to explain their choice reliably reduced donations. Further, our results support the notion that adding an explanation to a self-interested decision improves moral image. Understanding whether and how enabling people to explain their prosocial behavior influences their choices could benefit charities as well as prospective donors.

## **When Does Public Recognition for Charitable Giving Backfire?**

### **The Role of the Independent Self**

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#### *SHORT ABSTRACT*

Across four studies, we find that the effectiveness of public recognition in encouraging charitable giving depends on whether potential donors are currently under an independent (i.e., separate from others) or interdependent (i.e., connected with others) self-construal. An independent self-construal decreases donation likelihood and donation amount when the donation will receive public recognition compared to when the donation will remain private. This effect is driven by the activation of an agentic orientation, wherein independents are motivated to make decisions that are not influenced by the opinions and expectations others. The theoretical and practical implications will be discussed.

#### *EXTENDED ABSTRACT*

Charitable organizations and researchers alike are increasingly focused on making more effective donation appeals (Kristofferson et al. 2014; Winterich and Zhang 2014). One commonly used strategy is to provide public recognition for donations, often through making consumers' prosocial actions observable by others. Indeed, the literature suggests that people are more likely to donate, and donate more, when given public recognition (Harbaugh 1998; Karlan and McConnell 2014). The current research demonstrates a moderator of this public recognition effect, whether an independent (the self is viewed as independent of others), or interdependent (interconnected with others) self-construal (Markus and Kitayama 1991) is activated. While research has been mixed regarding whether an interdependent (vs. independent) self-construal leads to more charitable behavior (Burton et al. 2012; Duclos and Barasch 2014; Kemmelmeier et al. 2006), importantly, no previous work has examined the interplay between self-construal and public recognition. Across four studies, we find that those with an independent self-construal donate less when their donation is public (vs. private), while those with an interdependent self-construal do not show this tendency.

Research suggests that an independent self-construal leads to a focus on personal goals (Gardner et al. 1999) in ways motivated by self-interest (Lalwani and Shavitt 2009). We thus posit that those with an active independent self-construal are driven by an agentic orientation, experienced as a) wanting to be free to make one's own choices without being influenced by others' opinions and expectations, and b) acting in one's own self-interest. Inherent in a public charitable donation setting is the fact that others believe that the donor thought the act would be public, thus donating may signal that the individual conformed to social pressure and expectations, rather than relying on internal needs and goals (Ratner and Miller 1998). While previous work shows conditions under which public recognition can enhance (Ariely et al. 2009) or decrease (Kristofferson et al. 2014) charitable giving because of the desire to convey a positive image, we demonstrate when public recognition may lead to less giving because of the motivation to remain agentic and to avoid being unduly influenced by others.

**Study 1** is a field experiment that manipulates self-construal within a charitable appeal for a veteran poppy campaign (using "I" and "we" statements; White and Simpson 2013) and varies setting by displaying donor names in public (or not). Independents were less willing to donate (yes/no), and donated less (amount), in public versus private (complete results in Table 1). Interdependents did not significantly differ based on whether the setting was public or private.

**Study 2** measured self-construal (Singelis, 1994), and demonstrates that only those who are more independent donate less when their contribution will be publicly recognized on a website than when it is private. The dependent variable is the percentage of a bonus payment participants donate to the ASPCA. Further, it demonstrates the mediating role of agentic motives (four items; Chen et al. 2015) for independents, but not interdependents, and finally, rules out the influence of power distance (Han et al. 2017).

In **study 3** we manipulate self-construal, manipulate agentic motive satiation, and demonstrate that one's perception of agency in the donation situation mediates the effect. All participants are primed with independent self-construal (Brewer and Gardner 1996) and were told that their responses would be private or would be made public to others (White and Peloza 2009). Participants then viewed a charitable appeal and indicated what amount of a potential \$20 draw prize they would donate to the United Way. The agentic control condition independents donated less in public than in private, however when the agentic motive had been satiated (they read: "We know this decision will not represent the influence of others, you are doing what you

choose to do”) the effect was mitigated. In support of mediation, the pathway from setting to donations through perceptions of agency (“The donation situation made me feel like I was being told to do what I wanted, not what others wanted”) was significant in the agentic control condition only.

While studies 2 and 3 demonstrated the effect of freely making one’s choices, **study 4** provides further moderation-by-process evidence for agency by manipulating the salience of self-benefits. Participants were primed with self-construal (independent vs. interdependent; Brewer and Gardner 1996). Setting (public vs. private) was manipulated as in study 3. Participants viewed a charitable appeal for United Way, and prior to indicating how much of a potential bonus prize they would donate, self-benefit was manipulated with the statement “Recent analysis of donation data and people’s perceptions indicates that donations that are made public (others end up knowing about it) are the ones that benefit the donor the most in terms of what they end up getting back for it” (versus a control condition, no statement). In the control benefit condition independents donated less in public than in private, while interdependents did not. In the self-benefit condition however, there was only a main effect of setting wherein participants donated more in public than in private.

With four studies, this research further delineates the impact of public recognition on charitable giving, demonstrating that it can sometimes be a detriment. While our studies found a dependable pattern of higher donation amounts for interdependents in public versus private, the effect was not significant. To examine this further we pooled t-values (Winer 1971; White et al. 2014) to conduct a meta-analysis of the effect across all studies where interdependent construal was included. Considering the data collectively, the interdependent effect was significant ( $z = 2.33$ ;  $p = .01$ ). Thus, our data support the existing notion in public recognition literature that the strategy can be effective, showing that this tends to be the case for those with an interdependent self-construal, but also provides new insight into when it may not be effective. Our framework applies an agency perspective to demonstrate that individuals may not always be motivated to present the image of a moral citizen. In fact, for consumers who are more independent, asserting that they are not influenced by others’ can become paramount.

**TABLE 1: SUMMARY OF RESULTS**

| Study | Design                                                                                                                                           | Sample                                                                                                         | Main findings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1    | 2 Self-construal (primed independent vs. interdependent) x 2 (public vs. private) between-subjects experiment                                    | N = 119 field experiment in business school lobby                                                              | <p><i>Willingness to Donate.</i> Only the interaction of self-construal and setting was significant (Wald = 4.55; <math>\beta = -1.66</math>, <math>p = .03</math>). Independents were marginally less likely to donate when the setting was public (27.3%) than private (48.5%; <math>p = .06</math>), while interdependents did not differ based on setting (public 61.9%; private 43.8%; <math>p = .16</math>).</p> <p><i>Donation Amount.</i> Only a marginally significant interaction between self-construal and setting emerged (<math>F(115) = 3.39</math>, <math>p = .07</math>). Independents donated directionally less when the setting was public (<math>M = .75</math>, <math>SD = 1.53</math>) than when it was private (<math>M = 1.32</math>, <math>SD = 1.74</math>; <math>F(115) = 2.64</math>, <math>p = .10</math>), while interdependents did not (public <math>M = 1.50</math>, <math>SD = 1.91</math>; private <math>M = 1.18</math>, <math>SD = 1.91</math>; <math>F(115) = 1.05</math>, <math>p = .31</math>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| #2    | Continuous self-construal) x 2 (public vs. private) between-subjects experiment                                                                  | N = 163 adults recruited via MTurk Academic (44% female, $M_{age} = 33.88$ ; $SD = 9.89$ )                     | <p><i>Donations.</i> Only a marginal interaction between self-construal and setting emerged (<math>\beta = -.01</math>, <math>p = .075</math>). For independents (1 SD above the mean) a public setting led to lower donation amounts (<math>B_{JN} = -.38</math>, <math>SE = .16</math>, <math>p = .02</math>), for interdependents there was no effect of setting (1 SD below the mean <math>B_{JN} = .04</math>, <math>SE = .16</math>, <math>p = .81</math>).</p> <p><i>Mediation.</i> Using model 7 (Hayes 2013), the interaction of self-construal and setting predicted agency (<math>p = .04</math>) and agency predicted donations (<math>p &lt; .01</math>). The pathway from setting to donations through agentic motives did not include zero for independents (CI: <math>-.32</math> to <math>-0.05</math>) but did for interdependents (CI: <math>-0.14</math> to <math>0.03</math>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| #3    | Independent x 2 (Setting: public vs. private) x 2 (agentic motive: control vs. satiation) between-subjects experiment                            | N=391 undergraduates (44% female; mean age = 19.71, $SD=1.88$ ) who participated in exchange for course credit | <p><i>Donations.</i> A main effect of setting (<math>F(1, 387) = 6.89</math>, <math>p = .01</math>) was qualified by an interaction between agentic motive and setting (<math>F(1, 387) = 5.63</math>, <math>p = .02</math>). In the control condition, people donated less when the setting was public (<math>M = \\$8.22</math>, <math>SD = 6.84</math>) than when it was private (<math>M = \\$11.79</math>, <math>SD = 7.30</math>; <math>F(1, 387) = 12.71</math>, <math>p &lt; .001</math>). In the agentic motive satiation condition, people donated similar amounts when the setting was public (<math>M = \\$10.61</math>, <math>SD = 6.72</math>) and private (<math>M = \\$10.79</math>, <math>SD = 7.31</math>; <math>F(1, 387) = .03</math>, <math>p = .86</math>). As predicted, when the donation was public, people donated more in the agentic motive satiation condition than in the control condition (<math>F(1, 387) = 5.38</math>, <math>p = .02</math>). There was not an effect when the donation was private (<math>p = .31</math>).</p> <p><i>Mediation.</i> Using model 7 (Hayes 2013), the interaction of agentic motive and setting predicted perception of agency (<math>p &lt; .01</math>) and perception of agency predicted donations (<math>p &lt; .001</math>). The pathway from setting to donations through perception of agency did not include zero in the control agentic motive condition (CI: <math>-2.12</math> to <math>-0.46</math>), but did in the agentic motive satiation condition (CI: <math>-0.95</math> to <math>0.70</math>).</p> |
| #4    | 2 (self-construal: independent vs. interdependent) x 2 (setting: public vs. private) x 2 (benefit: control vs. self) between-subjects experiment | N=342 undergraduates (55% female; mean age = 19.88, $SD=1.78$ ) who participated in exchange for course credit | <p><i>Donations.</i> A 3-way interaction of benefit, self-construal, and setting emerged (<math>F(1, 334) = 4.49</math>, <math>p = .03</math>). In the control benefit condition, there was an interaction between self-construal and setting (<math>F(1, 175) = 4.97</math>, <math>p = .03</math>). Independents donated less when the donation was public (<math>M = \\$7.02</math>, <math>SD = 6.64</math>) versus private (<math>M = \\$9.44</math>, <math>SD = 6.76</math>; <math>F(1,334) = 5.51</math>, <math>p = .02</math>). Interdependents donated similar amounts when the donation was public (<math>M = \\$8.28</math>, <math>SD = 7.73</math>) versus private (<math>M = \\$6.46</math>, <math>SD = 6.23</math>; <math>F(1,334) = 1.32</math>, <math>p = .25</math>). In the self-benefit condition, however, there was not an interaction (<math>F(1, 159) = .53</math>, <math>p = .47</math>), but only a main effect of setting (<math>F(1, 159) = 17.28</math>, <math>p &lt; .01</math>). People donated more when the donation was public (<math>M = \\$11.07</math>, <math>SD = 6.82</math>) than when it was private (<math>M = \\$7.04</math>, <math>SD = 6.34</math>; <math>F(1,334) = 15.46</math>, <math>p &lt; .001</math>).</p>                                                                                                                                                                                                                                                                                                                              |

## **Overcoming Overhead Aversion with Choice**

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### *SHORT ABSTRACT*

Building on recent work on overhead aversion, we test whether offering donors the *choice* to support overhead is an effective tool for overcoming donors' aversion to overhead. Results suggest that offering choice may be one way to increase the likelihood that donors, who are deterred by overhead expenses, will give and how much they give. Donors are more likely to give, feel impactful, and give more if they can choose how to allocate their donation.

### *EXTENDED ABSTRACT*

Individuals are averse to overhead such that donations decrease as overhead increases, though only when donors' personal contributions are used to cover overhead (Gneezy, Keenan, & Gneezy, 2014). Gneezy et al. (2014) suggest donors are motivated to give based on the impact they feel when they know they are helping the cause directly. As a result, informing donors that an initial large donation has been used to cover overhead costs, making their potential donation "overhead-free", significantly increases giving compared to traditional fundraising techniques. While effective, the "overhead-free" approach simply bypasses individuals' reluctance to donate due to overhead-related concerns rather than targeting the aversion itself.

The current research aims to explore ways to overcome overhead aversion while simultaneously conveying the message that allocating money to overhead is important. Making donations overhead-free attracts a substantially higher fraction of donors compared to a standard solicitation as well as other traditional fundraising techniques (2014). This suggests that in addition to donors that choose to donate despite overhead, there are donors that would donate in the absence of overhead or would donate if they had the option to direct their entire donation to cause specific programming rather than overhead. In this project, we test whether offering donors the *choice* to support overhead is an effective tool for overcoming donors' aversion to overhead and ultimately increasing donations.

We posit that offering donors the choice of whether and how to allocate a donation to overhead would be successful for three reasons. First, offering donors the choice to allocate money to overhead allows the option of making the donation overhead-free, thereby attracting donors who are particularly averse to overhead expenses. Second, offering choice will likely capture a subset of individuals who are conscious about the importance of overhead, but have preferences as to the relative magnitude of this type of expenditure. These donors may opt to allocate at least a portion of their donation to overhead, making this strategy overall more successful than the less sustainable strategy of making the donation overhead-free. Third, similar to other consumer contexts where choice has been observed to increase intrinsic motivation, perceived control, and satisfaction (Deci, 1975; Deci & Ryan, 1985), giving donors agency could generally increase donations (see Eckel, Herberich & Meer, 2016).

In Experiment 1 we investigated individuals' beliefs regarding the likelihood that the average donor would donate and how impactful donors would feel if they could choose whether and how to allocate a donation to overhead. In an incentive compatible, within-subjects design participants ( $N=56$ ) read three scenarios regarding an opportunity to donate to the Make-a-Wish Foundation (MAW) in which a) the donation's overhead allocation was fixed (i.e., Control), b) the

donation was overhead free (i.e., OH Free), and c) the donor could choose how much of their donation to allocate to overhead (i.e., Choice). Participants were then asked (1) how likely they thought the average individual would be to donate to the MAW and (2) how impactful they thought the average individual would feel if they decided to make a donation, using 5-pt scales for each. We incentivized participants to report beliefs about how an average donor would behave by paying them a bonus if their responses matched the responses given by the majority of other participants in the study.

Results show participants believed donors would be significantly more likely to give in the OH Free ( $M=4.35$ ) and Choice ( $M=4.16$ ) conditions compared to the Control ( $M=3.66$ ; both  $p<.001$ ). The difference between OH Free and Choice was also significant,  $p=.04$ . Likewise, participants believed donors would feel more impactful in the OH Free and Choice conditions compared to the Control (both  $p<.001$ ).

In Experiment 2 we explored the effect of offering potential donors the choice of how to allocate their donation to a hypothetical charity. This was a 2x2 between-subjects design in which we manipulated overhead level (low OH-5%, high OH-55%) as well as the opportunity for participants to choose how much of their donation they would like to put toward overhead expenses (no option, option) vs. programmatic expenses. Participants ( $N=401$ ) were randomly assigned to read one of four different donation solicitations from Fight Hunger, a hypothetical hunger charity. Participants were then asked if they would donate, (if yes) how much they would donate, and (if in the option conditions) the percentage of their donation that they chose to be used to cover overhead.

Among those that choose to donate, we find main effects of choice—participants donated more on average if they could choose their overhead level ( $M_{choice}=24.11$  vs.  $M_{nochoice}=16.89$ ,  $p=.04$ ), and if we break down the amount raised by type of expense, overhead vs. programmatic, more money was allocated to programmatic expenses with choice ( $M_{choice}=17.47$  vs.  $M_{nochoice}=11.76$ ,  $p=.05$ ). Importantly, allowing choice did not negatively impact how much was raised for overhead. There was no difference, for instance, in the amount raised for overhead between the high OH, no choice and high OH, choice conditions.

In Experiment 3, we tested the effect of choice using a consequential design in which participants worked on a bonus task and had a real opportunity to donate \$3 of their \$10 earnings to MAW. All participants ( $N=916$ ) were randomly assigned to one of three conditions, similar to Experiment 1 – Control, OH Free, and Choice. Among those that passed a manipulation check, we find a marginal effect of Choice donation likelihood. Participants were more likely to donate \$3 in the Choice (62%) than in the Control condition (54%;  $p=.08$ ). There were no differences between OH Free (61%) and Choice or Control ( $p$ 's=.82 and .14, respectively). The average allocated to overhead in the Choice condition was 20% compared to MAW's actual overhead of 21%.

The results of these three experiments suggest that offering choice may be one way to increase the likelihood that donors, who are deterred by OH expenses, will give and how much they give. We aim to bring this intervention to the field to test choice with real donors.



## **Name Similarity Encourages Generosity: A Field Experiment in Email Personalization**

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### *SHORT ABSTRACT*

In a randomized field experiment with DonorsChoose.org ( $N = 30,297$ ), potential donors who shared a surname with a teacher were more likely to open, click, donate, and donated more to the teacher's classroom in response to an email request. We highlight how overtly personalizing an email to highlight a recipient's identity can be effective to persuade them to donate to charity. Controlling for ethnicity, we also find that different-surname donors were more generous when they shared a surname first-letter with a requesting teacher.

### *EXTENDED ABSTRACT*

Similarity between donors and recipients generally encourages charitable giving (Galak, Small, & Stephen, 2011; Small & Simonsohn, 2008). However, less is known about how *overtly* personalizing a marketing appeal could affect donors. Such an attempt may backfire. For example, in one study on corporate email marketing, name-personalizing an email greeting led to lower response (Wattal, Telang, Mukhopadhyay, & Boatwright, 2012), presumably because consumers felt their privacy had been violated (Awad & Krishnan, 2006).

To test whether potential donors are more generous when overtly paired with recipients based on matching surnames, we partnered with DonorsChoose.org, an online charitable giving platform connecting primary and secondary schoolteachers requesting funding for classroom projects with potential donors who can browse and donate any amount to a project of their choosing. DonorsChoose periodically emails potential donors, and in a large field experiment ( $N=30,297$ ) we sent an email request for a donation to aid either a teacher with the same surname as the donor or a teacher whose name did not match. The pre-registration of this study can be found at <https://aspredicted.org/5xp2f.pdf>.

We advance the literature in three ways. First, we provide a high-powered field experiment testing the hypothesis that people are more generous to similar others. Second, we test whether overt personalization backfires or eliminates the positive response generated by similarity, which may happen due to privacy concerns or because past name-matching research has suggested generosity depends on the coincidence of someone sharing a name with the person asking for help (Burger, Messian, Patel, del Prado, & Anderson, 2004). In contrast, we test if name-matching can lead to generosity when an organization is deliberately and transparently using a third-party match to garner support.

Finally, we provide an ecologically valid test of "implicit egotism" (Pelham, Carvallo, & Jones, 2005), the view that people unconsciously prefer self-relevant stimuli, such as the letters of their name (Nuttin, 1985). Implicit egotism findings in real-world settings such as charitable giving (Chandler, Griffin, & Sorensen, 2008) are controversial because the evidence nearly always rests on secondary data, and thus may not be properly interpreted as causal. For instance, findings have been challenged on grounds of reverse causality (Simonsohn, 2011a, 2011b), inadequate controls for third-variable explanations (Simonsohn, 2011a), and cherry-picking letters or data sets to test (McCullough & McWilliams, 2010, 2011; Simonsohn, 2011a). Our field experiment helps address these challenges.

DonorsChoose provided us with a large list of potential donors who shared a surname with a teacher requesting funds. From this list we implemented a two-group yoked design. Each teacher appeared exactly once in *each* condition. Thus the teachers (used as stimuli) were the same in each condition. Each teacher was associated with two potential donors who shared a surname with the teacher, and these donors were our participants. One of the two donors was randomly assigned to a name-match condition and the other to a name-mismatch (control) condition.

Donors received an email including the teacher's name in the subject line. The email asked donors to support a project led by the subject teacher, who shared a surname with the donor in the match condition but did not share a name in the name-mismatch condition. Donors in this latter condition saw information about a random teacher in our stimulus set whose name was not their own. We measured the count who opened the email, clicked on the link, and donated, and the donation amount.

Our results are presented in Table 2. Name-matching proved beneficial on all dependent measures. Name-matched donors were more likely to open the email (35.1% vs. 27.6%),  $\chi^2=197.3$ ,  $p<.001$ , click on a link in the email (6.9% vs. 4.6%),  $\chi^2=70.2$ ,  $p<.001$ , and make a donation (0.2% vs. 0.1%),  $\chi^2= 8.4$ ,  $p=.004$ . They also donated more ( $M = \$0.20$ ,  $SD = \$7.98$  vs.  $M = \$0.09$ ,  $SD = \$5.46$ ),  $Z = 2.90$ ,  $p = .004$ .

However, surnames may convey information about ethnicity. Therefore, people may have been favoring their ethnic group rather than their name. We attempted to control for this possibility in several ways. The DonorsChoose data do not contain ethnicity information, so we inferred ethnicity from surname by appending data from the 2000 US census, which provides the percentage likelihood that each surname belongs to a particular ethnicity. The "ethnicity match" column of Table 2 contains data only for donors who match on most likely ethnicity with the teacher in the email. Next, we analyzed the data with only yoked-pairs. That is, if a teacher and a donor did not match on most likely ethnicity in the name-mismatch condition, we also removed the donor associated with that teacher from the name-match condition ("Yoked Ethnicity Match," Table 2). Finally, we calculated the Euclidean distance to assess how dissimilar (far apart) two surnames are using all ethnicity data (vs. only the most likely one) and selected only those closest matching ("25<sup>th</sup> Percentile Euclidean Distance," Table 2). The results are robust to these controls for ethnicity.

Table 2  
Main Results

| Measure                                       | Robustness Checks  |                      |                    |                     |                       |                     |                                                |                    |
|-----------------------------------------------|--------------------|----------------------|--------------------|---------------------|-----------------------|---------------------|------------------------------------------------|--------------------|
|                                               | No Controls        |                      | Ethnicity Match    |                     | Yoked Ethnicity Match |                     | 25 <sup>th</sup> Percentile Euclidean Distance |                    |
|                                               | Control            | Name Match           | Control            | Name Match          | Control               | Name Match          | Control                                        | Name Match         |
| <i>n</i>                                      | 15,142             | 15,155               | 11,784             | 15,130              | 11,629                | 11,629              | 3,785                                          | 15,155             |
| Count Opened (%)                              | 4177<br>(27.6%)    | 5315***<br>(35.1%)   | 3271<br>(27.8%)    | 5307***<br>(35.1%)  | 3214<br>(27.6%)       | 4102***<br>(35.3%)  | 1033<br>(27.3%)                                | 5315***<br>(35.1%) |
| Count Clicked Link (%)                        | 700<br>(4.6%)      | 1040***<br>(6.9%)    | 574<br>(4.9%)      | 1038***<br>(6.9%)   | 562<br>(4.8%)         | 814***<br>(7.0%)    | 189<br>(5.0%)                                  | 1040***<br>(6.9%)  |
| Count Clicked Link Conditional on Opening (%) | 700<br>(16.8%)     | 1040***<br>(19.6%)   | 574<br>(17.5%)     | 1038*<br>(19.6%)    | 562<br>(17.5%)        | 814*<br>(19.8%)     | 189<br>(18.3%)                                 | 1044<br>(19.6%)    |
| Count Made Donation (%)                       | 12<br>(0.1%)       | 31**<br>(0.2%)       | 10<br>(0.1%)       | 31*<br>(0.2%)       | 10<br>(0.1%)          | 25*<br>(0.2%)       | 1<br>(0.0%)                                    | 31*<br>(0.2%)      |
| Mean Donation Amount ( <i>SD</i> )            | \$0.09<br>(\$5.46) | \$0.20**<br>(\$7.98) | \$0.11<br>(\$5.46) | \$0.20*<br>(\$7.89) | \$0.11<br>(\$6.21)    | \$0.19*<br>(\$7.78) | \$.01<br>(\$0.81)                              | \$.20*<br>(\$7.98) |

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . Comparison  $p$ -values for counts are computed with Chi-square tests. The mean donation amount is reported untransformed and the  $p$ -value for this test is from a Mann-Whitney U due to a violation of homogeneity of variance.

To test for implicit egotism, within the name-mismatch condition we also checked for name letter effects (Nuttin, 1985). By chance, 751 donor surnames in the name-mismatch condition shared a first letter with the teacher after selecting for ethnicity matching. As presented in Table 3, the results provide consistent directional evidence for small name letter effects on all variables and a significant difference on opening the email. By testing for name-letter effects in a randomized field experiment and controlling for ethnicity matching, we provide the most unbiased test of implicit egotism in the field to date.

In a large field experiment, we show that people are more likely to give and give more when they are giving to someone with an identical surname. This effect holds even after controlling for ethnicity, suggesting that the effect is not entirely driven by people wanting to support their own ethnic in-groups. Furthermore, our finding suggests that overt personalization can increase consumers' engagement with marketing communications and their support for charitable causes.

Table 3  
*Name Letter Effects Among Name-Mismatch Participants*

|                                                  | Count Opened<br>Email | Count Clicked<br>Link | Count Made<br>Donation | Mean Donation<br>Amount ( <i>SD</i> ) |
|--------------------------------------------------|-----------------------|-----------------------|------------------------|---------------------------------------|
| Non First Letter<br>Match<br>( <i>n</i> = 11033) | 3036 (27.5%)          | 531 (4.8 %)           | 8 (0.1%)               | \$0.09 (\$5.77)                       |
| First Letter Match<br>( <i>n</i> = 751)          | 235 (31.3%)           | 43 (5.7%)             | 2 (0.3%)               | \$0.41 (\$10.34)                      |
|                                                  | <i>p</i> = .025       | <i>p</i> = .261       | <i>p</i> = .078        | <i>p</i> = .078                       |
|                                                  | <i>d</i> = .041       | <i>d</i> = .021       | <i>d</i> = .033        | <i>d</i> = .075                       |

Includes only those who match on most-likely ethnicity. Comparison *p*-values for counts are computed with Chi-square tests. The mean donation amount is reported untransformed and the *p*-value for this test is from a Mann-Whitney U. Effect size is reported as Cohen's *d*.

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## 6.2 Social Interaction, v2.0: How Digitally-Mediated Social Interactions Affect Consumer Perceptions, Connections, and Recollections Symposium

### Paper #1: How Broadcasting versus Narrowcasting on Social Media Affects Consumer Memory

Li Huang, Hofstra University, USA

Frank Zheng, University of Texas at Austin, USA

Adrian Ward, University of Texas at Austin, USA

### Paper #2: When Recommendations Go Wrong: The Impact of Egocentrism and Negative Feedback on Word of Mouth.

Virginia Weber, University of Alberta, Canada

Jennifer Argo, University of Alberta, Canada

Sarah Moore, University of Alberta, Canada

### Paper #3: Divided or Connected? Second Screen Use and the Television Viewing Experience

Emily Powell, New York University, USA

Alixandra Barasch, New York University, USA

### Paper #4: Tell Me Who You Follow, and I'll Tell You Who You Are: Unexplored Antecedents and Consequences of Status Perceptions on Social Media

Francesca Valsesia, University of Southern California, USA

Davide Proserpio, University of Southern California, USA

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The Internet, smartphones, and social media allow modern consumers to interact with each other almost constantly. They can share their thoughts and experiences any time, from anywhere—and they can receive feedback on these thoughts and experiences, often in real time. In other words, consumers engage not just in socially-relevant actions, but also in social *interactions*. Research in consumer behavior has yielded a rich literature on consumer social interactions in the offline world (Dahl 2013). Until recently, however, much less attention has been paid to consumer social interactions in the digital world. Research on this topic has primarily focused on the antecedents and contents of social sharing—i.e., *why consumers share* (Berger 2014) and *what consumers share* (Berger and Milkman 2012). Insights into how social media interactions influence consumers are still lacking. In this session, we aim to fill this gap by exploring **how interacting with others on social media influences the experiences and perceptions of users**. Four papers in this symposium examine the cognitive, evaluative and behavioral consequences of interacting with other audience members on social media, and the moderating role of audience factors (size, type, response, etc.).

Using lab and field experiments as well as secondary data, a total of 14 studies from the four papers address the following three questions related to consumer behavior: 1) Compared with offline social interactions, what is unique to online social interactions via social media? 2) How do these various types of social interactions on social media influence consumers? 3) What

factors moderate the influence of these online social interactions? Together, the four papers aim to provide a fresh perspective on consumer social interaction in the digital world.

The first two papers in the session focus on social sharing and its effect on sharers' cognition and behavior. **Huang, Zheng and Ward** explore how sharing consumption experiences with social media audiences affects sharers' memories of their experiences. In contrast to the conventional belief that sharing facilitates rehearsal, thus enhancing memory, they find that sharing consumption experiences attenuates memory of those experiences because of outsourcing memory to the audience. This effect is more likely to occur when sharing with a small (versus large) audience. Following the investigation of how sharing on social media affects memory, **Weber, Argo and Moore** go one step further by investigating the "feedback loop" in social sharing—how audience feedback influences sharers. They find that consumers learn from negative feedback from their audience, which decreases their likelihood of engaging in subsequent word of mouth. This effect is moderated by whether the sharer is egocentric or not.

The second two papers investigate novel types of social interactions enabled by social media. **Powell and Barasch** explore the effect of simultaneous social media communication when watching television shows (i.e., second screen use). Although previous research suggests that second screen use might undermine enjoyment through distraction, they find that using a second screen during a viewing experience can actually enhance consumers' enjoyment and likelihood of watching the show again, an effect driven by increased feelings of social connection. The final paper in this session demonstrates the subtlety of online social interactions by exploring one of the cues that influence impression formation on social media. Specifically, **Valsesia, Proserpio and Nunes** examine how the choice to follow other users on social media can influence how individuals are perceived by others. They find that the number of individuals a social media user chooses to listen to (*Following*) is a strong determinant of the user's perceived status. This, in turn, influences how others react to the content this person chooses to share.

Together, the four papers in this symposium identify and explore several types of social interactions via social media, showing that they can have a profound influence on consumer cognition, attitudes, and behavior. We expect the session to attract a wide audience of SCP attendees, with interests in social media, social interaction, consumer experience, and memory.

## SHORT ABSTRACTS

### **How Broadcasting versus Narrowcasting on Social Media Affects Consumer Memory**

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How do audiences impact the memories shared on social media? We find that sharing with a small group attenuates sharer's memories to a greater extent than sharing with a large group. This advantage is due to outsourcing memories to identifiable audiences and is diminished by enhancing the perceived heterogeneity of large group or decreasing the identifiability of small group.

### **When Recommendations Go Wrong: The Impact of Egocentrism and Negative Feedback on Word of Mouth**

Virginia Weber, University of Alberta, Canada



Jennifer Argo, University of Alberta, Canada  
Sarah Moore, University of Alberta, Canada

This research examines what happens when a consumer makes a recommendation (e.g., for a movie or a song) to another person and receives feedback on this recommendation. In particular, we examine how the recommender is affected when the other person likes or dislikes the experience. We predict and find that consumers learn from negative feedback and decrease their likelihood of engaging in subsequent word of mouth. Moreover, we find that this effect is moderated by whether the recommender is egocentric when making the recommendation.

### **Divided or Connected? Second Screen Use and the Television Viewing Experience**

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We examine the effect of second screen usage on viewers' evaluations of television shows and other experiences. We show that using a second screen during a viewing experience can increase enjoyment and likelihood to watch the show again, and that this is caused by an increased feeling of social connection. Across studies we find that second screens provide a means of connecting with other viewers, and that this operates above and beyond group differences and distraction.

### **Tell Me Who You Follow, and I'll Tell You Who You Are: Unexplored Antecedents and Consequences of Status Perceptions on Social Media**

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On social media platforms such as Twitter and Instagram, the number of users one is able to influence (*Followers*) is considered a proxy of the user's status in the social network. This research takes a novel perspective and investigates whether the number of influencers one is exposed can also signal status. Using a combination of lab experiments and real world data, we find the number of individuals a social media user chooses to listen to (*Following*) is a strong determinant of the user's perceived status. This, in turn, influences how others react to the content shared by the user.

## **EXTENDEND ABSTRACTS**

### **How Broadcasting versus Narrowcasting on Social Media Affects Consumer Memory**

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Due to its connecting nature, social media allow people to either share with a small audience (narrowcasting) or a large audience (broadcasting). Past research has only investigated how the audience shape what people share (Barasch and Berger 2014). Little is known about how the perceptions of audience impact the way the shared consumption experience are

remembered. We address this gap and propose that social media can impact memories shared; perceiving the audience size as small (large) will be more (less) likely to facilitate memory outsourcing and lead to memory attenuation.

Transactive memory systems (TMS) literatures suggest that close in-group members share responsibilities for remembering to enhance cognitive efficiency (Wegner 1987). Recent research revealed that social sharing may lead to memory decay if people outsource their meaningful memories to the close partners rather than strangers because people perceive close others as TMS partners (Huang and Rajagopal 2017). Similarly, we expect that sharing on social media can lead to memory decay while the effect should be influenced by audience size. Connections among group members are tighter when the group size is smaller. As the group size increases, connections and relationships become more superficial (Cooley 2015), thus leading to less coordination, an important indicator of memory outsourcing. Palazolo et al. (2006) found that smaller networks has greater TMS accuracy. These results suggest that in social sharing context, memory outsourcing should be more likely to occur in a small rather than a large group.

Study 1 tested the basic effect that sharing experience on social media can decrease memory. 140 Mturkers participated a one cell sharing 3 (writing and sharing on social media vs writing only vs. no sharing) between subject study. They were exposed to a travel scenario about a one-day tour to Hong Kong. After encoding the same experience, they were randomly assigned to writing down this travel experience in details and share it on Facebook vs. writing it in details for self vs. control (describing a book recently read). After the filler tasks, their memories were tested by free recall of travel experience. Consistent with predictions, participants remembered less details when they shared their experiences on social media as compared to no sharing ( $F(1,138)=4.45, p < .05$ ;  $M_{\text{socialmedia}} = 5.53, M_{\text{no sharing}} = 6.81$ ). Interestingly, writing it without sharing seems no difference from no-sharing ( $M_{\text{writing}} = 6.03, M_{\text{no sharing}} = 6.81$ ;  $F(1,138)=1.39, p > .24$ ), suggesting that sharing action is critical for memory outsourcing.

Study 2 examined that the memory decay will be stronger when the audience size is small than large. 95 Mturkers participated a one-cell audience size 2 (small vs. large) between-subjects study. After encoding the travel experience, they shared the entire experience on their own Facebook. Then they were randomly assigned to different audience size (small vs. large) manipulation similar to Hamilton, Ratner, and Thompson (2011). The dependent variables: free recall of the experience and perceived memory saved were measured before the demographics.

We found a marginally significant difference on correct recall ( $M_{\text{large}} = 6.06, M_{\text{small}} = 5.04, F(1,93) = 3.39, p < .07$ ), confirming that participants recalled less correct details of travel experience after sharing it on Facebook when they perceived their audience size is small as compared to large. Interestingly, the perceived memory saved results showed the opposite ( $M_{\text{large}} = 4.53, M_{\text{small}} = 5.09, F(1,93) = 2.98, p < .06$ ), implying that participants believed the small group is a safer memory storage than the large group. Study 2 supported our notion that sharing memory on social media would result in memory decay (enhancement) when shared with a small (vs large) group of audience.

Study 3 investigated the moderating effect of audience heterogeneity. Since the memory outsourcing was impaired by the large audience size due to the difficulty in identifying “who knows what”, it should restore when enhancing the heterogeneity of the large group because it makes easier to identify the TMS partners. Moreover, heterogeneous group are perceived as more mindful than homogenous group (Morewedge et.al 2013) and thus a safer memory repository.

94 undergraduate students participated a 2 audience size (small vs. large) x 2 audience heterogeneity (high vs. low) between-subjects study. The scenario and study procedures were similar to study 2's. ANOVA results revealed a significant main effect of audience size ( $F(1,90) = 3.76, p = .05$ ) and a directional interaction between audience size and audience heterogeneity on correct recall ( $F(2,90) = 3.76, p = .11$ ). As predicted, when the audience heterogeneity was low, sharing with the small group resulted in greater memory decay as compared to the large group ( $M_{large} = 7.76, M_{small} = 5.47, F(1, 90) = 6.13, p < .02$ ), replicating study 2 results; however, when the audiences became more heterogeneous, there were no significant difference between small and large size groups ( $M_{large} = 6.11, M_{small} = 5.90, F(1, 90) = .05, p > .81$ ).

Study 4 tested that the advantages of memory outsourcing (and thus memory decay) of sharing with smaller group will be impaired by the audience anonymity. 94 American Mturkers participated a 2 audience size (small vs. large) x 2 audience anonymity (yes vs. no) between-subject study. Participants shared their travel experiences with a small (vs. large) anonymous (vs. non-anonymous) group on a travel discussion forum. Free recall and recognition memories were measured after the filler tasks.

A significant interaction between the audience size and audience anonymity on the free recall ( $F(1, 90) = 4.72, p < .01$ ) was found. When the sharing audience is non-anonymous, participants remembered fewer details when the audience size is small rather than large ( $M_{large} = 6.12, M_{small} = 4.83$ ), replicating previous findings; however, when the sharing audience is anonymous, the results reversed ( $M_{large} = 6.09, M_{small} = 4.48, p < .01$ ). Corrected recognition of the travel experience showed the same patterns ( $F(1, 90) = 8.46, p < .01$ ).

In sum, four studies demonstrate that social media can impact memories shared and the perceptions of audiences play an important role. These findings have important implications for social media marketing by demonstrating that encouraging sharing consumption experience may be detrimental to the brands if the sharer only has a few followers.

### **When Recommendations Go Wrong: The Impact of Egocentrism and Negative Feedback on Word of Mouth**

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Sarah Moore, University of Alberta, Canada

Consumers constantly make recommendations to others (e.g., songs to hear, movies to watch). Often, the recipient of such recommendations follows the recommendation and later tells the recommender what they thought of the experience. The current work draws from research on learning (e.g., Skinner 1954; Bloom and Hautaluoma 1987) and egocentrism (e.g., Barasch and Berger 2014; Savitsky et al. 2011) to explore the impact of feedback valence (i.e., whether the recipient finds experience positive or negative) on whether the recommender continues to engage in word of mouth (WOM) for this experience.

Research in learning has found that positive feedback causes individuals to continue a behavior, whereas negative feedback indicates that individuals have done something wrong and causes them to discontinue a behavior (Baumeister et al. 2001; Bloom and Hautaluoma 1987). We extend this to WOM contexts and predict that following positive feedback, recommenders will continue spreading WOM about an experience, whereas negative feedback will result in decreased subsequent WOM.

However, we propose that egocentrism—that is, the extent to which recommenders consider the other person (Epley et al. 2004)—will moderate this effect. Notably, when consumers are non-egocentric they strive to make recommendations that are useful to others (Barasch and Berger 2014). As such, the feedback is relevant, informing consumers about whether they have made a good recommendation. Thus, non-egocentric consumers should continue to engage in WOM after positive feedback but decrease WOM after negative feedback. Conversely, egocentric consumers are self-focused in their recommendations (Barasch and Berger 2014) and thus feedback will not be relevant to them. We predict that egocentric consumers will continue to recommend the experience regardless of the feedback. This effect will be driven by a heightened focus on their own experience, given that consumers must focus on something in order to learn from it (Bandura 1987; Hidi 1995), and so focusing on the experience bolsters them against learning from the negative feedback. Three completed and one proposed study examine these predictions.

Experiment 1 assessed the main effect of feedback. Participants ( $n = 301$ ) were ostensibly paired with another person online and engaged in a brief “get to know you” task. Participants then watched a set of movie trailers and selected one to recommend to their partner. To assess the main effect of feedback, we held non-egocentrism constant: participants were instructed to select the trailer they believed their partner would like best. Participants later received false feedback from their partner on their recommendation that was positive, negative, neutral, or they received no feedback (control). They then reported their intentions to continue recommending the trailer.

Results revealed a main effect of feedback on WOM intentions ( $F(3, 293) = 3.68, p = .012$ ). Those in the negative feedback condition had lower WOM intentions than those in the neutral ( $M = 5.19; p = .035$ ), positive ( $M = 5.36, p = .003$ ), or control ( $M = 5.13, p = .006$ ) conditions, which did not differ ( $ps > .4$ ).

Experiment 2 examined feedback and the moderating role of egocentrism in a 2 (feedback: positive vs. negative) by 2 (egocentrism: egocentric vs. non-egocentric) between-subjects design. Lab participants ( $n = 103$ ) first completed a brief “get to know you” task (Sedikides et al. 1999) with a partner. They then individually watched movie trailers and recommended one to their partner. Egocentrism was manipulated by telling participants to select the trailer they liked the best (egocentric), or the trailer they believed their partner would like the best (non-egocentric). Participants then received false positive or negative feedback on the trailer and reported their WOM intentions.

Results revealed a significant interaction ( $F(1, 95) = 4.07, p = .047$ ). Non-egocentric participants had lower WOM intentions in the negative versus the positive feedback conditions ( $M_{pos} = 5.36; M_{neg} = 3.88; p < .001$ ). When participants were egocentric, this difference was not significant ( $M_{pos} = 5.60; M_{neg} = 5.15; p > .2$ ).

Experiment 3 used a 2 (feedback: positive vs. negative) by 2 (egocentrism: egocentric vs. non-egocentric) between-subjects design to examine the underlying process. To increase generalizability, we used songs instead of trailers.

Lab participants ( $n = 105$ ) were run in pairs. Upon arrival they reported their music preferences and received information that was ostensibly about their partner’s preferences. We manipulated egocentrism by telling participants that their partner had the same music preferences as they did (egocentric) or that they had different preferences (non-egocentric), as greater self-other overlap increases egocentrism (Savitsky et al. 2011; Tu et al. 2016). Participants then recommended a song to their partner and later received false positive or negative feedback on it.

Finally, they reported their WOM intentions and the extent to which they focused on the song as the mediator.

Results revealed only a significant interaction ( $F(1, 100) = 7.49, p = .007$ ). Non-egocentric participants had lower WOM intentions in the negative versus positive feedback conditions ( $M_{pos} = 6.33; M_{neg} = 4.96; t(100) = 3.55; p = .001$ ). When participants were egocentric, this difference was not significant ( $M_{pos} = 5.80; M_{neg} = 5.93, t(100) = -.33; p > .7$ ). PROCESS Model 7 ( $N = 10,000$ ) tested the underlying role of focus on the experience. As predicted, focus was a significant mediator for the egocentric conditions (effect =  $-.2009$ , LCI =  $-.5138$ , UCI =  $-.0415$ ) but not the non-egocentric ones (effect =  $.0772$ , LCI =  $-.0337$ , UCI =  $.2832$ ).

A final proposed study will further examine the mediator using a 2 (egocentrism: egocentric vs. non-egocentric) by 2 (focus: experience vs. other person) between-subjects design, holding feedback as negative. To manipulate focus, participants will either write about the other person or the experience after receiving feedback. We expect that regardless of egocentrism, after writing about the experience, participants will continue recommending it, whereas after writing about the other person, their subsequent WOM will decrease.

In sum, consumers learn from feedback about their recommendations, but only if they are non-egocentric. This work contributes to research on WOM by identifying feedback as a fundamental element in predicting subsequent WOM. Moreover, this research connects work on WOM with learning theory.

### **Divided or Connected? Second Screen Use and the Television Viewing Experience**

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Using a smartphone or tablet as a second screen while watching television has become an integral part of consumers' television viewing experiences, with over 85% of mobile phone owners using a second screen at least once a month (Nielsen 2012). Recent work has investigated the effect of second screen use on advertisement effectiveness (Liaukonyte, Teixeira, & Wilbur 2015; Fossen & Schweidel 2015). However, it is unclear when and why second screen use affects consumers' viewing experiences and likelihood of watching the show in the future.

Second screen usage could affect the viewing experience in one of two ways. On the one hand, using a second screen may divide people's attention, distracting viewers from the experience and thus decreasing enjoyment (Killingsworth & Gilbert, 2008). On the other hand, using a second screen may increase viewers' sense of social connection, creating a shared experience and thus increasing enjoyment (Kumar & Gilovich, 2015; Raghunathan & Corfman, 2006). Three studies test the roles of distraction and social connection in both lab and field settings.

**Study 1** ( $N=305$ ) made use of an existing online platform (rabb.it) that allows users to stream videos while chatting with viewers from across the world in real time. This platform, which involves real world second screen use, allowed us to randomly assign participants to watch the same video while either using a second screen (i.e, the chat function) or not. After watching the video, participants reported their enjoyment of the video, their level of distraction, and their sense of social connection. Participants also reported their likelihood of watching the video and using the website again, a behavioral measure of enjoyment.

As expected, those using a second screen were more likely to watch the video again and enjoyed the experience more than those watching without a second screen (repeat viewing:  $M=4.21$  vs.  $M=3.59$ ,  $t(304)=3.03$ ,  $p=0.003$ ; enjoyment:  $M=5.23$  vs.  $M=4.70$ ,  $t(304)=3.19$ ,  $p=0.002$ ). Similar results emerged for social connection ( $M=5.05$  vs.  $M=4.06$ ,  $t(304)=6.08$ ,  $p<0.001$ ), while there were no differences between conditions in distraction ( $t(304)=1.54$ ,  $p=0.123$ ). Further, mediation analysis (Hayes 2016) shows that social connection mediates the effect of second screen use on both repeat viewing (95% CI[0.48, 1.00]) and enjoyment (95% CI[0.31, 0.69]).

Given that social connection, and not distraction, affects repeat behavior, we expected that the social nature of the viewing context should matter (i.e., whether people watch alone or in a group). Connections formed online can be weaker than those formed in person because online interactions lose key non-verbal cues and immediate feedback from others (Ekeocha & Brennan, 2008; Adrianson & Hjelquist, 1999). Thus, we predicted that second screen use would only increase viewers' social connection when they are watching alone (since it makes an otherwise solitary experience social), but would potentially decrease their sense of social connection when watching in a group (since it disrupts the richer connections they are making in person).

**Study 2** ( $N=721$ ) tested this hypothesis during a live television event—the 2017 Super Bowl. After the game, viewers' reported whether they watched the game alone or in a group, their likelihood of watching the next Super Bowl and other sports games in the future, as well as the same social connection and distraction measures as before.

We found a significant interaction between viewing context and second screen use ( $F(1, 715)=5.38$ ,  $p=0.021$ ). For viewers watching alone, second screen use increased the likelihood of repeat viewing compared to those not using a second screen ( $M=7.97$  vs.  $M=7.56$ ;  $F(1, 715)=2.94$ ,  $p=0.087$ ). However, this effect was reversed for those watching in a group: second screen users were less likely to engage in repeat viewing than non-second screen users ( $M=8.44$  vs.  $M=9.06$ ;  $F(1, 715)=3.36$ ,  $p=0.067$ ).

A similar interaction emerged for social connection ( $F(1, 715)=7.973$ ,  $p=0.005$ ). For viewers watching alone, second screen usage increased social connection ( $M=6.01$  vs.  $M=5.41$ ,  $F(1, 715)=4.7$ ,  $p=0.03$ ), while the opposite was true for those watching in a group ( $M=7.66$  vs.  $M=8.10$ ,  $F(1, 715)=4.17$ ,  $p=0.041$ ). There was no viewing context by second screen use interaction for levels of distraction ( $F(1, 715)=0.867$ ,  $p=0.352$ ). Finally, a mediated moderation analysis showed that social connection mediates the interaction between second screen usage and viewing context on repeat viewing behavior (95% CI [-4.00, -.30]).

Given the role of viewing context in forming social connections, we next sought to test whether the effect of second screens depends on the specific audience (i.e., those with whom second screens users discuss the show). **Study 3** ( $N=390$ ) used the same platform and design as Study 1 with two additional conditions varying perceived social distance of other viewers. Specifically, we told participants in the in-group (out-group) condition that they were communicating with those of the same (opposite) political orientation. Those in the second screen control condition were not told who they were communicating with, and those in the no second screen condition again watched the video with no chat function.

As expected, in-group members felt more connected than those not using a second screen ( $M=5.58$  vs.  $M=4.31$ ,  $t(386)=6.15$ ,  $p<0.001$ ). However, there were no differences between discussing with in-group members and discussing with out-group members ( $M=5.10$ ,  $t(386)=2.28$ ,  $p=0.104$ ) or unspecified others ( $M=5.32$ ;  $t(386)=1.26$ ,  $p=0.592$ ). Similar patterns of results emerged for enjoyment and repeat viewing. This suggests second screen use can increase

social connection even when communicating with very dissimilar others. Again, there were no differences in levels of distraction across groups ( $F(3, 386)=0.897, p=0.443$ ).

This research provides evidence that using a second screen can increase viewers' enjoyment of and likelihood of watching a show again when it acts as a means for creating social connections with others. Given the pervasiveness of second screen use, these insights will help marketers and consumers improve the television viewing experience.

### **Tell Me Who You Follow, and I'll Tell You Who You Are: Unexplored Antecedents and Consequences of Status Perceptions on Social Media**

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Social status is inherently related to social influence. High status individuals tend to have disproportionate influence within a group, both when it comes to group decisions and resource allocation (Berger et al. 1980). On social media platforms such as Twitter, Instagram and Facebook, the number of users one is able to influence (*Followers*) is often viewed as a proxy of the user's status in the social network (Bakshy et al. 2011). Companies invest a considerable amount of time and resources in trying to identify such high-status users, with the hope of *influencing the influencers* to ultimately improve sales and brand reputation (Booth and Matic 2010).

While both managers and previous work have exclusively focused on the number of individuals influenced as a signal of status, this research takes a novel perspective and investigates whether the number of others an individual chooses to listen to (in other words, the number of influencers this person is exposed to) can also be perceived as a signal of status. On social media such as Twitter and Instagram, for instance, a user has the ability to choose how many other users s/he wants to follow, therefore receiving regular updates on the content these users choose to share. We refer to this variable as *Following* and investigate its role in influencing status perceptions.

Using a combination of controlled lab experiments and the analysis of real world data, this work shows that *Following* is a strong determinant of a social media user's perceived status. Moreover, we demonstrate that this, in turn, influences how others react to the content shared by the user. Readers consistently display a more favorable attitude towards content shared, and are more inclined to follow recommendations by users with low *Following*. These results suggest that *Following* is an important variable to take into consideration when it comes to scouting high-status users on social media.

In Study 1, we begin by demonstrating the impact of a user's *Following* on his/her perceived status on Twitter. We asked 125 students to evaluate a Twitter user based on a snapshot of his/her profile page. This profile page mimicked the features of a real Twitter page. We kept *Followers* constant, and manipulated *Following* to be either 3 (Low) or 20,301 (High). Respondents who saw the Twitter user in the Low-*Following* condition perceived the person as significantly higher in status ( $M_{Low}=6.58, 95\% CI[6.20, 6.96]$ ) compared to respondents who saw the Twitter user in the High-*Following* condition ( $M_{High}=5.40, 95\% CI[4.92, 5.87]$ ,  $F(1,115)=15.11, p<.001$ ).

In Study 2 we replicated the same effect in the context of a different social media platform, Instagram, while testing a boundary condition, namely that for individuals to infer status from a

user's Following, this person needs to have a reasonable number of followers. In other words, enough others should care about what a user has to say for his/her Following to signal status. The study employed a 2 (*Following*: High vs. Low) x 2 (*Followers*: High vs. Low) between-subjects design. Once again, this profile page mimicked the features of a real Instagram page and included both the number of Followers (either 10 or 10,435) and Following (either 5 or 15,234). A between-subject ANOVA with *status* as the dependent variable reveals the presence of a significant interaction between the 2 manipulated factors ( $F_{\text{Interaction}}(1,188)=10.54, p=.001$ ). Simple contrasts reveal that Following significantly influences status perceptions in the High-Followers condition ( $M_{\text{LowFollowing}}=6.04, 95\% \text{ CI}[5.72, 6.36]$  vs.  $M_{\text{HighFollowing}}=5.10, 95\% \text{ CI}[4.78, 5.42]$ ,  $F(1,188)=16.46, p<.001$ ), but not in the Low-Followers condition ( $M_{\text{LowFollowing}}=1.25, 95\% \text{ CI}=[0.93, 1.57]$  vs.  $M_{\text{HighFollowing}}=1.38, 95\% \text{ CI}=[1.05, 1.70]$ ,  $F(1,188)=0.29, p=.593$ ).

Study 3 examines the effect of Following on readers' reactions to content posted on social media by low (vs. high) Following individuals. Similar to Study 1, 363 students were asked to evaluate a Twitter user based on a snapshot of his/her profile page. In contrast to Study 1, the profiles contained a tweet recommending a pizza stand at a new food court. We manipulated Following (High vs. Low) between subjects. Again, the Twitter user in the Low-Following condition was perceived as higher in status ( $M_{\text{Low}}=5.12, 95\% \text{ CI}[4.84, 5.41]$  vs.  $M_{\text{High}}=4.30, 95\% \text{ CI}[4.02, 4.58]$ ,  $F(1,299)=16.40, p<.001$ ). Moreover, respondents thought that the post of the Low-Following condition user was more interesting ( $M_{\text{Low}}=3.39, 95\% \text{ CI}[3.07, 3.70]$  vs.  $M_{\text{High}}=2.96, 95\% \text{ CI}[2.66, 3.26]$ ,  $F(1,299)=3.77, p=.053, \omega_p^2=.009$ ), and they declared they would be more likely to Like it on Twitter ( $M_{\text{Low}}=2.10, 95\% \text{ CI}=[1.82, 2.38]$  vs.  $M_{\text{High}}=1.75, 95\% \text{ CI}[1.54, 1.96]$ ,  $F(1,299)=4.02, p=.046$ ). Finally, they also reported higher trust in this user's recommendation ( $M_{\text{Low}}=4.48, 95\% \text{ CI}[4.15, 4.81]$  vs.  $M_{\text{High}}=4.00, 95\% \text{ CI}[3.68, 4.32]$ ,  $F(1,299)=4.32, p=.039$ ). A series of mediation models showed status perceptions are responsible for respondents' interest in the tweet ( $b_{\text{indirect}}=.36, 95\% \text{ CI} [.185, .590]$ ), as well as for them being more likely to Like it ( $b_{\text{indirect}}=.17, 95\% \text{ CI} [.084, .307]$ ) and to trust the recommendation ( $b_{\text{indirect}}=.48, 95\% \text{ CI} [.250, .768]$ ).

Finally, in Study 4, we incorporated real-world data. Our dataset contains 447,793 original (we exclude replies and retweets) English tweets written by 447,793 users. Controlling for Followers, we find a negative correlation between the number of Likes received by a Twitter post and Following of the Twitter user. Moreover, we show that this result is robust to the inclusion of controls related to the Twitter post content (analyzed and coded using text mining tools), corroborating the results obtained in Study 3.

Taken together, our findings provide evidence that Following is an important predictor of status which, in turn, affects how others react to the content produced by a social media user. Thus, these findings have important implications for marketers and social media advertisers who often seek to target High-Followers users, without taking into consideration their Following.

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### **6.3 The Psychology of Going Green: Influences on consumer decisions to engage in environmentally-friendly behavior**

#### **Symposium**

With global concerns regarding climate change escalating, there has been increased interest in the consumer psychology underpinning decisions about products and services that impact the natural environment. Such consumer behaviors are complex, arising from a combination of situational factors, individual differences, and cultural norms. As interest in recommendations for fostering environmental action and building support for related policies has grown, these endeavors have traditionally focused on education. The main tool for persuasion has been information provision, informing consumers of the reason for and the potential value of the required behavioral change. There has been less consideration of the consumer psychology underlying these decisions and how psychological insights could identify potential means to encourage environmentally-friendly behaviors. The present symposium highlights these psychological processes and their influence on consumer behaviors that impact the natural environment. The research included in this symposium builds on psychological theories outlining how people are influenced by situational features, information presentation, cognitive and affective states, and cultural values. The programs of research included here document evidence supporting the predictions of psychological and behavioral science theory on environmental decision making and behavioral change. Importantly, these research programs also address policymakers' demand for ways to use behavioral and psychological sciences to address environmental problems. This symposium presents four programs of research, each of which uses distinct but related approaches to producing changes in the adoption of environmentally-friendly consumer behaviors, as well as support for policies that are meant to scale those benefits.

Trudel, Whitley and Baxter's paper examines the impact of mood on people's decisions to engage in one of the most common environmental actions: recycling. Combining field and laboratory experiments, they demonstrate that positive moods promote recycling. Their approach highlights the importance of considering the broader affective context in which people make decisions, which alter cognitive processes guiding decisions to recycle used products. Reeck, Appelt, Gamma, Gardner, Johnson, and Weber present research on decision modes, qualitatively different ways of approaching choices. They explore how these decision modes may influence the decision to enroll in Time-of-Use pricing programs offered by energy utilities to their customers. They show that inducing role-based decisions can foster opting into similar sustainability initiatives in the energy sector. Romero-Canyas, Savani and Rattan examine the design of appeals intended to promote the voluntary purchase of carbon offsets when consumers purchase airline tickets, an increasingly common practice. Building on cultural psychology and theories of person-environment fit, they show that messages that resonate with the individual's cultural context may be more effective at motivating the purchase of offsets than a simple appeal to protect the environment. Hardisty, Beall, Lubowski, Petsonk, and Romero-Canyas also explore different ways of presenting carbon pricing mechanisms to consumers. They find that the novel dimension of "upstream" versus "downstream" pricing has a critical impact on consumer demand and support for public policy.

All four programs of research emerged from empirically-supported theoretical frameworks in psychology and applied these existing theories to a practical issue that has important policy implications. The present insights into consumer psychology not only speak to

basic theories but also inform the design of interventions and marketing of products or services by practitioners and policymakers. The research included in this symposium also serves as a model for other consumer psychologists to apply their research approaches to address some of society's most pressing needs. All four lines of research have completed multiple experiments and have either working or completed manuscripts available.

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### **The Environmental Consequences of People's Moods**

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#### **Short Abstract**

Research has shown that moods have persuasive, predictable, and sometimes harmful effects on behavior. Five studies suggest that people's moods influence their decisions to recycle versus trash a product, which could have detrimental effects on the environment. Specifically, our results show that people are more likely to recycle when they are in a good mood resulting from naturally occurring macro-level events such as following a sports team win or good weather. Further, relative to participants with experimentally manipulated negative or neutral moods, participants following a positive mood induction task were more likely to recycle versus trash an object.

#### **Extended Abstract**

The United States Environmental Protection Agency has concluded that recycling provides a real way to help address climate change. Unfortunately, much of what ends up in landfills could have been recycled (1). Prior research suggests that people's disposal decisions are subject to many influences including a product's tangible characteristics; people are less likely to recycle products that depart from their prototypical size, form, or function (2). As well-known recyclable products deviate from their prototypical form, they are often erroneously categorized as trash because they have become peripheral to the recycling category and more central to the trash category (2, 3). In this work, we identify an important psychological factor that helps to explain inconsistency in people's disposal behavior. Specifically, we suggest that people's moods impact their propensity to recycle by influencing higher level cognitions, attention, and resulting categorization.

Moods are incidental or exogenous to a decision, but nonetheless can carry over and influence decisions that, normatively, should be unrelated and unaffected (4, 5). Moods also influence higher-level cognitions (6, 7). In particular, people in positive moods are more flexible, integrative, inclusive, and more likely to include fringe exemplars of a category (8). We propose that this broadening of cognition from positive moods increases recycling by decreasing the potential errors in categorization identified in prior disposal decision research (2, 3). We provide evidence for our thesis using two studies analyzing archival data and three laboratory studies.

In study 1, we used collegiate basketball results as a proxy for mood, similar to prior work (9), and examined their influence on campus recycling. Daily campus-wide recycling amounts (in tons) from 2012-2016 were collected from four American universities ranked in the 2016 pre-season NCAA D1 Top 30. To investigate how the loss or win of a game affected campus recycling amounts, we examined the average daily recycling amount for the first

collection day immediately following each basketball game. Using a linear mixed effects model with game wins as the fixed effect predictor and both school and season as random effects, results supported our hypothesis that being in a good mood leads to greater recycling. Winning basketball games had a significant positive effect on recycling ( $\beta = 1,101.14$ ,  $SE = 524.06$ ,  $p = .036$ ).

In study 2, using weather as a proxy for mood, similar to prior work (4, 10), we measured the effect that ambient weather has on city recycling collections. We obtained daily waste and recycling collection amounts (in metric tons) from the Royal Borough of Kensington and Chelsea, West Central London from 4/1/2015 to 3/31/2016. For each day, recycling and waste collection amounts were documented for 14 different curbside pickup zones, resulting in a total of 2,833 observations, across 203 collection days. Daily precipitation and cloud coverage data for Kensington and Chelsea were obtained for the same time period. We analyzed the effect of precipitation and cloud coverage on average daily recycling for each collection date. The data were analyzed using a linear mixed effects model with precipitation and cloud coverage as fixed effect predictors and curbside as a random effect. Covariates of average waste collected, holiday occurrence, and collection pickup group were also included. Our analysis revealed a significant negative effect of precipitation on recycling ( $\beta = -0.003$ ,  $SE = 0.001$ ,  $p = .001$ ; See Model 1, Table 1). Cloud coverage did not have a significant effect on recycling ( $\beta = -0.001$ ,  $SE = 0.005$ ,  $p = .785$ ). Average waste collected per day had a significant positive impact on recycling ( $\beta = 0.206$ ,  $SE = 0.006$ ,  $p < .001$ ). An additional analysis revealed that precipitation had a significant negative effect on average waste collected ( $\beta = -.014$ ,  $SE = .003$ ,  $p < .001$ ; See Model 3, Table 1); importantly, the negative effect of precipitation on recycling behavior occurs over and above its association with average waste collected.

In studies 3-5, we turn to a controlled lab environment to isolate the effects of mood on recycling behavior and to provide direct casual evidence of the findings observed in the two initial field studies. In study 3, we measured participants' ( $n = 67$ ) mood using a 10-item affect scale, and analyzed the effect of mood on whether participants trashed or recycled a piece of scrap paper. A logistic regression revealed that participants with more positive moods were more likely to recycle the paper ( $\beta = 0.86$ ,  $X^2(1) = 4.41$ ;  $p = .036$ ). In study 4, using a similar scrap paper DV, we induced participants into a positive ( $n = 69$ ), negative ( $n = 74$ ), or neutral ( $n = 69$ ) mood and examined the effect of mood on trash versus recycling decisions. A binary logistic regression revealed that participants were significantly more likely to recycle the paper when in a positive mood (44.9%) than in a negative (25.7%;  $\beta = 0.86$ ,  $p = .017$ ) or neutral mood (21.7%;  $\beta = 1.08$ ,  $p = .004$ ; Figure 1).

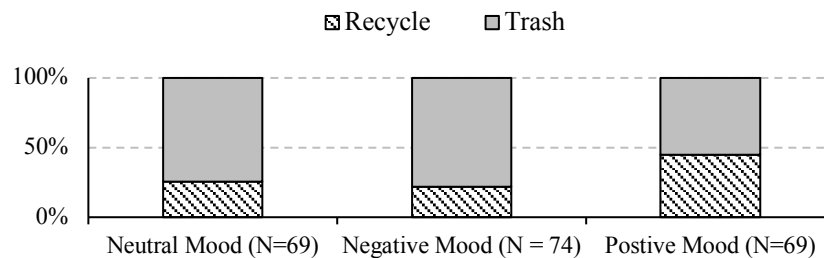
Lastly, in study 5 we tested the cognitive process that positive moods lead to more flexible, integrative, and inclusive processing, leading participants to be more likely to include fringe exemplars of the recycling category and consequently to identify a small piece of paper as being less like trash and more recyclable. Participants ( $n = 166$ ) were induced into a positive, negative, or neutral mood and indicated how much a  $3 \times 1\frac{1}{2}$  inch piece of scrap paper was like trash (1 = Not at all like trash; 5 = Exactly like trash). ANOVA results revealed differences in categorization ( $F(2, 163) = 4.78$ ,  $p = .01$ ). Post hoc LSD revealed that participants rated the paper as more typical of trash when in a negative ( $M = 3.27$ ,  $SD = 1.18$ ) or neutral mood ( $M = 3.04$ ,  $SD = 1.02$ ,  $p < .05$ ) than participants in a positive mood ( $M = 2.59$ ,  $SD = 1.33$ ,  $p < .01$ ). The results show that people in good moods are more integrative in their categorization and less likely to categorize a small piece of paper as trash.

**Table 1.** The effect of weather on recycling in Study 2

| Effect of Weather on Recycling and Waste |                     |                     |                     |
|------------------------------------------|---------------------|---------------------|---------------------|
| Variable                                 | Model 1             | Model 2             | Model 3             |
| Dependent Variable                       | Recycling           | Recycling           | Waste               |
| Average Precipitation                    | -.003**<br>(0.001)  | -.002*<br>(0.001)   | -.014***<br>(0.003) |
| Average Cloud Coverage                   | -.001<br>(0.005)    | .0002<br>(0.005)    | -.033*<br>(0.015)   |
| Average Waste Collected                  | .206***<br>(0.006)  | .227***<br>(0.006)  |                     |
| Holiday (1 = Holiday during Period)      | -.102***<br>(0.008) | -.069***<br>(0.008) | -.375***<br>(0.025) |
| Pickup Schedule (1 = Mon/Thurs)          | .083***<br>(0.007)  | .075***<br>(0.007)  | .463***<br>(0.019)  |

Notes: \*p < .05, \*\*p < .01, \*\*\*p < .001. (.) contains standard errors.  
 All models exclude 7 kurbside observations where no material was collected.  
 Holiday (if holiday included in pickup period)  
 Models 1 & 3: Include pickup day in collection period  
 Model 2: Include pickup day in next collection period

**Figure 1.** Disposal behavior as a function of participants' induced mood in Study 4



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### **Decision Modes Predict Consumer Decisions about Environmentally-friendly Electrical Utilities**

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#### **Short abstract**

Time-of-Use electrical utility plans charge customers different rates depending on when they use electricity. Time-of-Use plans are environmentally-friendly, as they encourage energy use at times when renewable energy is abundant, and good for the energy grid, as they prevent blackouts. When considering such plans, consumer may employ different decision modes – qualitatively different psychological approaches to judgments. The present three experiments examine whether decision modes influence choices about Time-of-Use plans. We demonstrate that the use of role-based decision modes encourages adoption of Time-of-Use plans while calculation-based modes discourage their adoption. These findings provide insight into how decision modes alter decision processes.

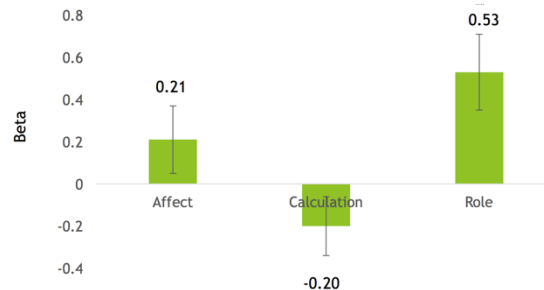
#### **Extended abstract**

Time-of-Use electrical utility plans charge customers different rates depending on when they use electricity. Time-of-Use plans are environmentally-friendly, as they encourage energy use at times when renewable energy is abundant, and good for the energy grid, as they prevent blackouts. When considering such plans, consumers approach the decision in different ways. Some might view it as a strictly financial decision while others may feel a sense of duty to benefit society and/or the environment. These decision modes – qualitatively different ways of approaching choices – may influence which plan people eventually select. In three studies, we examine which decision modes consumers use when considering Time-of-Use plans and whether decision modes influence choices. Understanding how decision modes shape such decisions not only provides insight into the underlying psychological processes, but also informs potential choice architecture interventions to encourage environmentally-friendly consumption.

Study 1 assessed the influence of decision modes use on adoption of Time-of-Use plans. 232 Californian utility customers completed the study online. Participants were presented with a hypothetical choice between a Time-of-Use plan, in which electricity was cheaper most of the day but more expensive during peak hours, and a standard plan, in which energy always cost the same flat rate (falling between the peak and off-peak prices). After registering their choice, participants rated their use of three different decision modes: an affect-based mode (e.g., trusting one's immediate emotional reactions), a role-based mode (e.g., fulfilling an obligation or role), and a calculation-based mode (e.g., weighing potential costs and benefits). Most people preferred the environmentally-friendly option, with 56% selecting the Time-of-Use plan. Participants'

decisions were regressed on the extent to which they indicated having used an affect-based, a calculation-based, or a role-based decision mode. Only role-based decision mode use exhibited a significant relationship with choice,  $\beta=0.53$ ,  $p<.01$ , with greater use of the role-based mode associated with higher likelihood of selecting the Time-of-Use plan. Importantly, this relationship remained significant when controlling for key individual differences, including age, income, and environmental attitudes.

**Figure 1.** Parameter estimates for the relationship between decision mode use and adoption of the Time-of-Use plan in Study 1.

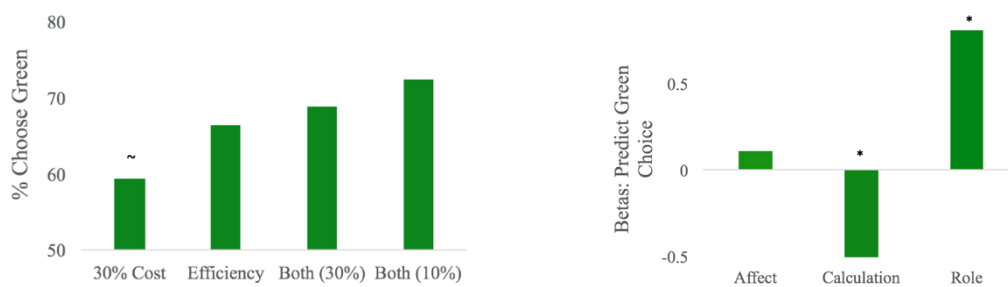


Study 1 established that using the role-based decision mode was associated with adopting the Time-of-Use plan. In Study 2, we sought to establish whether consumers intuited this relationship and their perceptions of which modes were most appropriate for this decision. Participants (N=202) in Study 2 first learned about the three decision modes. They were then presented with the same decision employed in Study 1 and asked which option they thought people would be most likely to select when using each mode. Finally, they rated which mode they felt was most appropriate to use. 84% of participants predicted that the role-based mode would increase adoption of the Time-of-Use plan rather than the standard plan,  $\chi^2(1)=75.59$ ,  $p<.001$ . Interestingly, participants also expected the calculation-based mode,  $\chi^2(1)=6.56$ ,  $p=.010$ , and the affect-based mode,  $\chi^2(1)=15.56$ ,  $p<.001$ , to encourage adoption of the Time-of-Use plan. While participants expected all three modes to promote green choice, the effect was largest for the role-based mode,  $\chi^2(2)=23.31$ ,  $p<.001$ . When asked which mode was most appropriate, 79.1% of participants chose the calculation-based mode,  $\chi^2(2)=194.57$ ,  $p<.001$ , with the remainder divided between the role-based (11.7%) and affect-based (9.2%) modes. Therefore, although most people anticipate that the role-based mode would encourage adoption of the Time-of-Use plan, they also did not think it was the most appropriate mode to employ.

Study 3 examined whether highlighting different benefits of the environmentally-friendly plan would alter decision mode use and its relationship with choice. Participants (N=587) were presented with a similar choice to the one employed in Studies 1 and 2. The framing of the options was manipulated between subjects to highlight different benefits of the environmentally-friendly plan: the explanation either highlighted only the financial benefit (30% savings), only the benefit to the environment, both the financial and the environmental benefits with large savings (30%), or both the financial and environmental benefits with modest savings (10%). Participants made their decision and then reported the decision mode they used. Participants were more likely to employ the calculation-based mode than either the role-based or affect-based modes ( $p's<.001$ ), but this relationship was significantly attenuated when only the environmental benefits were highlighted,  $F(6, 589)=5.47$ ,  $p<.001$ . Similar to Study 1, participants were more likely to choose the environmentally-friendly option (66.8%) than the standard option (33.2%),

$x^2(1)=66.78, p<.001$ ). The likelihood of choosing the environmentally-friendly option was marginally significantly different across conditions,  $x^2(3)=6.46, p=.091$ , as participants who viewed a description that emphasized only the financial savings were less likely to choose the environmentally-friendly plan than those in the other conditions. Participants' decisions were regressed on the extent to which they reported using the decision modes. As in Study 1, the role-based mode exhibited a significant positive relationship with selecting the environmentally-friendly option,  $\beta=0.81, p<.001$ . There was a significant *negative* relationship between the calculation-based mode and selecting the environmentally-friendly option,  $\beta=-0.63, p<.001$ . Use of the affect-based mode did not exhibit a significant relationship with choice ( $p>.2$ ). These effects remained significant when controlling for key individual differences, including age, income, and environmental attitudes. The relationships between decision mode use and choice did not interact with the framing of the options,  $p's>.5$ , indicating that the effect of decision modes is both robust and independent from framing effects.

**Figure 2.** Left panel: Environmentally-friendly choices in Study 3 across framing conditions. Right panel: Parameter estimates for the relationship between decision mode use and adoption of the environmentally-friendly plan in Study 3.



Taken as a whole, the present findings indicate that decision mode use is associated with environmentally-friendly choices. Employing a role-based decision mode was associated with greater likelihood of choosing the environmentally-friendly plan while employing a calculation-based decision mode was associated with greater likelihood of choosing the standard plan. In addition, people can make accurate judgments about how these modes may affect decision making. These findings suggest that interventions aimed at altering decision modes may help promote environmentally-friendly choices, and future work should examine this prediction.

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### **Flying and Buying Our Way: Using Culturally-relevant Frames to Increase Consumers' Willingness to Offset Carbon Emissions for Air Travel**

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#### **Short Abstract**

Carbon offsets are meant to compensate for the carbon emissions that result from human activities. We explore framing effects on intent to purchase offsets with airline tickets. Study 1 found that relative to a neutral frame, culturally-relevant appeals invoking choice and social



agency motivated Americans, but not Indians, to buy offsets. In contrast, appeals invoking purity, economic growth, and social change motivated Indians, but not Americans. Six follow-up studies using different methods and a meta-analysis of the studies reveal that the economic growth appeal reliably motivated Indian respondents and that the choice and social change appeals reliably motivated Americans.

### **Extended Abstract**

The revenue from the purchase of voluntary carbon offsets offered in conjunction with goods or services that have high carbon footprints finances projects that reduce carbon dioxide emissions (1). Offering voluntary offsets during online purchases of goods and services is a growing practice among companies seeking to reduce or offset their carbon footprint. The airline industry is one that seems prepared to adopt this practice more widely as the impact of this industry on climate has become clearer (2). However, the success of these voluntary actions in offsetting greenhouse gas emissions depends on how well consumers respond to the opportunity and how important they deem the outcomes to be to them or to their society. We propose that among the many factors that will influence consumer acceptance of carbon offsets is the individual's sociocultural context. Sociocultural context informs everything from people's social identities to their values, beliefs, and behavior (3) and represents an overlooked source of leverage in environmental decision-making.

We conducted a series of studies with U.S. based Americans and South Asian Indians in order to test the effectiveness of culturally-relevant frames in culturally distinct nations that are also major producers of carbon emissions. Based on research in framing from cultural psychology (4) and studies on persuasion and the motivational effects of person-environment fit (5), we crafted appeals to be used in airline websites during the purchase process, offering consumers a fixed price carbon offset. Four frames appealed to cultural values, such as individual choice or norms, which we expected to motivate Americans, or sanctity and general collectivism, which we expected to be particularly appealing to Indian respondents based on past research (4). Other frames were meant to appeal to historically-relevant ideas, such as national economic growth and social change, frames that we expected to be motivating in both cultures. Social change refers to the perception that society is undergoing a shift regarded positively by those who have traditionally experienced hardship (6). The economic growth frame refers to the idea that economic growth and national prosperity are central to collective wellbeing, whether that belief is chronic, or acute, as in times of recession, economic or political upheaval.

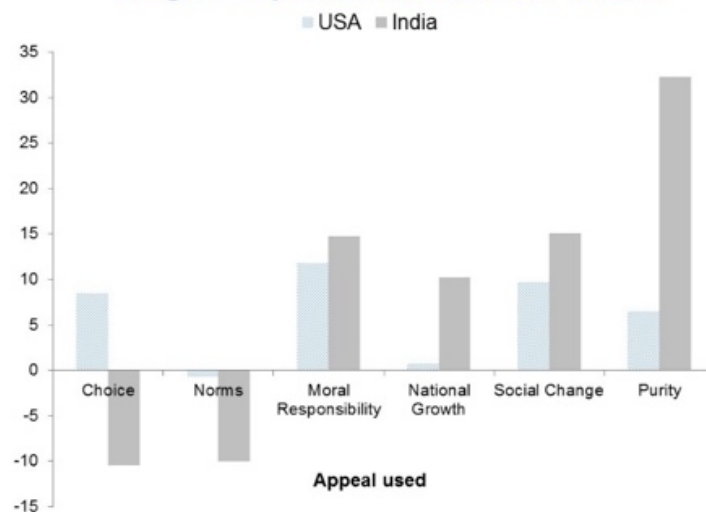
Study 1 ( $n = 924$ : 504 Americans, 420 Indians) tested whether the frames would predict greater likelihood of purchasing an offset relative to a control frame that used language adapted from a real request to purchase carbon offsets used by an international airline. We found that relative to this neutral frame, appeals invoking choice and agency motivated Americans (but not Indians) to buy carbon offsets. In contrast, appeals invoking purity, economic growth, and social change motivated Indians (but not Americans). The moral responsibility appeal motivated both cultures. Figure 1 depicts these findings.

Six follow-up studies continued to explore this finding using samples obtained in India and the U.S. through Facebook and marketing panels, recruiting a general population of respondents, in addition to frequent flyers, and varying the ecological validity of the question formats, as well as the cost of the offset. We combined the data from these studies, assembling a sample of over 8,000 respondents. Participants were randomly exposed to either the moral responsibility, purity and sanctity, social change, economic growth, or the control frames.

We ran a hierarchical logistic regression (population average model) with participants nested with studies. The dependent measure was whether each participant contributed to the offset. The independent variables were dummy variables indicating the condition that participants were assigned to (with the control condition treated as the dropped baseline). We ran separate models for each country. We found that among Indians ( $n = 3,754$ ), the economic growth condition increased carbon-offset contributions relative to the control condition, ( $\beta = .22$ ,  $SE = .06$ , [95% CI: .10, .35],  $p < .0001$ ), but the other frames did not. Among Americans ( $n = 4,059$ ), the choice and the social change frames both increased carbon-offset contributions relative to the control frame, but the others did not (Choice  $\beta = .24$ ,  $SE = .11$ , [95% CI: .03, .45],  $p = .03$ ; Social Change  $\beta = .30$ ,  $SE = .11$ , [95% CI: .09, .51],  $p = .005$ ).

The value that environmental solutions generate for the environment is an objective one, but the subjective value people assign to those solutions may differ as a function of many factors, including their culture-dependent values and sociocultural priorities. The decision to engage in an environmentally-friendly action is therefore going to be influenced by the perception of whether that action is in the service of particular values. Scholars of environmental and sustainability psychology have documented broad individual differences in environmental values, but as our data suggest, values that are not specific to ecological concerns may be just as important in motivating people to protect their environment and to consider the ecological impacts of their decisions. This research illustrates the value of integrating a social psychology approach, broadly defined, to environmental science (7). Social sciences in general can help environmental decision-makers, whether they are sustainability officers in a corporation, legislators and policy makers in government, or environmental activists advocating for particular issues. As this research illustrates, rather than simply asking people to "protect the planet," stakeholders can complete the statement with a reason that echoes salient sociocultural values and thus elicit more engagement from their audiences.

**Figure 1.** Percentage of respondents in Study 1 who agreed to purchase the carbon offset in both cultures, across conditions. These are comparisons to the control condition within culture.



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### **A carbon price by another name may seem sweeter: Consumers prefer upstream offsets to downstream taxes**

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#### **Short Abstract**

Carbon emissions can be regulated at many different points in the production and usage system: "upstream" regulations are applied to the extraction and importation of fossil fuels, while "downstream" regulations are applied to the sale of products and services. From a conventional economic standpoint, these points of regulation should have roughly equivalent impacts on carbon emissions. However, in six studies examining U.S. consumer preferences in the airline industry, we find that consumers respond significantly more favorably to "upstream" offsets than to other frames such as "downstream" taxes. Furthermore, these framing differences are moderated by political ideology.

#### **Extended Abstract**

How do consumers react to regulations on carbon emissions? Increasing the cost of carbon intensive activities such as flying should influence consumer choices, but does it matter how these costs are labeled? Previous literature shows that costs labeled as "taxes" are more

odious to consumers than other equivalent financial costs, and this is particularly true for political conservatives (1, 2). In this paper, we explore a novel dimension of carbon price labeling: whether the regulation is described as an "upstream" charge on the production and importation of fossil fuels or a "downstream" charge on goods and services, and how this "upstream" versus "downstream" labeling interacts with other frames.

According to conventional economic theory, entities regulated upstream will pass the carbon price through to consumers, assuming there is no way to scrub out or remove the emissions from the fossil fuel. Similarly, if consumers facing a downstream carbon price respond by reducing their demand, producers will then see the same reduction in profits as if they had faced the carbon price upstream and correspondingly passed on the cost to consumers.

Some countries or states may be looking to make carbon regulation more attractive to consumers. For example, one country may implement a carbon price for air travel (in and out of that country), while a neighboring country does not. In this case, consumers would face a choice between paying carbon fees when traveling to one country but not the other. The country that implements the carbon regulation may want to maintain consumer demand for air travel to the country, and therefore look for the frame that is most appealing (or least unappealing).

These issues are especially relevant in the context of policies recently adopted by the International Civil Aviation Organization (ICAO), the UN specialized agency for the sector, one of the largest and fastest growing contributors to global greenhouse gas emissions. Many countries are still deciding whether or not to opt in and thus impose carbon offsetting requirements on arriving and departing flights. Airlines and their regulators will also have to determine how best to communicate (explicitly or otherwise) the associated carbon costs to their customers.

In a series of six studies, we test upstream vs. downstream carbon regulation labels on consumer choice in the aviation industry, along with three different policy frames: tax, permit, and offset. In combination, these two point of regulation frames and three policy frames result in six unique carbon price labels. We compare these six labels with two control conditions: a "no-fee" control in which there is no carbon price, and a "no-information" control in which there is an additional price but it is not highlighted or explained to consumers in any way.

In Study 1, participants were presented with a brief narrative which described a proposed aviation legislation to limit carbon dioxide emissions. The specific dollar costs and predicted effects of this fee were the same across conditions (e.g., a \$5.70 price increase on flights from New York to Los Angeles), however, the "stream" (upstream vs downstream) and "frame" (tax vs. offset vs. permit) were varied between conditions. For example, in the "Upstream Offset" condition the regulatory policy described a proposal for a carbon [*offset*] program for [*aviation fuel production and import*], whereas in the "Downstream Tax" condition, the regulatory policy described a proposal for a carbon [*tax*] on [*airplane travel*]. Other than varying the stream and frame of the proposed carbon fee, the content of the regulatory policy in each of the six experimental conditions was nearly identical in length and content. Participants in the two control conditions were not asked to read a proposed regulatory policy.

Next, all participants were asked to imagine that they were planning a vacation, and were presented with two pairs of similarly priced flights to little known vacation destinations (e.g., "Flight A to Isla Guamblin" vs. "Flight B to Isla Melchor"); for each pair of flight decisions, Flight B included an "additional \$14.00 carbon tax [or offset, or permit] on aviation fuel production and importation [or airplane travel]." For example, one flight pair decision in the Upstream Offset condition had participants choose between "Flight A to the Island of Tortola for

\$625.25 OR Flight B to the Island of Anegada for \$605.25 plus an additional \$14.00 carbon offset on aviation fuel production and importation." We used approximate current market prices for these flights (based on departure from Miami, Florida), and determined the \$14.00 price of the carbon fee based on our rough estimate of the carbon cost to consumer for flights of this length. For each flight pair, participants indicated how likely they would be to buy Flight B instead of Flight A using a 7-point scale (from "1-Definitely Not" to "7-Definitely").

In Studies 1 and 2, we compared these eight conditions in an exploratory fashion and found that the "upstream offset" combination was more desirable to consumers than any other combination of frames, and that the "downstream tax" combination was least desirable. Results for all studies are summarized in Table 1.

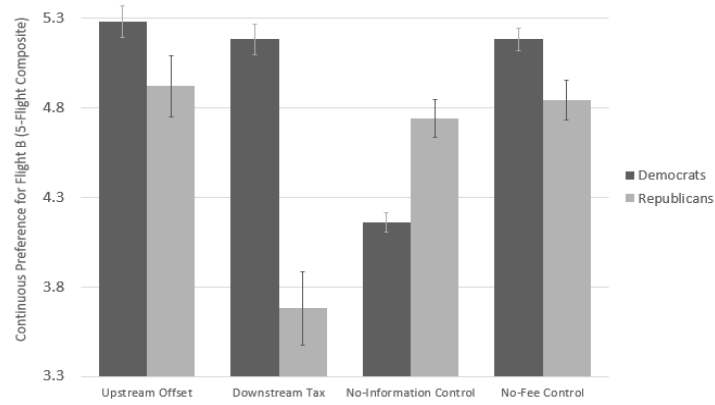
In Study 3, we replicated these results and further found that they are moderated by political party, such that self-identified Republicans show a strong distaste for the downstream tax frame (Figure 1). In Studies 4-5 we replicated these results with slightly different methods (to rule out potential confounds). In Study 6 we found that preference for the upstream offset was mediated by two constructs: perception of ensuring that those who are responsible for carbon emission pollution are the ones who pay to reduce it, and perceived environmental impact of the policy.

Across all six studies, consumers were more likely to choose a flight with a carbon price when the additional price was described as a "carbon offset for aviation fuel production and import" than when it was described using other frames, such as a "carbon tax for airplane travel and cargo." Notably, this *upstream offset* frame was popular enough among consumers that it counteracted the expected preference to avoid the \$14 additional cost of the fee.

**Table 1.** Mean preference for flights carrying a \$14.00 carbon fee in Studies 1-6.

| Condition                        | Study | Study | Study | Study | Study | Study |
|----------------------------------|-------|-------|-------|-------|-------|-------|
|                                  | 1     | 2     | 3     | 4     | 5     | 6     |
| <b>Upstream Offset</b>           | 4.2   | 5.1   | 5.1   | 5.1   | 5.2   | 6.2   |
| <b>Upstream Tax</b>              | 3.5   |       |       |       | 4.8   | 5.6   |
| <b>Upstream Permit</b>           | 4.0   |       |       |       |       |       |
| <b>Downstream Offset</b>         | 3.6   |       |       |       | 4.8   | 5.7   |
| <b>Downstream Tax</b>            | 3.5   | 4.3   | 4.7   |       | 4.6   |       |
| <b>Downstream Permit</b>         | 3.3   |       |       |       |       |       |
| <b>No-Information Control</b>    | 3.3   | 4.4   | 4.3   | 4.3   | 4.3   |       |
| <b>No-Fee Control</b>            | 3.7   | 5.2   | 5.1   | 4.9   | 4.9   |       |
| <b>No-Policy Upstream Offset</b> |       | 4.5   |       |       |       |       |
| <b>No-Policy Downstream Tax</b>  |       | 4.3   |       |       |       |       |

**Figure 1.** Mean preference for flights carrying a \$14.00 carbon fee within each condition among Democrats and Republicans in Study 3.



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## 6.4 JDM: Looking to Mix It Up? Satiation and Variety Seeking Individual Papers

### Cost of Switching: When Clustering Attenuates Satiation

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#### Introduction

Prior satiation literature views greater perceived variety as the antidote to satiation. For example, people would choose less preferred options to increase variety and prolong enjoyment (Ratner, Kahn, & Kahneman, 1999). Reminding one of the variety in past consumptions, or the expectation of variety in future consumptions, has also been shown to reduce satiation (Galak, Redden, & Kruger, 2009; Sevilla, Zhang, & Kahn, 2016). Overall, past literature suggests that intermixing preferred experiences would lead to less satiation.

Alternatively, we posit that clustering similar experiences together also has its benefits. Repetition leads to learning and more in-depth processing of information (Alba & Hutchinson, 1987). Thus, clustering the same experiences together in time may encourage consumers to attend more to different details across each subsequent exposure. Noticing these subtle and specific details during each exposure then reduces the perceived repetitiveness of the experience, which can attenuate satiation and produce longer lasting enjoyment (Crolie & Janiszewski, 2016; Redden, 2008).

This paper, to the best of our knowledge, is the first one to examine how the sequence of consumptions may affect the rate of satiation. Specifically, we show that clustering the same experiences together in repeated consumptions may be beneficial to prolonging enjoyment. For consumers, we also provide prescriptive suggestions on how to enjoy their experiences for longer.

#### Study 1

This study tested for the basic effect in an everyday setting with actual food consumption. 183 students were randomly assigned to consume three snacks (Gummy bears, Popped caramel rice cakes, and Hershey chocolate drops) in either a clustered or intermixed manner. Four pieces of each snack were provided. Participants in the clustered condition ate all four pieces of one snack before the next snack. For participants in the intermixed condition, they alternated among the three snacks. Enjoyment was measured using a 3-item scale after the sixth and twelfth consumptions on 0-100 unmarked sliders. The order of the snacks was counterbalanced and did not matter.

In a mixed linear model, the sequencing condition moderated the rate of satiation over repeated consumptions ( $F(1,181)=4.58, p<.05$ ). Contrasts showed that participants in the clustered condition satiated less ( $\beta=-3.66$ ) than in the intermixed condition ( $\beta=-8.46, t(181)=2.14, p<.05$ , Figure 1). In all studies, final enjoyment ratings were also analyzed using univariate methods. The results replicated the findings from the satiation rates.

## Study 2a

This study has two major purposes. First, it tries to replicate the effect with experiences from two different domains. Second, instead of taking the first enjoyment measure after a substantial amount of consumption, the first enjoyment measures were taken after only one exposure. This allowed the capture of the true intercepts. 255 participants listened to a music clip (Ode to Joy) and viewed a painting (Impression, Sunrise) each for four times. The music was played and the painting was displayed for 36 seconds each time. For the clustered condition, one experience repeated four times before the next experience did. For the intermixed condition, the two experiences alternated between each other. The order of the two experiences was counterbalanced but did not matter. Enjoyment was measured using two items (on unmarked 0-100 sliders) after the first and last exposures.

A mixed linear model indicated that sequencing condition moderated the satiation rate over time ( $F(1,253)=7.69, p<.01$ ). Specifically, participants in the clustered condition satiated less ( $\beta=-21.63$ ) than in the intermixed condition ( $\beta=-31.52, t(253)=2.77, p<.01$ , Figure 2).

## Study 2b

The primary purpose of this study is to test an alternative explanation. A new condition with a random order was added to rule out the repetition of the same intermixed subsequence as an alternative account. 404 participants took part in the study. For the clustered and intermixed-alternate conditions, the procedures replicated these of Study 2a. For the intermixed-random condition, the two experiences appeared in a random sequence (while still ensuring exactly 4 exposures of each stimulus). For the first two conditions, the order of the two stimuli was counterbalanced but did not matter.

Enjoyment was measured using two items after the fourth and eighth exposures. A mixed linear model found that the sequencing condition moderated the satiation rate over repeated consumptions ( $F(2,401)=28.41, p<.001$ ). Specifically, participants in the clustered condition satiated less ( $\beta=-7.75$ ) than in either the intermixed-alternate condition ( $\beta=-29.82, t(401)=-6.75, p<.001$ ) or the intermixed-random condition ( $\beta=-28.80, t(401)=-6.43, p<.001$ ). The two intermixed conditions did not differ from each other ( $t(401)=.33, p=.74$ , Figure 3).

## Study 3

This study directly tested our proposed mechanism - noticing details. The design of the study mirrored that of Study 2b with the following exceptions. First, we eliminated the random intermix condition for simplicity. Second, we directly measured the degree to which consumers were noticing different details during each exposure and perceived repetitiveness of the experience on 1-9 scales after the final enjoyment ratings. The counterbalancing order did not matter.



304 people participated in the study. A mixed linear model showed that participants in the clustered condition indeed satiated less versus those in the intermixed condition ( $\beta_{\text{clustered}}=-3.95$ ,  $\beta_{\text{intermixed}}=-24.28$ ,  $t(302)$ ,  $p<.001$ , Figure 4). This again replicates our core finding.

We then created a satiation measure as the difference of the two enjoyment measures for a serial mediation analysis (Hayes, 2013). Clustering increased the degree to which people noticed different details and reduced the perceived repetitiveness of the experience. Consequentially, the satiation was also attenuated (95% CI indirect effect of the serial mediation [.05, .89]). Additionally, the 95% CI for total indirect effect ([.20, 2.60], see Figure 5) also excluded zero. The same mediation analysis was also conducted using the final enjoyment rating and the conclusions remained the same.

## Conclusion

We show that, contrary to the leading theories on variety and satiation, sequentially clustering together exposures to the same stimuli can prolong enjoyment. Our findings suggest that the variety inherent in different sequences does not have a simple relationship with satiation. Study 3 specifically points to noticing different and subtle details as one reason clustering experiences together (vs. intermixing) slows satiation. Future studies will investigate boundary conditions of the effects.

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FIGURE 1  
STUDY 1: ENJOYMENT RATINGS

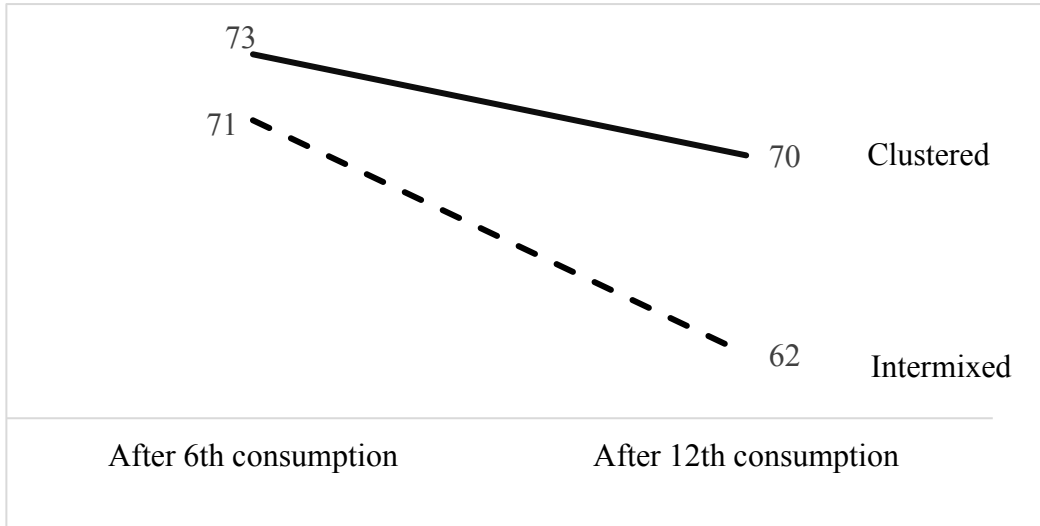


FIGURE 2  
STUDY 2a: ENJOYMENT RATINGS

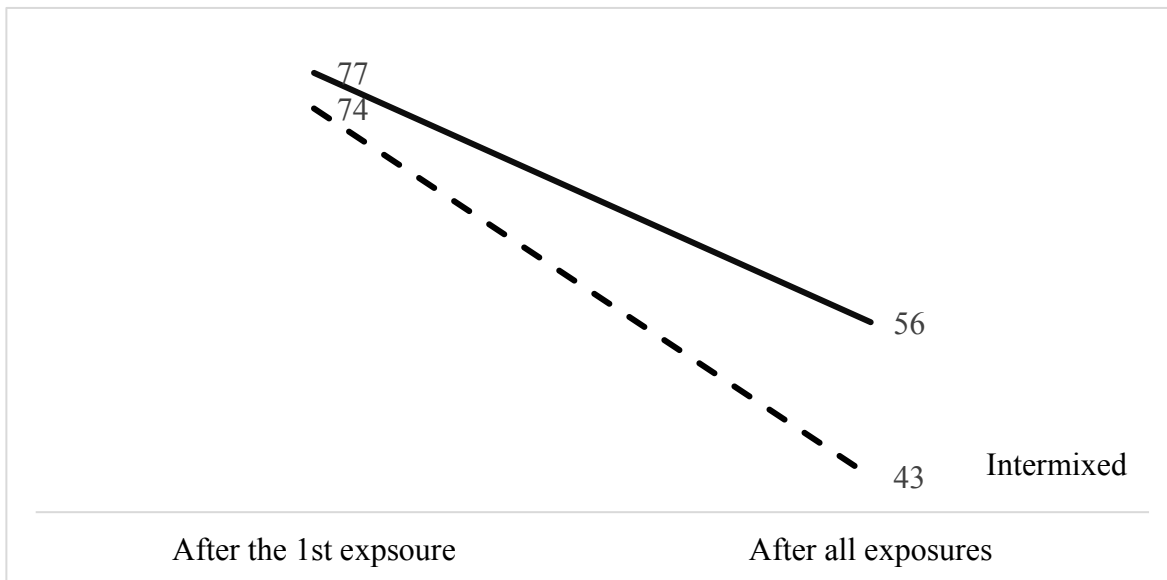


FIGURE 3  
STUDY 2b: ENJOYMENT RATINGS

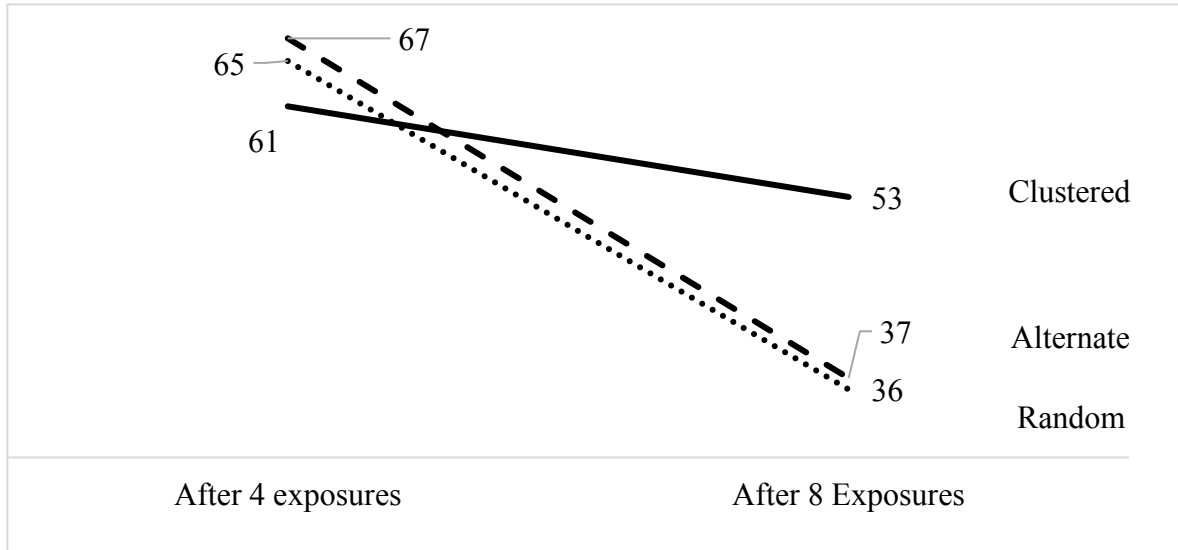


FIGURE 4  
STUDY 3: ENJOYMENT RATINGS

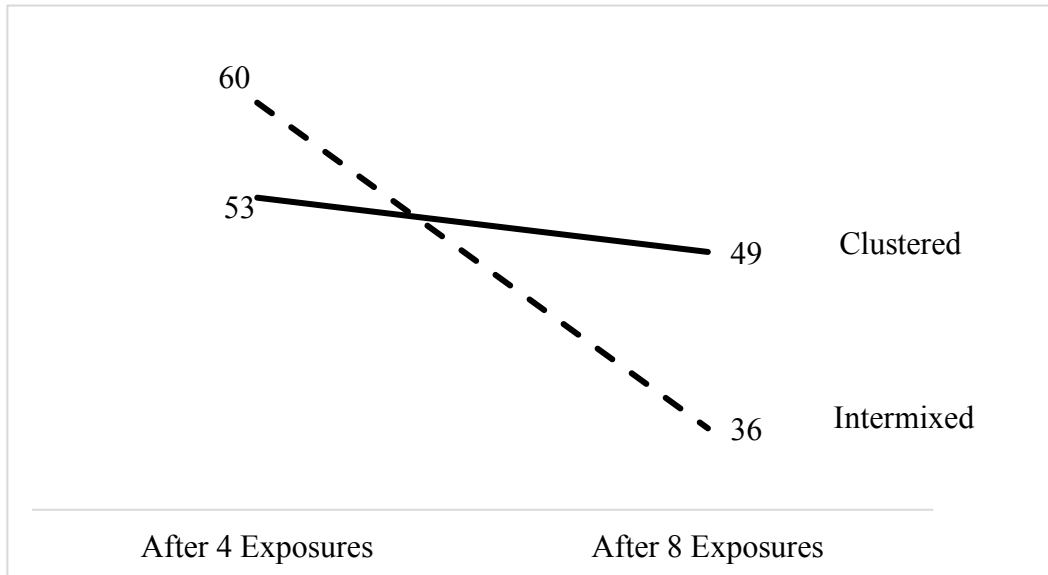
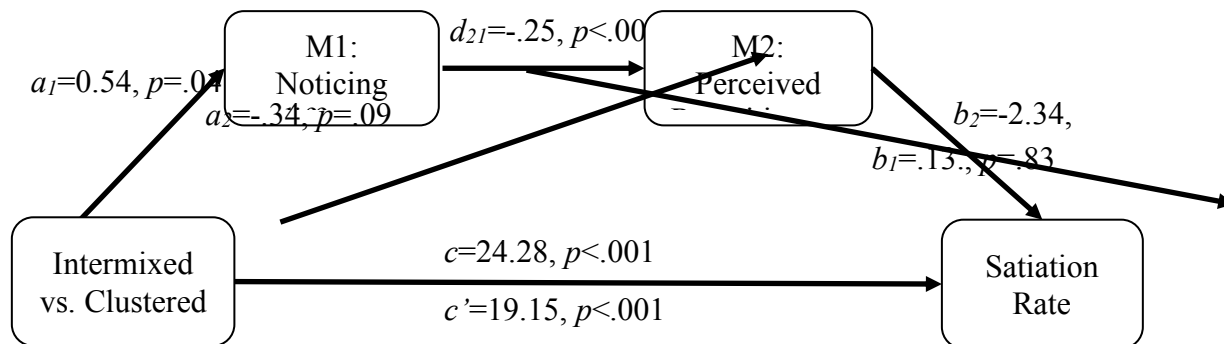


FIGURE 5  
STUDY 3: SERIAL MEDIATION



95% CI Direct Effect: [13.83, 24.47]  
 95% CI Serial Mediation Indirect Effect: [.05, .89]  
 95% CI Total Indirect Effect: [.20, 2.60]

### The Differentiating Effects of Context Variety on Object Evaluation and Overall Experience

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Repeated consumption may lead to hedonic decline, a phenomenon characterized by a decrease in the overall enjoyment of consuming an object. For example, when eating five cakes in a row, the enjoyment of eating the fifth cake will be lower than that of eating the first one. Prior research mainly investigated the decline in overall enjoyment and has identified diverse factors that influence hedonic decline, focusing either on the focal object (e.g., variety in Ratner, Kahn, & Kahneman, 1999; perceived availability in Sevilla & Redden, 2014) or on people (e.g., working memory capacity in Nelson & Redden, 2017; and self-control in Redden & Haws, 2013).

As an important component of consumption, the context in which consumption occurs, nevertheless, has failed to attract concerted research effort. In this research, we examine the decline in the evaluation of the focal object and propose that variety in consumption context slows down this decline. The underlying mechanism is that context variety prompts people to appreciate the focal object from more perspectives, increasing the perceived richness of the object. The effect of perceived richness on the decline in object evaluation is supported by the evidence that the ability to taste more flavors in a food leads to a better consumption experience (Crolic & Janiszewski, 2016; Latour & Latour, 2010). One noteworthy feature of the current research is that instead of focusing on hedonic decline, we focus more on the decay in object evaluation. We will show that context variety may lead to a slower decline in object evaluation, even when it causes a faster decrease in overall enjoyment.

Study 1 tested our primary hypothesis. Participants were required to read the same poem five times, each time on the same or on a different background picture. The main dependent variable was participants' evaluation of the poem at the end of the study. Supporting our

hypothesis, participants who read the poem on different background pictures evaluated the poem more positively than those who read the poem on the same background picture (5.26 vs. 4.66;  $F(1, 141) = 5.92, p = .016$ ).

Study 2 sought to replicate the effect with a behavioral measure. In this study, participants were asked to listen to a music clip five times, each time with either the same or a different background picture. At the end of the study, participants were given a choice of whether or not to listen to the music clip one more time. Replicating the effect of Study 1, context variety increased the percentage of participants who chose to listen to the music clip again (50.0% vs. 33.8%,  $X^2(1) = 3.75, p = .053$ ).

Study 3 tested the role of perceived richness in mediating the effect of context variety on the decline in evaluation of the focal object. Unlike Studies 1 and 2 where the dependent variable was measured only once at the end, Study 3 asked participants to evaluate the focal object multiple times. Such design allowed us to directly examine the rate of decline (i.e., slope). The focal object in Study 3 was a cake. Participants were asked to eat the cake five times (one piece at a time), each time imagining either the same or a different scenario. After finishing each piece, participants rated how much they liked the cake. At the end of the study, they indicated how rich the cake was in its flavor. Consistent with our hypotheses, the results showed that participants who imagined different scenarios liked the cake less than those who imagined the same scenario (slopes:  $-.02$  vs.  $-.31$ ;  $F(1, 87) = 17.12, p < .001$ ), and, more importantly, perceived richness in flavor mediated this effect ( $\beta = .05, 95\% \text{ CI} = [.01, .13]$ ). Figure 1 summarizes the results.

One may argue that the effect of context variety on the decline in object evaluation is simply a carry-over effect: context variety increases overall consumption enjoyment, and the increase in overall enjoyment is then carried over to the evaluation of the focal object. To rule out this possibility and further test our theory centered on perceived richness, we examined negative consumption contexts. For negative consumption contexts, people may have a better overall experience if the contexts are the same than if they are different because people adapt to the same negative context more quickly and consequently perceive it as less negative (Frederick & Loewenstein, 1999). Context variety, albeit negative, can still increase perceived richness of the focal object and thus slows the decline in object evaluation.

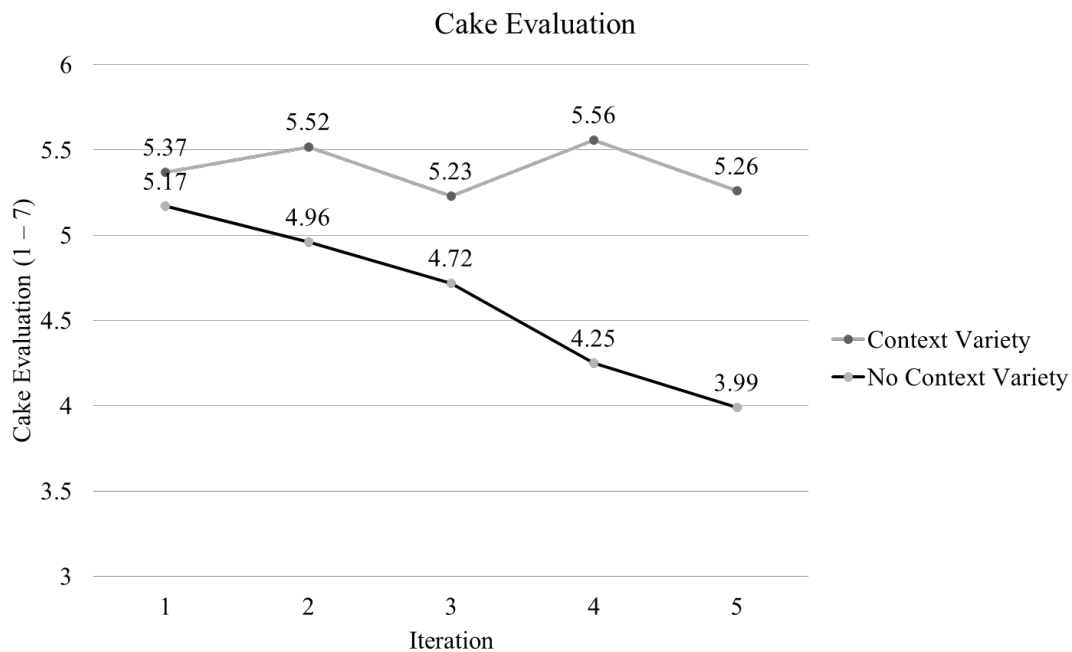
Study 4 tested these predictions. The design of Study 4 was similar to that of Study 1, except that the background pictures were pretested to be negative and that participants reported their evaluation of the poem and their overall enjoyment every time after they read the poem. The results supported our theory and ruled out the possibility of a simple carry-over effect: While context variety led to a faster decline in overall enjoyment (slopes:  $-.07$  vs.  $.01$ ;  $F(1, 204) = 3.77, p = .054$ ), it slowed the decline in participants' evaluation of the poem (slopes:  $.02$  vs.  $-.13$ ;  $F(1, 204) = 10.09, p = .002$ ). Figure 2 summarizes the results.

In summary, the results of the four studies show that context variety can slow the decline in evaluation of the object by increasing perceived richness of the focal object. The current research makes two important contributions. First, it examines how context - an important component of a consumption experience - may influence the decline in object evaluation, and suggests new ways of countering the decline. Second, whereas most extant research on hedonic adaptation examined the decline in overall enjoyment in consumption, this research focuses on the decline in object evaluation, and shows the importance of examining object evaluation as it may be contrary to overall enjoyment.

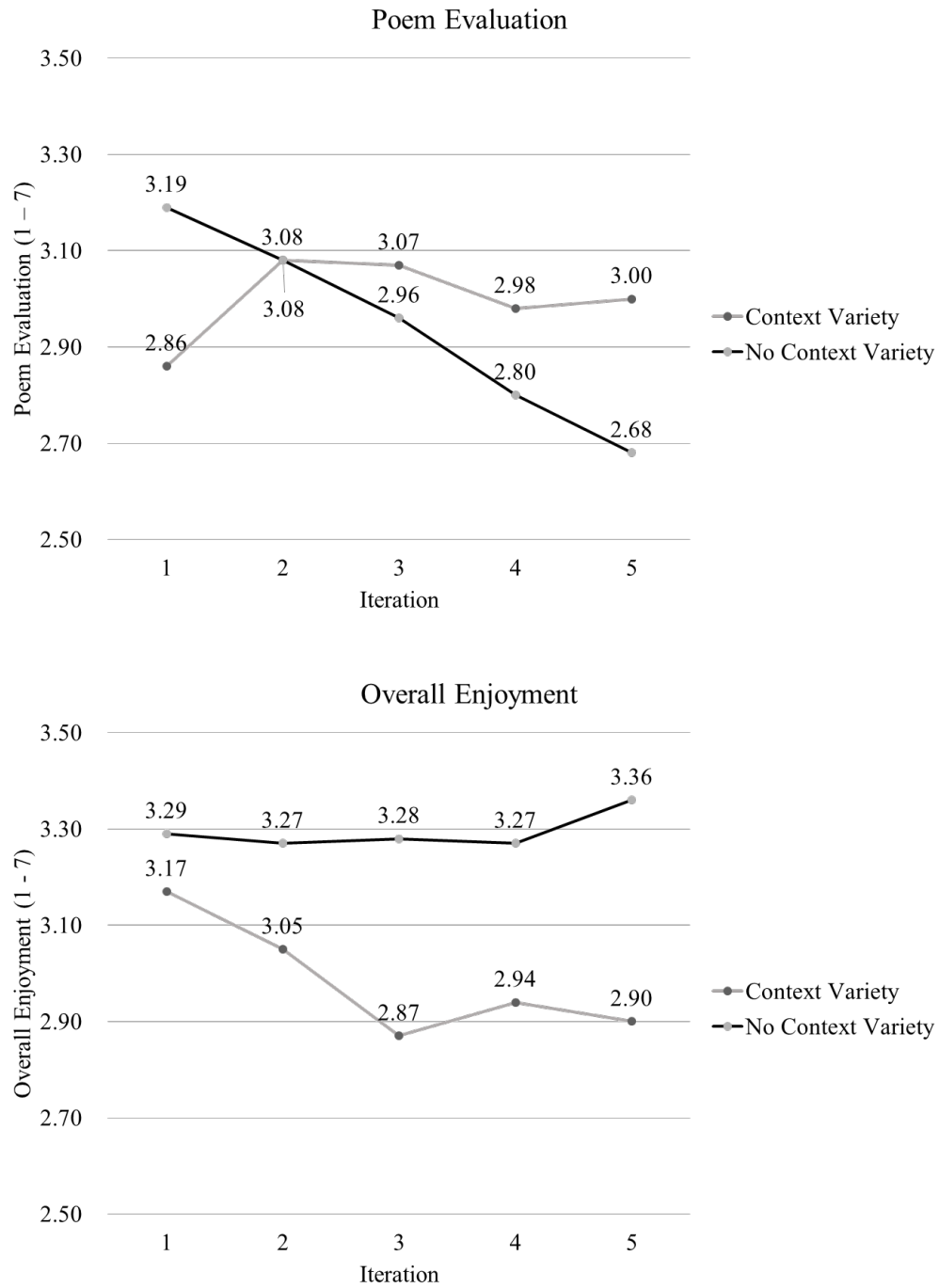
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**FIGURE 1. RESULTS OF CAKE EVALUATION IN STUDY 3**



**FIGURE 2. RESULTS OF POEM EVALUATION AND OVERALL ENJOYMENT IN STUDY 4**



## **Why Divergent Thinking Increases Preference for the Favorite Option**

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As the divide between consumer and producer becomes narrower in today's economy, consumers are increasingly required to be creative. Research on creative cognition stresses that creativity requires both divergent and convergent thinking (Guilford 1962). Divergent thinking involves the capacity to shift between different categories, perspectives, and mental sets to produce novel products, while convergent thinking is associated with the ability to meet constraints and link disparate ideas together (Crompton 2006). Thus, while convergent thinking can be thought of as the type of creative thought that enables ideas to be functional and effective, divergent thinking can be thought of as the type of creative thinking responsible for originality in creative thought. As such, divergent thinking is often associated with novelty and variety-seeking behavior (Hirshmann 1980; McCrae 1987). In the current research, we investigate the relationship between divergent thinking and the propensity to choose one's favorite option in contexts of repeated choice (i.e., choice polarization). Contrary to conventional wisdom, we find evidence that divergent thinking actually increases the tendency to choose one's favorite option in repeated choice contexts as opposed to choosing more variety among the available alternatives. This effect occurs because repeated selection of one's favorite option helps restore structure that is broken down when engaged in divergent thinking.

The natural world consists of both repetition on one hand, and randomness on the other. Adaptive organisms process information about their environment in ways that can leverage information from patterns when they emerge, but also be robust to volatility and unpredictable conditions. One way that individuals leverage patterns in nature is by creating a sense of personal structure around their environment that will inform future decisions. This sense of structure consists of schemata that document how features of the environment relate to one another. Thinking divergently, however, requires the destruction of such schemata, because in order to develop new associations, existing associations and category-structures must be temporarily abandoned. We propose that, after engaging in a divergent (vs. convergent or control) thinking task, individuals seek to reestablish a sense of structure. In consumption contexts, a consumer's set of preferred and dispreferred products serves as one source of structure for the individual (Cutright 2011). For example, a consumer may make sense of the various types of energy drinks available based on which ones she likes and which ones she doesn't like (e.g., coffee might be her favorite, while sugary drinks such as Red Bull are her least favorite). One way consumers can restore structure is to reinforce these preferences when making choices in a particular consumption category. Therefore, we predict that engaging in a divergent (vs. convergent or control) thinking task will lead consumers to choose more of their favorite option in a subsequent choice, because doing so reestablishes a sense of structure. Three studies test the proposed framework.

The goal of study 1 was to test the hypothesis that divergent thinking leads to greater preference for the favorite alternative than convergent thinking. Participants either came up with unusual uses for a tin can (divergent condition) or completed the Remotes Associates Task (convergent condition). Next, in an ostensibly unrelated task, participants imagined they were shopping for yogurt at the grocery store, and were told to select a total of four yogurt flavors from an assortment of five possible flavors (Zhu and Ratner 2015). Participants were allowed to



take as many or few of each flavor as they wished, so long as the total was equal to four. After making their choices, ranked five yogurt flavors based on their preferences. Then, after answering a few questions, participants ranked the yogurt flavors from 1 to 5. As predicted, the divergent condition chose more of their favorite yogurt flavor than the convergent thinking condition.

Study 2 sought to replicate the effect found in study 1, and also rule out the possibility that convergent thinking reduces choice of favorite as opposed to divergent thinking increasing it. To manipulate thinking style, we had participants take three different versions of a pasta writing task. Participants generated as many novel names for a new pasta as they could that either ended in "i" (convergent condition), did not end in "i" (divergent condition), or they were told to re-type a paragraph about pasta (control condition). Then participants completed the same yogurt task used in study 1. As predicted, participants chose more of their favorite in the divergent condition than in either the convergent condition or the control condition.

The goal of study 3 was to capture the role of restoring structure in the relationship between divergent thinking and choice of favorite. Participants completed the same manipulation used in study 1, then were taken to an ostensibly unrelated consumer choice task. They first ranked their preference of five common consumer beverages (i.e., Starbucks coffee, Gatorade, Red Bull, 5-Hour Energy, and bottled water), then chose the amount of each beverage they wanted such that the total number of beverages equaled four. Afterwards, participants rated the extent to which their choices 1) provided them with a sense of structure, 2) provided them with a sense of responsibility, and 3) were meaningful. The three items were averaged to create a measure to capture the process of restoring structure. Lastly, to ensure that the choice task was incentive compatible, we randomly chose three participants to receive the beverages they selected (participants were told this at the beginning of the task). As predicted, the divergent condition chose more of their favorite than the convergent condition, and this effect was mediated by perceptions that their choices provided a sense of structure.

Planned study 4 will use moderation to further support this process. Specifically, we will manipulate whether or not participants have an opportunity to restore structure prior to the choice task, and predict that the effect does not occur in these instances. In sum, three studies provide initial evidence that 1) creativity associated with divergent (but not convergent) thinking causes consumers to choose more of their favorite, and 2) that this occurs because doing so helps restore structure.

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### **The Effects of Sleepiness on Consumer Variety Seeking**

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Extensive research has revealed negative health consequences of sleep deficiency (for a summary, see O'Connor, 2015). However, surprisingly there has been no research that has examined the effects of sleep deprivation on consumption-related behavior. The present research attempts to fill this gap in the literature. We do so by investigating the impact of sleep on one pervasive decision tendency that can occur in a wide range of consumption situations, namely, variety seeking.

Sleep disturbances are common. Yet people seek to maintain wakefulness so that they can perform their daily job tasks well even if they do not sleep well. For example, night shift workers often make efforts to resist drowsiness and stay awake so as to be able to work as normally as possible (Lee, 1992). Various methods are used by people to minimize sleepiness and maintain alertness. The most obvious solution is to reduce drowsiness directly by restoring a healthier sleep pattern, and also by taking naps (Ferrara & De Gennaro, 2001). However, people can resort to alternative means when it is not feasible for them to take rest (e.g., when at work). These alternative methods typically involve stimulation. For example, people may take caffeine (e.g., coffee, tea) to stay awake (Walsh et al., 1990). They also may expose themselves to external stimulation such as bright light (Campbell & Dawson, 1990) and cold water to fight sleepiness (Hayashi, Masuda, & Hori, 2003). Hence, people may seek sensation to keep themselves awake and alert.

In the present research, we document that consumption behavior can be used by people as a way of coping with sleepiness, specifically by engaging in variety-seeking behavior. The need for sensation seeking is an important antecedent of variety-seeking behavior (McAlister & Pessemier, 1982; Van Trijp, Hoyer, & Inman, 1996). People may engage in exploratory behavior, such as trying different things, to obtain stimulation (Fiske & Maddi, 1961; Ratner Kahn, & Kahneman, 1999). Kahn and Isen (1993) also demonstrated that when people experience positive affect, their need for sensation increases, leading them to choose more variety to fulfill this need.

To recap, people often try to maintain wakefulness through seeking sensation and stimulation when they feel sleepy or have poor sleep quality. At the same time, variety seeking can serve the goal of sensation seeking. Hence, we predict that people who are sleepier or who have poorer sleep might seek more variety in their consumption. Three studies were conducted to test the proposed effect and its mechanism.

Study 1 aims at finding preliminary evidence of the causal relationship between sleep deprivation and variety seeking from actual purchasing data of candy bars (i.e., number of different candy bars purchased; Chicago Nielson Panel data from 2004 to 2014). Prior to 2007, DST began at the first Sunday in April. However, DST begins at the 2nd Sunday in March starting from 2007 in all states observing DST. We utilized a difference-in-difference (DD) quasi-experimental design based on the DST policy change.

We classify the 2nd Sundays in March as the treatment group in which DST occurred, and the 1st Sundays in March as the control group in which DST never occurred. In the treatment group, the difference before and after the policy change includes the sleep deprivation effect of DST. However, it may also include other temporal effects before and after the policy change. A good estimate for such temporal effects is the difference within the control group. The difference in difference shows that sleep deprivation due to DST can increase variety seeking.

If sleepiness increases variety seeking due to a desire to seek sensation to stay awake, this effect should be eliminated when people do not deem it necessary to maintain wakefulness. Study 2 tested this prediction by telling half of the participants that it was OK for them to relax without staying alert as they have completed the major part of the study. We measured variety seeking by observing participants' real choice of candy bars and also assessed sensation seeking. When participants did not receive the instruction to relax, poorer sleep quality in the previous night predicted more variety seeking in choices of candy bars and greater sensation seeking. However, when participants were led to believe that they could relax without staying alert, the effects of last night's sleep quality on variety seeking and sensation seeking were not evident. Relaxation instruction moderated the mediating effect of sensation seeking in the relationship between last night's sleep quality and variety seeking.

Study 3 again provided additional support to our conceptualization. Consistent with a goal satiation paradigm, we demonstrated that when the motivation for sensation was fulfilled by listening to stimulating sounds, people who self-reported to be sleepier at the moment would not seek more sensation, and consequently, would not choose more variety in ice cream flavors. The effects of sleepiness on sensation seeking and variety seeking were only evident when participants' need for sensation was not satiated. Satiation of the sensation-seeking goal via stimulating sounds moderated the mediating effect of sensation seeking in the relationship between sleepiness and variety seeking.

To the best of our knowledge, this research is the first to investigate what implications sleep deficiency may have for consumer behavior. It opens up potential avenues for future research investigation on this broad topic. Our findings also have implications for research on variety-seeking behavior by revealing a physiological antecedent of variety seeking.

## 6.5 Health & Social Justice: Prosocial Behavior (Donate your Time to this Session)

### Individual Papers

#### Doing Good by Buying from a Peer: When and Why Consumers Prefer Peer Economy Options

John P. Costello, The Ohio State University, USA\*

Rebecca Walker Reczek, The Ohio State University, USA

The term “peer economy” has been used to describe organizations that facilitate market-based transactions between private individuals (Sundararajan, 2016). The primary difference between a peer economy firm and traditional firms is who provides the good or service (i.e., an individual consumer offering services through a peer-to-peer marketplace versus an employee of a company being paid wages/salary by the company for his/her work). While previous research on the sharing economy has explored issues such as heightened rivalry within a sharing system due to perceptions of scarcity (Lamberton & Rose, 2012) and the implications of access versus ownership (Bardhi & Eckhardt, 2012), little research has addressed how consumer perceptions of and motivations for making a purchase from a peer-to-peer firm rather than its more traditional competitors differ.

In this research, we propose that consumers view peer-to-peer purchases as more prosocial (Small & Cryder, 2016) than traditional economy alternatives, which drives purchase likelihood. We propose that this perception is driven the consumer’s tendency to focus on the individual provider in a peer-to-peer transaction rather than on the facilitating peer economy firm. This focus on the individual provider in a peer-to-peer context makes consumers’ purchases feel more prosocial both because they make the relationship feel less exchange-based (Aagarwal, 2004; Small & Simonsohn, 2008) and because they make consumers feel like their purchase is helping an individual person (Jenni & Loewenstein, 1997) versus a corporation. Hence we predict:

- H1:** Purchases from peer-to-peer economy firms are perceived as more prosocial than purchases from traditional economy firms.
- H2:** Consumers’ perceptions of peer-to-peer providers as more prosocial will drive greater purchase likelihood for peer economy options as compared to traditional economy options.

While we argue that the default in a peer economy transaction is to focus on the individual, external factors (e.g., media coverage, a firm’s promotions) may shift the consumer to focus more on the for-profit firm facilitating the transaction. We propose that this shift decreases perceptions of prosociality and preference for peer-to-peer options since consumers no longer see their purchase as benefitting an individual but instead as creating profits for a firm.

- H3:** When consumers focus on the underlying for-profit organization facilitating a peer to peer purchase rather than on the individual peer provider, the effect proposed in hypothesis 2 will be attenuated.

In study 1 (n = 194 undergraduates, three conditions), participants were asked to imagine taking a trip where the only option available in their desired location was a hotel or an apartment on Airbnb. In the Airbnb individual condition, the person renting the apartment lived there. In the Airbnb agent condition, the person renting the apartment “works as an agent for a property owner who is renting out multiple properties on Airbnb's website as a business.” The two

Airbnb conditions served as a way to isolate the importance of the peer component from other differences between Airbnb and hotels. Price and description of the living space were held constant across conditions. Next, participants rated how prosocial they felt this purchase was with four statements (e.g., “I feel like I helped someone else by spending money on this hotel [Airbnb]”;  $\alpha = 0.82$ ). Because the Airbnb agent should not be seen as a true “peer” in the sense that he/she is not a consumer renting out their own living space but rather someone working on behalf of a business, we did not expect perceptions of prosociality to differ across these conditions. Analysis using Bonferroni-adjusted contrasts revealed that there was no significant difference in the perceived prosociality of the purchase in the Airbnb agent ( $M = 4.23$ ) versus hotel condition ( $M = 4.02$ ,  $F(1, 192) = 1.84$ , *ns*). Supporting H1, however, the purchase in the Airbnb individual condition was seen as significantly more prosocial ( $M = 4.80$ ) than the Airbnb agent ( $F(1, 192) = 8.89$ ,  $p = .01$ ) and hotel conditions ( $F(1, 192) = .72$ ,  $p < .0001$ ).

In study 2 ( $n = 208$  undergraduates) were told they needed a ride to an airport. Depending on condition, they saw a billboard for Lyft, a popular peer-to-peer ride company, or the Yellow Cab Company. Participants then indicated likelihood of choosing Lyft/Yellow Cab for their ride and answered the same prosocial measures. Those in the Lyft condition perceived this potential purchase as more prosocial ( $M = 3.75$ ) than those in the cab condition ( $M = 3.13$ ,  $F(1, 206) = 13.44$ ,  $p = .0004$ ). Analysis also revealed that those in the Lyft condition indicated a significantly greater likelihood of choosing the option on the billboard ( $M = 5.36$ ) compared to those in the cab condition ( $M = 4.76$ ,  $F(1, 206) = 8.33$ ,  $p = .004$ ). Mediation analysis revealed that, as predicted by H2, relative prosociality of the purchase significantly mediated purchase intentions (95% CI: [.0524 to .2247]).

In study 3, 132 undergraduates were shown an advertisement for Lyft/Yellow Cab that featured photos of three individuals, either identified as drivers or corporate employees (e.g., VP of Partnerships) in a 2 (Company: Lyft vs. Yellow Cab) x 2 (Advertisement Focus: Drivers vs. Corporate employees) design. Analysis of purchase likelihood revealed a significant interaction ( $F(1, 130) = 5.04$ ,  $p = .0265$ ) with simple effects showing a significant difference between the Lyft ad focus conditions ( $M_{\text{driver}} = 5.70$ ,  $M_{\text{corporate}} = 4.91$ ,  $F(1, 130) = 4.48$ ,  $p = .0362$ ) but not the cab conditions ( $M_{\text{driver}} = 3.18$ ,  $M_{\text{corporate}} = 3.58$ ;  $F(1, 130) = 1.12$ , *ns*). To test H3, we conducted a moderated mediation analysis using PROCESS model 7 (Hayes 2013) with company as the IV, ad focus as the moderator, prosociality as the mediator, and purchase likelihood as the DV. Supporting our prediction, this analysis indicated significant moderated mediation (95% CI: .0030 to 0.5129).

These three studies provide initial evidence that consumers prefer peer economy options because they are perceived to be more prosocial than traditional alternatives. Importantly, these prosocial perceptions are attenuated when the consumers shift their focus from the individual provider to the peer-to-peer firm facilitating the transaction. Additional planned studies include a field study and lab studies exploring other moderators.

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Figure 1  
Study 1: Perceptions of Prosociality by Condition

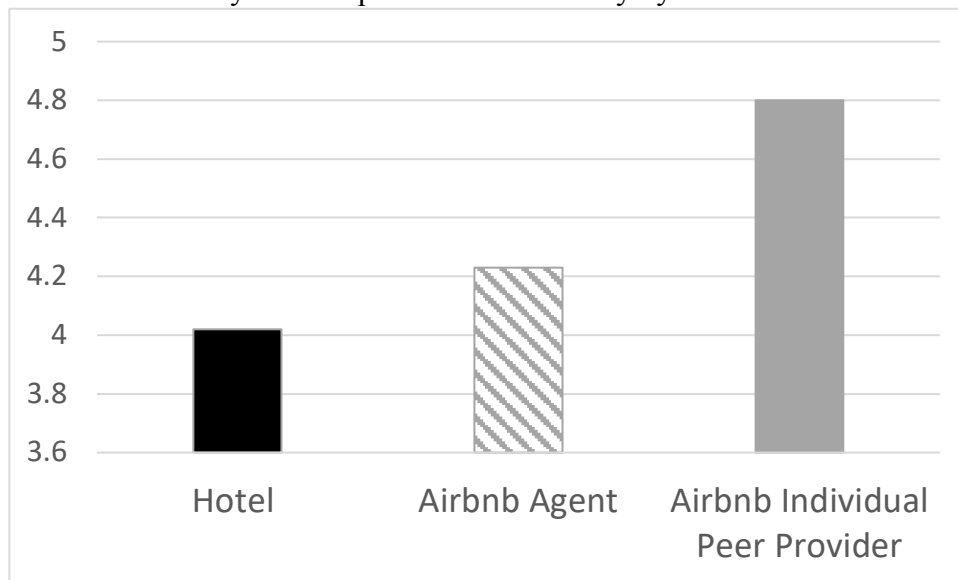
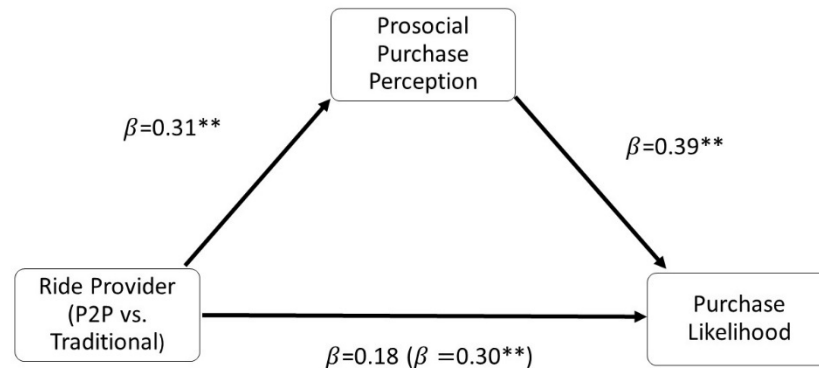


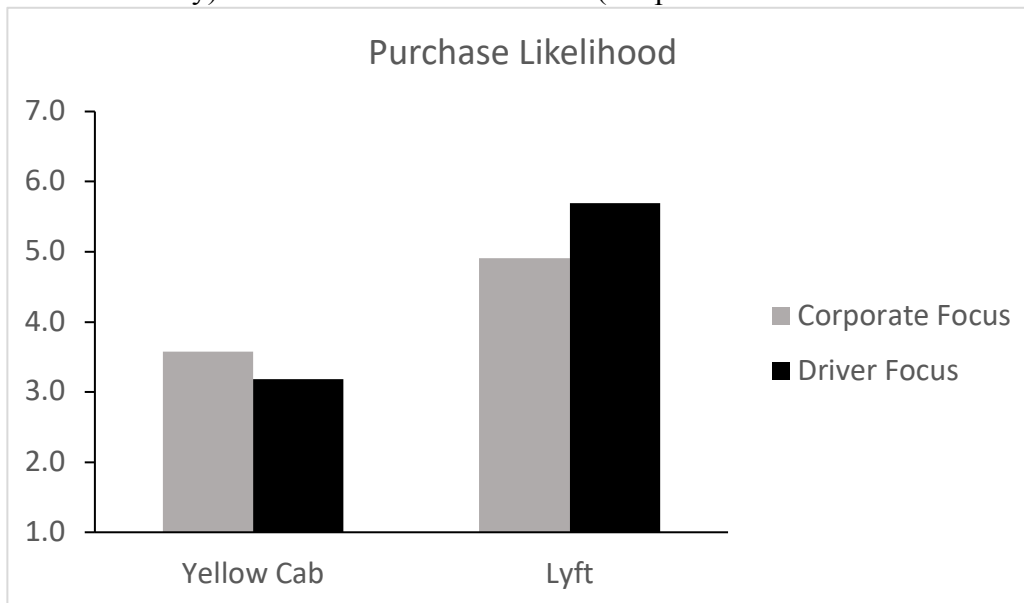
Figure 2  
 Study 2: Perceptions of Prosociality Mediate Purchase Likelihood from a Peer to Peer Provider



Hayes Process Model 4 [95% CI]: (.055, .2279)

\*p<.05; \*\* p<.01

Figure 3  
 Study 3: Purchase Likelihood as Function of Type of Company (Peer Economy vs. Traditional Economy) and Focus of Advertisement (Corporation vs. Individual Service Provider)



### Let's Donate Together: The Role of Communities In Donation-Based Crowdfunding Campaigns

Danit Ein-Gar, Tel-Aviv University, Israel\*

Crowdfunding platforms, as financing tools (crowdexpert.com), have become a prominent alternative for donation-based campaigns. The uniqueness of these platforms is their low costs (Townsend 2017), but more relevant to this study, is their reliance on "crowds" (Mollick 2014), which can transform into communities. Communities have suggested to benefit campaign creators (Belleflamme et al. 2013; Colombo, Franzoni, & Rossi-Lamastra 2015) as well as

campaign supporters (Burke et al., 2010; Gerber & Hui, 2013; Zhu et al., 2012). Although it is a goal to aspire to (Kraut et al. 2012), it seems somewhat neglected in donation-based crowdfunding. In a sample of 28 social-causes crowdfunding platforms, only 15 use phrases inducing a sense of community on their websites (See table 1). Campaign creators sometimes refrain from these platforms because creating communities seems to impose many challenges (Kraut et al 2012) that may seem beyond their abilities (Gerber & Hui, 2013).

This research shows that when potential donors' experience the existence of a community in donation-raising crowdfunding campaigns it substantially impacts the campaigns' bottom line. Furthermore, it demonstrates how subtle cues in the campaign webpage can induce the perception of a community. Finally, and most important, it reveals that the psychological need to connect influences online donations. As humans have a fundamental need to connect with others and belong to a group (Alderfer 1972; Baumeister & Leary 1995; Maslow 1943; McClelland 1987; Ryan & Deci 2000) this research shows that when experiencing the existence of such communities, even when donors are strangers to each other or anonymous, this need is activated and influences donation-giving. Furthermore, the need to connect with others is heightened when concerned with social exclusion, but weakened when feeling socially secured (Maner et al. 2007).

In sum, three hypotheses are tested and confirmed:

(H1) Campaigns inducing community perception will raise more donations than campaigns without community inducement (Studies 1+2).

(H2) This effect will be mediated by donors' feelings of connectedness to other donors (Studies 3+4).

(H3) Social exclusion concerns will strengthen the mediating role of connectedness while feeling socially secure will eliminate it (Study 5).

**Study 1:** Campaigns active on generosity.com ( $n=67$ ) were coded by 3 independent judges (91% agreement) as either having phrases of community ( $n=35$ ), such as “together we can make a difference” or not ( $n=32$ ) See Figure 1. The dependent measure was the amount of money the campaign raised at the time of data collection.

T-test analysis show that campaigns with phrases of community raised more donations ( $M=\$2,640.89$ ,  $SD=\$3,126.58$ ) than campaigns without community phrases ( $M=\$1,303.63$ ,  $SD=\$1,676.72$ ;  $t(65)=-2.15$ ,  $p=.035$ ).

**Study 2:** An "A/B testing" procedure was administered on 22 campaigns active on Jewcer.com during 10 days. Donors saw either one of two versions (for each campaign) which differed only in one slogan. In the community version the slogan was “Join our community of supporters and we can make a difference.” In the control version the slogan was: “Support this cause and make a difference.” See Figure 2. Out of 3,523 web visitors, 504 made a donation.

T-test analysis (across all campaigns) show that for the community versions, donations were higher ( $M=\$62.39$ ,  $SD=\$78.15$ ) than for the control versions ( $M=\$49.61$ ,  $SD=\$55.42$ ;  $t(502)=-2.11$ ,  $p=.035$ ).

**Study 3:** MTurk participants ( $n=144$ ,  $M_{age}=33$ , \$1 compensation) randomly saw one of two version of a campaign. In the control condition donors list on the campaign page appeared as anonymous. In the community condition donors appeared with their full name. See Figure 3. Participants reported how much of their compensation money they would like to donate. Next,



they reported how connected they feel to this group of donors. Finally they completed an Interdependence Orientation scale ( $\alpha=.83$ ; Singelis 1994).

T-tests show that in the community condition donations and connectedness are higher ( $M_{\text{don}}=0.20$ ,  $SD=0.30$ ;  $M_{\text{con}}=3.20$ ,  $SD=1.06$ ) than in the control ( $M_{\text{don}}=0.11$ ,  $SD=0.22$ ;  $M_{\text{con}}=2.73$ ,  $SD=1.24$ ;  $t_{\text{don}}(142)=-2.05$ ,  $p=.043$ ;  $t_{\text{con}}(142)=-2.43$ ,  $p=.02$ ). Mediation analysis (PROCESS Model 4; with 5000 resamples; Hayes 2013) show that feelings of connectedness fully mediates the effect of community perception on donations, controlling for Interdependence ( $b=0.019$ ,  $SE=0.011$ ; 95% CI: 0.003 to 0.050). See Figure 4

**Study 4:** MTurk participants ( $n=83$ ,  $M_{\text{age}}=25$ , \$1 compensation) randomly saw one of two version of a campaign. In the community condition the description included community phrases. In the control condition the phrases just reflected doing a good deed. See Figure 5. Participants reported if they would donate their compensation money, feeling connected and completed the Need to Belong scale ( $\alpha=.85$ ; Leary et al. 2013).

T-tests show that in the community condition, donations and connectedness are higher ( $M_{\text{don}}=0.16$ ,  $SD=0.28$ ;  $M_{\text{con}}=2.85$ ,  $SD=1.12$ ) than in the control ( $M_{\text{don}}=0.07$ ,  $SD=0.15$ ;  $M_{\text{con}}=2.30$ ,  $SD=1.21$ ;  $t_{\text{don}}(81)=-1.89$ ,  $p=.063$ ;  $t_{\text{con}}(81)=-2.14$ ,  $p=.036$ ). Mediation analysis (PROCESS Model 4; with 5000 resamples) show that feelings of connectedness fully mediates the effect of community perception on donations, controlling for need to belong ( $b=0.038$ ,  $SE=0.021$ ; 95% CI: 0.007 to 0.094). See Figure 6.

**Study 5:** In a 2 (social exclusion) by 2 (community perception) design, MTurk participants ( $n=321$ ,  $M_{\text{age}}=29$ , \$1 compensation) first completed an extraversion scale and received (randomized) feedback on their score describing their future as socially secure or socially excluded (Twenge et al. 2007). They then saw one of two versions of a campaign. The community condition included phrases of a community and pictures of donors. The control condition had no phrases of community and donors were anonymous. See Figure 7. Participants reported feeling connected and completed the PANAS scale (Watson, Clark, and Tellegen 1988). Finally they reported how much money they would donate if they win a \$50 raffle prize.

In the moderation mediation analysis (PROCESS Model 7, with 5000 resamples), community perception serves as the predictor, social exclusion as the moderator, connectedness and PANAS-Negative as the mediators, and donations as the dependent measure. See figure 8. Connectedness significantly mediates the effect when feeling socially excluded ( $b=1.518$ ,  $SE=0.679$ ; 95% CI: 0.436 to 3.117) but not when feeling socially secure ( $b=0.120$ ,  $SE=0.583$ ; 95% CI: -1.097 to 1.255). PANAS had no mediating effect. See Table 2.

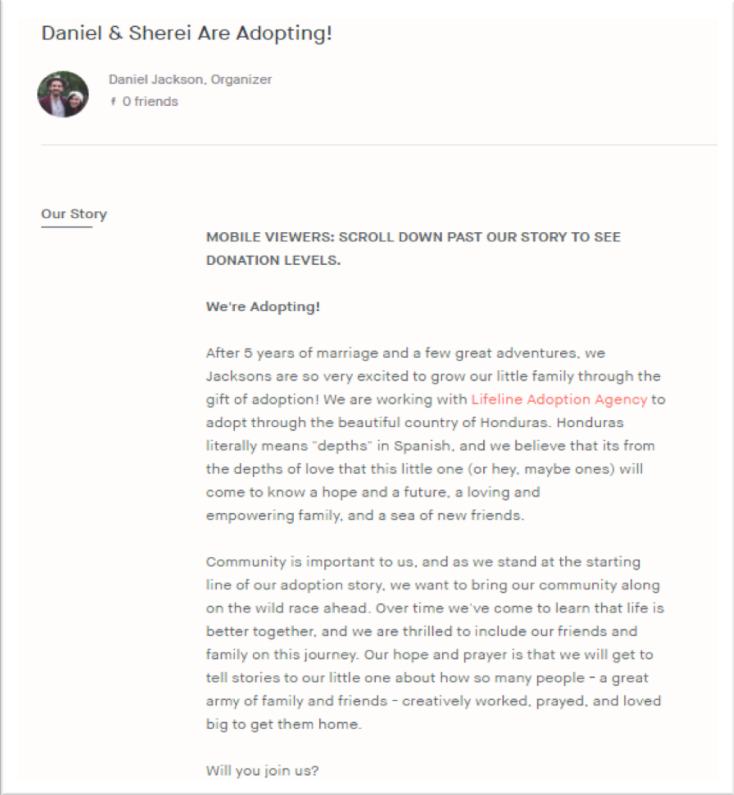
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## FIGURES AND TABLES

**FIGURE 1: EXAMPLE OF GENEROSITY.COM CAMPAIGN WITH COMMUNITY PHRASES (STUDY 1)**

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><i>"Community is important to us, and as we stand at the starting line of our adoption story, we want to bring our community along on the wild race ahead."</i></p> <p><i>"Over time we've come to learn that life is better together, and we are thrilled to include our friends and family on this journey."</i></p> <p><i>"Will you join us?"</i></p> |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**FIGURE 2A: EXAMPLE OF JEW CER.ORG CAMPAIGN - CONTROL VERSION (STUDY 2)**

Support this cause and make a difference

**GIVE NOW**

Your donation is tax deductible!

GOAL: \$10,000

45 days to go

13 Donors

Single Mom Batya in Desperate Need

\$470 raised

GOAL: \$10,000

45 days to go

13 Donors

Campaign by Meczaz HaTzedakah Jerusalem District, Israel

It can happen in an instant. A regular family that is managing day to day. And then one day a parent or child gets ill, the main breadwinner loses his or her job, there is a death in the family and suddenly the family has become a family in need. Meczaz Tzedakah works in partnership with Rabbis, social services, community leaders, and community members to assist these families. Our goal is to do more than ease the burden. We help families remove the roadblocks, rehabilitate the family and save the problem. Ygan, if that is your goal when

Home Donors Updates

**FIGURE 2B: EXAMPLE OF JEW CER.ORG CAMPAIGN - COMMUNITY VERSION (STUDY 2)**

Join our community of supporters and we can make a difference

**GIVE NOW**

Your donation is tax deductible!

GOAL: \$10,000

45 days to go

13 Donors

Single Mom Batya in Desperate Need

\$470 raised

GOAL: \$10,000

45 days to go

13 Donors

Campaign by Meczaz HaTzedakah Jerusalem District, Israel

It can happen in an instant. A regular family that is managing day to day. And then one day a parent or child gets ill, the main breadwinner loses his or her job, there is a death in the family and suddenly the family has become a family in need. Meczaz Tzedakah works in partnership with Rabbis, social services, community leaders, and community members to assist these families. Our goal is to do more than ease the burden. We help families remove the roadblocks, rehabilitate the family and save the problem. Ygan, if that is your goal when

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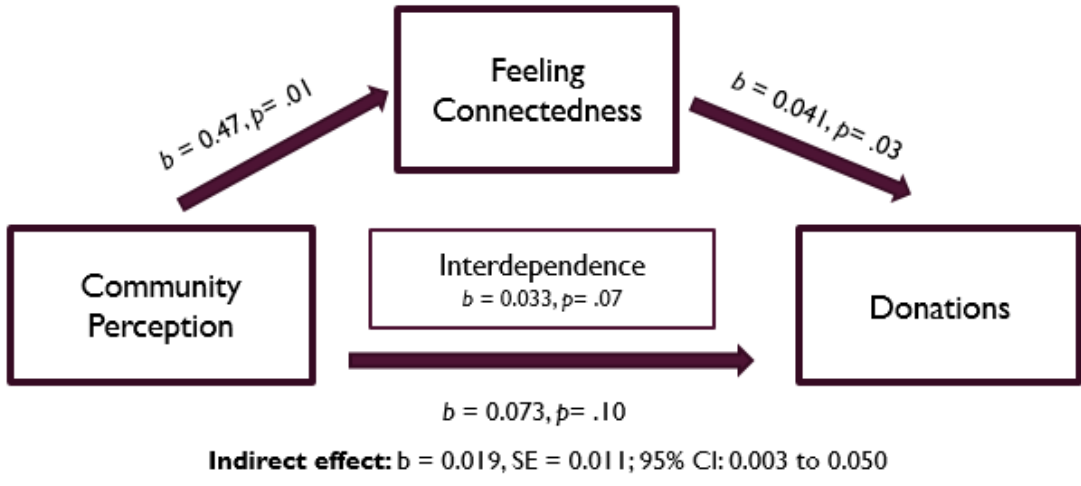
**FIGURE 3A: "THE GOOD TIME PROJECT" CAMPAIGN - CONTROL CONDITION (STUDY 3)**

The screenshot shows a GoFundMe campaign page for "The Good Time Project". At the top, there is a banner with a red heart and crossed white sticks, with the text "CAMP GOOD TIMES". To the right, a progress bar shows \$1,085 raised of a \$2,200 goal, with a "Donate Now" button and a "SHARE ON FACEBOOK" button. Below the banner, there are social sharing options for 116 shares, including "SHARE" and "TWEET" buttons. The main text describes the camp's purpose: "Help Kids with Cancer Forget About Diagnosis and Enjoy Summer Vacation". It details the camp's activities and the need for donations. A secondary set of social sharing options shows 116 shares and a "DONATE" button. On the right side, a list of 24 donations is shown, with the most recent being \$100 from an anonymous donor 11 hours ago, which is highlighted by a black arrow. Other donations include \$150, \$10, \$25, \$5, and \$20, all from anonymous donors. At the bottom, there is a section for comments with a "CONTINUE" button and a note that nothing gets posted to the user's wall.

**FIGURE 3B: "THE GOOD TIME PROJECT" CAMPAIGN - COMMUNITY CONDITION (STUDY 3)**

The screenshot shows a GoFundMe campaign page for 'The Good Time Project'. The page features a header with the GoFundMe logo and navigation links. The main title is 'The Good Time Project'. Below the title is a large graphic with a red heart and the text 'CAMP GOOD TIMES'. To the right of the graphic, the campaign has raised \$1,085 of a \$2,200 goal, with a progress bar and a 'Donate Now' button. Below the graphic, there are social sharing buttons for Facebook and Twitter, and a 'SHARE ON FACEBOOK' button. The campaign description reads: 'Help Kids with Cancer Forget About Diagnosis and Enjoy Summer Vacation. The good time project runs a summer camp which aims to provide children with cancer the opportunity to enjoy a full week of fun summer camp activities and forget about their experience with cancer. Children gain confidence in themselves and their ability to take control over their life while enjoying activities like swimming, hiking, crafts, campfires, and more. Volunteers, including medical staff, are on site 24 hours a day for the entire camp to ensure safety and a great experience. This Camp gives kids with cancer an unforgettable summer and can only happen with your help! Every penny donated helps to send a child to Camp and we need your help!'. Below the description, there are social sharing buttons for Facebook, Twitter, and a 'DONATE' button. On the right side, there is a '24 DONATIONS' section with a 'RECENT' dropdown menu. The list of donations includes: John Winters (\$100, 11 hours ago), Sarah Erickson (\$150, 11 hours ago), Andy Mathews (\$10, 1 day ago), Joe Greenstein (\$25, 1 day ago), Lisa Anderson (\$5, 1 day ago), and Eric Lee (\$20, 1 day ago). A black arrow points to the \$100 donation by John Winters.


**FIGURE 4: THE MEDIATING EFFECT OF FEELING CONNECTED ON COMMUNITY PERCEPTION AND DONATIONS, CONTROLLING FOR INTERDEPENDENCE ORIENTATION (STUDY 3).**



**FIGURE 5A: "SOS CHILDREN VILLAGES" CAMPAIGN - CONTROL CONDITION (STUDY 4)**

SOS Children's Village USA

Be part of something amazing!  
If you care about children in need, your place is here!  
You can be part of something big and make a difference!  
Support SOS Children's Village and give a donation today!



CHARITY

**\$1,085** of \$2,200

Raised by 24 people in 9 days

[Donate Now](#)


[SHARE ON FACEBOOK](#)

116 SHARES [Home](#) [Donors](#) [0 Updates](#) Created June 12, 2016

SOS Children's Villages is the world's largest charity dedicated to orphaned and abandoned children. In the USA, SOS Children's Villages manages two villages who serve as a home for kids in need of one.

Your donation is used to meet the expenses to raise a child in one of our villages. These expenses include providing food, clothing, school fees, birthday presents, medical care and to pay the salary of the amazing SOS mother who raises the child as her own.


**DONATE TODAY!**



**FIGURE 5B: "SOS CHILDREN VILLAGES" CAMPAIGN - COMMUNITY CONDITION (STUDY 4)**

SOS Children's Village USA

Our community of donors is amazing!  
Affiliate with other donors and be part of this community!  
Feel close to others that care about children in need!  
Together with other donors, you can be part of something big and make a difference!  
Relate to other donors by joining the community of SOS Children's Village supporters and give a donation today!



CHARITY

**\$1,085** of \$2,200

Raised by 24 people in 9 days

[Donate Now](#)


[SHARE ON FACEBOOK](#)

116 SHARES [Home](#) [Donors](#) [0 Updates](#) Created June 12, 2016

SOS Children's Villages is the world's largest charity dedicated to orphaned and abandoned children. In the USA, SOS Children's Villages manages two villages who serve as a home for kids in need of one.

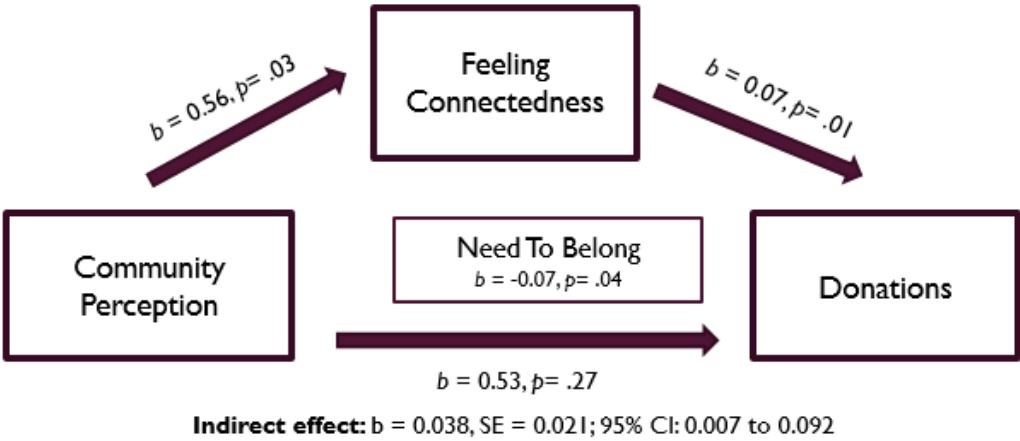
Your donation is used to meet the expenses to raise a child in one of our villages. These expenses include providing food, clothing, school fees, birthday presents, medical care and to pay the salary of the amazing SOS mother who raises the child as her own.

**Experience a sense of connectedness to our special group of donors and DONATE TODAY!**





**FIGURE 6: THE MEDIATING EFFECT OF FEELING CONNECTED ON COMMUNITY PERCEPTION AND DONATIONS, CONTROLLING FOR NEED TO BELONG (STUDY 4).**



**FIGURE 7A: "SAVE CORAL BAY" CAMPAIGN - CONTROL CONDITION (STUDY 5)**

**Save Coral Bay!!**  
Organizer: the Fund for Coral Bay  
\$1,0670  
of \$2,5000 goal Raised by 30 donors

**Donate now!**

**OUR DONORS**

\$35 \$25 \$50  
\$10 \$15 \$40  
\$20 \$25 \$50

**The Story**  
**We need to help save Coral Bay!**  
Coral Bay Harbor is a unique body of water on the undeveloped, eastern part of St John, US Virgin Islands. Its lush sea grass meadows are habitat for endangered sea turtles, its fringing mangroves are a shark nursery, and on its shores are historic structures dating back hundreds of years.  
Today Coral Bay Harbor is under attack from outside investors who only see it as a destination for mega yachts, luxury stores and resort hotels. They want to take over the harbor, destroy its natural habitat, and replace all of that natural and historic beauty with environmentally destructive over-built marinas, luxury retail, and large-scale resort hotels. They literally want to "pave paradise and put up a parking lot".  
Our campaign's mission is to protect and rehabilitate the environment of Coral Bay so it can be enjoyed by future generations.  
**If you can make a donation, it would be MUCH appreciated!!**  
Donations are tax deductible and 100% will go toward veterinary care.

**Support this cause and make a difference  
DONATE TODAY!**

**FIGURE 7B: "SAVE CORAL BAY" CAMPAIGN - COMMUNITY CONDITION (STUDY 5)**

**Save Coral Bay!!**  
Organizer: the Fund for Coral Bay  
\$1,0670  
of \$2,5000 goal Raised by 30 donors

**Join now!**

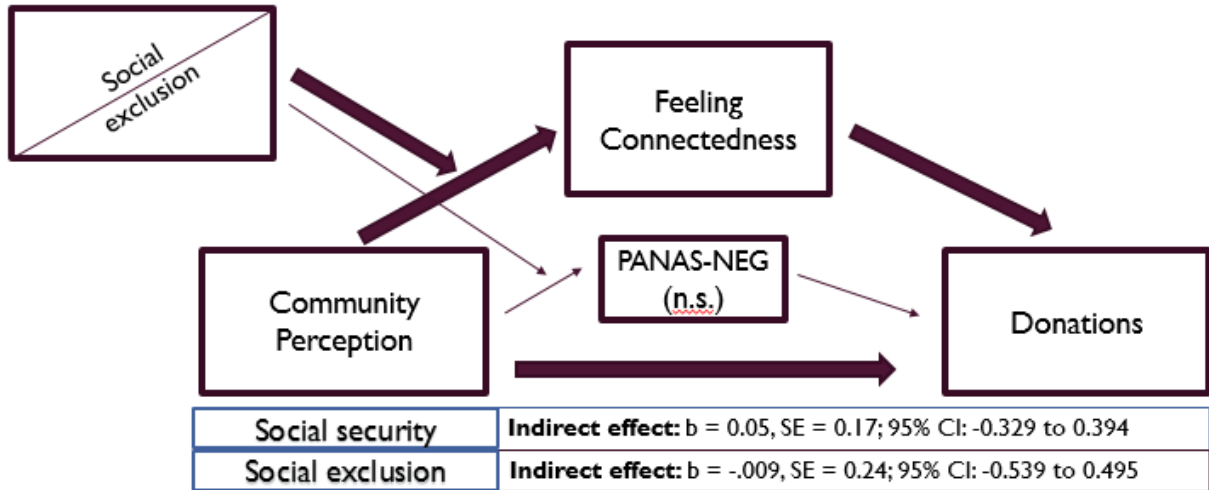
**OUR COMMUNITY**

\$35 \$25 \$50  
\$10 \$15 \$40  
\$20 \$25 \$50

**The Story**  
**We need our community of donors to pull together and save Coral Bay!**  
Coral Bay Harbor is a unique body of water on the undeveloped, eastern part of St John, US Virgin Islands. Its lush sea grass meadows are habitat for endangered sea turtles, its fringing mangroves are a shark nursery, and on its shores are historic structures dating back hundreds of years.  
Today Coral Bay Harbor is under attack from outside investors who only see it as a destination for mega yachts, luxury stores and resort hotels. They want to take over the harbor, destroy its natural habitat, and replace all of that natural and historic beauty with environmentally destructive over-built marinas, luxury retail, and large-scale resort hotels. They literally want to "pave paradise and put up a parking lot".  
Our campaign's mission is to protect and rehabilitate the environment of Coral Bay so it can be enjoyed by future generations.  
**If you can join our supporters and make a donation, it would be MUCH appreciated!!**  
Donations are tax deductible and 100% will go toward veterinary care.

**Join our community of supporters and make a difference  
DONATE TODAY!**

**FIGURE 8: THE MODERATED-MEDIATING EFFECT OF SOCIAL EXCLUSION AND FEELING CONNECTED ON COMMUNITY PERCEPTION AND DONATIONS, CONTROLLING FOR NEGATIVE AFFECT (STUDY 5).**



**TABLE 1: COMMUNITY SIGNALS IN SOCIAL-CAUSE CROWDFUNDING PLATFORMS (N=28)**

| <b>Name of Platform</b>   | <b>Community Phrases</b> | <b>Example of Phrases</b>             | <b>Donors on campaign main page</b> |
|---------------------------|--------------------------|---------------------------------------|-------------------------------------|
| Kickstarter               | 1                        | community of backers                  | 0                                   |
| Crowdrise                 | 1                        | community of decent humans            | 1                                   |
| Fundly                    | 0                        | none                                  | 1                                   |
| GoFundMe                  | 1                        | community of donors                   | 1                                   |
| Indiegogo                 | 1                        | global audience of passionate backers | 0                                   |
| Generosity                | 1                        | fundraising community                 | 1                                   |
| Razoo                     | 0                        | none                                  | 1                                   |
| Fundrazr                  | 1                        | sharing with the widest community     | 1                                   |
| StartSomeGood             | 1                        | community of supporters               | 1                                   |
| Giveforward/<br>Youcaring | 0                        | none                                  | 1                                   |
| Donorchoose               | 0                        | none                                  | 1                                   |
| GoGetFunding              | 0                        | none                                  | 1                                   |
| SmallCanBeBig             | 0                        | none                                  | 0                                   |
| Pledgie                   | 0                        | none                                  | 1                                   |
| Ifundwomen                | 0                        | none                                  | 0                                   |
| Patreon                   | 1                        | patron community                      | 0                                   |
| Show4me                   | 1                        | community of music-lovers             | 0                                   |
| Pledgemusic               | 1                        | community of fans and artists         | 0                                   |
| Barnraiser                | 1                        | community of farmers                  | 0                                   |
| Unbound                   | 1                        | community, connecting people          | 0                                   |
| Spacehive                 | 1                        | build support from their community    | 0                                   |
| Modest Needs              | 0                        | build support from their community    | 0                                   |
| Sevenly                   | 0                        | none                                  | 0                                   |
| Kiva                      | 1                        | community of lenders                  | 1                                   |
| Launch good               | 1                        | Muslim community                      | 0                                   |
| Jewcer                    | 1                        | Jewish community                      | 0                                   |
| Givesendgo                | 0                        | none                                  | 1                                   |
| FirstGiving               | 0                        | none                                  | 1                                   |

**TABLE 2: SUMMARY OF MODERATED MEDIATION ANALYSIS (MODEL 7)  
(STUDY 5)**

|                                               | <b>B</b> | <b>SE</b> | <b>p</b> | <b>LLCI</b> | <b>ULCI</b> |
|-----------------------------------------------|----------|-----------|----------|-------------|-------------|
| <b>Direct effects on PANAS-NEG</b>            |          |           |          |             |             |
| Community                                     | .409     | .681      | .54      | -.931       | 1.750       |
| Social exclusion                              | 1.43     | .681      | .04      | .089        | 2.770       |
| <b>Direct effect on DSC</b>                   |          |           |          |             |             |
| Community                                     | .294     | .141      | .04      | .017        | .571        |
| Social exclusion                              | -.077    | .141      | .58      | -.354       | .199        |
| <b>Direct effects on donations</b>            |          |           |          |             |             |
| PANAS-NEG                                     | -.005    | .109      | .96      | -.218       | .209        |
| DSC                                           | 2.822    | .531      | .00      | 1.778       | 3.866       |
| Community                                     | .409     | 1.333     | .76      | -2.214      | 3.032       |
| <b>PANAS-NEG indirect effect on donations</b> |          |           |          |             |             |
| Social exclusion condition                    | -.009    | .244      | -        | -.539       | .495        |
| Social security condition                     | .005     | .166      | -        | -.329       | .394        |
| <b>DSC indirect effect on donations</b>       |          |           |          |             |             |
| Social exclusion condition                    | 1.518    | .679      | -        | .436        | 3.117       |
| Social security condition                     | .120     | .583      | -        | -1.097      | 1.255       |

### **The Role of Altruism in Prosocial Rewarding Referrals**

Fei Gao, HEC Paris, France\*

Xitong Li, HEC Paris, France

Paul A. Pavlou, Temple University, USA

With the classic economic assumption that humans are driven by pursuit of their self-interests, most referral programs provide rewards either to referrers only (from the perspective of referrers, we call it “egoistic” rewarding strategy) or to both referrers and recipients (“double-sided” rewarding strategy). The current industry practice largely neglects the strategy that rewards recipients only (so-called “prosocial” rewarding strategy), although the literature documents consistent evidence that humans are concerned about not only their self-interests but also others’ payoffs. Therefore, the first objective of this study is to explore if the prosocial rewarding strategy could be effective in motivating consumers to participate in referral programs (a referrer’s participation is to send out referral messages, whereas a recipient’s participation is to adopt the referred products).

Although prior studies document preliminary evidence supporting the effectiveness of the prosocial rewarding strategy, they neglect to examine the underlying motivational mechanisms. There exist four different alternative motives: *altruistic motive* (i.e., consumers simply want to bring benefits to their friends, Batson and Powell 2003), *benefiting collective* (i.e., consumers regard themselves and their friends as a collective group and want to maximize the collective benefit, Tu et al. 2016), *future reciprocity* (i.e., consumers expect their friends to help them in the future by showing kindness to their friends, Trivers 1971), and *self-reward* (or *warm-glow*

*giving*, i.e., consumers behave prosocially because they pursue the feeling of being a generous and caring person, Cialdini, Baumann and Kenrick 1981). Therefore, the second objective of this study is to uncover the motivational mechanisms underlying consumers' prosocial behaviors in the referral programs.

The third and final objective is to investigate the boundary conditions under which consumers in referral programs are more likely to appear prosocial. We propose that participants are more (less) likely to behave prosocially when their participation costs are relatively low (high). In a typical referral program, the participation costs of referrers are often lower than that of recipients. Thus, our proposition implies that the prosocial rewarding strategy is more effective than the egoistic rewarding strategy, because referrers whose participation costs are low would send the referral messages to their friends due to altruistic motive, while recipients need rewards to compensate their higher participation costs.

In this study, we conduct six lab experiments and one field experiment. In Experiment 1, we test the relative effectiveness of the three rewarding strategies and find that participants' likelihood-to-refer (LTR) does not differ between the three rewarding strategies, suggesting that the prosocial rewarding strategy indeed can motivate referrers to send out referral messages.

In Experiment 2A, we test if altruistic motive is the primary motivational mechanism that drives the effectiveness of the prosocial rewarding strategy. Specifically, we compare participants' self-perceived altruism under different rewarding strategies. Batson et al. (1987) suggest that helpers' self-perceived altruism is higher when what they intend to pursue are not material or social rewards. Thus, participants' self-perceived altruism would be maximized when it is aligned with their true motives. The results show that participants' self-perceived altruism under the prosocial rewarding strategy is significantly greater than that under the other two strategies, thus supporting that the primary motive underlying participants' prosocial behaviors is altruism.

In Experiment 2B, we aim to rule out the alternative motive of benefiting collective. Based on the dual-market model (Heyman and Ariely, 2004), once consumers are given rewards, their economic-incentive mindset would crowd out their altruistic mindset. Therefore, participants' likelihood-to-refer (LTR) would only be influenced by the rewards given to themselves but not the rewards given to recipients. The results support the proposition. Since the collective benefit under the double-sided rewarding strategy is larger than that under the prosocial rewarding strategy, the finding that participants' LTR under the two strategies are not significantly different rules out the alternative motive of benefiting collective.

In Experiment 2C, we aim to rule out the alternative motive of future reciprocity by exploring if the prosocial behaviors would occur between anonymous participants who are less likely to have future reciprocity. We ask participants to engage in a self-disclosure conversation with others on an online-anonymous platform, and then measure their LTR at different time points (before vs. after the conversation) to different subjects (a person randomly selected from the candidate pool vs. the partner with whom they were chatting). We find that participants' LTR does not differ between the prosocial rewarding strategy and the egoistic rewarding strategy regardless of the strength of their relationships (close or distant), thus ruling out the alternative motive of future reciprocity.

In Experiment 3, we aim to provide direct supportive evidence that referral participants' prosocial tendencies are primarily driven by altruistic motives. Specifically, we manipulate the framing of the prosocial strategy, each of which highlights one of the alternative motives, including altruistic motive and egoistic motives (i.e., collective benefit, future reciprocity, and

self-reward). We find that the framings that highlight egoistic motives inhibit the participants' altruistic motives and thus decrease their LTR, via conducting a mediation analysis.

In Experiment 4, we explore if participants' prosocial tendencies can only be induced when their participation costs are relatively low. We manipulate the participation costs of both referrers and recipients, and compare their likelihood-to-participate (LTR for referrers, and LTA for recipients) under the prosocial and egoistic rewarding strategies. The results support that both referrers and recipients appear to be prosocial only when their participation costs are low.

Finally, we conduct a field experiment and the results replicate the main findings from the lab experiments. Specifically, we find that the likelihood-to-refer of referrers whose participation costs are low does not differ under the three different rewarding strategies, but the likelihood-to-adopt of recipients whose participation costs are high under the prosocial rewarding strategy is significantly higher than that under the egoistic rewarding strategy and not significantly differ from that under the double-sided rewarding strategy. Taken together, the prosocial rewarding strategy is more effective than the egoistic rewarding strategy, and as effective as the double-sided rewarding strategy in producing successful referrals, but it only uses a half of the rewards that the double-sided rewarding strategy needs.

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## **The Journey to Consumer Subjective Well-Being: The Map from Religion and Sustainable Consumption**

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Elizabeth Minton, University of Wyoming, USA  
Hu Xie, Western Michigan University, USA  
Lynn Kahle, University of Oregon, USA\*

Many businesses are acknowledging the importance of physical environment changes (e.g., decreases in non-renewable resources), leading them to increase sustainable business practices (e.g., decreasing emissions) (Kahle & Gurel-Atay, 2013). Although firms increasingly

adopt sustainable business practices every day, many consumers still resist participating in sustainable consumption practices (Thøgersen & Crompton, 2009). One way to understand why consumers may or may not engage in sustainable consumption is to examine the motivations behind sustainable consumption. One important factor that may effect participation in sustainable consumption is religion. Indeed, prior research has shown that a consumer's religion influences sustainability, although the direction of this relation is still unclear. A dominion view emphasizes humans as ruling over nature and using nature as they see fit. In contrast, a stewardship view emphasizes humans as supporting and caring for nature. Because religion affects many consumption-related behaviors (Mathras et al. 2016), it is important to identify the extent and direction of its influence on sustainable consumption. Many people consider subjective well-being as the main, ultimate goal of life (Haidt, 2006); thus, journeys toward achievement of subjective well-being can also be considered as a motivation to participate in sustainable consumption; however, direct examination of the relation between sustainable consumption and subjective well-being has received inadequate investigation. Accordingly, research has yet to look at a comprehensive model among these three constructs to see how core religious values influence sustainable consumption practices, resulting subjective well-being, and related consumer well-being. This relation is important to understand with the growing need for sustainability and the increasing market of sustainable products and services. The research herein addresses this gap in the literature.

### **Study 1: In-Depth Interviews**

This study uses in-depth interviews to identify how religion serves as a motivating factor behind the journey towards sustainable consumption and subjective well-being. Additionally, given conflicting literature regarding the relations between religion and sustainable consumption, this study seeks to identify different theological perspectives and how this influences sustainable consumption.

Twelve in-depth interviews were conducted with respondents affiliated with the main Western religions. The sample was composed of six Christians, one Jew, four Muslims, and one Sikh. Participants ranged in age from 22 to 70 with half males and half females. A combination of purposive and snowball sampling was used to obtain participants in a specific geographic region with similar economic and social settings.

The in-depth interviews were analyzed using a hermeneutical approach (Thompson, 1997), which first involved analysis at the individual interview level (i.e., intra-text level) to identify relevant discussion related to religion's influence on sustainable consumption and journeys and then at the level of all interviews grouped together (i.e., inter-text) to identify similarities across interviews.

Five themes emerged from the data: (1) sustainable consumption is reverence for God; (2) forms of sustainable consumption and resulting subjective well-being; (3) sustainability struggle; (4) discrepancy between scripture and teaching; (5) change is needed. As expected, consumers' religious values influence their views toward sustainability and participation in sustainable consumption practices. Through identification of five themes, results showed that religious consumers viewed being sustainable as an act of reverence to God. At the same time, however, interview comments provide support for a negative relation between religion and sustainability when consumers discuss the struggle between caring for God's creation and knowing that God already has a plan for creation, so priority in life may be given to other tasks, such as caring for others. Sustainability to these consumers more often came in the form of fiscal



and family sustainability, though also included environmental sustainability. Participants regularly highlighted struggles in their journey to be sustainable, indicating opportunities for marketer intervention. Numerous comments highlight the positive relation between sustainable consumption (especially actions that fulfill a minimalist lifestyle) and subjective well-being. Additionally, participants noted that when they do show reverence to God by being sustainable they were more likely to experience subjective well-being and enjoyment in life, suggesting that religion, sustainable consumption, and subjective well-being are all interrelated.

### **Study 2: Survey**

This study seeks to provide support for the findings from the depth interviews in Study 1 by testing the following hypotheses:

**H1:** Stewardship: Religiosity positively influences sustainable consumption.

**H2:** Dominion: Religiosity negatively influences sustainable consumption.

**H3:** Participation in sustainable consumption practices positively correlates with consumers' subjective well-being.

**H4:** Sustainable consumption mediates the relation between religiosity and consumers' subjective well-being.

A consumer survey was conducted in the United States using a Qualtrics survey panel that matched U.S. Census data in distributions of age, gender, location, ethnicity, income, and education. A total of 412 respondents were recruited (49.3% men, 50.7% women). The age of respondents ranged from 18 to 81 with a mean of 45.88. For all constructs, we adopted items from well-established measures to facilitate high measurement reliability and validity. Consumers' subjective well-being measurement used two sub-scales – one assessing subjective happiness and another assessing life satisfaction.

To estimate the measurement model, five constructs (religiosity, sustainable consumption, happiness, life satisfaction, and happiness value), were modeled as freely correlated first-order factors with their respective indicators. Satorra-Bentler scaled chi-square value was 319.07 (df=143;  $p < .001$ ). Other goodness-of-fit statistics suggested a close fit to the data (RMSEA=.0698, CFI=.943, SRMR=.0512, GFI=.901). Therefore, fit was determined to be adequate. To demonstrate convergent validity, the average variance extracted (AVE), composite reliability and Cronbach's Alpha values were examined. All these values imply that convergent validity was satisfactory for the constructs. Moreover, the AVE for each construct was greater than its squared correlation with any other construct, supporting discriminant validity.

For the structural model, Satorra-Bentler scaled chi-square value was 492.18 (df=149;  $p < .001$ ). Other goodness-of-fit statistics suggested a close fit to the data (RMSEA=.0899, CFI=.902, SRMR=.129, GFI=.859). Furthermore, all path coefficients were significant at the .05 level and in expected directions. Religiosity was significantly and positively related to sustainable consumption, thereby supporting H1 (stewardship hypothesis) and not supporting H2 (dominion hypothesis). Sustainable consumption, in return, was significantly and positively related to the well-being factors of current happiness and life satisfaction. Sobel test was significant for both current happiness and life satisfaction. Additionally, happiness value as the control variable was significantly and positively related to sustainable consumption. These results provide support for the conceptual model.

To conclude, based on a qualitative and a quantitative study, this research shows that sustainable consumption mediates the journey between religiosity and consumers' subjective well-being, such that more religious consumers generally behave more sustainably, resulting in

greater subjective well-being.

### References

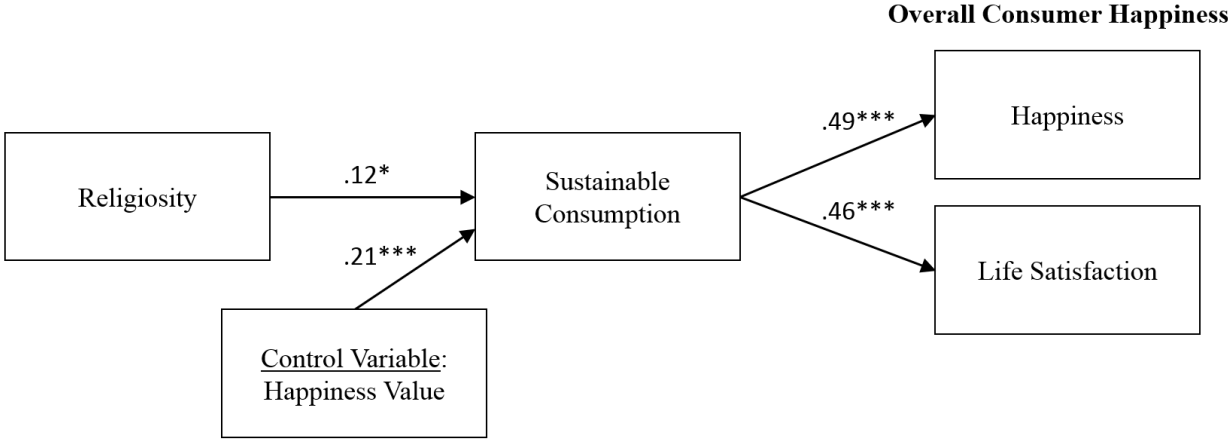
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**Table 1. Measurement and Structural Model Results (N=412)**

| <b>Measurement Model Results</b>                          |                           |                          |       |
|-----------------------------------------------------------|---------------------------|--------------------------|-------|
|                                                           | Coefficient<br>Alpha      | Composite<br>Reliability | AVE   |
| Religiosity                                               | 0.921                     | 0.924                    | 0.754 |
| Sustainable Consumption                                   | 0.817                     | 0.822                    | 0.441 |
| Happiness                                                 | 0.909                     | 0.910                    | 0.772 |
| Life Satisfaction                                         | 0.921                     | 0.925                    | 0.714 |
| <b>Structural Model Results</b>                           |                           |                          |       |
|                                                           | Standardized Estimates    |                          |       |
| Religiosity → Sustainable Consumption                     | 0.121 ( $t=2.16, p<.05$ ) |                          |       |
| Sustainable Consumption → Current Happiness               | 0.490 ( $t=6.96, p<.05$ ) |                          |       |
| Sustainable Consumption → Life Satisfaction               | 0.463 ( $t=7.28, p<.05$ ) |                          |       |
| <b>Meditation Results</b>                                 |                           |                          |       |
|                                                           | Sobel Test                |                          |       |
| Religiosity → Sustainable Consumption → Current Happiness | $z=2.14, p<0.03$          |                          |       |
| Religiosity → Sustainable Consumption → Life Satisfaction | $z=2.17, p<0.03$          |                          |       |

Note: AVE = Average variance explained

**Figure 1. Model with Path Coefficients**



Note: Path coefficients are standardized estimates. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## 6.6 Thy Self & Others: Who Are You? Self-Identity and Consumption Individual Papers

### **Motherhood and the Indirect Benefits of Conspicuous Consumption**

Aziza Jones, Rutgers University, USA\*

Kristina Durante, Rutgers University, USA

Sarah Hill, Texas Christian University, USA

Kathleen Vohs, University of Minnesota, USA

Women account for over half of luxury spending (D'Arpizio 2011; Mintel Report 2011), yet little is known about the factors that lead women to conspicuously consume. Research has found that men acquire conspicuous luxury products to attract mates (Sundie et al. 2011), but women are not motivated to consume luxury products to impress men. Literature has suggested that women may display luxury products to signal to other women (Wang and Griskevicius 2014), but the factors that drive women's conspicuous consumption remain a relative mystery.

Drawing on theory and research in evolutionary biology, we propose that motherhood leads women to desire conspicuous luxury products because such products signal status and mothers believe that their status can confer benefits to children. Research on maternal rank inheritance theory has shown that, in mammals, maternal status predicts the social position of offspring whereby offspring attain similar status to that held by their mother and thus obtain benefits associated with her status (access to mates and other resources; Capais 1988; East, Horner, Wachter, Wilhelm, Burke, and Hofer 2009; Holekamp et al. 1996). The current research tested whether motherhood is predictive of women's desire for conspicuous luxury goods.

Experiment 1 examined whether motherhood significantly predicted women's choice of a luxury product with a large vs. small logo. Mothers and non-mothers viewed four separate pairs of Coach handbags. Each pair included one handbag with a large and clearly visible brand logo and one handbag with a small and inconspicuous brand logo. For each pair women made a dichotomous choice of which handbag they preferred to own and take home with them that day. The percentage out of the four choices that were large logo handbags served as the dependent measure. Motherhood emerged as a significant predictor of women's choice of the large logo handbags ( $p < .001$ ), even after controlling for two known demographic predictors of luxury goods, specifically income and marital status.

Experiment 2 sought to test whether fatherhood predicts men's conspicuous consumption. Research suggests that a parental identity is more salient in women than in men (Katz-Wise et al. 2010) which may lead women to be more cognizant than men as to how their own behavior may impact their children. Therefore, we predicted that an effect of parenthood on desire for conspicuous luxury goods would be weaker for men. Participants were asked to imagine they were buying a Mercedes luxury sedan. Then, participants selected the size of the logo they desired for the front of the car (1 = very small; 7 = very large). As predicted, there was a gender by parenthood interaction ( $p < .02$ ). Mothers desired a significantly larger logo than did non-mothers ( $p < .001$ ). Fatherhood did not predict men's logo preference ( $p > .77$ ).

Given that we hypothesize that the relation between motherhood and desire for conspicuous luxury products is related to the belief that a mother's social status dictates the social status of her children, experiment 3 examines whether perceptions of status transfer from mother to child moderates the effect of motherhood on women's conspicuous consumption. Participants made a dichotomous choice between two keychains: a keychain with a large and visible brand

logo or a keychain with no visible brand logo. In addition, participants indicated their agreement with six items that assessed the degree to which they felt the social status of a parent influences the social status of their children (e.g., "A parent's social status influences how well their children are treated by others",  $\alpha=.77$ ). Again, mothers were significantly more likely to choose the keychain with the large logo compared to non-mothers ( $p<.001$ ). Moreover, there was a motherhood by beliefs about social status transfer interaction ( $p<.02$ ). The slope of status transfer beliefs was significant and positive for mothers ( $p < .004$ ), indicating that the more they believe their status was related to their children's status, the more they preferred conspicuous products. This slope was not significant for non-mothers ( $p > .40$ ).

Based on our theory, we would expect that the effect of motherhood on women's conspicuous consumption would be present when the audience for a mother's displays of a luxury brand includes people who can bestow benefits on her children (school director) and absent when the audience cannot bestow benefits on her children (crossing guards). Experiment 4 tested this expectation using a 2 (benefit to children) X 2 (parenthood) design. Participants first imagined that they were going to their children's school to meet with the school director or the crossing guards and then chose their preferred logo for a Mercedes sedan and a Rolex (7pt scale; 1 = small logo; 7 = large logo). A composite of the items served as the dependent measure ( $\alpha=.68$ ). There was a marginal interaction ( $p<.08$ ). Mothers desired larger logos in the high benefit condition compared to the low benefit condition ( $p<.05$ ). There was no effect of condition on choice of logo size for non-mothers ( $p>.64$ ). Mothers desired significantly larger logos in the high benefit condition compared to non-mothers ( $p < .01$ ).

We predicted that these effects would be specific to women because their identity as a parent is more chronically salient than is men's (Katz-Wise et al. 2010). In experiment 5, we primed a parenthood identity to illuminate the effect in men using a 2 (target condition: child vs. cousin) X 2 (gender) design. Those in the child (cousin) condition were told to imagine what it would be like to be a parent (to have a cousin) and write for one minute about the activities that they would engage in with their child (cousin). All participants then wrote about dropping their child (cousin) off for school (work) and then completed the Mercedes logo task. As expected, the results showed a main effect for target condition ( $p < .02$ ) but no interaction ( $p > .77$ ). Both men and women desired the larger logos when in a parenting mindset compared to the control mindset.

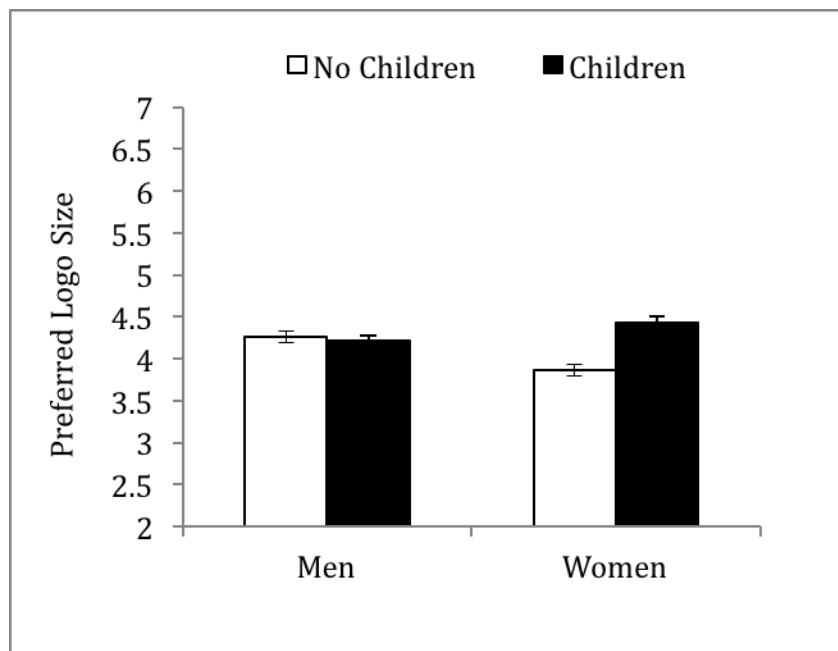
Five experiments found that motherhood was a significant predictor of women's conspicuous consumption. This research reveals a surprising, previously unknown predictor of women's desire for conspicuous luxury brands.

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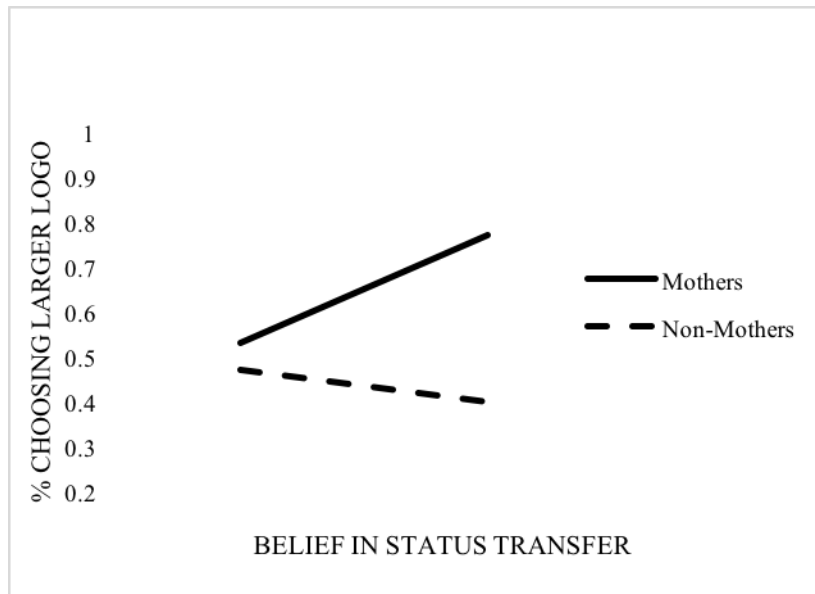
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## STUDY 2 RESULTS



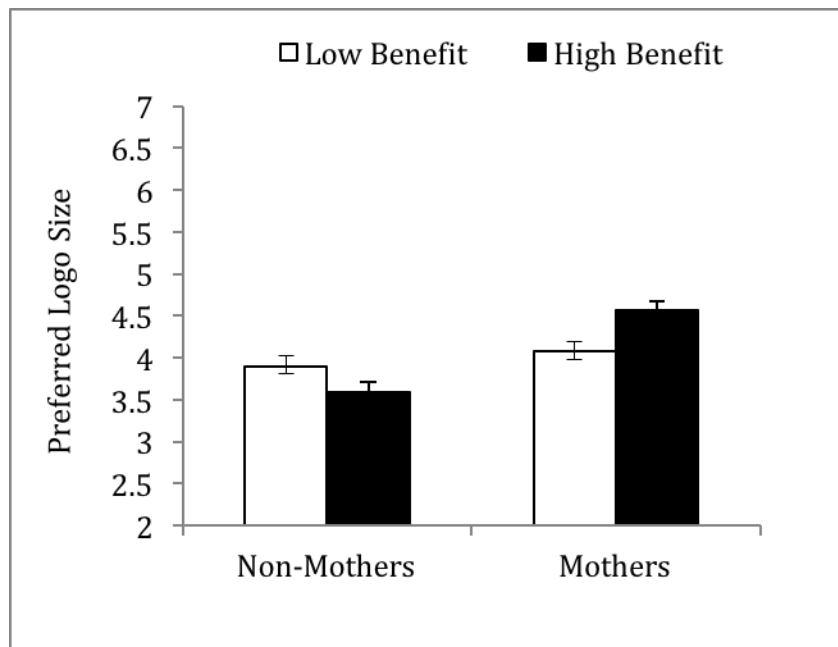
Larger numbers indicate larger logo sizes.

### STUDY 3 RESULTS



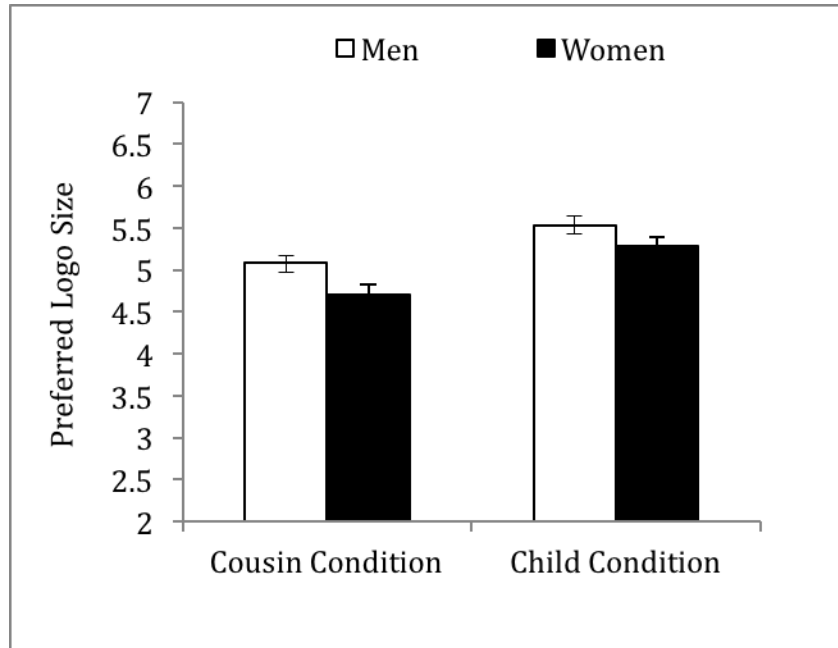
Larger numbers indicate larger logo sizes.

### STUDY 4 RESULTS



Larger numbers indicate larger logo sizes.

## STUDY 5 RESULTS



Larger numbers indicate larger logo sizes.

### **Possession Substitutability: Identity and Usage of Rented (Versus Owned) Products** Liad Weiss, University of Wisconsin - Madison, USA\*

Previous research has shown that perceptions of brand substitutability and category substitutability respectively affect brand switching (e.g., from iPhone to Galaxy) and category switching (e.g., from laptop to tablet). Similarly, we suggest that possession substitutability perceptions may affect the decision about whether to switch from using owned to using rented gear. We predicted that greater centrality (or importance) of an identity (e.g., skier) will decrease the perceived substitutability of relevant possessions (e.g., skis) due to the classification of such possessions as more self-central (i.e., more “me;” Weiss and Johar 2013). Consequently, the consumer will be less inclined to use rented gear to temporarily substitute a possession even when the rental is of better quality. Thus, the very consumers who could most appreciate using superior rented gear (e.g., “die-hard” skiers) would be ironically the least likely to do so (due to being the most reluctant to forgo using their own gear).

Indeed, our prediction is directionally consistent with previous research about how endowment and attachment are stronger when an item is identity-relevant (vs. -irrelevant) (Dommer and Swaminathan 2013; Ferraro, Escalas, and Bettman 2011). However, previous research has studied consumers’ preference for owned (vs. unowned) goods only in situations that include a possible loss of ownership over the good (e.g., due to sale). In contrast, we study preference for owned goods without a possible loss of ownership over the good, specifically in



choices about whether to *temporarily* substitute a possession with a rental (e.g., ship one's skis to the resort or rent skis on-site).

Consistent with low possession substitutability as the driver for low renting, we predicted that impeding the effect of identity centrality on low possession substitutability will reverse the ironic effect of identity. We theorized that construing the self in terms of an identity that does not depend on gear for engaging in identity activities (e.g., a "chef" requires equipment to cook, but a "foodie" only needs her taste buds to eat) will impede the effect of identity centrality on possession substitutability. In such situations, greater identity centrality may actually predict more (vs. less) usage of superior rentals.

Results from five studies were consistent with our predictions. In study 1, while planning an out-of-state cycling vacation, participants learned that the local shop rents out bikes identical to theirs. The rental cost was either higher or lower than the cost of shipping their bike there. After choosing between shipping and renting (DV), participants reported the extent to which cycling was central to their identity in real-life. Consistent with lower possession substitutability, identity centrality predicted (i) lower renting and (ii) smaller positive effect of lower (vs. higher) renting price on renting likelihood.

To rule-out a "renting-aversion" account, whereby identity centrality simply increases dislike of the unfamiliar, study 2 manipulated whether the gear in one's possession (i.e., the familiar gear) was owned or borrowed. Further, to rule out a "sunk-cost" explanation involving initial investment in the gear, any initial investment in the gear was eliminated. Participants in the ["borrowed" / "owned"] condition imagined planning a cycling vacation, deliberating between shipping there the quality bike family friends recently left for them [to use for the year they are away / as a hand-me-down right before going away for a year] (option 1) and renting gear at the local shop (option 2). Consistent with predictions, identity centrality predicted lower renting when the gear in one's possession was owned, but not when it was borrowed.

To rule-out a "mere-involvement" account, whereby, when identity is central, consumers care more about what gear they use and prefer their own gear because they think it is better, study 2 manipulated the rental's quality. Further, to promote a causality argument, identity-centrality was manipulated. Participants imagined owning high-quality fishing gear they used when fishing was central to their identity. Subjects in the ["identity-central" / "identity-peripheral"] condition read that fishing is [still / no-longer] central to their identity. Then, after finding damage to their gear before an upcoming fishing trip, participants chose between paying to expedite repairs and renting similar gear (DV). Subjects in the [higher / lower] quality condition learned that the rental gear was [better / worse] than the gear they owned. Consistent with low substitutability, fishing identity centrality (vs. peripherality) (i) lowered renting preference and (ii) attenuated the positive effect of higher (vs. lower) quality of the rental on renting likelihood. Mediation analysis showed that identity centrality increased gear classification as "me," and subsequent possession unsubstitutability – expectation that the experience would be different without one's possession. Consequently, subjects expressed lower desire to rent regardless of the rental's quality.

Studies 4a and 4b tested the moderating role of whether the activated identity is product-centric, or whether it pertains to activities that require gear (e.g., listening to music as an “audiophile” requires hi-fi speakers), or product-agnostic, or whether it pertains to activities that can be engaged in directly through the senses (e.g., listening to music as a “musicophile” only requires the ability to hear). Activating a product-agnostic identity was predicted to hinder construal of objects in terms of “self” (Weiss and Johar 2016). Consequently, consumers were predicted to be unmindful of object “me-ness,” and thus not to perceive possessions with higher “me-ness” as less substitutable. To test this prediction, Study 4a participants in the [“musicophile” / “audiophile”] condition wrote two things about themselves that reflect their [music-lover / audiophile] side. Participants then imagined owning high quality headphones. In the scenario, they were online, buying tickets to a silent concert, “where music is transmitted via radio waves and the audience listen to it through headphones.” Subjects chose between paying to use a high-fidelity radio connector they could plug their own headphones to (option 1) and paying a bit more to use the event’s wireless headphones, known for their better sound reproduction (option 2, DV). Results showed that greater “audiophile” centrality predicted *lower* renting when the activated identity was “audiophile,” but higher renting when the activated identity was “musicophile.” Study 4b replicated the results in incentive-compatible settings. Consequences for identity research and for marketers in the booming access-based economy are discussed.

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### **Undermining the Restorative Potential of Compensatory Consumption: A Product’s Explicit Identity Connection Impedes Self-Repair**

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L. J. Shrum, HEC Paris, France\*

When consumers experience a threat to their self-concept, they often attempt to repair their self-concept by consuming products that symbolize competence or mastery on the domain of the self that is threatened (Wicklund & Gollwitzer, 1982). For example, relative to non-threatened

participants, power-threatened participants were willing to pay more for high-status products (Rucker & Galinsky, 2008), intelligence-threatened participants were more likely to choose products associated with intelligence as free gifts (Gao et al., 2009), and those whose self-esteem was threatened through social exclusion donated more money to charity (Lee & Shrum, 2012).

Our research question is whether such within-domain compensatory consumption is successful in repairing the self-concept. Although some research suggests that it may (Gao et al.), recent research suggests that it may not. Lisjak et al. (2015) showed that within-domain compensatory consumption in reaction to self-threats caused people to ruminate about the threat, which in turn reduced self-regulation.

Five experiments aimed to reconcile these different findings. We demonstrate that self-repair via within-domain compensatory consumption can be successful, but only when the compensatory product is not explicitly connected to the self-threat domain. Explicit connections (used by Lisjak et al.) are those that make the connection with the threatened identity aspect obvious and direct (e.g., through slogans, such as a *Scrabble* board game with the slogan “The smartest mind game;” for an intelligence threat), whereas implicit connections (used by Gao et al.) are ones in which the identity connection is inherent in the product but no explicit claims are made (*Scrabble* without a slogan; Fig. 1). We also show that this effect is mediated by rumination about the threat: Explicit connections cause rumination, which impedes self-repair, but implicit connections do not.

Experiment 1 tested the self-repair hypothesis. Participants were either threatened or not on the domain of intelligence, and then given the opportunity to compensate by choosing an intelligence-signaling product (*Scrabble* from a of either three explicitly connected products (slogan “The smartest mind game”) or three implicitly connected ones (no slogan). Next, in an separate study, participants indicated their preferences for two items, one of which signaled intelligence (book) and one that did not (shirt). As expected, threatened participants who had previously compensated with explicitly connected products continued to compensate by displaying a stronger preference for the intelligence-signaling product than did non-threatened participants ( $p=.006$ ), indicating self-repair was not successful. In contrast, the preferences of threatened participants who had compensated with implicitly connected products did not differ from non-threatened participants, ( $F<1$ ; Fig 2), indicating that self-repair was successful.

Experiment 2 tested the self-repair hypothesis and the hypothesis that initial compensation would occur regardless of whether the connections were explicit or implicit. Participants were either threatened or not on power, and then given the opportunity to compensate by indicating their WTP for an explicitly connected status product (watch with slogan “In command;” Rucker & Galinsky, 2008), implicitly connected (watch with no slogan), or unconnected (microwave). Next, participants were given a second chance to compensate in an unrelated task in which they expressed their preferences for job roles that were either high- or low-power. As expected, threatened participants’ WTP was greater than non-threatened for both implicitly ( $p=.03$ ) and explicitly connected products ( $p=.02$ ) but not for unconnected ( $F<1$ ; Fig. 3, top), indicating compensation for both explicit and implicit connections. However, for the second compensatory task, those in the explicit connection condition who were threatened continued to compensate by expressing a greater preference for the high-power job role ( $p=.008$ ), indicating no self-repair from the initial task, but those who compensated in the implicit condition showed no greater preferences for the high-power role compared to non-threatened participants ( $F<1$ ; Fig. 3, bottom), indicating self-repair. In addition, as expected, threatened participants in the initial,

unconnected condition, who did not have an initial opportunity to compensate, also expressed a marginally greater preference for the high-power role ( $p=.103$ ).

Experiments 3 and 4 tested the mediation hypothesis (rumination) using the causal chain method (Spencer et al., 2005). In Experiment 3, we threatened intelligence and measured rumination. Intelligence-threatened participants who compensated with explicitly connected products reported greater rumination than those who compensated with implicitly connected products ( $p=.03$ ) and those who were not threatened ( $p=.003$ ), but the latter two conditions did not differ ( $p=.29$ ; Fig. 4). In Experiment 4, we manipulated rumination after a sociability threat and measured sociability, in a repeated-measures design. Those who were induced to ruminate about a previous sociability threat rated themselves as less sociable compared to their baseline measure obtained one week earlier ( $p=.03$ ). In contrast, sociability ratings of those who were prevented from ruminating did not differ from the baseline measure ( $F<1$ ; Fig. 5).

In Experiment 5, we sought to eliminate the self-repair impediment for explicit connections by also including a condition in which the threat itself was implicit (Gao et al.), in which participants wrote about a time they had felt intelligent, but first manipulated their general confidence (Gao et al.). We also included explicit threat and no threat conditions used in previous studies. We then gave all a chance to compensate with the same product selection task as Experiment 1. Next, we gave participants a second change to compensate via an explicitly connected experience (minutes willing to queue for a knowledge exhibition) or unconnected (convenience store queue). Replicating Experiments 1-4, participants in the explicit threat condition were willing to wait longer than in implicit threat condition ( $p=.018$ ) or no-threat condition ( $p=.05$ ), indicating no self-repair, but the latter two conditions did not differ ( $p=.67$ ), and threat condition didn't influence wait time for the convenience store ( $F<1$ ; Fig. 6).

This research addresses the conditions under which compensatory consumption is successful. Compensation for self-threats via implicitly connected products is more effective in self-repair than through explicitly connected products, however consumers are not well-calibrated in terms of the relative effectiveness of the two compensatory modes. Only when the products involved are implicit in their connection to the threatened identity domain does compensatory consumption lead to self-repair, but the effect is eliminated if the threat itself is implicit.

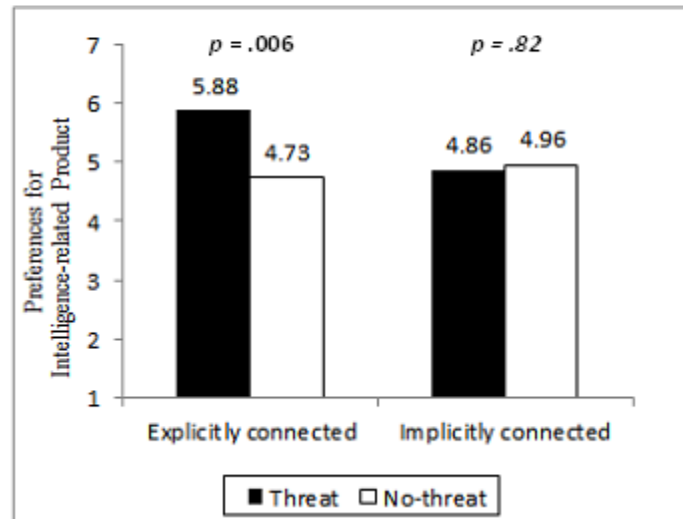
Figure 1

### The smartest mind game



**FIGURE 2**

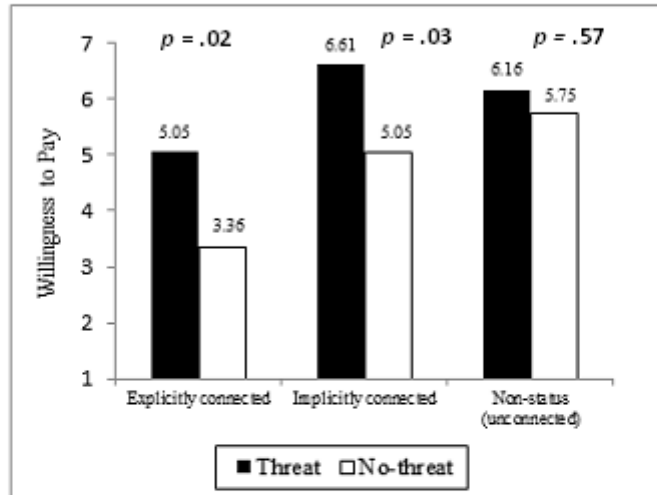
**PREFERENCES FOR INTELLIGENCE-RELATED PRODUCT AS A FUNCTION OF THREAT AND PRODUCT CONNECTION (EXPERIMENT 1)**



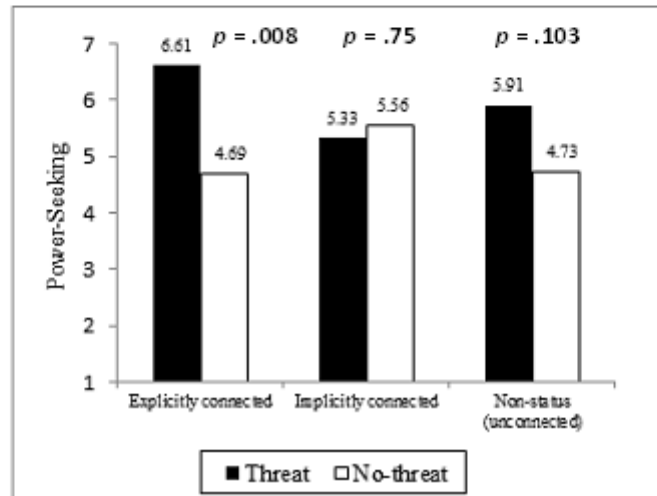
**FIGURE 3**

**COMPENSATORY CONSUMPTION AND SELF-REPAIR AS A FUNCTION OF PRODUCT CONNECTIONS (EXPERIMENT 2)**

**Compensatory Consumption**

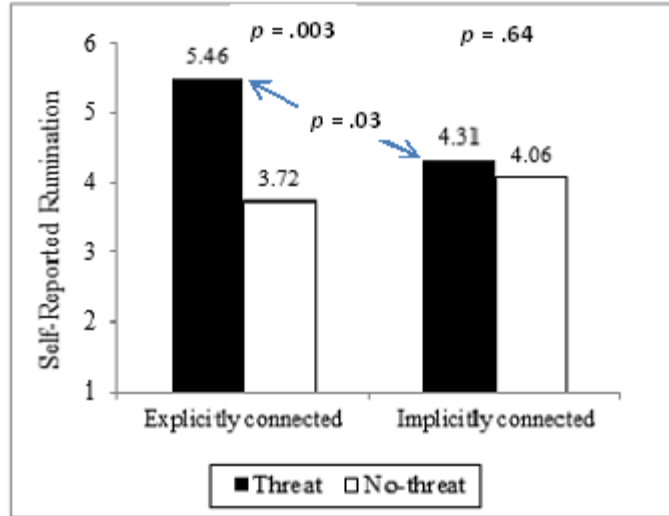


**Self-Repair**



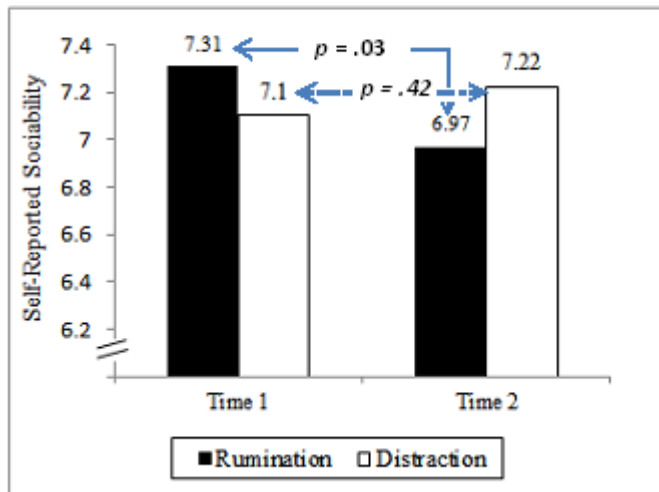
**FIGURE 4**

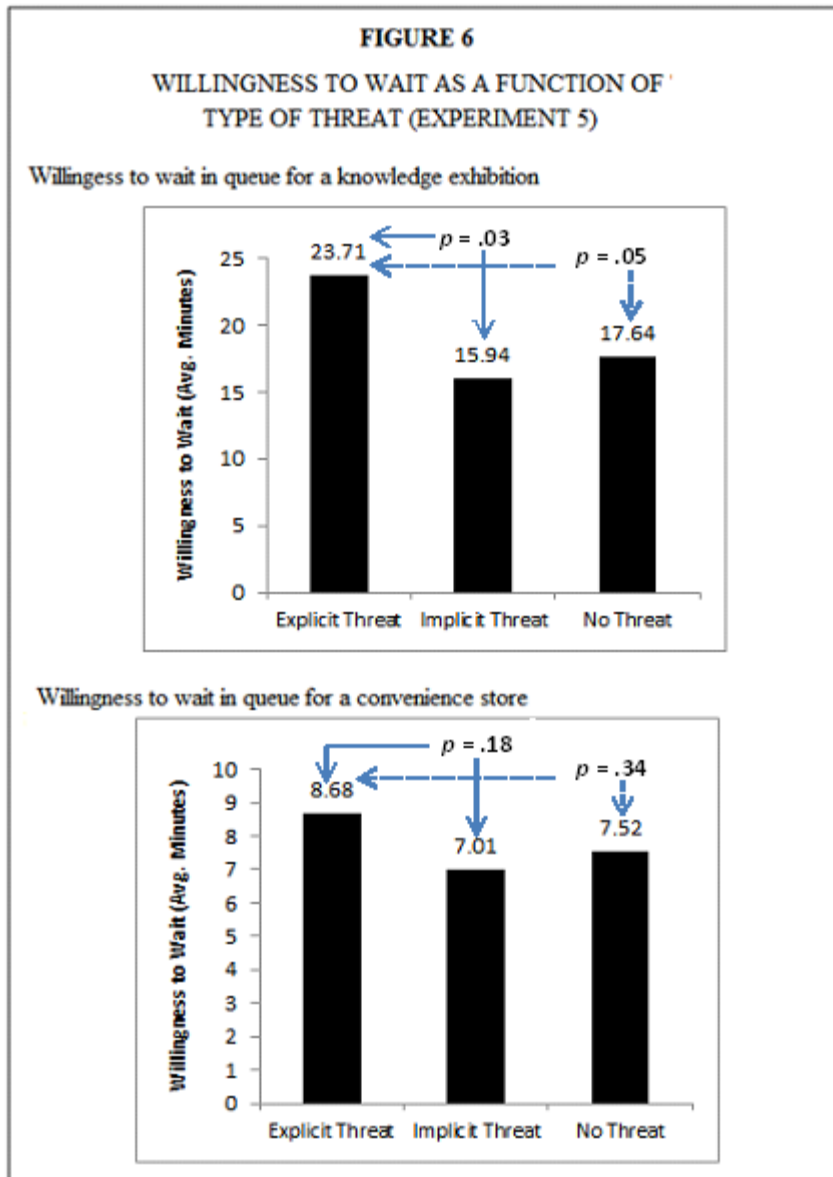
**SELF-REPORTED RUMINATION AS A FUNCTION OF THREAT AND PRODUCT CONNECTION (EXPERIMENT 3)**



**FIGURE 5**

**SELF-REPORTED SOCIABILITY AS FUNCTION OF RUMINATION CONDITION (EXPERIMENT 4)**





### The Impostor Syndrome from Luxury Consumption

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Nailya Ordabayeva, Boston College, USA

Anat Keinan, Harvard Business School, USA

Sandrine Crener, Harvard Business School, USA

Luxury brands symbolize cultural ideals and desirable qualities such as power, influence, and success, which embody individuals' aspirations (Belk 1998). Wearing luxury can yield certain benefits such as economic rewards, preferential treatment, and recognition from others (Lee, Ko, and Megehee 2015), however, we argue that it can also make consumers feel less authentic.



Self-authenticity is important because it impacts individuals' physical and psychological well-being (Sheldon et al. 1997). But, the prior marketing literature has understudied consumers' pursuit of self-authenticity, focusing instead on consumers' pursuit of authentic products (Grayson and Martinec 2004), rather than an authentic *self*, and on the link of self-authenticity to counterfeit products (Gino, Norton, and Ariely 2010), overlooking its potential link to authentic products.

We propose that, although consuming luxury products may garner status benefits, it may also make consumers feel inauthentic, producing "the paradox of luxury consumption." Specifically, luxury consumption generates inauthenticity feelings because it is perceived to be more extrinsically rather than intrinsically motivated. Inauthenticity feelings from luxury consumption are more pronounced among consumers with low, rather than high, levels of psychological entitlement (i.e. a belief that one deserves a valued resource or a positive outcome more than others just because of who they are). These feelings are moderated by product conspicuousness and the perceived malleability of cultural capital.

Seven studies conducted in the laboratory and field tested our hypotheses using different operationalizations of luxury (vs. non-luxury) consumption including price, brand, product description, and personal experience.

Study 1 demonstrates the paradox of luxury consumption. We surveyed female patrons of the Metropolitan Opera in New York City to examine the relevance of the phenomenon for a target market of luxury brands. Participants imagined they were shopping for a dress to wear to the opera and they were considering two suitable options – a luxury dress and a non-luxury dress. They were asked to choose which dress would yield greater social recognition and which dress would make them feel more authentic. The choice of dress differed across the recognition vs. authenticity indexes ( $\chi^2=85.85, p<.001$ ). The luxury dress was perceived as being *more* likely to garner participants social recognition (30% chose the luxury dress vs. 12% chose the non-luxury dress), but as being *less* likely to make participants feel authentic (6% chose luxury vs. 55% chose non-luxury). A follow-up study replicated these findings in the lab.

Studies 2a and 2b examined the mediating role of the interplay between extrinsic and intrinsic motivation using a real luxury product.

In Study 2a, lab participants examined an iPhone cover which was presented to them as a luxury gold-plated (vs. metallic) cover. They indicated how inauthentic they feel using the cover and briefly explained their feelings. Luxury (vs. non-luxury) consumption increased inauthenticity feelings. While participants mentioned extrinsic motivation more frequently in the luxury (vs. non-luxury) condition, intrinsic motivation was mentioned less frequently. The perceived dominance of extrinsic over intrinsic motivation mediated the effect of luxury on inauthenticity feelings.

Study 2b replicated these findings in the field, using direct ratings of extrinsic and intrinsic motivation. Shoppers inside and around a flagship Apple store examined the same iPhone cover as in Study 2a. The effect of luxury (vs. non-luxury) on inauthenticity feelings was positive, and mediated by the dominance index of perceived extrinsic over intrinsic motivation.

Studies 3a and 3b tested the moderating role of psychological entitlement.

In Study 3a, participants recalled a situation in which they wore a luxury or non-luxury product and indicated how authentic they felt wearing it. Additionally, we measured psychological entitlement (Campbell et al. 2004). There was a significant luxury  $\times$  entitlement interaction: luxury increased inauthenticity feelings over non-luxury among *unentitled* individuals, but not among entitled individuals.

In Study 3b, participants imagined they were travelling with a Louis Vuitton (vs. L. L. Bean) duffle bag. Once again, luxury increased inauthenticity feelings over non-luxury only among *unentitled* individuals. The perceived dominance of extrinsic over intrinsic motivation mediated the moderating effect of entitlement.

Studies 4 and 5 explore the interventions that mitigate inauthenticity feelings from luxury consumption.

Study 4 sought to test the psychological process through moderation. Participants were randomly assigned to one of five conditions (luxury control, non-luxury control, conspicuous luxury –high extrinsic motivation, inconspicuous luxury –low extrinsic motivation, and private luxury –high intrinsic motivation). As expected, luxury increased inauthenticity feelings compared to non-luxury. Inconspicuous luxury and private luxury consumption reduced inauthenticity feelings, and these effects were moderated by psychological entitlement. The main effect of luxury (vs. non-luxury), inconspicuous luxury and private consumption, as well as the moderating effect of psychological entitlement, were mediated by the perceived dominance of extrinsic over intrinsic motivation.

Study 5 tested the moderating effect of the perceived malleability of cultural capital (i.e. the ability to intrinsically appreciate cultural, artistic, and luxury goods). Framing cultural capital as malleable (vs. fixed) should increase individuals' perceptions that the ability to intrinsically appreciate luxury can be developed and needs to be maintained, reducing, in turn, inauthenticity feelings among unentitled people. In contrast, framing cultural capital as malleable should increase inauthenticity feelings among entitled individuals, since it reminds them that the intrinsic ability to appreciate luxury should be developed and maintained. There was a significant cultural capital  $\times$  entitlement interaction: the effect of entitlement on inauthenticity feelings persisted when cultural capital was fixed, but not when cultural capital was malleable. Framing cultural capital as malleable (vs. fixed) reduced inauthenticity feelings of unentitled individuals, and it increased inauthenticity feelings of entitled individuals.

Our work adds to theory and practice by uncovering the paradox of luxury consumption, showing how consumption behaviors impact self-authenticity, and illustrating the role of psychological entitlement in driving consumer experiences.

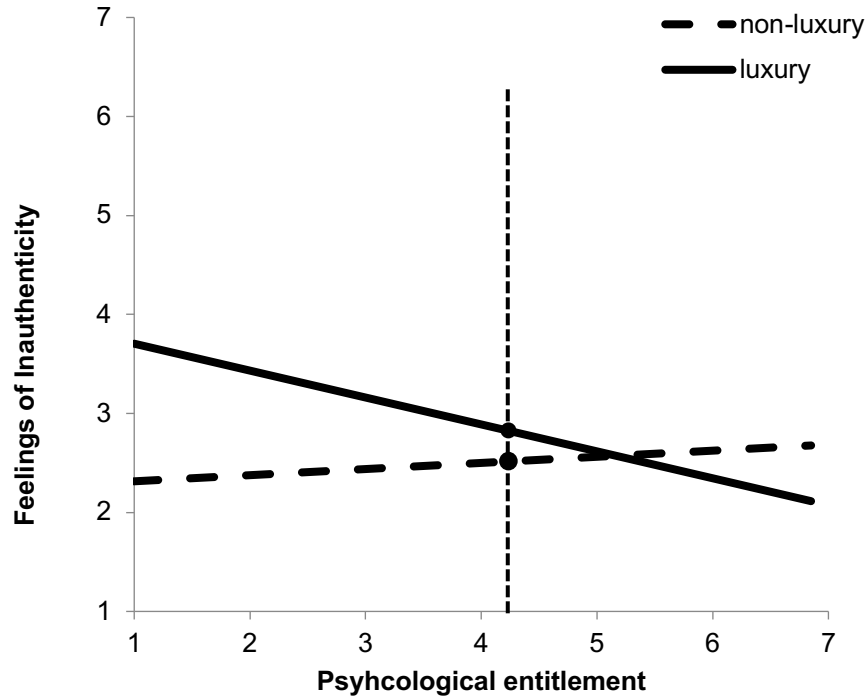
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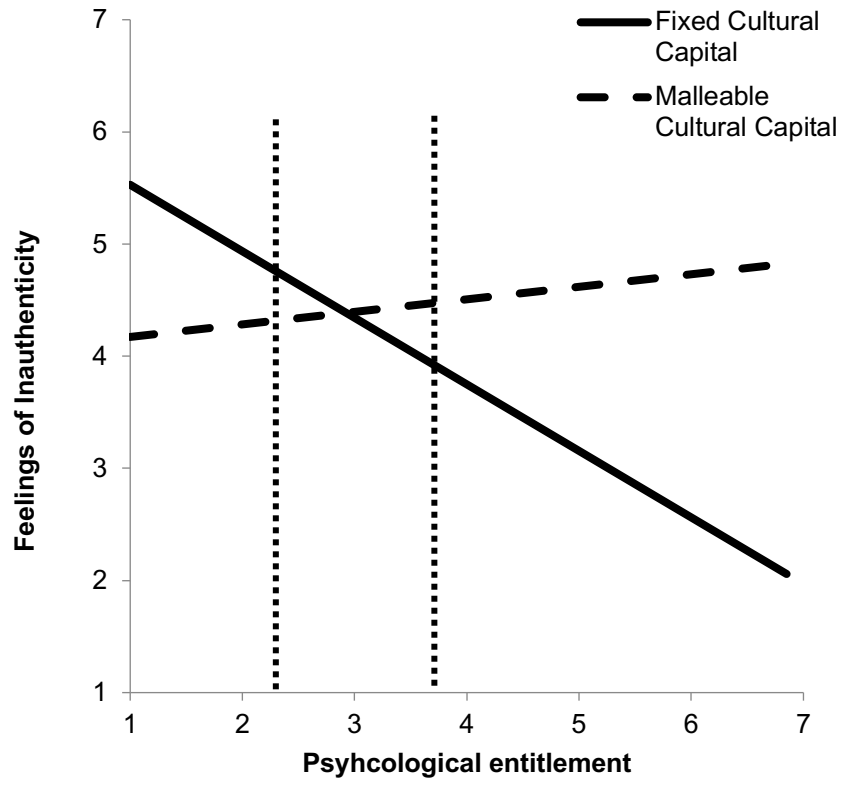
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**STUDY 3A: PSYCHOLOGICAL ENTITLEMENT DRIVES INAUTHENTICITY FEELINGS FROM LUXURY CONSUMPTION**

A



**STUDY 5: MODERATING EFFECT OF THE PERCEIVED MALLEABILITY OF CULTURAL CAPITAL**



## Session 7

### 7.1 Goal Processes in Physical and Cognitive Contexts Symposium

Paper 1: Motivated Construals: How Goals Implicitly Change Object Meaning  
Szu-chi Huang\* (huangsc@stanford.edu), Stanford University  
Melissa Ferguson (mjf44@cornell.edu), Cornell University  
Ying Zhang (zhang@gsm.pku.edu.cn), Peking University  
Ayelet Fishbach (ayelet.fishbach@chicagobooth.edu), University of Chicago

Paper 2: Embodiment as Procedures: Physical Cleansing Changes Goal Priming Effects.  
Ping Dong (ping.dong@kellogg.northwestern.edu), Northwestern University  
Spike W. S. Lee\* (spike.lee@utoronto.ca), University of Toronto

Paper 3: The Meaning of Cleansing Moderates the Impact of Cleansing on Guilt Reduction  
Tae Woo Kim\* (kim805@indiana.edu), Indiana University  
Adam Duhachek (aduhache@indiana.edu), Indiana University  
Pablo Briñol (pablo.brinnol@uam.es), Universidad Autónoma de Madrid  
Spike W. S. Lee (spike.lee@utoronto.ca), University of Toronto  
Richard E. Petty (petty.1@osu.edu), Ohio State University

Paper 4: When Implementation Intentions Backfire: Illusion of Goal Progress and Reduced Goal Pursuit  
Linda Court Salisbury\* (salisbli@bc.edu), Boston College  
Gergana Y. Nenkov (gergana.nenkov@bc.edu), Boston College  
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*Objective of the Session.* Traditional social psychological theories assume that individuals' motivations are rather static due to chronic drivers. These steady motivations, such as need for closure (Kruglanski & Webster, 1996) or learning or performance goals (Dweck, 1999), have been shown to exert important influences on people's preferences and behaviors. However, our motivations and desires are rarely so constant or stable in real life. Rather, they fluctuate from one moment to the next as we run into distractions and temptations. Also, consumers often have multiple goals that they wish to pursue, such as professional success, eating healthy, and doing good for others. Given the existence of multiple goals and situational changes, for goal-directed behavior to succeed, goal processes need to be flexible enough to adapt to the physical and cognitive contexts in which they are situated. Indeed, research has revealed the importance of adjusting one's behaviors to one's current active goals (Custers & Aarts, 2007) and shown that people adept at adjusting their goal pursuit to circumstances live better, happier lives (Brandtstädter & Renner, 1990). However, our understanding of the physical and mental dynamics governing the flexibility of goal processes and their behavioral consequences is still under-developed. Critical gaps of knowledge remain: What physical or

cognitive factors shape the effects of goals on consumer decision-making? How do active goals direct consumers' physical experiences and consumption preferences, and vice versa?

*How the Papers Fit Together.* This session brings together 4 papers that report 15 studies on consumer goal processes. Together, they advance theoretical understanding of the tremendous flexibility of goal processes in physical and cognitive contexts. Extending the assumption that goals can shape meaning-make, the first paper (Huang, Ferguson, Zhang, & Fishbach) examines how active goals influence consumers' construal of goal-related physical stimuli, especially those that are *irrelevant* to the attainment of the goal. It shows that activating a goal can change the implicit meaning of objects, making them more goal-facilitative. For instance, when consumers' fitness goal was activated, they became slower at responding to eating-relevant objects in a lexical decision task and reported lower likelihoods of consuming the tempting food. The next three papers explore how physical and cognitive contexts influence goal pursuit. Integrating insights from grounded cognition and goal priming research, the second paper (Dong & Lee) investigates how consumers' physical experience—in particular, physical cleansing—shifts goal pursuit. By proposing an integrative account of cleansing as a procedure of psychological separation, this research shows that cleansing can both diminish and amplify goal priming effects. For example, consumers judged their goals as more important if the goals were primed after than before cleansing. The power of cleansing in shifting goal pursuit is demonstrated with goal accessibility, goal-directed behavior, and goal-importance judgment. The third paper (Kim, Duhachek, Briñol, Lee, & Petty) extends research on the guilt-alleviating effects of cleansing by highlighting that the meaning of cleansing plays a critical role as people pursue the goal of maintaining a morally positive self-view. Specifically, cleansing reduces guilt only when the physical action means removing dirt from hands but not when the same action has an alternative meaning. Finally, challenging the well-established positive effects of implemental mindset on goal pursuit, the fourth paper (Salisbury, Nenkov, & Zhao) explores how the effects of implemental versus deliberative mindset on consumers' goal pursuit vary as a function of consumers' level of knowledge. While implemental (vs. deliberative) mindset facilitates goal pursuit for consumers with high knowledge in the task domain, it undermines goal pursuit for consumers with low knowledge in the task domain. For instance, among consumers with low financial knowledge, activating an implemental mindset produced an illusion of greater goal progress, which weakened their goal pursuit and led to lower payment commitment.

*Why the Topic is Important.* Taken together, the present findings advance and challenge several key assumptions about goal processes such as the positive influence of implemental mindset on goal pursuit. They spark a lively discussion on how active goals may shape consumers' physical and cognitive experiences, and vice versa. Goal effects were demonstrated across a variety of goal contents, including healthy eating (papers 1, 2 & 4), physical fitness (papers 1 & 2), academic performance (paper 2), morality (paper 3), saving (papers 2 & 4), and debt repayment (paper 4). The primary audience for this session will be basic and applied researchers interested in motivation and goal pursuit, judgment and decision making, sensory marketing, financial behavior, and self-control. (732 words)

**Motivated Construals: How Goals Implicitly Change Object Meaning**

Szu-chi Huang\*, Melissa Ferguson, Ying Zhang, and Ayelet Fishbach

Short abstract (82 words):

We examined how goal activation would influence the construal of goal-related stimuli, especially those that were *irrelevant* to the attainment of the goal. Through four experiments on fitness and thirst goals, we found that activating a goal changed the implicit meaning of objects, making them more goal-facilitative. Importantly, this effect occurred because goals changed the accessibility of those features that were relatively less common constituents in the object's construal, therefore having the most informational value in shaping the ultimate meaning of objects.

Extended Abstract (999 words):

The last two decades of work in social and cognitive psychology suggests that the meaning of an object is extremely fluid and context-based (Aarts, Dijksterhuis, & DeVries, 2001; Balcetis & Dunning, 2006; Forster, Liberman, & Higgins, 2005). Any given object has myriad features and memories associated with it, and our understanding—or construal—of the object depends on which are most accessible in memory at the moment. Water, for example, can be construed in terms of swimming, bathing, drinking, or farming features. The particular features that end up populating a given construal then influence behavior toward the object. When our construal of water happens to be based on its bathing features, for example, we should be less likely to use it to quench our thirst.

This fluidity in object construal has important implications for consumers' self-regulation. Our research showed that an individual's currently active goal implicitly constrained the meaning of objects in a way that made him/her more likely to attain this goal. We also found that those with goal-driven construals showed more goal-facilitative behaviors. Together, our findings revealed a new route of motivated cognition: goals change the implicit construal of objects to be more goal-facilitative, which then increases goal-facilitative behavior toward those objects. In this way, what we want subtly transforms our psychological assessment of our environment in a way that nudges our behavior toward attaining our goal.

In Study 1, we tested whether activating a goal of fitness would change the implicit construal of tempting foods. We first manipulated the activation of the fitness goal between subjects using a scrambled sentence task. Participants then moved on to the second task—a lexical decision task, through which we measured the kinds of features most accessible for each of a series of tempting foods to capture participants' implicit construal of temptations. Specifically, the prime stimuli consisted of 5 temptation foods (chocolate, burger, chips, cake, and steak) or a nonsense stimulus (“zxcvbnm”). The targets consisted of features that were specific to each primed temptation and were either typical and thus eating-related (e.g., for burger: juicy, hot, grilled) or atypical and thus eating-irrelevant (for burger: disk, round, and brown). We measured the time it took participants to categorize each target word as a real or non-word.

We submitted reaction times to a repeated-measures ANOVA with Prime (temptation, nonsense) and Target (eating-relevant, eating-irrelevant) as the within-subject variables, Goal Condition (fitness, control) as the between-subject variable, and reaction times to neutral target trials as a covariate to control for individual differences in responding. We found the

hypothesized 3-way interaction between Goal Condition, Prime, and Target,  $F(1, 69) = 8.77, p = .004, \eta_p^2 = .113$ . Decomposing this 3-way interaction, we found a significant 2-way interaction between Target and Goal Condition for temptation primes,  $F(1, 69) = 8.30, p = .005, \eta_p^2 = .107$ , but not for nonsense primes. Specifically, for eating-irrelevant target words, participants were faster to respond in the fitness ( $M = 519$  ms) versus control condition ( $M = 567$  ms). For eating-relevant targets, however, participants responded directionally slower in the fitness ( $M = 541$  ms) versus control ( $M = 522$  ms) condition. As predicted, when participants' fitness goal was activated, they responded significantly faster on trials where temptations were followed by "eating-irrelevant" features, e.g., construing a burger as something round and brown instead of juicy.

We hypothesized that this motivated construal is goal-facilitative, which would discourage the consumption of unhealthy food. We tested this possibility in Study 2. We used the same 5 tempting foods as in Study 1, and directly manipulated whether those temptations were associated with eating-irrelevant features (or not) using a lexical decision task. For those in the "Eating-Irrelevant" condition, the 5 temptation primes were always paired with the eating-irrelevant targets in the 15 trials (e.g., burger-round), and the nonsense prime stimulus was always paired with the neutral targets. For those in the "Control" condition, the temptation primes were always paired with the nonsense targets, and the nonsense prime stimulus was always paired with the eating-irrelevant targets. We then measured participants' desire to consume these temptations. We found that for those who believed that these temptations were unhealthy (and thus wanted to reduce their consumption), they reported significantly lower likelihood of consuming the temptations in the eating-irrelevant condition ( $M = 6.65$ ) than in the control condition ( $M = 7.74$ ),  $B = -1.10, t(109) = -2.92, p = .004$ ; associating temptations with eating-irrelevant features thus reduced their intent to consume these items. We did not find this effect among participants who believed that these temptations were healthy.

Study 3 used a similar paradigm as Study 2 but with a different goal—drinking water to quench thirst. Based on our hypothesis, when people think of water in terms of drinking-irrelevance such as bathing, farming, and swimming, they should be less likely to drink water. We first made half of the participants thirsty (by eating pretzels) and another half not thirsty (by eating cherry-tomatoes) under the cover story of snack tasting. Then we experimentally manipulated participants' construal of water by strengthening (vs. not strengthening) the association between water and drinking-irrelevant stimuli through a lexical decision task. We then measured participants' intake of water. We found that participants whose thirst was experimentally increased (vs. not thirsty) responded more slowly to pairings of water and drinking-irrelevant words, but did not respond differently to the control pairings. This suggested that thirsty people were less likely to construe water in terms of "irrelevant associations" that would discourage them from drinking it. In addition, exposure to these drinking-irrelevant pairings decreased thirsty participants' actual consumption of water ( $M = 114.86$  ml), compared with the control conditions (water prime/control target:  $M = 205.47$  ml; control prime/irrelevant target:  $M = 154.96$  ml). Therefore, changing the construal of an object influences the consumption of that object. We replicated these findings on thirst goal activation in Study 4, in which we used a memory paradigm (Roediger & McDermott, 1995) instead of the reaction-time paradigm to capture the inhibition of drinking-irrelevant concepts.



Short Abstract (74 words):

Four experiments show that physical cleansing can both diminish and amplify goal priming effects, based on measures of goal accessibility, goal-directed behavior, and goal importance judgment. Based on the logic of moderation-of-process, we see evidence that the effects emerge because cleansing functions as an embodied procedure of psychological separation, which appears to be applicable across multiple domains. The findings raise the possibility of a new perspective on embodied cues—as triggers of psychological procedures.

Extended Abstract (982 words):

Physical cleansing has been shown to reduce the influence of numerous psychological experiences, such as guilt from immoral behavior (Zhong & Liljenquist, 2006), dissonance from free choice (Lee & Schwarz, 2010), good/bad luck from winning/losing (Xu, Schwarz, & Zwick, 2012), and the influence of receiving an endowed product on subsequent product exchange (Florack et al., 2014). Such domain-general effects have been collectively referred to as “clean-slate effects” (Lee & Schwarz, 2011). But “clean-slate effects” is no more than a summary term. It remains entirely unclear why a simple act of cleansing has the power to reduce the impact of all kinds of prior experience. The present research seeks to unpack the theoretical nature of clean-slate effects.

We propose that cleansing functions as an embodied procedure of psychological separation. In the most basic sense, physical cleansing involves physically separating (e.g., detaching, removing) traces of physical experience (e.g., dirt, grease) from a physical target object (e.g., body, table). Such basic physical experience can serve as the sensorimotor grounding of higher mental processes (Barsalou, 2008; Williams, Huang, & Bargh, 2009), especially when they share similar relational and inferential properties. Psychological cleansing shares similar relational and inferential properties insofar as it involves psychologically separating (e.g., dissociating, diminishing) traces of psychological experience (e.g., sinning, choosing) from a psychological target object (e.g., self, other). In this view, by invoking the same underlying relational structure of separation, physical cleansing can produce consequences of psychological cleansing, reducing the mental accessibility of these traces as well as their effects on judgments and behaviors. We test these core predictions in the context of goal priming.

In Experiment 1 ( $N = 101$ ), we examine whether physical cleansing may reduce the accessibility of a previously primed goal. First, participants were primed with an academic achievement goal through a sentence scrambling task. Then, they either used or examined an antiseptic wipe under the pretense of product evaluation. We then measured participants’ mental accessibility of the focal goal (academic achievement), a conflicting goal (socializing), and an unrelated goal (kindness). Results revealed that physical cleansing rendered concepts about the primed goal less accessible, concepts about the conflicting goal more accessible, and concepts about the unrelated goal unaffected. This particular pattern suggests that a goal rather than a semantic concept was activated (Förster, Liberman, & Friedman, 2007) and that cleansing can change goal accessibility.

In Experiment 2 ( $N = 242$ ), we investigate the effect of physical cleansing on overt behavior driven by a previously primed goal. Participants were first primed with either a health goal or no goal. Then, they either used or examined an antiseptic wipe. Finally, as a token of appreciation, participants were given a 90-calorie Quaker granola bar and a 250-calorie Snickers chocolate bar to choose from. Choosing the healthier food item (granola rather than chocolate bar) would be more consistent with the previously primed health goal. We found that if participants had been primed with a health goal, using (vs. examining) the wipe reduced their tendency to choose the granola bar. But if participants had been primed with no particular goal, using (vs. examining) the wipe did not influence their food choice.

In Experiment 3 ( $N = 209$ ), we compare cleansing effects on the judged importance of a previously primed goal and a subsequently primed goal. First, participants completed a scrambled sentence task with words related to health or saving. Then, participants either used or examined an antiseptic wipe. Next, participants were primed with a different goal by completing another scrambled sentence task. Those primed with a health (vs. saving) goal before the cleansing manipulation were primed with a saving (vs. health) goal after. Finally, participants rated the importance of health and saving goals among fillers. We found that without physical cleansing, goals were judged as similarly important regardless of whether they were primed before or after people merely examined a cleaning product. But with physical cleansing, goals were judged as more important if they were primed after than before people actually used a cleaning product.

In Experiment 4 ( $N = 126$ ), we explore why physical cleansing has the power to diminish and amplify the relative effects of previously and subsequently primed goals. By the logic of moderation-of-process (Spencer, Zanna, & Fong, 2005), we test the prediction that an alternative manipulation that psychologically separates the past from the present (e.g., shifting one's salient identity; Oyserman, 2009) should render a previously primed goal less important and a subsequently primed goal more important, but these effects should vanish once people engage in physical cleansing because of its power of psychological separation. To test this, all participants were female and were first primed with a fitness goal within a female identity by listing activities they would do to stay in shape as a woman. Then, participants either used or examined an antiseptic wipe. Next, all participants completed a scrambled sentence task that primed an academic achievement goal, but half were told that the researchers were interested in "female students' verbal ability" (same identity as invoked earlier); the other half, "University of Toronto students' verbal ability" (different identity from that invoked earlier). Lastly, all participants rated the importance of various goals, including fitness and academic achievement among fillers. Results revealed that without cleansing, a subsequently primed goal became more important if it invoked a different (vs. the same) salient identity than before, whereas a previously primed goal appeared to become less important. But with cleansing, invoking a different (vs. the same) salient identity no longer influenced the importance of either the subsequently or the previously primed goal. The subsequently primed goal was simply more important than the previously primed one. This pattern suggests that cleansing functions as an embodied procedure of psychological separation.

These findings have implications for the flexibility of goal pursuit. More broadly, our procedural perspective generates novel predictions about the scope and mechanisms of cleansing effects and helps integrate embodied, magical, and certain irrational phenomena.

**The Meaning of Cleansing Moderates the Impact of Cleansing on Guilt Reduction**

Tae Woo Kim, Adam Duhachek, Pablo Briñol, Spike W. S. Lee, and Richard E. Petty

Short Abstract (94 words):

Research has shown that the experience of a negative emotion, such as guilt, is aversive and thus activates a goal to reduce the negative emotion. Studies in the literature of embodied cognition have shown that cleansing one's body part (e.g., washing hands) is an effective means to achieve the goal of guilt reduction. We propose that this effect is moderated by the meaning that the actor ascribes to the action. In three experiments, we show that the very same action can exert different effects on guilt depending on the manipulated meaning of the action.

Extended Abstract (973 words):

Immoral behavior elicits negative emotions and activates the goal of downregulating negative emotions. Cleansing the body (e.g., washing hands) has been shown to help people attain this goal, thanks to the metaphorical association between cleanliness and morality (Lakoff & Johnson, 1980; Lee & Schwarz, 2011; Zhong & Liljenquist, 2006). This area of work generally assumes that the clean-moral link is stable and readily accessible. We challenge this assumption.

Recent studies have shown that effects of a physical action depend on the meanings associated with it. For example, putting on a white coat may or may not increase mental acuity, depending on whether the coat is believed to be a doctor's or a painter's coat (Adam & Galinsky, 2012). This finding is consistent with work on naïve theories and metacognition (Briñol, Petty, & Tormala, 2004; Schwarz, 2004), which emphasizes the importance of one's secondary thoughts about the meaning of one's action. We propose that the emotion-reducing effect of cleansing is moderated when the cleansing action is given an alternative meaning. Furthermore, we propose that the emotion-reducing effect of cleansing is stronger when the negative emotions are elicited by conducting an unethical action (vs. not conducting an ethical action) because the former is more associated with metaphorical associations with contamination and cleansing (e.g., "putting blood on one's hands").

*Study 1.* One hundred and twenty-two business undergraduate students ( $M_{age} = 20.88$ ,  $SD_{age} = 1.18$ ; 39% women) were randomly assigned to one of the conditions in a 2 (purpose of gel: sanitizing, hand grip enhancement) between-subjects design. Participants were instructed to recall a past event in which they committed a moral transgression and wrote about it as specifically as possible. In the sanitizing (hand grip enhancement) condition, participants were told that they were going to evaluate gel that sanitized the hands (enhanced the extent to which an object stuck to the hand). Then, participants applied the gel on their hands. Our dependent variable was the 7-item scale that measured negative emotions (e.g., "guilty").

The index of negative emotions was submitted to a 2 (purpose of gel: sanitizing, hand grip enhancement) ANOVA. As predicted, the negative emotions were significantly lower in the sanitizing gel condition ( $M = 3.88$ ,  $SD = 1.56$ ) than in the hand-grip-enhancement gel condition ( $M = 4.32$ ,  $SD = 1.23$ ;  $F(1, 120) = 4.07$ ,  $p = .046$ ).

*Study 2.* One hundred and fifty-eight business undergraduate students ( $M_{age} = 20.67$ ,  $SD_{age} = 1.53$ ; 55% women) were randomly assigned to one of the conditions in a 2 (meaning of action: default, new) x 2 (action: present, absent). The procedure for negative emotion induction was identical to study 1. Then, hand washing was associated with the meaning of "removing

dirt” (i.e., default meaning) or “listening to the self” (i.e., new meaning) by a sentence completion task (e.g., “Washing h( )nds removes d( )rt.” vs. “Washing your h( )nds purifies the body to hear the m( )nd”). In the action-present condition, participants washed their hands using the hand sanitizing soap. Then, participants completed the same dependent measures as in study 1. Participants in the action-absent condition answered the dependent measures without washing their hands.

The index of negative emotions was submitted to a 2 (cleansing action: present, absent) x 2 (meaning of cleansing action: default, new) ANOVA. As predicted, the interaction between the cleansing action and its meaning was significant ( $F(1, 154) = 3.97, p = .05, \eta_p^2 = .03$ ; see figure 1). Specifically, when action was present, washing hands reduced the negative emotions more when the action had its default cleansing meaning ( $M = 3.47, SD = 1.23$ ) than when it had the new meaning ( $M = 4.25, SD = 1.24; F(1, 154) = 6.99, p = .009$ ). Additionally, the default meaning reduced the negative emotions significantly more when the action was present ( $M = 3.47, SD = 1.23$ ) than when the action was absent ( $M = 4.57, SD = 1.33; F(1, 154) = 13.57, p < .001$ ).

*Study 3.* Two hundred and twenty-five business undergraduate students ( $M_{age} = 20.33, SD_{age} = 1.47$ ; 51% women) were randomly assigned to one of the conditions in a 2 (cause of negative emotions: unethical action, inaction) x 3 (purpose of gel: sanitizing, hand grip enhancement, control) between-subjects design. In the unethical action (inaction) condition, participants were given a vignette and imagine that they conducted an unethical (did not conduct an ethical) behavior which made them feel guilty. The manipulation of the purpose of the gel was similar to study 1 and the only difference was that a control condition was added in which participants examined but not used hand sanitizing gel. Dependent measures were the same as in previous studies.

The index of negative emotions was submitted to a 2 (cause of negative emotions: unethical action, inaction) x 3 (purpose of gel: sanitizing, hand grip enhancement, control) ANOVA. The main effect of cause of negative emotions was marginally significant ( $F(1, 219) = 3.33, p = .07$ ); the main effect of gel purpose was significant ( $F(1, 219) = 4.96, p = .008$ ); and the two-way interaction was not significant ( $F(1, 219) = 1.20, p = .30$ ). In the unethical action condition, using sanitizing gel ( $M = 5.47, SD = 1.36$ ) resulted in significantly less negative emotions than using hand grip enhancement gel ( $M = 6.16, SD = .98; p = .01$ ). In the unethical inaction condition, however, the sanitizing and hand grip enhancement gel did not produce significantly different effects ( $p = .43$ , see figure 2).

The current research shows that what drives embodiment effect is not the cleansing action itself but the meaning ascribed to it. The impact of meaning was shown by a set of different actions such as using gel (studies 1 and 3) or washing hands with water (study 2). We also showed that cleansing reduces negative emotions more strongly after unethical action than after unethical inaction (study 3).

**When Implementation Intentions Backfire:  
Illusion of Goal Progress and Reduced Goal Pursuit**  
Linda Court Salisbury, Gergana Y. Nenkov, and Min Zhao

Short abstract (82 words):

Counter to prior research indicating the positive effects of implemental mindset on goal pursuit, we find that while implementation mindset facilitates goal pursuit for consumers with high knowledge in the domain, the effect of implemental mindset backfires for consumers with low knowledge in the domain. Compared with deliberative mindsets, implemental mindset leads to an illusion of greater goal progress and subsequently reduces low-knowledge consumers' goal pursuit. This pattern of effect was observed in goals related to debt repayment, saving, and healthy eating.

Long abstract (992 words):

A vast amount of research on implemental vs. deliberative mindsets has demonstrated across various domains that implemental mindset (which focuses on the steps to achieve a goal) leads to more successful goal attainment than deliberative mindset (which focuses on whether one should pursue the goal) (Gollwitzer, 1999). However, related literature has also shown that implemental mindset can be associated with optimistic inferences, such as illusory control over the extant environment (Gollwitzer & Kinney, 1989) or illusion of higher personal capability (Taylor & Gollwitzer, 1995).

How would these positive illusions triggered by implemental mindset impact consumers' goal pursuit? Research on licensing effects has indicated that prior choice which boosts a positive self-concept can subsequently license the choice of a more self-indulgent or less moral option (Effron & Monin, 2010; Khan & Dhar, 2006). Further, recent work on the effect of past good behavior has shown that while abstract thinking highlights the underlying reasons for the good behavior and leads to consistent goal pursuit, concrete thinking focuses attention on the past good behavior itself and leads to licensing effect (Conway & Peetz, 2012). At the same time, prior research suggested that people's knowledge of an event influences their level of thinking such that those with greater knowledge or experience are more able to integrate details at an abstract level whereas those with lower knowledge focus on the concrete specifics (Vallacher & Wegner, 1987). Drawing on these findings, we predict that while implemental mindset facilitates goal pursuit for people with high knowledge, it can backfire for low-knowledge consumers, and reduce their goal pursuit because of the illusion of goal progress of the preceding task.

To test our hypothesis, we conducted four studies. In all studies, participants first completed a priming task that induces different types of mindset or goals. Consistent with classic mindset manipulations (Gollwitzer, 1999), in the implemental mindset condition, participants were asked to choose a certain goal they have decided to pursue and write down 5 steps and the details involved in implementing these steps. In the deliberative mindset condition, they were asked to indicate a certain goal they were deciding whether to pursue, and write down 5 positive and negative consequences of this goal. After the priming task, participants were shown a goal scenario and asked to indicate their decisions including credit card debt repayment (Studies 1 and 2), saving (Study 3), and healthy eating (Study 4). Knowledge in the specific domains was measured at the end of each study.

In Study 1, 137 participants from an online panel were randomly assigned to an implemental or deliberative mindset condition and reported their perceived progress of the personal goal they have just considered. Subsequently, participants saw a typical credit card statement with total balance (\$1,937.28), APR (14%) and Minimum Required Amount (\$38.74), and were asked to indicate their payment amount. The results show that participants in the implemental mindset condition indeed perceived greater progress on the personal goal they picked in the priming task, compared with the deliberative condition ( $M_{\text{implemental}} = 3.00$  vs.  $M_{\text{deliberative}} = 2.15$ ,  $t = 5.33$ ,  $p < .001$ ). Further, we found a goal progress illusion bias for participants with low financial knowledge: Implemental mindset (and the greater perceived progress of the preceding personal goal) led to higher proportion paying the minimum required amount, which represented a lower payment commitment ( $M_{\text{implemental}} = 21.4\%$  vs.  $M_{\text{deliberative}} = 12.9\%$ ,  $z = 2.00$ ,  $p < .05$ ).

In Study 2 ( $N = 128$ ), using the same credit card debt repayment scenario, we compared the effect of implemental mindset induced by a goal that is consistent with paying off debt (repayment goal) versus a goal that conflicts with it (spending goal). The results showed a similar licensing effect for low-knowledge participants: Those in the repayment condition perceived greater progress toward their financial goal than those in the spending condition ( $M_{\text{repayment}} = 3.45$  vs.  $M_{\text{spending}} = 2.89$ ,  $t = 3.64$ ,  $p < .001$ ), and their subsequent payment amount in the main task was significantly lower ( $M_{\text{repayment}} = \$242.28$  vs.  $M_{\text{spending}} = \$601.60$ ,  $t = -2.46$ ,  $p < .02$ ).

In Study 3, 193 student participants were asked to consider the goal of saving money and were assigned to either the implemental or deliberative condition in the priming task. Afterwards they read about a special savings program from their local bank to encourage college students to save money. Participants were then told that they have just received a paycheck of \$500 and need to decide how much to deposit in the savings account. Consistent with findings in Studies 1 and 2, while no difference was observed for high-knowledge participants, implemental mindset backfires for low-knowledge participants, and led to lower amount of saving compared with deliberative mindset ( $M_{\text{implemental}} = \$302.37$  vs.  $M_{\text{deliberative}} = \$341.50$ ,  $t = 2.165$ ,  $p < .04$ ).

In Study 4, we moved from financial goals to a healthy-eating goal. 132 Mturkers were asked to consider the goal of eating a healthier diet, and were asked to either write down the steps of achieving this committed goal (implemental mindset) or the pros and cons of this undecided goal (deliberative mindset). After this writing priming task, participants were given a snack choice that included two healthy snacks (Orange and banana) and two unhealthy snacks (M&Ms and Doritos chips). As expected, for people with low dieting knowledge, implemental mindset backfired and directionally reduced percentage of people choosing healthy snacks ( $M_{\text{implemental}} = 76\%$  vs.  $M_{\text{deliberative}} = 88\%$ ,  $t = -1.12$ ,  $p = .26$ ). Based on this pattern, a field study with real snack choice in front of the university gym is planned for the upcoming fall semester.

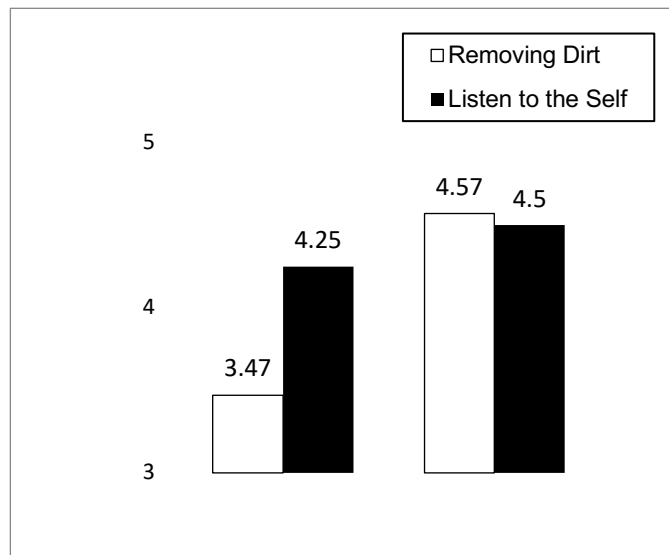
Taken together, our studies suggest that implementation intention can backfire and reduce goal pursuit for low-knowledge consumers because of illusory goal progress. These novel findings identify a new type of progress bias (see Campbell & Warren, 2015) and contribute to the literature on goal attainment implementation intention and licensing effects. They also caution marketers and policy makers when applying implemental mindset in practice.

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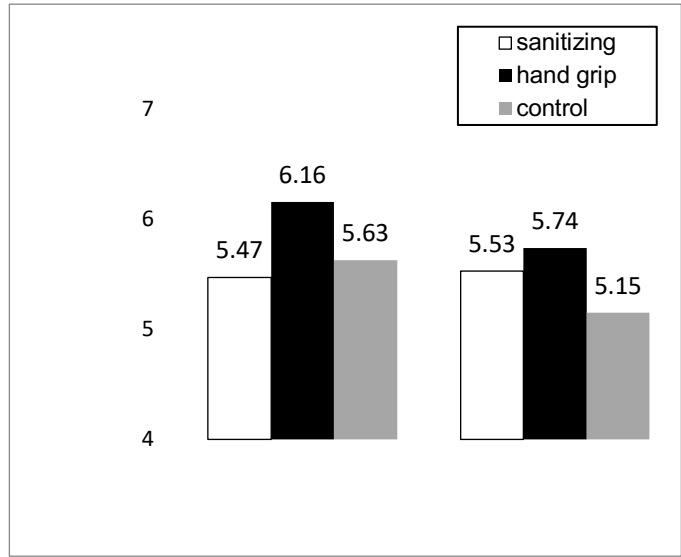
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**FIGURE 1 (PAPER 3)**  
 STUDY 2 RESULTS: NEGATIVE EMOTION AS A FUNCTION OF ACTION PRESENCE AND ACTION MEANING





**FIGURE 2 (PAPER 3)**  
STUDY 3 RESULTS: NEGATIVE EMOTION AS A FUNCTION OF CAUSE OF ACTION  
AND GEL PURPOSE



## **7.2 Making Reviews that Matter: Factors that Drive the Influence of Online Reviews Symposium**

### **Paper 1: In Mobile We Trust: How Mobile Reviews Influence Consumers' Purchase Intentions**

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### **Paper 2: Telling Both Sides of the Story: The Role of Risk in the Perceived Helpfulness of Online Reviews**

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### **Paper 3: Verified Fake: How Fraudulent Review Disclaimers Affect Consumer Brand Judgments**

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### **Paper 4: Relationship Norms in Response to Online Reviews in P2P Exchanges**

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When was the last time you booked a hotel without checking what others have to say about it online? More than 80% of consumers indicate that reviews from peers are an important determining factor for their purchase decisions (eMarketer 2016). Consumers also trust reviews to a much higher degree than marketer-initiated communications (eMarketer 2010). Yet, not all reviews are equally persuasive or useful to consumers. The goal of this session is to illuminate the factors that determine the impact of online reviews. Specifically, the four papers identify novel ways in which the device from which a review is posted (mobile vs. desktop, Grewal and Stephen), its content (one-sided vs. two-sided reviews, Schlosser, Borah, and Cao) knowledge of its veracity (presence vs. absence of fake review disclaimers, Watson and Kirmani), as well as product/service (purchase risk, Schlosser, Borah, and Cao), consumer (relationship orientation, Srinivasan, Ordabayeva, and Hoyer), and provider characteristics (P2P vs. commercial, warm vs. competent, amateur vs. Professional provider, Srinivasan et al.) impact the usefulness and persuasiveness of online reviews.

First, **Grewal and Stephen** examine how the device from which an online review is posted influences its persuasiveness. Their findings show that mobile reviews are persuasive to consumers and lead to higher purchase intentions because such reviews are perceived as more effortful to write, and thus are perceived as being more diagnostic of a review writers' true opinion. Next, **Schlosser, Borah, and Cao** study how the interplay of content (one-sided vs. two-sided reviews) and product characteristics (amount of purchase risk) impacts the helpfulness of reviews. They show that in contexts with low purchase risk (social, monetary, performance), consumers perceive two-sided reviews as more helpful than one-sided reviews; however when

the purchase risk is high, two-sided reviews become less helpful to consumers than one-sided reviews. The third paper by **Watson and Kirmani** explores how the disclosed veracity of online reviews (presence vs. absence of a fraudulent review disclaimer) activates persuasion knowledge, leading consumers to discount all reviews of a similar valence, in an effort to correct for the fraudulent review. Their findings show that fraudulent review disclaimers lead to an overcorrection effort by consumers, such that disclosure of one fraudulent review leads consumers to be less likely to read reviews of a similar valence, and ultimately weight the valence of the fraudulent review (negative vs. positive) in subsequent evaluations more than the other non-fraudulent reviews. Finally, **Srinivasan, Ordabayeva, and Hoyer** examine how consumer and provider characteristics interact to influence the persuasiveness of online reviews in the context of peer-to-peer (P2P) exchanges. They demonstrate that consumers with communal (exchange) relationship orientation are more responsive to reviews of P2P (commercial) providers, amateur (professional) and warm (competent) P2P providers.

Altogether, this session provides important theoretical and practical insights into the factors (e.g., device, content, product, consumer and provider characteristics) that drive the persuasiveness and helpfulness of online reviews. Due to the wide-ranging insights offered by the researchers who approach the question of “what makes reviews persuasive and helpful” from unique and novel angles in contexts of increasing practical importance (e.g., increased use of mobile devices, social consumption, and the new sharing economy), we anticipate that this session will be of substantial interest to a broad audience at SCP.

### **In Mobile We Trust: How Mobile Reviews Influence Consumers’ Purchase Intentions**

#### **Short Abstract (91 words):**

In practice, some user-generated content sites, like TripAdvisor, differentiate between reviews posted from mobile versus non-mobile devices. However, the extent to which such information impacts consumers is unknown. To address this gap, we use TripAdvisor data and experiments to examine how mobile impacts consumers’ perceptions of reviews and their purchase intentions. We find that knowing that a review was posted from a mobile device leads consumers to perceive the review as more effortful to craft, find the review more diagnostic of the reviewers’ experience, and, importantly, leads to higher purchase intentions.

#### **Extended Abstract (985 words):**

A consumer-related use of mobile devices is the sharing of information with other consumers by creating user-generated content (UGC) and disseminating it through online platforms. In practice, some UGC sites differentiate between reviews posted from mobile versus non-mobile devices. For example, TripAdvisor uses a “via mobile” label to denote reviews from mobile devices. However, the extent to which such information impacts consumers is unknown.

While the device from which a consumer posts online reviews may seem inconsequential, we find that this is not the case. We find that how consumers process and are influenced by online reviews can be affected by knowing if the information was generated on a mobile device or a non-mobile device. This occurs because consumers think that it takes more physical and cognitive effort to generate reviews on mobile devices (Chae and Kim 2004; Sweeney and Crestani 2006). Consumers appear to have an implicit “effort heuristic” regarding mobile reviews where there is a belief that mobile is more effortful, it is because the writer had

something more diagnostic of the reviewer's experience (as effort has been shown to increase quality; Kruger et al. 2004), and subsequently, more persuasive in positively influencing consumer purchase.

Study 1 looks at online review data from TripAdvisor covering 1,547,219 reviews for 2,379 hotels in the US between February 2012 and September 2015. TripAdvisor, in February 2012 began labeling mobile reviews with a "via mobile" badge. In testing the effect of this badge, controlling for many other factors, we find that reviews with this mobile indicator are voted by users as being helpful significantly more often ( $b = .022, p < .001$ ). This finding suggests that mobile reviews are deemed more useful and influential—which should lead to higher purchase intentions.

Study 2 ( $N = 369$ ) uses an experimental design to examine the impact of mobile-written reviews on purchase consideration. In this study (and all subsequent studies) participants in all conditions viewed the same hotel review. All that varies is the device label; "via mobile" in the mobile condition, "via desktop" in the desktop condition, and no device label in the control condition (this replicates all non-mobile reviews online). We found a significant positive effect of mobile ( $b = .17, p = .001$ ) such that participants who saw "via mobile" on the review were more likely to consider purchase compared to those who saw the other two conditions. There was no significant difference in purchase intentions for those who saw the desktop or control condition ( $b = -.01, p = .915$ ; figure 1).

Study 3 ( $N = 440$ ) uses a 2(mobile, non-mobile) x 2(effort attribution, control) design to test if mobile reviews positively impact purchase when people are told the effort of mobile review-writing is equal to that of non-mobile. We also measured our mediator of perceived review writing effort (six items;  $\alpha = .88$ ). We found a significant interaction on purchase consideration ( $b = -.158, p = .006$ ) such that the effect of mobile on purchase was positive and significant in the control condition ( $b = .20, p = .019$ ) and not significant when participants believed there was equal effort put into writing the review regardless of device (figure 2). Additionally, we observed a significant index of moderated mediation (Model 8;  $CI_{95} [-.17, -.04]$ ), where there was only a positive significant indirect effect of mobile to purchase through effort in the control condition ( $CI_{95} [.02, .12]$ ; table 1).

Study 4 ( $N = 394$ ) further examined the process of why mobile positively influences purchase considerations in a 2(mobile, non-mobile) x 2(external motivation, control) design. We examined how knowing a review was externally motivated (e.g., paid review) influenced effort, the value of the review, and purchase. We found a significant interaction ( $b = .59, p = .04$ ) where mobile reviews positively impacted purchase in the control condition ( $b = .14, p = .006$ ), but not when reviews were externally motivated ( $b = .03, p = .577$ ; figure 3). We ran two separate serial mediation models at each level of the review writer's motivation to understand why more effortful reviews positively influence purchase (Model 6). We found significant serial mediation at the control condition where mobile positively influenced the perceived review-writing effort, which positively influenced the diagnostic value of the review (i.e., how accurately the review described their subjective experience), and consequently purchase ( $CI_{95} [.03, .15]$ ). This pathway was not significant for externally motivated reviews ( $CI_{95} [-.001, .008]$ ; table 2). Specifically, when reviews are not motivated by outside factors (e.g., payment), mobile-written reviews are seen as being more effortful to craft which increases the diagnostic value of the review. This subsequently positively impacts purchase intentions.

Study 5 ( $N = 414$ ) examines when effort does not positively influence purchase in a 2(mobile, non-mobile) x 2(positive, negative) design. The interaction was significant ( $b = .22, p$

< .001) such that mobile only positively impacted purchase intent when the review was positive ( $b = .52, p < .001$ ) but not when it was negative ( $b = .09, p = .162$ ). Despite this difference in purchase intention across review valence, we found a main effect of device on perceived effort ( $b = .40, p < .001$ ), such that mobile-written reviews were always seen as more effortful (figure 4). Lastly, we ran mediated moderation (Model 15) to further test this relationship. We observed a significant index of mediated moderation ( $CI_{95} [.02, .16]$ ; table 3). In the case of negative reviews, diagnosticity is less relevant to the decision, thus seeing a more effortful review doesn't improve purchase.

Our research contributes to the work on online WOM and UGC by focusing on an important but unexplored factor in influencing consumer attitudes and behaviors—the type of device (mobile vs. non-mobile) on which a UGC review was apparently generated. Our results also provide insights to managers and review-oriented platforms regarding the impact of explicitly indicating to people the type of device from which a review was posted.

## **RISKY BUSINESS: WHEN TELLING BOTH SIDES OF THE STORY REDUCES THE HELPFULNESS OF ONLINE REVIEWS**

### **Short Abstract (97 words):**

Websites often encourage reviewers to identify both a product's pros and cons (two-sided reviews) rather than present only the pros or cons (one-sided reviews). This strategy may seem best since mentioning multiple sides has the best odds of being deemed helpful when addressing an audience with unknown or diverse preferences, which is often the case for online reviews. Yet, we propose and show across five studies that two-sided reviews are often lower product judgments when advice is arguably needed most: when perceived risk is high. Moreover, we find that reviewer truthfulness (but not expertise) mediates this effect.

### **Long Abstract (999 words):**

Websites often encourage reviewers to identify both a product's pros and cons in their review (two-sided reviews) rather than present only the pros or cons (one-sided reviews). Such guidelines may seem justified given that presenting multiple sides on a topic increases the chances of appealing to everyone, especially when an audience's views are unknown (Tetlock, Skitka, and Boettger, 1989) or varied (Schlosser 2005). Furthermore, reviewers might believe that presenting multiple sides boosts their credibility. (e.g., Crowley and Hoyer 1994 for advertising claims). Yet, unlike advertisers, peer reviewers do not have a clear incentive to sell. As such, the credibility gains from two-sided ads may not generalize to peer reviews (Schlosser 2011). In fact, we propose that when consumers' perceived risk is high, encouraging reviewers to present multiple sides can backfire.

Two-sided messages have advantages and disadvantages. Two-sided messages suggest that the author considered alternative viewpoints (Sorrentino et al. 1988). Consequently, encouraging reviewers to write two-sided reviews might increase reviewer credibility and review helpfulness. However, because two-sided messages introduce conflicting information, they can cause consumers to feel more torn than providing them with consistent information (Wang, Batra and Chen 2016; Zemborain and Johar 2007).

We propose that the perceived helpfulness of two-sided versus one-sided reviews will depend on perceived risk. Perceived risk is the extent to which consumers are concerned that buying or using a product could yield a negative outcome (Cox and Rich 1964; Dowling and Staelin 1994). When risk is high, consumers are motivated to lower uncertainty (Mitchell and McGoldrick 1996; Pavlou 2003; Sheth and Venkatesan 1968). Because messages are more effective when they match individuals' orientations (Cesario et al. 2004; Lee and Aaker 2004), two-sided reviews may only increase helpfulness and persuasion when risk is low (when consumers want balanced, complete information) than high (when consumers want to reduce uncertainty). Furthermore, because this match increases truth judgements (Cesario, Higgins and Scholer 2008; Schwarz 1990; Schwarz & Clore 1983), only judgements of reviewer truthfulness (and not expertise) should mediate our predicted effects. We test these hypotheses across five studies in both the lab and the field across a variety of products and types of perceived risk: social risk (studies 1-2), monetary risk (studies 3-4), and performance risk (study 5).

In study 1, 127 participants read either a one or two-sided review for a new restaurant. Across lab studies, the one-sided review contained only favorable content, whereas the two-sided review was largely positive with a mild negative claim. They were then asked to choose a lottery prize for another student: either \$5 or a \$10 gift certificate to the reviewed restaurant. We measured perceived social risk by asking participants at the end of the study how risky they found this decision. After reading the review, they were asked to rate the review helpfulness. Finally, they were asked to choose between the same prize options for themselves. A regression analysis was conducted with review helpfulness as the dependent variable, and risk (continuous measure), review (1 = two-sided; 0 = one-sided), and the interaction term as predictors. As predicted, the risk x review interaction was significant (effect = -.20,  $t = -2.08$ ,  $p < .05$ ; see Table 4 for a summary of results across studies 1-3). As predicted, two-sided reviews were rated as more helpful than one-sided reviews only when perceived risk is lower. A binary logistic regression with prize choice for oneself yielded a marginally significant risk x review interaction (effect = -.47,  $z = -1.80$ ,  $p = .07$ ). When perceived risk was higher, two-sided (vs. one-sided) reviews caused more participants to choose the cash prize over the restaurant gift certificate for themselves, even though it was a lower monetary value.

In study 2, 231 participants read either a one- or two-sided restaurant review for going on a first date (high risk) or dining with a friend (low risk). To test the generalizability of our effects across star ratings, participants were also randomly assigned to reading either a four or five star review. Participants then rated the helpfulness of the review, their attitudes towards and intentions to go to the restaurant, and perceived reviewer truthfulness and expertise. A 2 x 2 x 2 ANOVA yielded a significant risk x review interaction for helpfulness, attitudes and intentions (all  $F_s(1, 223) > 6.97$ ,  $p_s < .01$ ). As predicted, the two-sided (vs. one-sided) review was deemed more helpful when risk was low but not high. Also, as predicted, attitudes and purchase intentions were lower for the two- than one-sided review when risk was high but not low. Importantly, the risk x review x rating interactions were not significant ( $F_s(1, 223) < 1$ ), attesting to the generalizability of our findings across ratings. Using Structural Equation Modeling (SEM), we found support for our conceptual model (Figure 5).

In study 3, 89 undergraduates participated in a 2 (risk: high vs. low) x 2 (review: one- vs. two-sided) design using a different product (pens) and manipulation of perceived risk (monetary risk). As expected, 2 x 2 ANOVAs yielded significant risk x review interactions such that a two-sided (vs. one-sided) review was less effective when monetary risk was high: it led to lower

helpfulness, attitudes and intentions ( $F(1, 85) > 4.60, ps < .05$ ). We find support for our conceptual model using SEM (Figure 6).

In studies 4-5, we test the robustness of our findings using data from amazon.com and find that two-sided reviews have a negative effect on helpfulness votes as perceived risk increases (Tables 5 and 6). The dependent variable in both studies was the proportion of helpfulness votes, while the independent variables were risk and two-sided intensity.

Our research contributes to the message sidedness literature by introducing perceived risk as an important moderator of receptivity to two-sided messages. We also contribute to the credibility literature by finding that two-sided messages increase truthfulness (but not expertise) perceptions, but only when perceived risk is low. Third, our research provides important managerial insights by suggesting that encouraging reviewers to identify both pros and cons in their reviews can backfire.

## **Verified Fake: How Fraudulent Review Disclaimers Affect Consumer Brand Judgments**

### **Short Abstract (92 words):**

Some review portals, like Yelp, have the ability to detect fraudulent reviews, and choose to disclose this information to consumers. Yet, the effects of this disclosure have yet to be investigated in the literature. Using Yelp data and a series of experiments, we demonstrate that a fraudulent review disclosure activates persuasion knowledge, and ultimately, creates a bias wherein consumers weight a fraudulent review more relative to all other reviews in judgments due to the saliency of the disclosure. This research has significant policy implications for review portals and welfare implications for consumers.

### **Extended Abstract (1000 words):**

Online reviews have demonstrated influence in consumers' purchase incidence and product evaluations (Chevalier and Mayzlin 2006; Dellarocas, Zhang, and Awad 2007; Duan, Gu, and Whinston 2008; Moe and Trusov 2011; Schlosser 2011; Khare et al. 2011; Floyd et al. 2014; Chen and Kirmani 2015; You, Vadakkepatt, and Joshi 2015). Because of this, it is important that online reviews are honest. Yet, recent research suggests that a substantial proportion of reviews have been created specifically with the intention to deceive and mislead consumers (Mayzlin, Dover, and Chevalier 2014; Luca and Zervas 2016). Luca and Zervas (2016) estimate that upwards of 15% of online reviews may be fraudulent.

To attenuate the influence of fraudulent reviews, some websites which host reviews employ complex filters to identify potentially fraudulent reviews. They then remove the fraudulent reviews from circulation. In doing so, they sometimes filter out honest reviews as well, which creates suspicion towards the review websites (Banks 2013). In response, some websites now display disclaimers (i.e., flags) which alert consumers when fraudulent reviews are found. While some research has explored characteristics of brands that are likely to solicit fraudulent reviews (Mayzlin, Dover, and Chevalier 2014) or characteristics of reviews that are likely fraudulent (Akoglu et al. 2013; Ott et al. 2013), in this research we investigate consumers' responses to fraudulent review flags. We posit that flags activate persuasion knowledge (Friestad and Wright 1994). Because identified fraudulent reviews are removed from ratings, we argue

that flags cause consumers to overcorrect for the presence of fraudulent reviews in an attempt to cope with a persuasion attempt.

Flags are used to punish brands for soliciting fraudulent reviews by alerting consumers that the brand has engaged in an unethical practice. For example, one Yelp alert reads “We caught someone red-handed trying to buy reviews for this business...”, and concludes by saying “... [Fraudulent reviews] not only hurt the consumers, but honest businesses who play by the rules.” Similarly, one TripAdvisor alert reads “TripAdvisor has reasonable cause to believe that individuals or entities associated with ... this property may have attempted to manipulate ... by interfering with the unbiased nature of our reviews”.

Three studies demonstrate the correction efforts of consumers who encounter a flag, while one study also demonstrates the effect of a flag on review reading behaviors.

Study 1 uses web-scraped data from Yelp to demonstrate the change in review ratings as a function of a flag. We used propensity score matching to create a control group who have not been flagged, and assessed the average review ratings before, during, and after a flag is displayed. Thus, a 2 (flagged brand: no, positive)  $\times$  3 (time period: before, during, after a flag) ANOVA on average brand ratings yielded a significant interaction (2, 2536) = 35.37;  $p < .001$ ), qualified by main effects of a flag ( $F(1, 2536) = 14.19$ ;  $p < .001$ ) and the time period ( $F(2, 2536) = 15.41$ ;  $p < .001$ ). In the “before” period, brands have significantly higher average ratings ( $M_{\text{flagged}} = 4.34$ ,  $M_{\text{not flagged}} = 3.09$ ;  $F(1, 2536) = 91.40$ ;  $p < .001$ ). However, in the “during” and “after” periods, this difference is no longer significant ( $p > .30$  and  $p > .20$ , respectively; see Figure 7). This study demonstrates that flags attenuate the benefit of fraudulent reviews, but it is unclear if this comes from a reduction in fraudulent reviews or subsequent consumer evaluations.

Study 2 ( $N = 195$ ) employs a 3-cell (flag: absent, negative, positive) between-subjects design. Participants were told to imagine looking for a dry cleaner in an unfamiliar city. After being told that one fit their needs, they were presented the standard brand information (e.g., name, location, average rating, number of reviews, etc.) and, in the flagged conditions, participants also viewed a disclaimer that disclosed that the website identified fraudulent reviews and the valence of the reviews. Participants were then asked to give the brand a rating on a 5-star scale. A one-way ANOVA of the flag on average brand ratings yielded a significant main effect ( $F(2, 193) = 59.22$ ;  $p < .001$ ). Planned contrasts further demonstrated that, relative to when flag is absent ( $M_{\text{absent}} = 2.91$ ), a negative flag increases ratings ( $M_{\text{negative}} = 3.47$ ;  $t(193) = 4.33$ ;  $p < .001$ ), while a positive flag decreases brand ratings ( $M_{\text{positive}} = 2.07$ ;  $t(193) = -6.47$ ;  $p < .001$ ) (see Figure 8). This study demonstrates that consumers attempt to correct for the valence of fraudulent reviews, suggesting that it is not merely a reduction in fraudulent reviews that causes the change in ratings valence as a result of the flag.

Study 3 ( $N = 459$ ) was designed to build upon the prior results by exploring consumers subsequent reading behaviors after encountering a flag. Thus, the same 3-cell design as the prior study was used, but after encountering the flag, participants could also read up to 10 “recent” reviews prior to making any evaluations. In addition to replicating the patterns demonstrated in Study 2 (see Figure 9), this study also examined the impact of a flag on review reading behavior. Relative to when a flag is absent ( $P_{\text{absent}} = .39$ ), negative flags decrease the propensity to first read 1-star reviews ( $P_{\text{negative}} = .19$ ;  $B = -.99$ ;  $\chi^2(1) = 14.15$ ;  $p < .001$ ) while positive flags do not ( $P_{\text{positive}} = .41$ ;  $B = .10$ ;  $\chi^2(1) = .20$ ;  $p > .65$ ). Similarly, relative to when a flag is absent ( $P_{\text{absent}} = .14$ ), positive flags decrease the propensity to first read 5-star reviews ( $P_{\text{positive}} = .07$ ;  $B = -.71$ ;  $\chi^2(1) = 3.24$ ;  $p = .072$ ) while negative flags do not ( $P_{\text{negative}} = .16$ ;  $p > .45$ ). Thus, an asymmetry



exists in the influence of flags based on their valence on subsequent consumer decisions (see Figures 10 & 11).

This research investigates the consequences of a flag on consumer behavior and decisions. It demonstrates that flags impact what consumers read and evaluations made of brands. Future research will explore the welfare implications of this, and how to help consumers make better decisions with the knowledge of fraudulent reviews.

## **Relationship Norms in Response to Online Reviews in P2P Exchanges**

### **Short Abstract (100 words):**

Despite their significance, there are few insights on consumer behaviors in P2P exchanges. We examine consumers' responses to online reviews of P2P providers. Online reviews are crucial for P2P providers' success because consumers face higher uncertainty in P2P (vs. commercial) exchanges. Six studies show that consumers with communal (exchange) relationship orientation are more responsive to reviews of P2P (commercial) providers, amateur (professional) and warm (competent) P2P providers, because consumers are more certain about providers' offerings when providers endorse the norms that match consumers' relationship orientation. The findings offer insights for theory of P2P exchanges and for practitioners in P2P marketplaces.

### **Extended Abstract (1000 words):**

Traditionally, marketing exchanges have involved commercial buyer and seller exchanges. However, in today's Internet-enabled world, another form of exchange, peer-to-peer (P2P) exchange, which involves peers selling products to other peers, is gaining prominence (Boesler 2013).

Three distinctive characteristics of P2P exchanges motivate this research. First, sellers in P2P exchanges share their personal property (e.g., apartment) with peers, who are unknown to them (Habibi, Kim, and Laroche 2016). Second, unlike traditional commercial providers operating under the aegis of brands and subject to quality controls, P2P exchanges are conducted by independent providers, resulting in variability in product quality. One way for potential P2P buyers to reduce their uncertainty about product quality is to read previous users' online reviews (Fradkin et al. 2015). Further, P2P exchanges are driven by not only exchange norms, but also by communal norms, which involve concern for the welfare of others. Given these differences, it is unclear whether the insights on consumers' responses to online reviews in traditional marketing exchanges will apply to P2P exchanges. Addressing this key research gap, we examine whether consumers' responses to users' online reviews in P2P exchanges are different from those in traditional marketing exchanges.

We develop a theory relating consumers' relationship norms and users' online reviews to consumers' P2P buying intentions. We hypothesize that a match between the communal (vs. exchange) norms of consumers and the communal characteristics of P2P providers (vs. exchange characteristics of traditional providers) strengthen consumers' responses to online reviews of P2P providers and shape their P2P buying intentions. Further, we hypothesize that two characteristics of P2P providers change the balance of communal vs. exchange norms in P2P exchanges. First, as amateur P2P providers treat their income as supplementary (vs. professionals treat their income primary), they tend to not invest (vs. significantly invest) in service provision (Li et al. 2015). Second, people differentiate between others on the basis of warmth and

competence (e.g., Cuddy, Fiske, and Glick 2008). Hence P2P providers' motivations as professional (vs. amateur) and positioning as warm (vs. competent) may change the balance of communal (vs. exchange) norms in the P2P exchange. Accordingly, we hypothesize that communal- (vs. exchange-) oriented consumers respond more to online reviews of amateur (vs. professional) and warm (vs. competent) P2P providers. Finally, we hypothesize that the responses of communal- (vs. exchange-) oriented consumers to online reviews of P2P providers are mediated by consumers' certainty about the P2P provider offering and increase their intention to buy the P2P offering. Six studies tested our theory.

In Study 1, participants read a positive (5-star) online review of a traditional (Hotels.com) or a P2P (Airbnb.com) accommodation provider. Participants indicated their purchase interest in the accommodation and completed a 12-item 7-point scale of relationship orientation (from 1 = exchange to 7 = exchange, Mills and Clark 1994). As predicted, the relationship orientation  $\times$  provider interaction was significant ( $b=.86$ ,  $t=2.17$ ,  $p=.03$ ): whereas individuals with a communal orientation (who scored 5.63 or higher on the scale) were more responsive to the online review of P2P provider, individuals with an exchange orientation (who scored 3.09 or lower on the scale) were more responsive to the online review of a traditional provider

Study 2 tested whether this effect is symmetric for positive and negative P2P provider reviews, and it examined the underlying process. Participants read a positive (5-star) or a negative (1-star) review of a P2P accommodation provider and indicated their purchase interest. They then completed the scale of relationship orientation and indicated their subjective certainty about the provider. As shown in Figure 12, the relationship orientation  $\times$  review valence interaction was significant ( $b=.88$ ,  $t=2.98$ ,  $p=.003$ ): communal (vs. exchange)-oriented individuals had more positive responses toward P2P providers following a positive review and more negative responses to P2P providers following a negative review. This effect was mediated by individuals' certainty about the provider (Model 8 results:  $a \times b=.2655$ ,  $SE=.1190$ , 95% CI=[.0861, .5604]; see Figure 12 for details).

Study 3A replicated the effect of consumers' communal (vs. exchange) relationship orientation on responses to P2P provider reviews using a manipulation (Aggarwal and Law 2005), instead of a measure, of relationship orientation. Study 3B showed that this effect does not depend on reviewers' communal (vs. exchange) orientation.

Study 4 tested the effect of consumers' relationship orientation on responses to online reviews of amateur versus professional P2P service providers. Participants completed the manipulation of relationship orientation from Study 3A. They then read a positive (5-star) review of a P2P meal (dinner) provider on a popular P2P meal service platform (Eatwith.com). The P2P provider was described as either amateur ("self-taught home cook") or professional ("professionally trained chef"). Participants expressed their purchase interest and indicated their certainty with the provider. As predicted, the relationship orientation  $\times$  provider interaction was significant ( $F(1,99)=7.96$ ,  $p=.006$ ): communal orientation increased individuals' response to an amateur P2P provider and exchange orientation increased individuals' response to a professional P2P provider. The results were mediated by individuals' certainty about the provider (Model 8 results:  $a \times b=.7279$ ,  $SE=.3071$ , 95% CI=[.2228, 1.4407]).

Study 5 tested the effect of consumers' relationship orientation on responses to online reviews of P2P providers with warm versus competent positioning. Participants read a positive (5-star) online review of a P2P meal provider on Eatwith.com. The provider positioned themselves as either warm or competent in their self-description. Participants indicated their willingness-to-pay for the dinner hosted by the provider, and they completed the relationship

orientation scale. As shown in Figure 13, the relationship orientation  $\times$  provider interaction was significant ( $b=29.97$ ,  $t=2.27$ ,  $p=.02$ ): individuals with a communal orientation (who scored 5.59 or higher on the relationship orientation scale) had a higher WTP for a meal following a positive review of a warmly positioned P2P provider, but individuals with an exchange orientation (who scored 3.68 or lower on the scale) had a higher WTP following a positive review of a competently positioned P2P provider.

Our findings have important implications for existing theory, which has overlooked the role of online reviews in P2P exchanges, and they generate useful insights for managers of P2P platforms and P2P providers.

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## Tables Across Papers

Table 1, Paper #1: Study 3 Moderated Mediation

| Antecedent         | M (Effort)                       |       |          |          | Y (Purchase Intentions)         |       |          |          |
|--------------------|----------------------------------|-------|----------|----------|---------------------------------|-------|----------|----------|
|                    | Coeff.                           | SE    | <i>T</i> | <i>p</i> | Coeff.                          | SE    | <i>T</i> | <i>p</i> |
| X (Device)         | .0349                            | .0491 | .7116    | .4771    | .0335                           | .0397 | .8437    | .3993    |
| M (Effort)         | ---                              | ---   | ---      | ---      | .3287                           | .0498 | 6.5987   | <.0001   |
| W (Attribution)    | -.1456                           | .0491 | -2.9662  | .0032    | -.1019                          | .0401 | -2.5437  | .0113    |
| Device*Attribution | -.1563                           | .0491 | -3.1830  | .0016    | -.0475                          | .0407 | -1.1681  | .2434    |
| Constant           | 4.5798                           | .0491 | 93.2875  | <.0001   | 3.846                           | .1280 | 30.053   | <.0001   |
| Model Summary      | $R^2 = .0435$                    |       |          |          | $R^2 = .1889$                   |       |          |          |
|                    | $F(3, 436) = 93.2875, p < .0001$ |       |          |          | $F(4, 435) = 9.9891, p < .0001$ |       |          |          |

Table 2, Paper #1: Study 4 Serial Mediation Across Moderator Levels

| Control Condition Mediation Tables |                                    |         |          |          | External Motivation Mediation Tables |                                   |         |          |          |
|------------------------------------|------------------------------------|---------|----------|----------|--------------------------------------|-----------------------------------|---------|----------|----------|
| Antecedent                         |                                    | Measure |          |          | Antecedent                           |                                   | Measure |          |          |
|                                    | Coeff.                             | SE      | <i>t</i> | <i>p</i> |                                      | Coeff.                            | SE      | <i>t</i> | <i>p</i> |
| <b>M1 (Effort)</b>                 |                                    |         |          |          | <b>M1 (Effort)</b>                   |                                   |         |          |          |
| X (Device)                         | .23                                | .07     | 3.32     | .01      | X (Device)                           | .08                               | .07     | 1.20     | .23      |
| M1 (Effort)                        | ---                                | ---     | ---      | ---      | M1 (Effort)                          | ---                               | ---     | ---      | ---      |
| M2 (Diag Val)                      | ---                                | ---     | ---      | ---      | M2 (Diag Val)                        | ---                               | ---     | ---      | ---      |
| Constant                           | 5.17                               | .07     | 74.95    | < .01**  | Constant                             | 4.89                              | .07     | 69.51    | < .01**  |
| <b>Model</b>                       | R <sup>2</sup> = .05               |         |          |          | <b>Model</b>                         | R <sup>2</sup> = .007             |         |          |          |
| <b>Summary</b>                     | F(1, 195) = 11.06, <i>p</i> = .01* |         |          |          | <b>Summary</b>                       | F(1, 196) = 1.44, <i>p</i> = .23  |         |          |          |
| <b>M2 (Diagnostic Value)</b>       |                                    |         |          |          | <b>M2 (Diagnostic Value)</b>         |                                   |         |          |          |
| X (Device)                         | -.09                               | .09     | -.95     | .34      | X (Device)                           | -.18                              | .12     | -1.46    | .15      |
| M1 (Effort)                        | .29                                | .10     | 3.03     | .003     | M1 (Effort)                          | .39                               | .12     | 3.20     | < .01*   |
| M2 (Diag Val)                      | ---                                | ---     | ---      | ---      | M2 (Diag Val)                        | ---                               | ---     | ---      | ---      |
| Constant                           | 3.82                               | .51     | 7.53     | < .01**  | Constant                             | 3.05                              | .60     | 5.04     | < .01*   |
| <b>Model</b>                       | R <sup>2</sup> = .05               |         |          |          | <b>Model</b>                         | R <sup>2</sup> = .06              |         |          |          |
| <b>Summary</b>                     | F(2,194) = 4.61, <i>p</i> = .01    |         |          |          | <b>Summary</b>                       | F(2, 195) = 5.82, <i>p</i> = .003 |         |          |          |
| <b>Y (Consider)</b>                |                                    |         |          |          | <b>Y (Consider)</b>                  |                                   |         |          |          |
| X (Device)                         | .05                                | .04     | 1.06     | .29      | X (Device)                           | .04                               | .05     | .65      | .52      |
| M1 (Effort)                        | .38                                | .05     | 8.34     | < .01**  | M1 (Effort)                          | .17                               | .06     | 2.96     | .03      |
| M2 (Diag Val)                      | .07                                | .04     | 1.99     | .04      | M2 (Diag Val)                        | .07                               | .03     | 2.20     | .02      |
| Constant                           | 1.66                               | .28     | 5.84     | < .01**  | Constant                             | 2.53                              | .29     | 8.64     | < .01*   |
| <b>Model</b>                       | R <sup>2</sup> = .32               |         |          |          | <b>Model</b>                         | R <sup>2</sup> = .08              |         |          |          |
| <b>Summary</b>                     | F(3,193) = 30.62, <i>p</i> < .01** |         |          |          | <b>Summary</b>                       | F(3,194) = 5.97, <i>p</i> < .01*  |         |          |          |

\**p* < .001. \*\**p* < .0001.

Table 3, Paper #1: Study 5 Mediated Moderation

| Antecedent     | M (Effort) |       |          |          | Y (Purchase Intentions) |       |          |          |
|----------------|------------|-------|----------|----------|-------------------------|-------|----------|----------|
|                | Coeff.     | SE    | <i>T</i> | <i>p</i> | Coeff.                  | SE    | <i>T</i> | <i>p</i> |
| X (Device)     | .3906      | .0520 | 7.5173   | < .0001  | .2545                   | .0474 | 5.1783   | < .0001  |
| M (Effort)     | ---        | ---   | ---      | ---      | .1699                   | .0420 | 4.0398   | .0001    |
| V (Valence)    | ---        | ---   | ---      | ---      | -.1497                  | .1983 | -.7549   | .4508    |
| Effort*Valence | ---        | ---   | ---      | ---      | .1100                   | .0420 | 2.6163   | .0092    |
| Device*Valence | ---        | ---   | ---      | ---      | .1857                   | .0474 | 3.9194   | .0001    |
| Constant       | 4.6028     | .0520 | 88.5915  | < .0001  | 2.0258                  | .1983 | 10.2178  | < .0001  |

Model Summary

$R^2 = .1206$

$R^2 = .2847$

$F(1, 412) = 56.5101, p < .0001$

$F(5, 408) = 32.4732, p < .0001$



Table 4, Paper #2: Summary of Results Across Lab Experiments (Studies 1-3).

| Dependent Variable                 | Perceived Risk | Sidedness | Study 1 | Study 2 | Study 3 |
|------------------------------------|----------------|-----------|---------|---------|---------|
| Review Helpfulness <sup>1</sup>    | Low            | One-sided | 3.85    | 3.74    | 3.41    |
|                                    |                | Two Sided | 4.29    | 4.08    | 4.35    |
|                                    | High           | One-sided | 3.91    | 4.00    | 3.50    |
|                                    |                | Two Sided | 3.88    | 3.80    | 3.07    |
| Product Attitudes <sup>2</sup>     | Low            | One-sided | --      | 1.92    | 1.55    |
|                                    |                | Two Sided | --      | 1.32    | 1.43    |
|                                    | High           | One-sided | --      | 2.06    | .80     |
|                                    |                | Two Sided | --      | .49     | -.01    |
| Choice and Intentions <sup>2</sup> | Low            | One-sided | 64.1%   | 1.70    | .72     |
|                                    |                | Two Sided | 75.6%   | 1.38    | .15     |
|                                    | High           | One-sided | 59.1%   | 1.96    | -.18    |
|                                    |                | Two Sided | 28.0%   | .29     | -1.57   |
| Truthful Reviewer <sup>3</sup>     | Low            | One-sided | --      | 3.75    | 3.27    |
|                                    |                | Two Sided | --      | 4.02    | 3.83    |
|                                    | High           | One-sided | --      | 3.93    | 3.20    |
|                                    |                | Two Sided | --      | 3.92    | 3.06    |
| Expert Reviewer <sup>3</sup>       | Low            | One-sided | --      | 2.83    | 2.29    |
|                                    |                | Two Sided | --      | 2.78    | 2.58    |
|                                    | High           | One-sided | --      | 2.97    | 2.45    |
|                                    |                | Two Sided | --      | 2.74    | 2.19    |

<sup>1</sup>Scale ranges from 1 (not at all) to 5 (very).

<sup>2</sup>In study 1, choice reflects the percent of participants who chose a restaurant gift certificate (vs. a cash prize) for oneself. In studies 2-3, scale ranges from -3 to +3 with higher scores reflecting higher attitudes and intentions.

<sup>3</sup>Scale ranges from 1 (strongly disagree) to 5 (strongly agree).

Table 5, Paper #2: Study 4 Regression of Helpfulness Rate on Monetary Risk and Two-Sided Intensity.

| Independent Variables<br>(1) | Model 1 (with covariates)            |                                    | Model 2 (without covariates)          |                                    |
|------------------------------|--------------------------------------|------------------------------------|---------------------------------------|------------------------------------|
|                              | Unstandardized<br>Coefficient<br>(2) | Standardized<br>Coefficient<br>(3) | Unstandardize<br>d Coefficient<br>(4) | Standardized<br>Coefficient<br>(5) |
| Risk (price) <sup>a</sup>    | -0.000**                             | -0.023**                           | -0.000**                              | -0.008**                           |
| TwoSidedIntensity            | -0.001*                              | -0.007*                            | -0.003**                              | -0.024**                           |
| Risk* TwoSidedIntensity      | -0.000**                             | -0.015**                           | -0.000*                               | -0.012*                            |
| Rating                       | 0.0429**                             | 0.236**                            |                                       |                                    |
| Length of Review             | 0.000**                              | 0.208**                            |                                       |                                    |
| Percent of Positive Words    | -0.007**                             | -0.072**                           |                                       |                                    |
| Percent of Negative          | 0.000                                | 0.002                              |                                       |                                    |
| Total Number of Votes        | -0.000**                             | -0.011**                           |                                       |                                    |
| Intercept                    | 0.627**                              | 0.001**                            | 0.811**                               | -0.002**                           |
| Adjusted R-Square            | 6.81%                                |                                    | 0.1%                                  |                                    |

<sup>a</sup>In this study, risk is monetary risk, reflected in the sales price.  
 \* denotes significance at 5%; \*\* denotes significance at 1%

Table 6, Paper #2: Study 5 Regression of Helpfulness Rate on Performance Risk and Two-Sided Intensity.

| Independent Variables (1)     | Model 1 (with covariates)      |                              | Model 2 (without covariates)   |                          |
|-------------------------------|--------------------------------|------------------------------|--------------------------------|--------------------------|
|                               | Unstandardized Coefficient (2) | Standardized Coefficient (3) | Unstandardized Coefficient (4) | Standardized Coefficient |
| Risk (1 = high risk; 0 = low) | -0.031**                       | -0.023**                     | -0.034                         | -0.025                   |
| TwoSidedIntensity             | -0.003**                       | -0.022**                     | -0.008**                       | -0.063**                 |
| Risk*TwoSidedIntensity        | -0.004*                        | -0.008*                      | -0.003*                        | -0.007*                  |
| Price                         | -0.000**                       | -0.011**                     |                                |                          |
| Rating                        | 0.092**                        | 0.284**                      |                                |                          |
| Length of Review              | 0.000**                        | 0.169**                      |                                |                          |
| Percent of Positive Words     | -0.005**                       | -0.049**                     |                                |                          |
| Percent of Negative Words     | -0.002                         | -0.010                       |                                |                          |
| Total Number of Votes         | -0.002**                       | -0.03**                      |                                |                          |
| Intercept                     | 0.355**                        | 0.003**                      | 0.774**                        | -0.001**                 |
| Adjusted R-Square             | 13.42%                         |                              | 0.8%                           |                          |

<sup>a</sup>In this study, risk captures performance risk, where “Greatest Hits” CDs reflects lower performance risk (0) compared to regular CDs (1).

\* denotes significance at 5%; \*\* denotes significance at 1%

### Figures Across Papers

Figure 1, Paper #1: Study 2 Impact of Device on Purchase Consideration

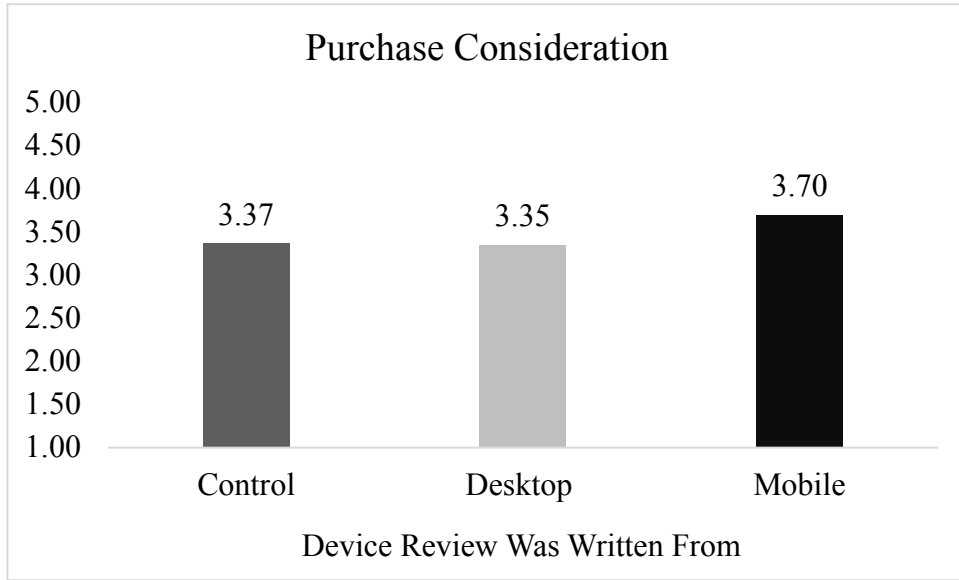


Figure 2, Paper #1: Study 3 Interaction of Device and Perceived Effort of Review Writing on Purchase Consideration

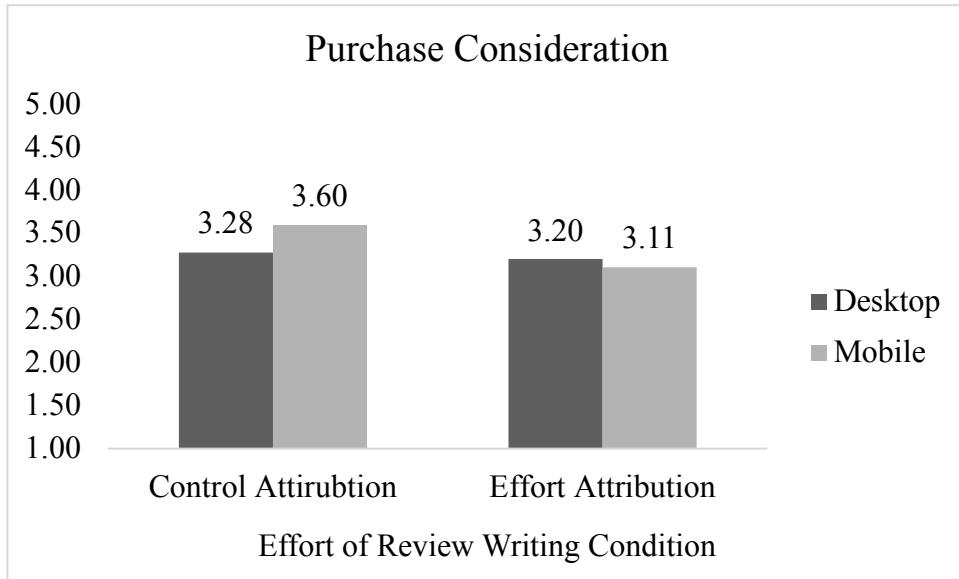


Figure 3, Paper #1: Study 4 Interaction of Device and Perceived Motivation of Review Writing on Purchase Consideration

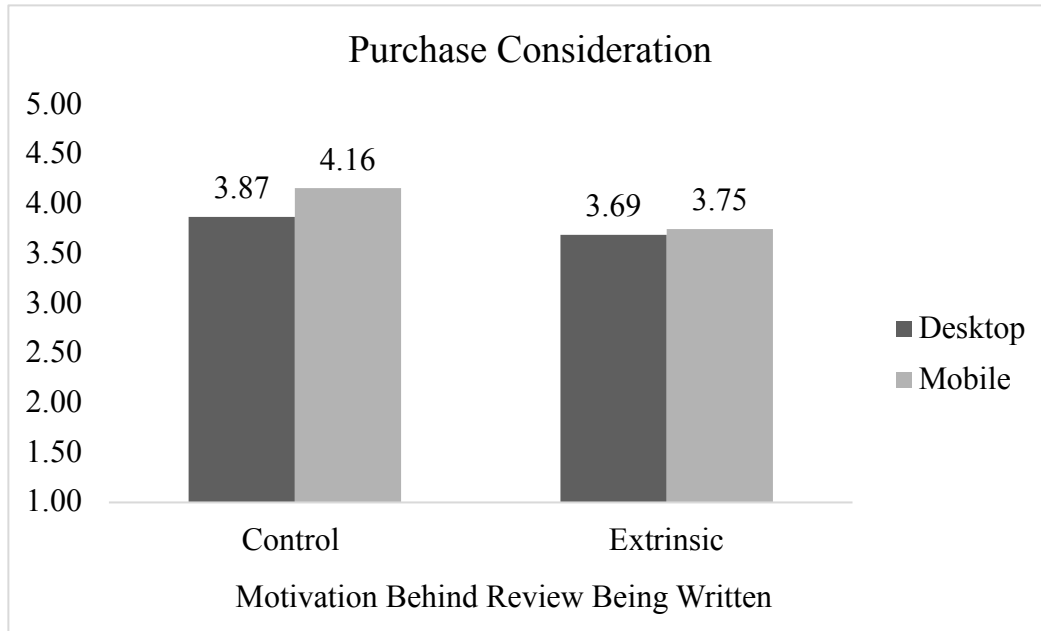
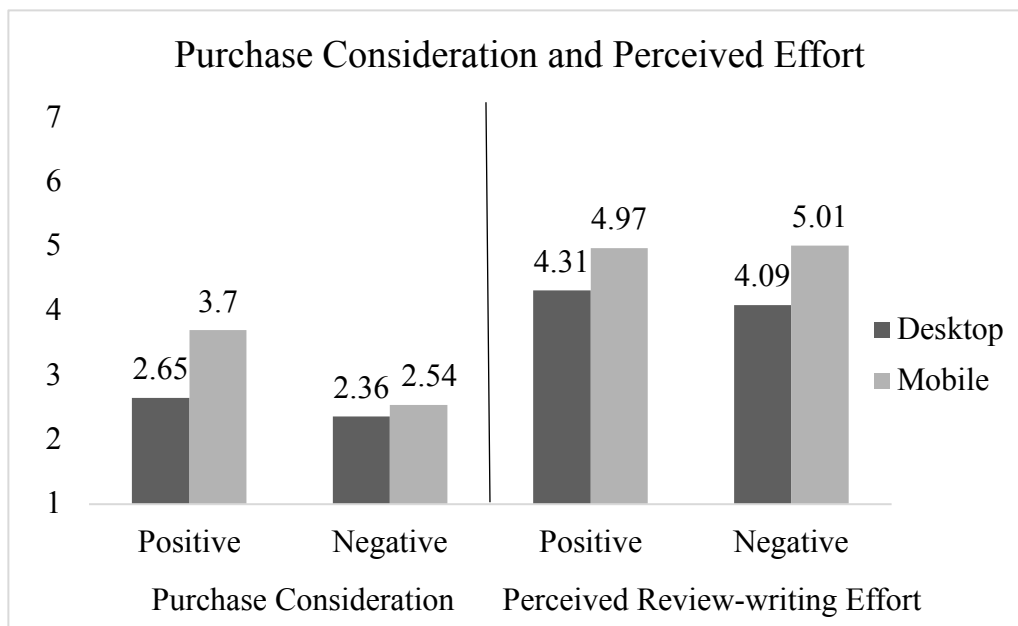
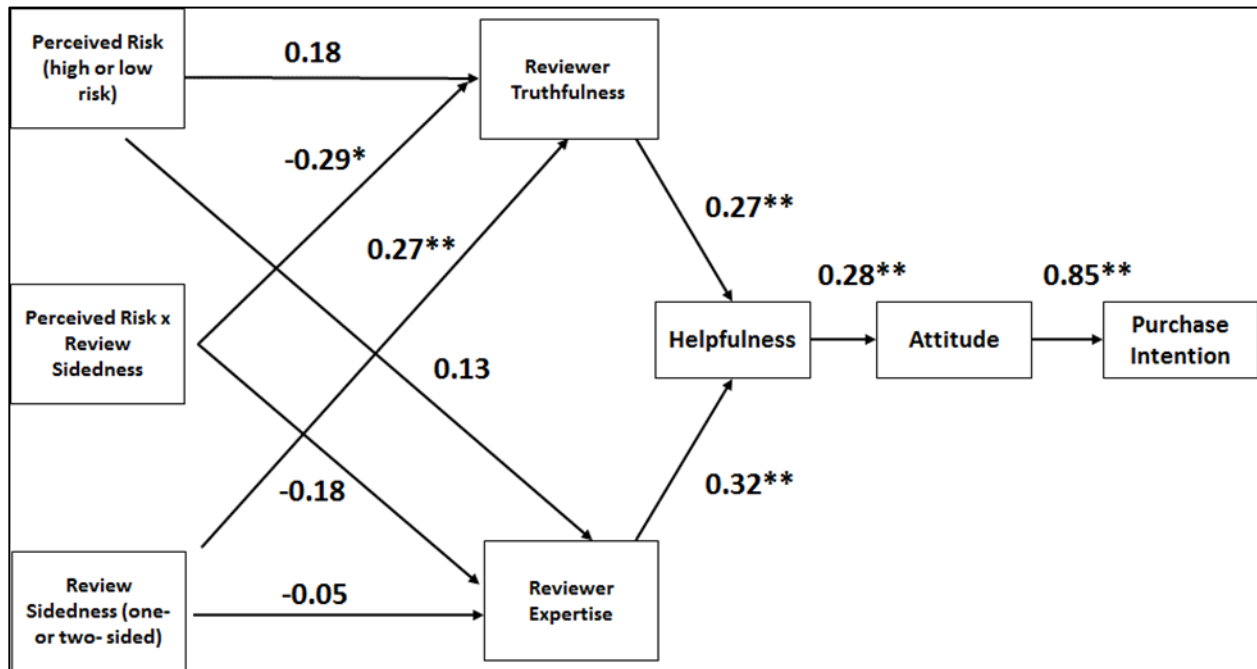


Figure 4, Paper #1: Study 5 Interaction of Device and Review Valence on Purchase Consideration and Effort



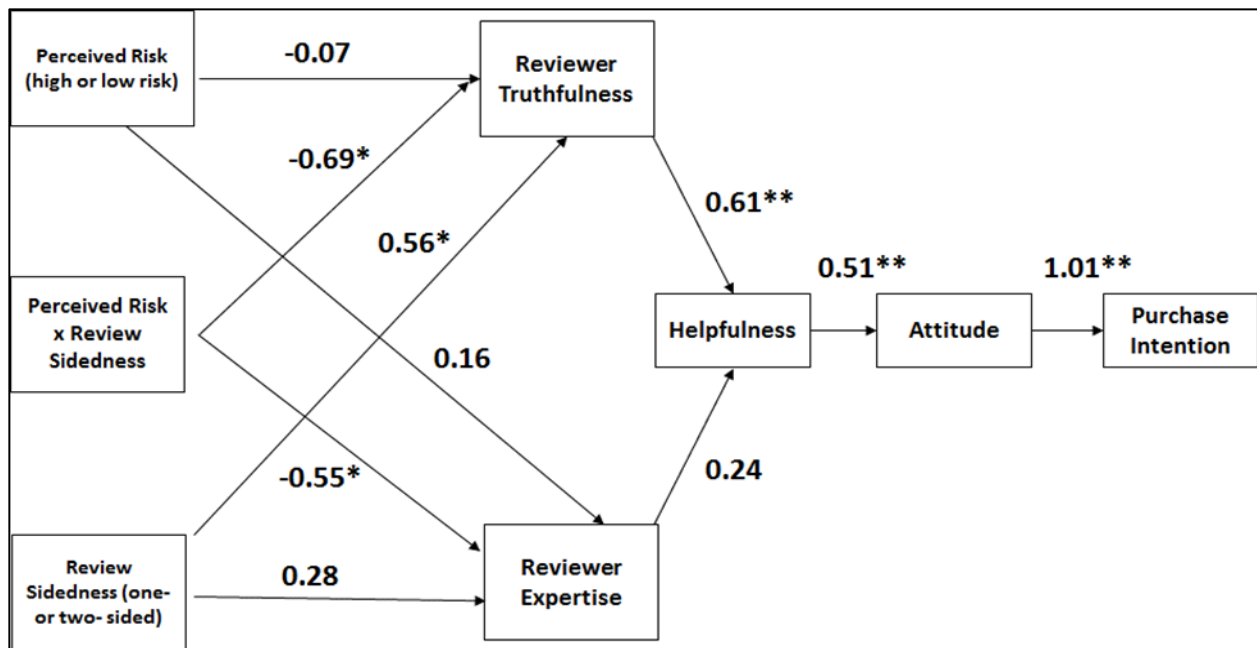
\*Note purchase measured on a 1-5 scale, effort on a 1-7 scale

Figure 5, Paper #2: Study 2 Test of Conceptual Framework and Estimates of Structural Equation Model



LR Test of Model vs. Saturated: Prob >  $\chi^2 = 0.0$ ;  
 \* $p < .05$ , \*\* $p < .01$ .

Figure 6, Paper #2: Study 3 Test of Conceptual Framework and Estimates of Structural Equation Model



LR Test of Model vs. Saturated: Prob >  $\chi^2 = 0.0$   
 \* $p < .05$ ; \*\* $p < .01$ .

Figure 7, Paper #3: Study 1 Average Review Ratings for the three-month intervals before, during, and after the presence of a flag

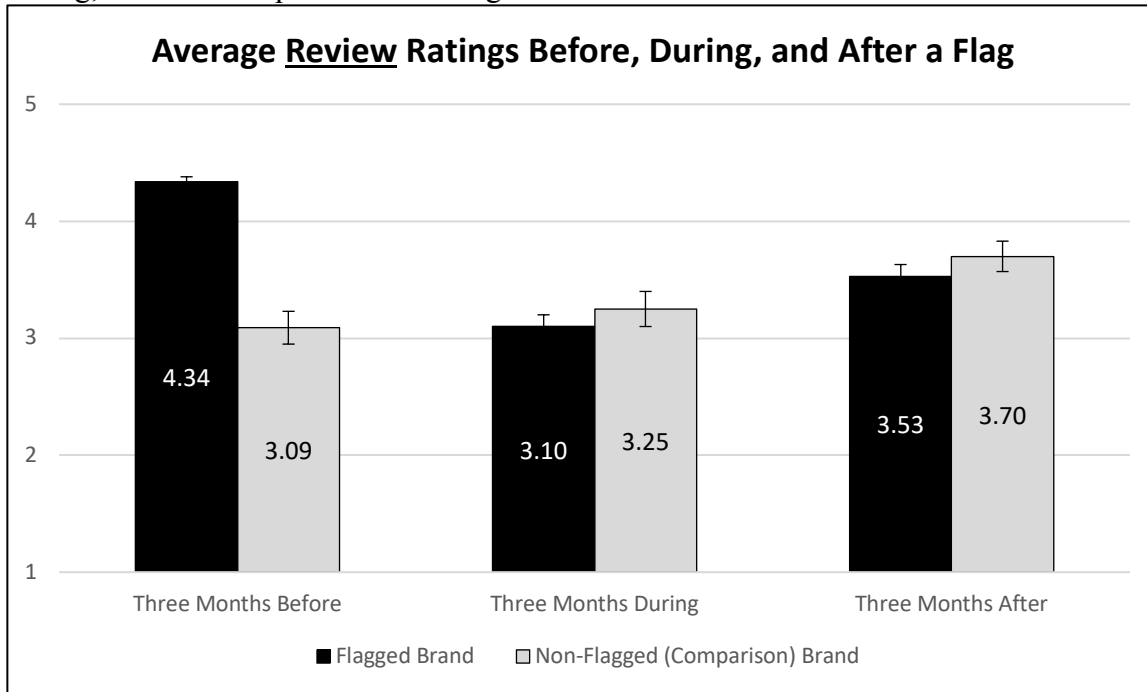


Figure 8, Paper #3: Study 2 Brand Evaluation

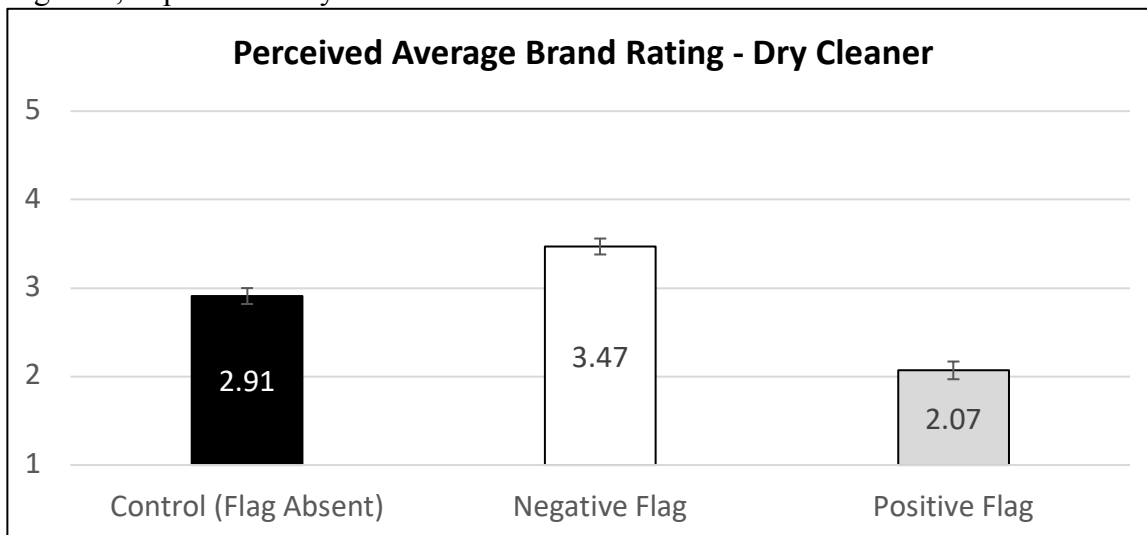


Figure 9, Paper #3: Study 3 Brand Evaluation

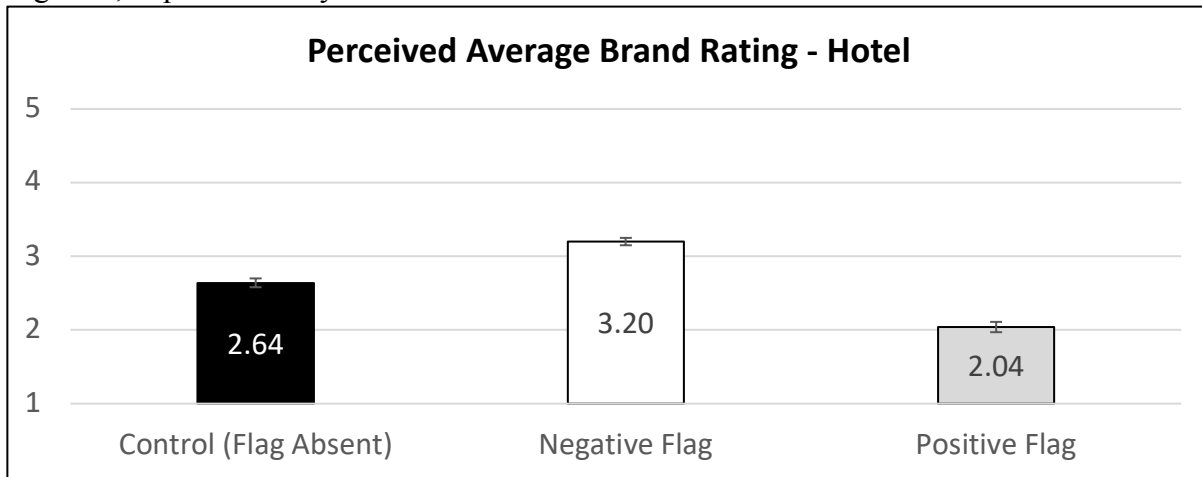


Figure 10, Paper #3: Propensity to first read a 1-star review

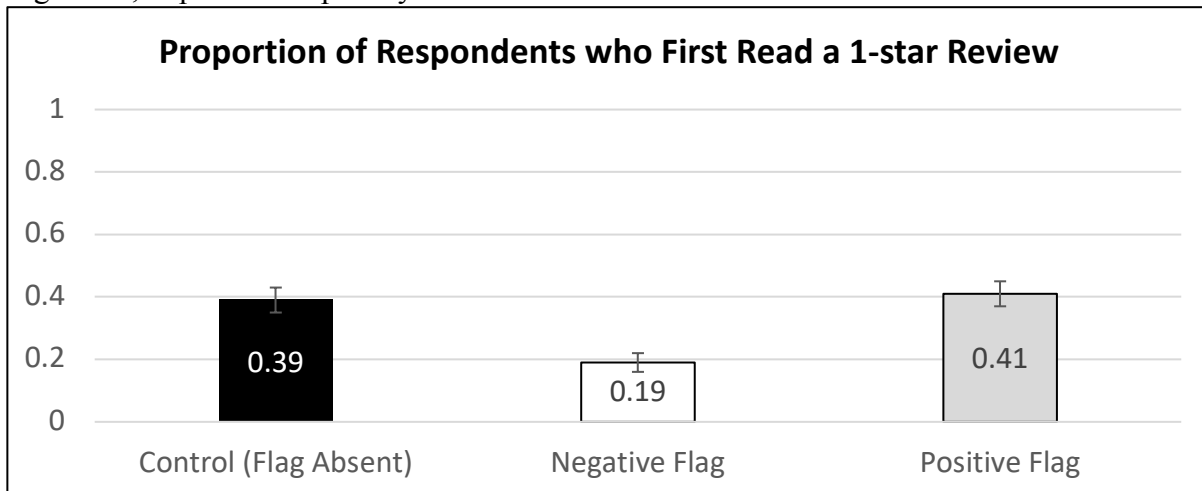


Figure 11, Paper #3: Propensity to first read a 5-star review

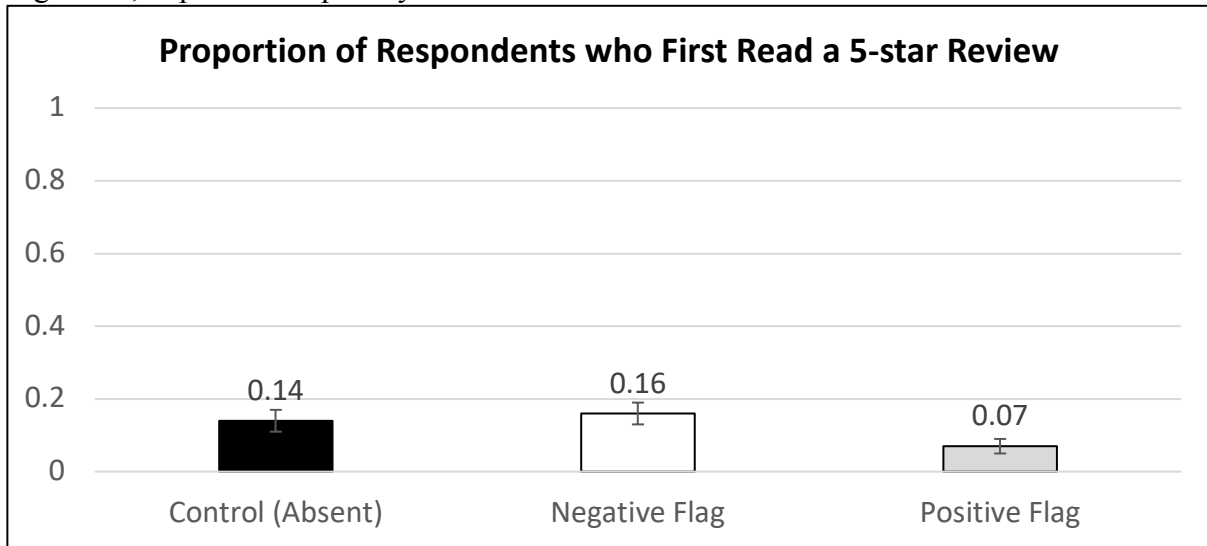
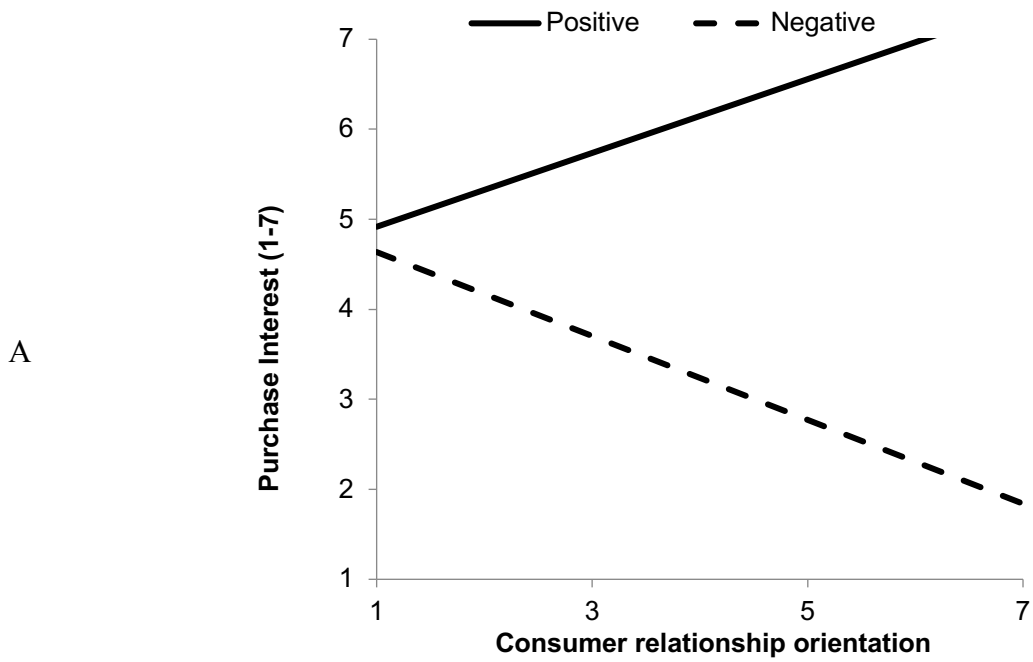
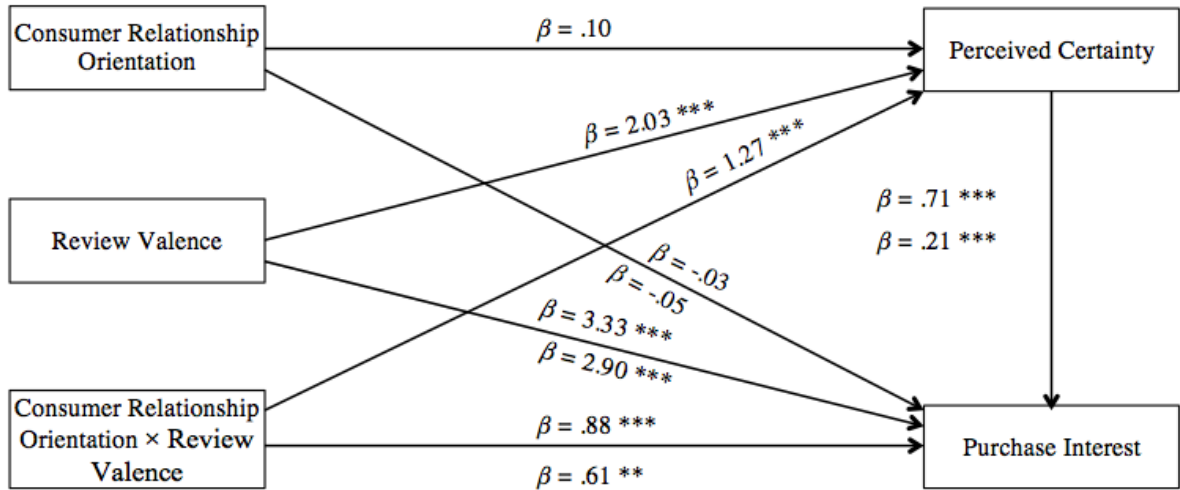


Figure 12, Paper #4: Study 2: Effect of Consumers' Relationship Orientation on Responses to Positive and Negative P2P Provider Reviews (A), and Underlying Process (B)





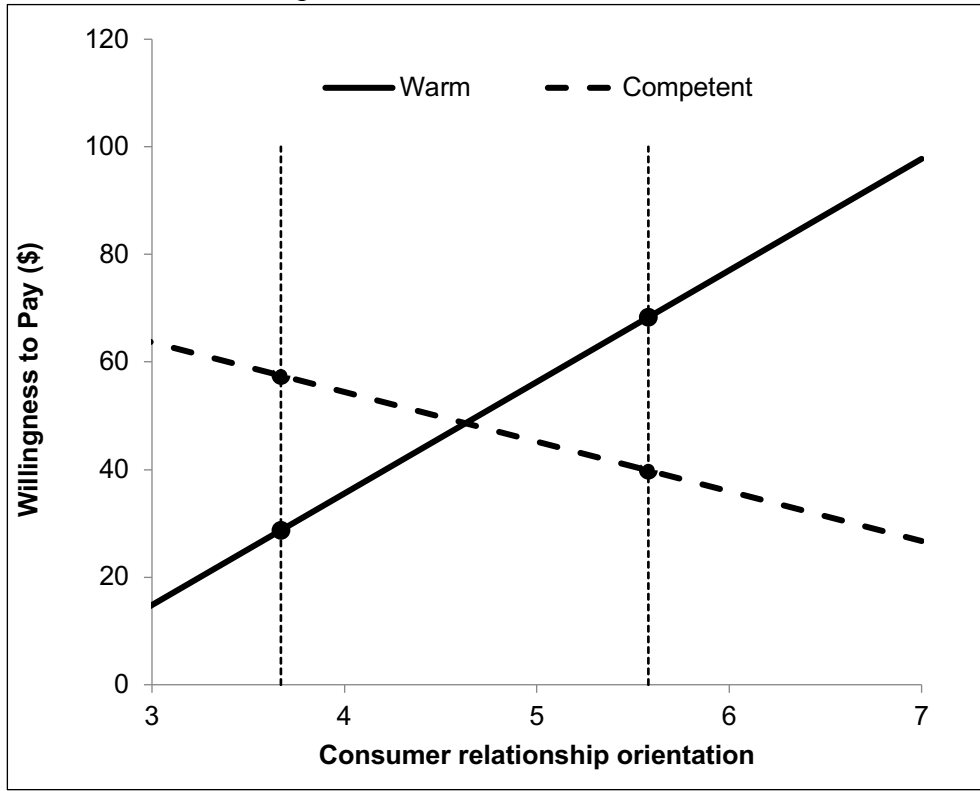
B



- Indirect effect of relationship orientation  $\times$  review valence interaction:  $a \times b = 2655$ , 95% CI [.0861, .5604]
- Indirect effect of relationship orientation in positive review condition:  $a \times b = .1529$ , 95% CI [.0515, .3167]
- Indirect effect of relationship orientation in negative review condition:  $a \times b = -.1126$ , 95% CI [-.3217, -.0084]

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Figure 13, Paper #4: Study 5: Effect of Consumer Relationship Orientation on Responses to Warm vs. Competent P2P Provider Reviews



**7.3 Award Session: Addresses from Early Career, Distinguished Scientific Contribution, and SCP Fellow Awardees Symposium**

## 7.4 JDM: Predictions and Probabilities (but you probably already knew that) Individual Papers

### Combining Probability Forecasts: 60% + 60%=60%, but Likely + Likely=Very Likely

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To make optimal decisions, consumers must make accurate predictions about the likelihood of uncertain events (e.g., “Will the price of this item drop soon?”). As such, they may solicit opinions from multiple advisors, who may make their own predictions verbally (“The price will likely drop”) or numerically (“There is a 60% chance that the price will drop”). Although existing research documents differences in how we process verbal and numeric probabilities in isolation (e.g., Windschitl & Weber, 1999), much less is known about how we integrate multiple probabilities of each type. In 4 studies (N=2,446), we find that people tend to *average* multiple numeric probabilities but make verbal forecasts that are *more extreme* than each individual advisor’s forecast.

In Study 1 (N=205), participants saw a stock and its most recent price. They were then asked how likely it was that the stock’s price would be higher in a year. We also showed participants predictions from two (fictional) advisors, which were either *numeric* (“60-69%”) or *verbal* (“Rather Likely”). Both advisors gave the same advice in the same format (i.e., both said “60-69%” or both said “Rather Likely”). Participants then provided their own predictions on 10-point scales that matched the advice they saw (*numeric*: 1=“0-9%”, 10=“90-100%”; *verbal*: 1=“Nearly Impossible”, 10=“Nearly Certain”). Critically, all advice corresponded to the 7<sup>th</sup> point on their respective scales. More participants gave an extreme answer (i.e., greater than 7) in the *verbal* condition (30.1%) than in the *numeric* condition (11.8%),  $Z=3.22$ ,  $p=.001$ . However, more participants averaged the advisors’ predictions (i.e., answered 7) in the *numeric* condition (63.4%) than in the *verbal* condition (42.2%),  $Z=3.01$ ,  $p=.003$ .

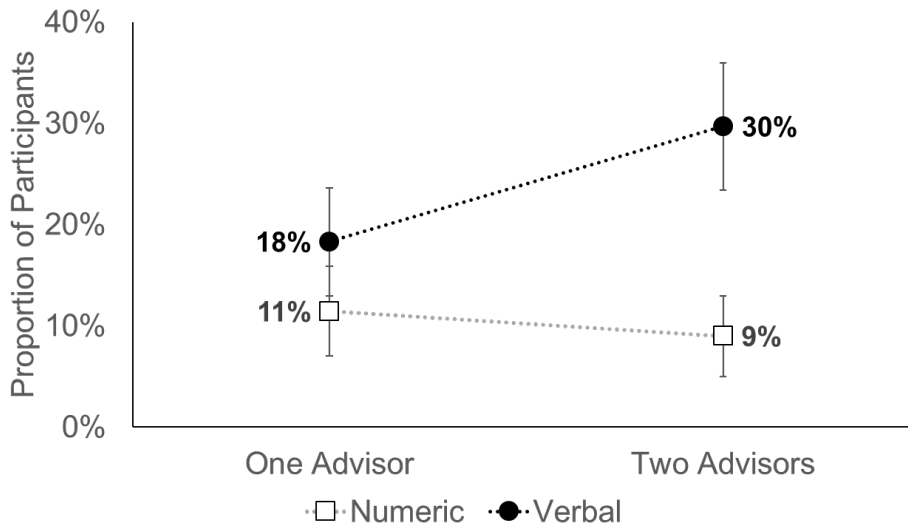
In Study 2 (N=806), we replicate this effect manipulating the number of advisors within-subjects and using probabilities both greater and less than equal chance (or 50%). We assigned participants to one of four between-subjects conditions in a 2 (format: numeric vs. verbal) x 2 (direction: above vs. below midpoint) design. The general design of Study 2 was extremely similar to Study 1. However, instead of seeing both advisor predictions before making their own predictions, participants saw the first advisor’s prediction, made their own prediction, then saw the second advisor’s prediction, then made another prediction. Advisors in the *above midpoint* condition predicted either “60-69%” or “Rather Likely” (corresponding to a 7 out of 10 on the scale), while advisors in the *below midpoint* condition predicted either “30-39%” or “Rather Unlikely” (corresponding to a 4 out of 10). Participants again became more likely to make an extreme forecast as they saw additional verbal forecasts, but not when they saw additional numeric forecasts. For positive probabilities, the proportion of participants giving an extreme forecast (i.e., 8-10) increased from 18.3% to 29.7%,  $Z=4.13$ ,  $p < .001$ , as participants saw a second verbal prediction, while the proportion decreased slightly (from 11.4% to 9.0%) as they saw a second numeric prediction,  $Z=1.24$ ,  $p=.21$  (See Figure 1). For negative probabilities, the proportion of extreme forecasts (i.e., 1-3) increased from 13.1% to 23.1% for verbal probabilities,  $Z=3.28$ ,  $p=.001$ , and decreased from 18.3% to 13.4% for numeric probabilities,  $Z=2.46$ ,  $p=.01$ .

Study 3 (N=626) replicates these findings using real expert predictions. Participants predicted the outcomes of 10 Major League Baseball games. For each game, participants saw one or two real expert predictions of how likely it was that the favored team would win. The predictions were shown on either a 0% to 100% scale (e.g., “53%”) or a 0 to 100 verbal probability scale (e.g., “53 – Somewhat Likely”). Participants then made their own predictions on a 0 to 100 scale with either *verbal* or *numeric* labels, depending on condition. Again, more participants gave extreme answers when seeing two *verbal* predictions (43.0%) than when seeing two *numeric* predictions (27.9%),  $Z=4.82, p < .001$ , but there was no difference when they saw only one prediction (*verbal*: 54.8%, *numeric*: 50.8%),  $Z=1.52, p=.13$ . There is also a significant interaction between prediction format and number of predictions,  $Z=2.80, p=.005$ , such that the likelihood of providing an extreme answer increases more when adding an additional verbal probability than it does when adding an additional numeric probability.

In Study 4 (N=809), we test how participants’ *choices* change as they see additional expert predictions. Participants read a scenario where they had to make a purchase decision that had an element of uncertainty (e.g., buying a plane ticket that could decrease in price if they waited). They read that they sought out an expert opinion, which was given *numerically* or *verbally*, and indicated on a 7-point scale whether they would buy the item or wait for the uncertainty to be resolved (1=definitely buy; 7=definitely wait). They then read that they sought a second opinion from a different website, which gave advice that was qualitatively identical to the first site’s advice, and again indicated their choice on a 7-point scale. We preregistered that our primary dependent variable would be the proportion of participants that became more likely to act according to the predictions (i.e., more likely to wait) after seeing the second prediction. After seeing the second prediction, more participants increased their answers (i.e., became more likely to wait) in the *verbal* condition (33.8%) than in the *numeric* condition (20.5%),  $Z=4.31, p < .001$ . This suggests that participants update their beliefs more after seeing a second verbal prediction than a second numeric condition and that these updates were strong enough to carry over into their choices. Participants were more likely to stay with their initial choices in the *numeric* condition (74.8%) than in the *verbal* condition (60.0%),  $Z=4.55, p < .001$ , and were equally likely to decrease their answers (i.e., become more likely to buy) in both conditions (*verbal*: 6.25%, *numeric*: 4.69%),  $Z=.98, p=.33$ .

Our findings suggest that people use different strategies to integrate different types of probabilities. As a result, this could have substantial implications for understanding how consumers use others’ advice to make decisions.

**Figure 1.** Proportion of participants making extreme probability forecasts (Study 2; above midpoint condition)



**Notes:** Dependent variable is the proportion of participants that made forecasts that are more confident than advisors' forecasts (i.e., 8-10 on 10-point scale). Interaction between probability format and number of advisors is significant ( $p < .001$ ). Error bars represent 95% confidence intervals.

### Pattern-Based Expectations: How Investors and Consumers Predict Future Prices

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Tamri Matiashvili, Middlebury College, USA

David Tuckett, University College London, UK

If a price goes up, must it come down? Although in reality future prices are very poorly predicted from past prices (Fama, 1965), we seem to have two competing intuitions for how the past might predict the future: First, prices might have *momentum*, such that trends of increasing or decreasing prices will continue into the future. Conversely, prices might *revert to the mean*, such that price increases give way to decreases and vice versa (Sheffrin, 2002). It is important to understand which intuition predominates when consumers and investors predict future prices, because such price expectations inform consumption and investment choices, and are crucial in economic modeling (Lucas, 1972). Here, we argue that people form *pattern-based expectations*—expecting price momentum by default (consistent with previous studies; e.g., de Bondt, 1993), but overriding this default when they perceive more complex patterns in past data.

**Study 1** tested whether people are less likely to project trends into the future if they have seen the trend reverse in the past. Participants ( $N=200$ ) read descriptions of four fictitious companies, along with their current share price and price histories for the past 5 months at 1-month intervals. Two companies had experienced a linear (*increasing* or *decreasing*) trend over this time, whereas two had experienced reversals of these overall trends, despite holding constant the starting, ending, and mean prices. Prices were computed by multiplying the price levels in Table 1 by a baseline (between \$32 and \$64). Participants predicted the future price in one, two, and three months.

| Period                  | Increase          |                   | Decrease          |                   |
|-------------------------|-------------------|-------------------|-------------------|-------------------|
|                         | Linear            | Reversal          | Linear            | Reversal          |
| T-5 (5 months ago)      | 0.9107            | 0.9107            | 1.1087            | 1.1087            |
| T-4 (4 months ago)      | 0.9111            | 0.9289            | 1.1082            | 1.0828            |
| T-3 (3 months ago)      | 0.9318            | 0.9934            | 1.0790            | 1.0067            |
| T-2 (2 months ago)      | 0.9639            | 0.9539            | 1.0389            | 1.0507            |
| T-1 (1 months ago)      | 0.9823            | 0.9127            | 1.0183            | 1.1058            |
| T0 (current)            | 1.0000            | 1.0000            | 1.0000            | 1.0000            |
| T+1 (1 months from now) | 1.0202<br>(.0038) | 0.9976<br>(.0051) | 0.9842<br>(.0037) | 1.0188<br>(.0069) |
| T+2 (2 months from now) | 1.0484<br>(.0048) | 1.0080<br>(.0059) | 0.9661<br>(.0048) | 1.0234<br>(.0082) |
| T+3 (3 months from now) | 1.0831<br>(.0059) | 1.0375<br>(.0068) | 0.9511<br>(.0072) | 1.0317<br>(.0090) |

**Table 1.** Price histories and results from Study 1.

*Note.* Entries are price levels as a proportion of the current price. The top six rows reflect the price histories given to participants in each of the four experimental conditions. The bottom three rows are the mean price predictions given by participants in each condition (SEs in parentheses).

Participants projected past linear price trends into future periods, with strongly positive trends in the increasing/linear condition and negative trends in the decreasing/linear condition ( $ps < .001$ ; Table 1). But these predicted trends were greatly muted in the reversal conditions, with lower predictions in the increase condition and higher predictions in the decrease condition ( $ps < .001$ ). Thus, despite real stock prices behaving as a basically random walk, participants based future price predictions not only on the direction of past trends but also their pattern.

**Study 2** contrasted a different pattern with linear predictions—*stable* past prices until recently, which may trigger a belief that the price will return to this past level. The procedure was identical to Study 1, except the price levels in Table 2 were used, with mean and ending prices equated across conditions. Table 2 shows that stable past prices, like past reversals, led participants ( $N=200$ ) to attenuate their predictions relative to the linear condition ( $ps < .001$ ). Thus, people's pattern-based expectations rely on multiple pattern schemas.

| Period             | Increase |        | Decrease |        |
|--------------------|----------|--------|----------|--------|
|                    | Linear   | Stable | Linear   | Stable |
| T-5 (5 months ago) | 0.9107   | 0.9384 | 1.1087   | 1.0703 |
| T-4 (4 months ago) | 0.9111   | 0.9466 | 1.1082   | 1.0598 |
| T-3 (3 months ago) | 0.9318   | 0.9350 | 1.0790   | 1.0747 |
| T-2 (2 months ago) | 0.9639   | 0.9439 | 1.0389   | 1.0632 |

|                         |                   |                   |                   |                   |
|-------------------------|-------------------|-------------------|-------------------|-------------------|
| T-1 (1 months ago)      | 0.9823            | 0.9361            | 1.0183            | 1.0733            |
| T0 (current)            | 1.0000            | 1.0000            | 1.0000            | 1.0000            |
| T+1 (1 months from now) | 1.0227<br>(.0042) | 0.9941<br>(.0045) | 0.9867<br>(.0039) | 1.0182<br>(.0039) |
| T+2 (2 months from now) | 1.0432<br>(.0048) | 1.0057<br>(.0041) | 0.9639<br>(.0045) | 1.0215<br>(.0052) |
| T+3 (3 months from now) | 1.0751<br>(.0067) | 1.0198<br>(.0060) | 0.9471<br>(.0086) | 1.0313<br>(.0058) |

**Table 2.** Price histories and results from Study 2.

*Note.* Entries are price levels as a proportion of the current price. The top six rows reflect the price histories given to participants in each of the four experimental conditions. The bottom three rows are the mean price predictions given by participants in each condition (SEs in parentheses).

**Study 3** tested whether these price expectations are unique to the stock market, or whether they apply to other prices. Participants ( $N=398$ ) read about either six investment goods (commodities, futures, real estate, precious metals, currency, bonds) or consumer goods (sugar, plywood, potatoes, pork, bleach, silk), which varied in their past price trends (positive or negative) and pattern (linear, reversal, or stable), using the price levels from Tables 1 and 2, with baseline prices set at the good's current price. Both the reversal and stable conditions differed significantly from the linear condition for both types of goods, both for positive and negative trends ( $ps < .001$ ). Thus, people rely on pattern-based expectations to similar degrees for investment and consumption goods.

**Study 4** used real stock price histories. We selected 100 companies from the S&P 500, assigning fictitious stock symbols, randomly choosing a different period for each company. Participants were given 6 months' price data (at 1-month intervals) for 10 of these companies, and either predicted the next 3 months' prices (Study 4A;  $N=480$ ) or made buy/hold/sell decisions on a -10 to 10 scale (Study 4B,  $N=490$ ). Mean predictions and decisions for each company (across participants) were the units for statistical analysis. Prices were scaled (as in Tables 1 and 2) as proportions of the most recent price.

Regressions were used, with the projected price levels at the 3-month interval (for Study 4A) or buy/sell/hold choices (for Study 4B) as the dependent variable. Three predictors (mean-centered, SD-scaled) were entered: the earliest historical price (capturing the positivity or negativity of the overall trend), the absolute value of the deviations from a linear price trend (capturing divergence from a linear pattern), and the interaction between these variables.

| Predictor                            | <i>b</i> (SE)       |
|--------------------------------------|---------------------|
| <b>DV: T+3 Predictions</b>           |                     |
| Intercept                            | 1.034 (0.002)       |
| Price at T-5 (5 months ago)          | -0.0168 (0.0023)*** |
| Absolute deviation from linear trend | -0.0025 (0.0024)    |



|                                      |                     |
|--------------------------------------|---------------------|
| Interaction                          | 0.0056 (0.0014)***  |
| <b>DV: Buy/Hold/Sell Choices</b>     |                     |
| Intercept                            | -0.036 (0.071)      |
| Price at T-5                         | -0.6986 (0.0771)*** |
| Absolute deviation from linear trend | -0.1155 (0.0805)    |
| Interaction                          | 0.1027 (0.0466)*    |

**Table 3.** Regression analyses from Study 4.

*Note.* Entries are *b* coefficients (SEs), with the predictor variables centered at the mean and scaled by 1 SD.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Table 3 shows that there was a significant effect of past price on predictions (Study 4A) and choices (Study 4B), with more positive expectations when the past price was more negative ( $ps < .001$ ). This reflects a linear influence of past price increases on future price predictions (i.e., more negative past prices indicate a more positive trend). However, this main effect is qualified by a significant interaction, such that past prices are a less powerful signal to the extent that there has been a large deviation from a linear trend ( $p < .001$  and  $p = .030$ ). Thus, the basic findings of Studies 1–3 generalize to real price histories.

**Study 5** incentivized participants for predictive accuracy. Participants ( $N=200$ ) made predictions for four stocks from Study 4—two with positive linear trends and two with reversals. Participants were instructed that the most accurate predictor for each stock would receive a \$5 bonus. Nonetheless, participants predicted dramatically larger price increases for the linear than for the reversal stocks ( $ps < .001$ ), suggesting that people form pattern-based expectations even when real money is on the line.

**Implications.** Overall, these studies show that people do not blindly project trends into the future, but rely on past price data in sophisticated (albeit non-normative) ways to form their expectations. These results challenge the rational expectations framework widely used in economic theory (Lucas, 1972), according to which investors form expectations in line with neoclassical financial theory—which tells us that past prices are irrelevant to future prices.

These results also have marketing implications. Consumers purchase larger quantities when expecting price hikes and delay purchases when expecting price cuts. Thus, understanding how price expectations deviate from economic theory is critical for setting price levels and for timing and communicating price changes.

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### **Do Consumers Expect Values to Increase or Decrease over Time?**

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Mario Pandelaere, Virginia Tech, USA

Gustavo Schneider, University of South Carolina, USA\*

Do we expect a company's profits to be higher or lower next year over this year? Likewise, will companies advertise more next year versus this year? Why? Consider profits. A priori there is no reason to expect profits to increase or decrease next year—some companies do better than others. However, we suggest that consumers' expectations vary systematically—given profits this year, consumers expect profits next year to be higher. This occurs because consumers associate change with increase (rather than with decrease).

Is this normative? Imagine estimating the number of trees cut each year in the rain forest. We suggest that irrespective of negative framing—number of trees cut—or positive—the number of trees saved, people expect increases next (vs. this) year. This also rules out optimism bias (Weinstein 1980) as an explanation because optimism would lead to a lower estimate in the negative condition.

Our theory is related to, yet different from research on trend forecasting. For example, Harvey and Bolger (1996) suggest that consumers expect trends to continue. Relatedly, Thomson and colleagues (2013) find that, people are better at generating forecasts for, and at identifying ascending, rather than descending, trends. This occurs because people are more often exposed to increasing (vs. decreasing) data series (Harvey and Bolger 1996).

We make a broader point: even when consumers have only one data point (and not a trend), they expect the next point to be higher. These effects emerge because of learned association—because consumers encounter increasing (vs. decreasing) trends more often, they believe change implies increase. Indeed, physical changes in everyday life are associated with increases—saplings grow into trees, cubs become tigers, and children, adults. Abstract changes also lead to increases—trees grow stronger and tigers more ferocious. Thus, we believe that people tend to generate increasing estimates because they naturally expect quantifiable events to improve over time. Taken together, we predict change is associated with increase and demonstrate this in five studies.

If change is associated with increases because of learned association, then people should generate more examples of events leading to increases, than to decreases or remain unchanged. In a pilot study using a 3-cell design ( $N=127$ ), participants listed as many things they could think of that increased, decreased, or did not change in their life. As expected, the number of examples in the increase (vs. decrease or no-change) condition was higher ( $M_{\text{increase}} = 5.02$ ,  $M_{\text{decrease}} = 4.38$ ,  $M_{\text{no change}} = 3.63$ ,  $F(3, 123) = 10.57$ ,  $p < .001$ ). Thus, people are able to remember positive (vs. negative) changes more.

In study 1, we demonstrate our basic effect—even when provided with only one data point, people predict increases. We used a 2 timeframe (near vs. far) by 6 replicates design

(N=501). Each replicate included a brief introduction and a benchmark value. For example, in the rainforest scenario, we indicated that in 2010, 113,000 square miles of rainforest were cut; we then asked participants to estimate the amount cut in 2012 (near) or in 2015 (far). As predicted, in each replicate, participants expected the estimates to be higher than the benchmark for both near and far conditions. Furthermore, consistent with the belief that change is associated with increases, the estimate was higher in the far (vs. near) condition. Participants also indicated what they thought while providing estimates. Thought protocol analyses suggest that they thought more about increases (vs. decreases or status quo) in all the conditions, thus confirming our intuition that change is associated with increase.

In study 2, using three replicate scenarios from study 1; we manipulated frame to be positive or negative (N=62). For instance, in the rainforest scenario, participants in the positive (negative) frame read about the number of trees saved (cut) in the rainforest and provided an estimate for next year. Both estimates were higher than the benchmark ( $ps < .05$ ), ruling out optimism as an explanation. To wit, participants estimated in the negative frame that the numbers of trees cut would increase but also estimated in the positive frame that the number of trees saved would increase, even if it is logically impossible for both to increase.

In study 3 (N=97), participants imagined searching for a new AC unit to buy. They were told that the company would be making changes to the AC efficiency level or price depending on condition, and were subsequently asked whether they would buy the AC at that moment or wait. If consumers predict both favorable and unfavorable attributes to increase over time, this might lead to different buying decisions depending on the focal attribute. As predicted, participants in price condition were more likely to buy the product sooner for fear that the price would increase ( $M_{\text{price}} = 4.81$ ) than participants in efficiency condition, who hoped the efficiency would increase ( $M_{\text{efficiency}} = 3.47$ ;  $F(1, 95) = 22.40$ ,  $p < 0.001$ ).

If the association between change and increase is learned, then participants should respond faster to changes that relate to increases (vs. decreases). We measured response latencies in study 4 to provide such evidence. Participants read one of three scenarios, and were provided a benchmark value (e.g., number of visits to the ER made this month; N=115). Following this value, we presented them with 60 potential future estimates (e.g., ER visit next month). In each case, participants assessed if this estimate was likely to be correct or not. As predicted, with an increase (vs. a decrease), participants deemed the change more likely and also responded faster.

Together, we show that changes are associated with increases. Thus, we generalize the research on trends by showing that even when only one data point exists, consumers expect increases (vs. decreases). However, contrary to this research, which suggests that consumers expect both increasing and decreasing trends to continue, when only one value is presented, the estimate is higher. We believe these findings are likely to impact not only numerous marketing contexts (e.g., cost, efficiency, performance expectations) but also provides important insight into how people evaluate numbers.

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## **The Psychological Impact of Annuities: Can Pension Payout Choice Influence Health Behavior?**

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Simona Botti, London Business School, UK

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Across the world, a growing number of people face the important financial decision whether to take out their pension in the form of a one-time lump-sum payment or as monthly income, also referred to as an annuity. In the US and Australia, for instance, people have traditionally had the freedom to choose between these payout options, whereas some countries where annuitized pensions are traditionally more common such as the UK have recently introduced the option of cashing out one's pension as a lump-sum. Besides this increase in choice, the demographic development with aging populations implies that more and more people face the decision between an annuity and a lump-sum.

Policy makers have been debating whether people should be given a choice between annuitization and lump-sum payout, and whether choice of annuities should be encouraged or mandated. One consideration in this debate is self-selection. Specifically, it has been argued that individuals are to some extent aware of their own life expectancy, and that since the financial payout of annuities increases with growing length of life, those with a higher (compared to lower) life expectancy are more likely to choose an annuity. Indeed, literature has documented a positive relationship between receiving an annuity and longevity (Finkelstein and Poterba 2002).

In the present research, we raise the possibility that in addition to self-selection, a causal effect of choosing an annuity over a lump-sum on longevity may underlie this relationship. This proposal is based on the argument that for annuity (but not lump-sum) recipients, extending their lives implies a financial gain. Further, losing a substantial part of one's savings in the event of early death is a central concern regarding annuities (Hu and Scott 2007). As a result, positive consequences of reaching a high age may be particularly salient among annuity recipients. Hence, we hypothesize that individuals who perceive a higher likelihood of receiving an annuity will be more likely to engage in more (versus less) healthy behaviors as a means to increase life expectancy.

### **Study 1**

We recruited UK-based, currently employed participants through the website ProlificAcademic. Participants were randomly assigned to either a lump-sum- or an annuity-condition. The instructions stated that a recent policy change in the UK had given pensioners the

freedom to choose between a lump-sum and an annuity. We then presented a short explanation of the two payout options. To facilitate comprehension, each participant also saw a table (as pictured) indicating the cumulative amounts of money that they would have received by certain ages with each option. The annuity payout was determined using current annuity rates. Both options were presented in counterbalanced order.

**CUMULATIVE AMOUNT RECEIVED AS A FUNCTION OF AGE**

| Age:                                       | 70 years | 75 years | 80 years | 85 years | 90 years | 95 years | 100 years |
|--------------------------------------------|----------|----------|----------|----------|----------|----------|-----------|
| <b>Annuity (Guaranteed monthly income)</b> | £48,720  | £97,440  | £146,160 | £194,880 | £243,600 | £292,320 | £341,040  |
| <b>One-time lump sum payment</b>           | £150,000 | £150,000 | £150,000 | £150,000 | £150,000 | £150,000 | £150,000  |

Next, participants in the annuity condition listed the one or two most important reasons for choosing an annuity and the one or two most important reasons against choosing a lump sum, whereas participants in the lump-sum condition listed the one or two most important reasons for choosing a lump sum and the one or two most important reasons against choosing an annuity. Our reasoning was that enhancing the accessibility of advantages of an option (and of disadvantages of the alternative) would increase the subjective likelihood of choosing this option. As intended, participants in the annuity (vs. lump-sum) condition reported being significantly more likely to choose an annuity. To measure health behavior, we then presented five scenarios involving a choice between a more and a less healthy behavioral option, and participants indicated which behavior they would be more likely to choose. The behaviors included selecting a costly comprehensive vs. a free basic health check, and joining a more strenuous exercise program that particularly benefits long-term health vs. continuing one’s regular exercises.

The results confirmed our central hypothesis: Across scenarios, participants in the annuity condition were significantly more likely to select the healthy behavioral options than participants in the lump-sum condition.

### **Study 2**

The purpose of Study 2 was to replicate the effect that choice of an annuity vs. a lump-sum boosts health-related behavior in the context of real behavior. Participants were randomly assigned to a lump-sum- or annuity-condition. Upon arriving at the lab, participants exercised on a stationary bike for two minutes. A combined measure of the amount of calories burnt and distance travelled (z-scored) within these two minutes was included as a covariate in the main analysis to control for individual differences in exercising performance. Next, participants were told they would participate in an unrelated study while taking a break between exercising tasks. In fact they completed the task manipulating perceived likelihood of choosing an annuity vs. a lump-sum from Study 1 – our manipulation of the financial decision. As intended, participants in the annuity (vs. lump-sum) condition indicated being more likely to choose an annuity for their own retirement. After this manipulation was administered, participants exercised again on the bike for up to ten minutes. They were told that it was up to them how vigorously they wanted to exercise. Our main dependent variable was the combined measure of the amount of calories burnt and distance travelled (z-scored) within the ten minutes. In addition, participants indicated

how likely they were to exercise later that day.

Addressing our main hypothesis, participants in the annuity-condition had significantly higher values on the exercising measure than participants in the lump-sum-condition, indicating that they had exercised more vigorously. In addition, participants in the annuity- (vs. lumps-sum-) condition reported being significantly more likely to exercise later that day.

Prior literature has focused on antecedents (Payne et al., 2013; Shu, et al., 2016) rather than consequences of choosing an annuity vs. a lump-sum. We manipulate expectations of choosing an annuity (vs. a lump-sum) and find evidence of a causal effect on health-related behaviors. Such potential consequences should be considered in the public policy debate on pension payout choice.

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## 7.5 Winners: THE Top 4 Individual Papers of SCP Individual Papers

### Enacting Rituals to Improve Self-Control

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Gerald Häubl, University of Alberta, Canada

Jane Risen, University of Chicago, USA

Michael Norton, Harvard Business School, USA

Francesca Gino, Harvard Business School, USA

Individuals often engage in ritualized behavior prior to tasks or decisions that require self-control, from food consumption to prosocial behavior. For example, a common symptom of anorexia is conducting elaborate pre-eating rituals, and a recent viral phenomenon in charitable giving was the ritualistic “ALS ice bucket challenge.” Here, we experimentally test whether assigning people to conduct simple rituals can promote increased self-control.

We define ritual as “*a as a fixed episodic sequence of actions characterized by rigidity and repetition*” (Tambiah, 1979). Recent research suggests that rituals are causally associated with psychological and behavioral outcomes (Brooks et al., 2016; Norton & Gino, 2014; Vohs et al., 2013; Zhang et al., 2014). We propose that enacting the rigidity and repetition inherent to rituals (Boyer & Liénard, 2006; Rook, 1985; Tambiah, 1979) – and observing oneself do so – can signal self-discipline to the performer. In this way, performing rituals could enable individuals to mobilize more self-regulatory resources and result in greater self-control.

Six experiments provide support for our hypothesis. In a longitudinal field experiment ( $n = 93$  females), we instructed gym-goers to try to reduce their calorie intake. Participants assigned to the control condition were told to be mindful about what they would eat over the next five days, whereas participants in the ritual condition were told to additionally complete a pre-eating ritual each time they ate over the next five days. We tracked the number of calories participants consumed and burned via a smart phone application (i.e., MyFitnessPal). As predicted, participants reported consuming fewer calories in the ritual condition (averaging consumption across all 391 available food diaries;  $M = 1424.26$ ,  $SD = 224.92$ ) than in the control condition ( $M = 1648.12$ ,  $SD = 389.27$ ),  $t = 3.19$ ,  $p = .002$ ,  $d = .70$ , although they did not burn fewer calories ( $M_{Ritual} = 270.05$ ,  $SD = 232.77$  vs.  $M_{Control} = 234.18$ ,  $SD = 344.34$ ),  $t < 1$ .

To test whether the predicted effect is specific to rituals, we included a “random gestures” condition in Experiment 2 ( $n = 210$ ) in which individuals completed a food tasting task. In the ritual condition, each participant performed a ritual every time she or he consumed a carrot. In the random gestures condition, participants performed a different set of gestures each time they consumed a carrot. In the control condition, participants ate the carrot without performing any gestures. We asked participants to consume carrots in three separate rounds. During each round, participants either performed the same ritual, performed a set of random gestures, or conducted no gestures. All participants were then faced with a choice to consume either a chocolate truffle (vice) or another carrot (virtue). Controlling for participants’ initial hunger, their overall liking for carrots, and their overall liking for chocolate, participants who enacted a ritual were more likely to choose carrots than those who did nothing,  $b = 1.06$ ,  $p = .009$ , and marginally more likely than those who performed random gestures,  $b = 0.80$ ,  $p = .050$ .

Experiments 3a and 3b next differentiated the effect of rituals from habits by removing the practice rounds in which a ritual is paired with a self-control choice in order to eliminate the opportunity for associative learning. These experiments further test our predicted mechanism that rituals enhance subjective feelings of self-discipline. In these experiments, participants either performed a ritual, no ritual, or random gestures prior to making a real food choice between a virtuous option (Odwalla bar) and vice option (Snickers bar). In Experiment 3a ( $n = 276$ ), compared with those in the control and random conditions (48.4%), more participants in the ritual condition (64.1%) chose virtue (Odwalla bar) over vice (Snickers bar),  $\chi^2 = 6.05, p = .014$ , reflecting greater self-control. A bootstrapping analysis indicated that ritual has a significant indirect effect on choice through feelings of self-discipline, indirect effect = .54, 95% CI [.05 to 1.10]. Experiment 3b ( $n = 497$ ) replicated these results with a larger sample size using a pre-registered design.

To increase the generalizability of our findings, Experiment 4 ( $n = 115$ ) examined the proposed effect in a different self-control context: prosocial decision-making. Moreover, we did not explicitly inform participants that the gestures that they were going to enact constituted a ritual, diminishing concerns about a demand effect from labeling gestures as a “ritual.” Participants performed a ritual, no ritual, or random gestures and subsequently chose whether to attend a party (vice option) or charity event (virtue option). Compared with those in the control and random conditions (20.5%), more participants in the ritual condition (59.5%) chose virtue (fundraising event) over vice (party),  $\chi^2 = 17.21, p < .001$ , indicating greater self-control.

Finally, Experiment 5 ( $n = 401$ ) demonstrated that the effect of ritual vanishes in the absence of a self-control conflict. We tested a 2 (ritual: ritual vs. control)  $\times$  2 (self-control conflict: absent vs. present) between-subjects design. As predicted (and replicating Experiment 4), in the presence of a self-control conflict, more participants in the ritual condition (42.4%) switched to help with the fundraising event than those in the control condition (27.3%),  $\chi^2(n = 198) = 5.01, p = .025$ . However, in the absence of a self-control conflict, the choice share of switching to party B did not vary between the ritual group (34.7%) and the control group (38.2%),  $\chi^2(n = 203) = .28, p = .60$ . Furthermore, we found moderated mediation through feelings of self-discipline.

In sum, performing rituals can make people feel like they have more self-discipline, and consequently exert increased self-control. Some of the most worrisome and costly problems affecting society – from obesity and overuse of technology while driving to smoking and binge drinking – have at their core failures to exercise self-control. To address these problems, scholars across disciplines have identified tools to help people exercise control. We extend this body of work by showing the robust effects of engaging in simple rituals on self-discipline: enacting a personal ritual effectively promotes self-control.

### **Value-Weight Heuristic: Using Attribute Information to Infer Motives for Choice**

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People often speculate about others' choices: Why did she choose that city or that pair of eyeglasses? Why did she vote for that political candidate? Sometimes the answers merely satisfy curiosity; other times they can be of greater interpersonal consequence. For instance, following



Donald Trump's victory in the 2016 election, there was much speculation about what motivated voters to select the candidate they did, with a range of downstream consequences for interpersonal inference-making and the resulting political climate. Indeed, understanding how people infer motives for others' choices—and whether these inferences are accurate—is a critical part of social cognition.

To understand observer inferences, one must first consider the choice from a decision-maker's perspective. Imagine a decision-maker choosing a pair of eyeglasses. Implicitly, she deliberates between two factors: the options' attributes (e.g., price, shape, color) and attribute values (e.g., \$95, rectangular, green). The decision-maker considers the relative weight or importance she affords to each attribute (“How much do I care about price versus color?”), evaluates how the options fare along those dimensions (“Is \$95 reasonable? Do I like green?”), and ultimately selects the option that strikes the best balance (i.e., maximizes utility; Bettman, Capon, & Lutz, 1975;). The resulting choice is the product of tradeoffs between attribute weights and values.

While these tradeoffs largely go unseen, observers may ascertain the final choice—e.g., the glasses purchased—and speculate about what motivated it. As we propose, this speculation involves backward induction: observers assess the chosen option and use its discernible attribute values to infer how the decision-maker weighted the importance of each attribute. Specifically, observers use attribute value as a proxy for attribute weight—the *value-weight heuristic*—with the implication that higher attribute values signal higher attribute weights.

Five lab studies demonstrate the existence of the heuristic (Studies 1A, 1B, 2), the resulting error that can arise (Studies 3-4), and an approach to debiasing (Study 4). While much previous research has uncovered the intra- and interpersonal factors that drive these misattributions, we suggest that features of the chosen option itself can skew attributions of choice, contributing to research on social (mis)attributions and prediction errors.

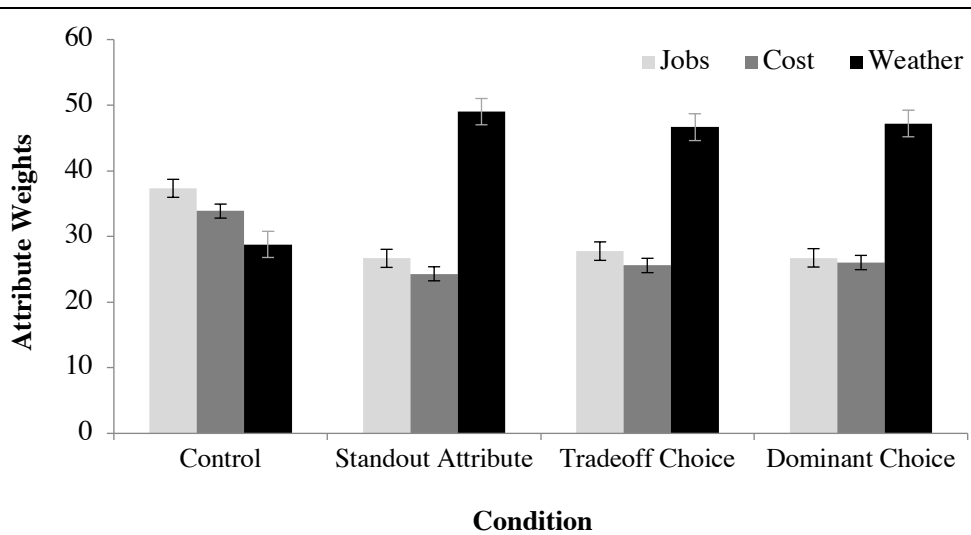
Studies 1A-1B demonstrate the main effect. Participants encountered an option that someone else had chosen; in one condition (“control”), the chosen option had only average-value attributes (S1A: city with average weather; S1B: black pair of glasses), while in a second condition (“high-value attribute”), the chosen option had a single high-value attribute (S1A: city with above-average weather; S1B: bright green pair of glasses). Across two different stimuli and dependent measures, observers in the high-value attribute conditions consistently over-weighted the relative importance of that attribute versus observers in the control (S1A:  $p < .001$ ; S1B:  $p < .001$ ).

Study 2 examined observers' sensitivity to the decision context. We compared a control condition (i.e., chosen city with average jobs, cost, and weather) to three high-value attribute conditions (see Fig. 1 for stimuli): (1) chosen option known (chosen city with average jobs and cost, but above-average weather), (2) trade-off condition (chosen city with above-average weather selected over a city with above-average jobs), and (3) dominating-option condition (chosen option with above-average weather selected over city with three average attributes). We replicated the main effect—observers believed weather mattered more when it was a high-value attribute—but found null differences between the other three high-value attribute conditions. In other words, observers use the value-weight heuristic when it is likely to be correct (trade-off condition), but also when it is likely not to be (dominating-option condition).

Figure 1: Stimuli used in Study 2 (counterclockwise from top-left: A) control, B) high-value attribute, C) trade-off choice, D) dominating choice)



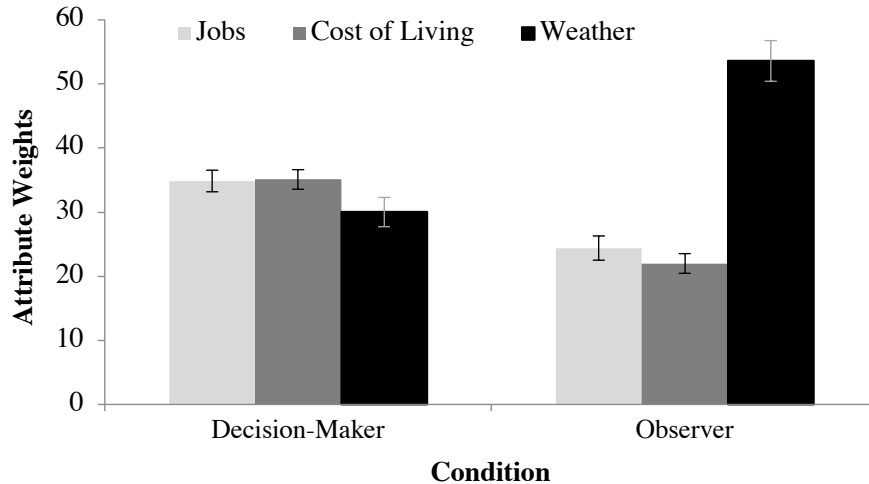
Figure 2: Observers' inferences about attribute weights



Study 3 further examined the accuracy of the heuristic. Participants were either a decision-maker or an observer. Decision-makers chose between two cities (both with average jobs and cost of living, but City A with average weather and City B with above-average weather). Decision-makers chose and then indicated how important each attribute was in their decision; observers saw the choice of the dominating option (i.e., City B) and predicted how important each attribute was to decision-makers. Observers overestimated the importance of the

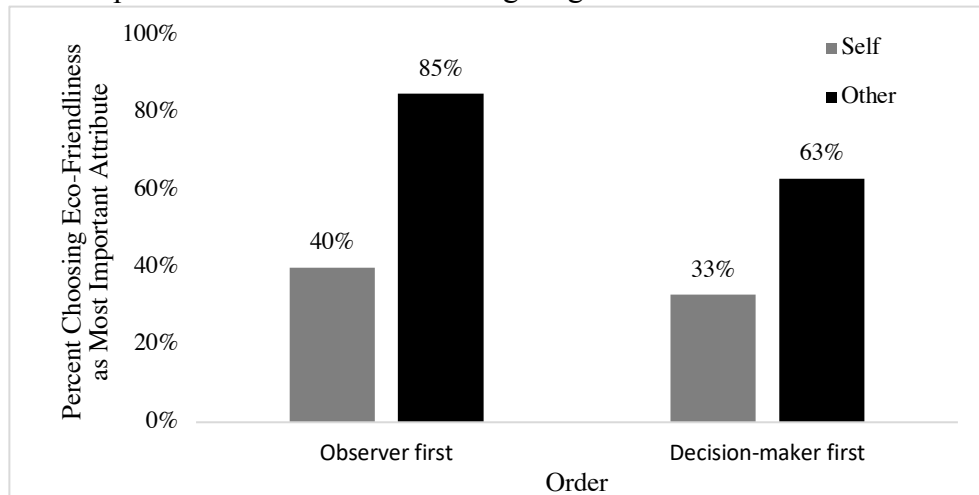
high-value attribute (i.e., weather) ( $p < .001$ ), suggesting that the value-weight heuristic can result in erroneous judgments (Fig. 3).

Figure 3: Attribute weighting by condition (Clustered bars sum to 100; error bars represent standard error)



Study 4 attempted to debias observers. All participants took both a decision-maker and observer role in choosing between two light bulbs: Light Bulb A (average on all dimensions) and Light Bulb B (high score on eco-friendliness). We also counterbalanced the order of the study: half of participants first chose for themselves and then observed someone else's choice ("decision-maker first"), while the other half first observed someone else's choice and then chose for themselves ("observer first"). We asked all participants to specify—either for themselves or the other person—which light bulb attribute they believed was most important in the choice. Indeed, most people thought that eco-friendliness (the high-value attribute) was more important for others than it was for themselves, but this difference was mitigated when participants were first put in the decision-maker role ( $p < .01$ ). In other words, reflecting on their own decision first led to a better understanding that a high-value attribute could be incidental—rather than integral to—a choice.

Figure 4: Percent of participants who believed eco-friendliness (the high-value attribute) was the most important attribute when choosing a light bulb



Why does this matter? In addition to demonstrating a systematic way in which observers infer motives for choice, we suggest that these inferences affect broader interpersonal inference-making. For this, we surveyed self-reported Clinton and Trump voters five days post-Election. In line with our other results, Clinton voters perceived immigration policy—which a pretest revealed was a “high-value” attribute of Trump’s campaign—to have been more important in Trump voters’ decisions than Trump voters reported that it had been ( $p < .001$ ). This was correlated with broader unfavorable impressions of Trump voters. Though possible alternative explanations exist, these results provide consequential, real-world evidence for the value-weight heuristic.

Our work contributes to research on prediction errors and social inferences by demonstrating a novel heuristic: observers use attribute information to infer motives for choice—even when such a heuristic may err.

### **The Primacy of “What” Over “How Much”: How Type and Quantity Shape Healthiness Perceptions of Food Portions**

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Imagine a consumer with a healthy eating goal who is deciding whether to consume a particular portion of chocolate candies. Like most consumers with healthy eating goals, this consumer’s main health goal consists of losing or maintaining weight (International Food Information Council Foundation, 2012), such that calories are often considered the objective measure of health goal impact (Campbell & Warren, 2015; Chandon & Wansink, 2007; Cochran & Tesser, 1996; Huang, Zhang, & Broniarczyk, 2012). Given the importance of calories as an objective

measure for most consumers' health goals, there are two main aspects of the food consumed that ought to combine to jointly determine how a given food portion will affect the consumer's health goals: the type of food and the quantity of the food. However, do a consumer's judgments of a food portion's health impact fully factor in both type and quantity, or are they driven more by one dimension?

We examine the effects of varying food types (e.g., chocolates vs. cookies vs. almonds vs. crackers) and food quantities (e.g., ½ serving vs. 1 serving vs. 2 servings vs. 3 servings) on healthiness perceptions. In comparison, the existing literature generally either: (1) separately examines type or quantity; or (2) does not distinguish between type and quantity. We instead introduce an explicit comparison between pursuing health via changing the type versus quantity of a food. Drawing from literature on processing categorical versus continuous attributes (Ha, Park, & Ahn, 2009) and on work suggesting that people quickly and automatically categorize food types as either inherently healthy or unhealthy (Chernev & Gal, 2010; Oakes, 2005; Oakes & Slotterback, 2005; Rozin, Ashmore, & Markwith, 1996), our main proposition is that for healthiness perceptions, food type is treated as a "primary dimension" (i.e., a highly salient dimension that dominates judgments), whereas food quantity is treated as a "secondary dimension" (i.e., a dimension that does not affect judgments much unless made salient, and, even then, affects judgments less than a primary dimension). Thus, we extend prior work on categorical food-type thinking by systematically varying *both* food type and food quantity to test if, when, and to what extent food quantity factors in.

We demonstrate the secondary nature of quantity and the spontaneous tendency to underweight quantity across six studies. Studies 1-3 utilize a visual food diary paradigm with before-after photos of food portions to indicate a snack episode. Study 1 provides initial evidence for our primary-secondary account by showing that consumers' healthiness evaluations of these snack episodes reflect food type differences but are largely insensitive to food quantity differences, although consumers are able to perceive the quantity differences (tables 1a-1b). Studies 2a and 2b then test process-related predictions from our primary-secondary account by examining two theoretically-motivated ways of increasing the salience of quantity during healthiness judgments. Study 2a increases quantity salience by prompting a joint evaluation mode (González-Vallejo & Moran, 2001; Hsee, 1996). Study 2b increases quantity salience by drawing from expectancy-disconfirmation theory (Bettman, 1979; Helgeson & Beatty, 1987) to create a condition in which participants evaluate a portion size much larger than would be expected for consumption on one occasion. Studies 2a and 2b show that when the salience of quantity is increased, consumers adjust their healthiness perceptions to account for quantity but only to a small extent (tables 2a-2b; figure 1).

Study 3 further tests our primary-secondary account by adding emphasis to the actual consumption or eating of (nearly) the entire food portion, finding that consumers continue to treat quantity as secondary (table 3a). Additionally, while our main focus is healthiness perceptions, Study 3 examines the additional outcome of caloric perceptions and shows that they track less than 1:1 with size perceptions, again suggesting an underweighting of quantity in caloric perceptions (tables 3b-3c).

Study 4 then further tests our primary-secondary account by examining healthiness perceptions

when caloric information about food portions is explicitly provided. Study 4 shows that the secondary nature of quantity in healthiness assessments holds even when consumers are provided with caloric information (figure 2). Study 4 also finds support for our primary-secondary account using direct process measures from Krider, Raghubir, and Krishna (2001) ( $p$ 's < .05).

Finally, Study 5 examines choice implications when consumers instructed to make choices for a healthy lifestyle choose between portions of two calorically dense but differentially healthy foods (chocolates vs. almonds). Consumers choose the healthier food type (almonds) even when the size of the almond portion means that the caloric content of the almond portion far exceeds the caloric content of the chocolate candies portion (figures 3a-3b). This finding suggests that the secondary nature of quantity is also reflected in consumers' food choices.

In closing, we provide substantial evidence that although both the types and quantities of foods eaten jointly contribute to weight and overall health, consumers treat type as a primary dimension and quantity as a secondary dimension. Accordingly, a food's type (vs. quantity) has greater impact on perceived health impact, across multiple study designs and stimuli, and even when controlling for caloric content or providing caloric information. Given that healthiness perceptions are an important input to food choice, the tendency towards neglecting or underweighting quantity may have negative effects on those pursuing health goals, especially weight-loss goals.

Our findings contribute to two main literatures. First, we contribute to the goals literature by showing that even when a change in type or quantity results in exactly the same caloric change, consumers perceive the changes to impact healthiness to different extents. This stands in contrast to the existing goals literature, which often implicitly treats calories as an objective indicator of health goal progress. Further, our research also contributes to the extensive food decision-making literature, which has commonly used two main choice paradigms (either choice among different food types or choice among different food quantities) to examine the healthiness of food choices. Our findings indicate that the choice paradigm used affects consumers' perceptions of the healthiness differences between options, suggesting that conclusions from one choice paradigm will not always translate directly to contexts involving the other choice paradigm.

## TABLES AND FIGURES

**Table 1a: Study 1 Mean Size Perceptions for Food Portions, Depending on Type and Quantity**

| Food Type   | Food Quantity      |                    |                     | Omnibus Test for differences           |
|-------------|--------------------|--------------------|---------------------|----------------------------------------|
|             | Size 1 (½ serving) | Size 2 (1 serving) | Size 3 (2 servings) |                                        |
| “Healthy”   |                    |                    |                     |                                        |
| Almonds     | 2.97               | 4.39               | 6.30                | $F = 31.33, p < .001, \eta_p^2 = .410$ |
| Carrots     | 3.06               | 4.87               | 6.97                | $F = 40.37, p < .001, \eta_p^2 = .473$ |
| Wheat thins | 2.91               | 5.50               | 6.03                | $F = 33.49, p < .001, \eta_p^2 = .427$ |
| “Unhealthy” |                    |                    |                     |                                        |
| Cookies     | 2.87               | 4.30               | 5.67                | $F = 20.80, p < .001, \eta_p^2 = .318$ |
| M&M candies | 2.93               | 5.70               | 6.53                | $F = 33.77, p < .001, \eta_p^2 = .431$ |
| Cheetos     | 2.80               | 3.78               | 5.50                | $F = 21.54, p < .001, \eta_p^2 = .326$ |

*Note.* These size perceptions are also used as a comparison reference for Study 3 as the same stimuli are used in Studies 1 and 3.

**Table 1b: Study 1 Mean Healthiness Perceptions for Food Portions, Depending on Type and Quantity**

| Food Type   | Food Quantity      |                    |                     | Omnibus Test for Quantity Effect     |
|-------------|--------------------|--------------------|---------------------|--------------------------------------|
|             | Size 1 (½ serving) | Size 2 (1 serving) | Size 3 (2 servings) |                                      |
| “Healthy”   |                    |                    |                     |                                      |
| Almonds     | 7.47               | 7.86               | 7.31                | $F = 1.60, p = .21, \eta_p^2 = .034$ |
| Carrots     | 7.96               | 7.80               | 8.14                | $F = .37, p = .69, \eta_p^2 = .008$  |
| Wheat thins | 5.88               | 5.04               | 5.45                | $F = 1.77, p = .18, \eta_p^2 = .038$ |
| “Unhealthy” |                    |                    |                     |                                      |
| Cookies     | 2.35               | 2.14               | 1.92                | $F = .86, p = .43, \eta_p^2 = .019$  |
| M&M candies | 1.82               | 1.53               | 1.67                | $F = .66, p = .52, \eta_p^2 = .015$  |
| Cheetos     | 2.02               | 2.14               | 1.74                | $F = .69, p = .51, \eta_p^2 = .015$  |

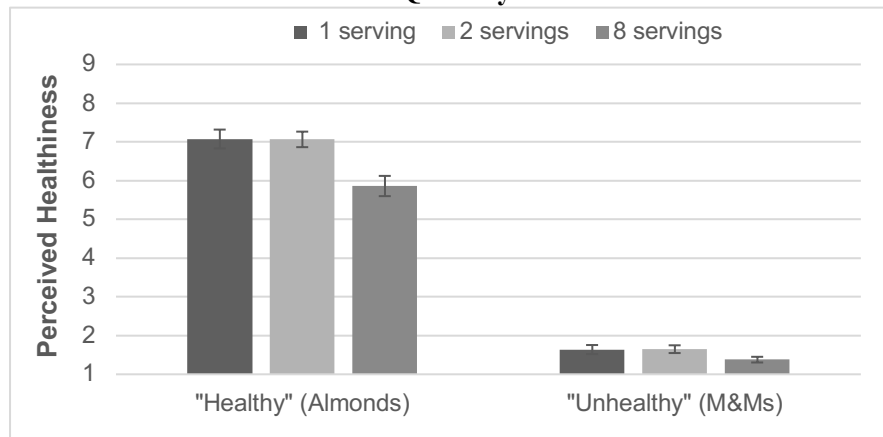
**Table 2a: Study 2a Mean Size Perceptions for Food Portions, Depending on Type, Quantity, and Evaluation Mode**

| Food Type           | Evaluation Mode | Food Quantity         |                        | Test for differences           |
|---------------------|-----------------|-----------------------|------------------------|--------------------------------|
|                     |                 | Size 1<br>(1 serving) | Size 2<br>(2 servings) |                                |
| “Healthy” (Almonds) | Separate        | 4.00                  | 5.56                   | $t = 4.09, p < .001, d = .88$  |
|                     | Joint           | 4.41                  | 6.71                   | $t = 7.89, p < .001, d = 1.53$ |
| “Unhealthy” (M&Ms)  | Separate        | 4.79                  | 6.26                   | $t = 3.51, p = .001, d = .76$  |
|                     | Joint           | 5.37                  | 7.07                   | $t = 7.40, p < .001, d = .71$  |

**Table 2b: Study 2a Mean Healthiness Perceptions for Food Portions, Depending on Type, Quantity, and Evaluation Mode**

| Food Type           | Evaluation Mode | Food Quantity         |                        | Test for Quantity Effect      |
|---------------------|-----------------|-----------------------|------------------------|-------------------------------|
|                     |                 | Size 1<br>(1 serving) | Size 2<br>(2 servings) |                               |
| “Healthy” (Almonds) | Separate        | 7.73                  | 7.42                   | $t = 1.07, p = .290, d = .23$ |
|                     | Joint           | 7.27                  | 6.66                   | $t = 2.50, p = .017, d = .36$ |
| “Unhealthy” (M&Ms)  | Separate        | 1.72                  | 1.56                   | $t = .65, p = .517, d = .14$  |
|                     | Joint           | 2.58                  | 2.19                   | $t = 2.96, p = .005, d = .21$ |

**Figure 2: Study 2b Mean Healthiness Perceptions of Food Portions, Depending on Type and Quantity**





**Table 3a: Study 3 Mean Healthiness Perceptions for Food Portions, Depending on Type and Quantity**

| Food Type   | Food Quantity        |                    |                     | Omnibus Test for Quantity Effect      |
|-------------|----------------------|--------------------|---------------------|---------------------------------------|
|             | Size 1 (1/2 serving) | Size 2 (1 serving) | Size 3 (2 servings) |                                       |
| “Healthy”   |                      |                    |                     |                                       |
| Almonds     | 8.07                 | 7.84               | 7.07                | $F = 5.09, p = .008, \eta_p^2 = .105$ |
| Carrots     | 8.06                 | 8.22               | 8.04                | $F = 1.64, p = .200, \eta_p^2 = .036$ |
| Wheat thins | 5.93                 | 5.69               | 6.00                | $F = .24, p = .789, \eta_p^2 = .005$  |
| “Unhealthy” |                      |                    |                     |                                       |
| Cookies     | 3.53                 | 2.68               | 2.38                | $F = 3.79, p = .027, \eta_p^2 = .080$ |
| M&Ms        | 2.35                 | 2.14               | 2.62                | $F = 1.02, p = .366, \eta_p^2 = .023$ |
| Cheetos     | 2.92                 | 2.85               | 2.38                | $F = 1.22, p = .301, \eta_p^2 = .027$ |

**Table 3b: Study 3 Mean Caloric Perceptions for Food Portions, Depending on Type and Quantity**

| Food Type   | Food Quantity        |                    |                     | Omnibus Test for Quantity Effect       |
|-------------|----------------------|--------------------|---------------------|----------------------------------------|
|             | Size 1 (1/2 serving) | Size 2 (1 serving) | Size 3 (2 servings) |                                        |
| “Healthy”   |                      |                    |                     |                                        |
| Almonds     | 3.93                 | 4.97               | 5.97                | $F = 7.16, p = .001, \eta_p^2 = .141$  |
| Carrots     | 2.71                 | 2.76               | 2.80                | $F = .02, p = .982, \eta_p^2 < .001$   |
| Wheat thins | 4.48                 | 4.97               | 5.43                | $F = 1.88, p = .159, \eta_p^2 = .041$  |
| “Unhealthy” |                      |                    |                     |                                        |
| Cookies     | 4.23                 | 5.11               | 6.63                | $F = 18.10, p < .001, \eta_p^2 = .294$ |
| M&Ms        | 4.97                 | 5.72               | 5.93                | $F = 2.05, p = .135, \eta_p^2 = .045$  |
| Cheetos     | 4.66                 | 5.52               | 5.77                | $F = 2.19, p = .118, \eta_p^2 = .048$  |

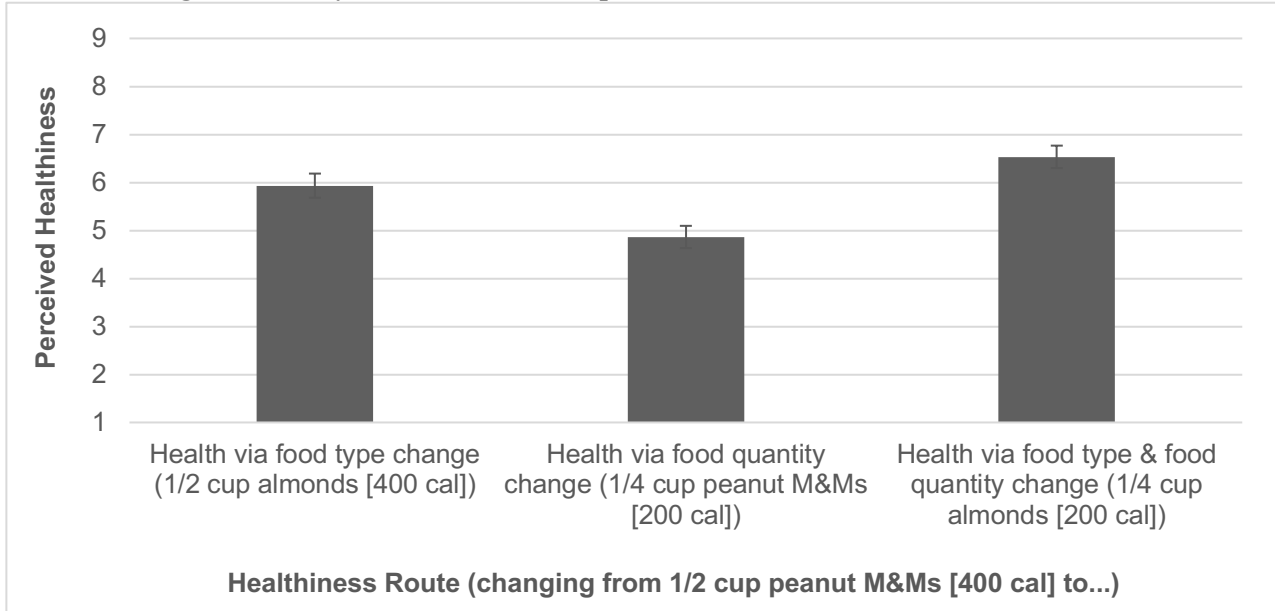
Note. Caloric perceptions appear to be less sensitive to the food quantity differences than the size perceptions (see table 2a from Study 1) are, suggesting an underweighting of size perceptions for caloric perceptions.

**Table 3c: Study 3 Mean Caloric Estimate for Food Portions, Depending on Type and Quantity**

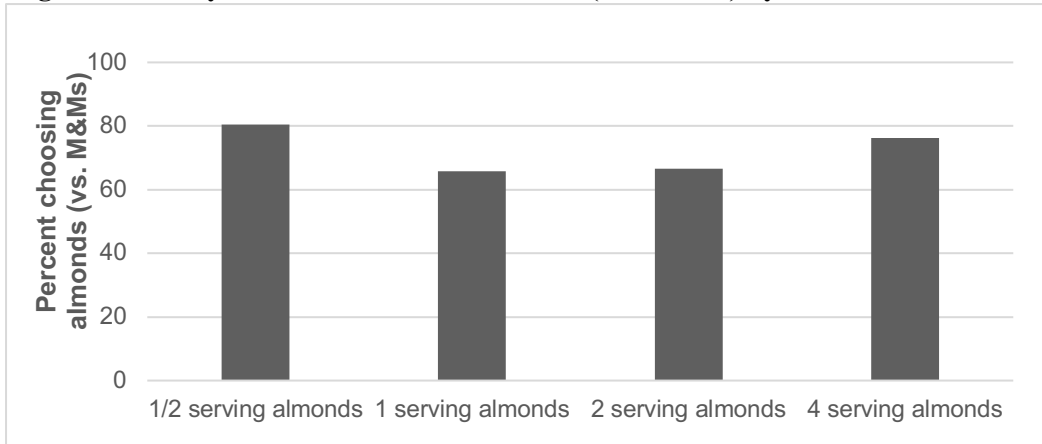
| Food Type   | Food Quantity        |       |                    |       |                     | Omnibus Test for Quantity Effect       |
|-------------|----------------------|-------|--------------------|-------|---------------------|----------------------------------------|
|             | Size 1 (1/2 serving) | →     | Size 2 (1 serving) | →     | Size 3 (2 servings) |                                        |
| “Healthy”   |                      |       |                    |       |                     |                                        |
| Almonds     | 154.61               | ×1.19 | 183.91             | ×1.05 | 193.00              | $F = .46, p = .632, \eta_p^2 = .011$   |
| Carrots     | 75.58                | ×1.10 | 83.45              | ×1.09 | 91.00               | $F = .26, p = .774, \eta_p^2 = .006$   |
| Wheat thins | 151.94               | ×1.18 | 179.48             | ×1.07 | 192.20              | $F = 1.26, p = .288, \eta_p^2 = .028$  |
| “Unhealthy” |                      |       |                    |       |                     |                                        |
| Cookies     | 156.40               | ×1.21 | 189.67             | ×1.61 | 306.10              | $F = 10.06, p < .001, \eta_p^2 = .188$ |
| M&Ms        | 155.16               | ×1.42 | 220.96             | ×1.24 | 275.07              | $F = 5.90, p = .004, \eta_p^2 = .119$  |
| Cheetos     | 162.10               | ×1.26 | 204.97             | ×1.06 | 218.20              | $F = 1.51, p = .227, \eta_p^2 = .034$  |

Note. When examining numeric caloric estimates (i.e., a ratio variable), the size perceptions from table 2a in Study 1 are not readily comparable (as size perceptions were an interval variable). We do observe that the numeric caloric estimates generally exhibit much less than a ×2 relationship from 1/2 serving to 1 serving and from 1 serving to 2 servings, particularly for the healthier food types, indicating an underweighting of size perceptions for caloric perceptions. Although this could potentially be in part because people do not perceive a ×2 relationship in size, the considerable size differences in table 2a from Study 1 suggest that size perceptions may not fully account for these caloric estimates.

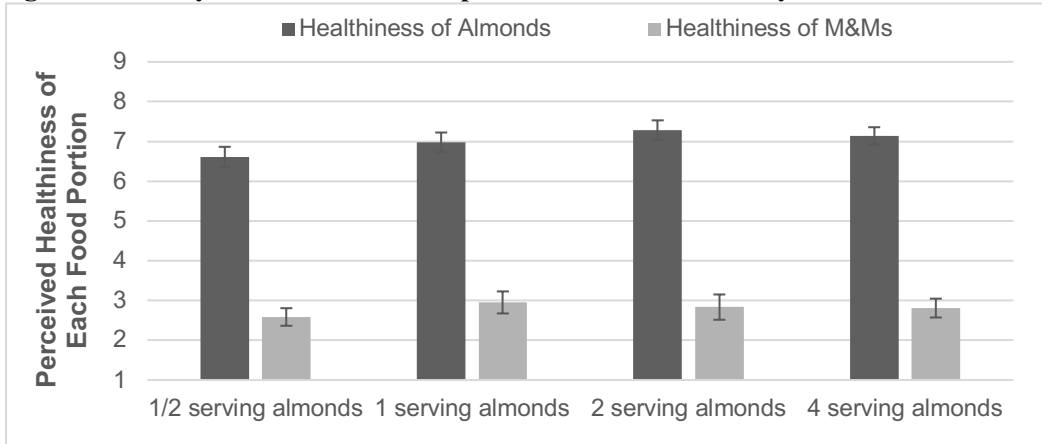
**Figure 2: Study 4 Healthiness Perceptions of Different Routes to Healthiness**



**Figure 3a: Study 5 Choice Shares of Almonds (vs. M&Ms) by Choice Set Condition**



**Figure 3b: Study 5 Healthiness Perceptions of Food Portions by Choice Set Condition**



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## Sharing Personal Information for Connection: The Effect of Social Exclusion on Consumer Self-Disclosure to Brands

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This research explores the effect of social exclusion on consumers' willingness to disclose their personal information to brands. Past work on consumer privacy and disclosure has proposed that consumers share their information when they expect to receive economic benefits from the exchange (Nowak and Phelps, 1997). In this research, however, we shift gears away from examining external factors (e.g., monetary savings, convenience, etc.) that lead to information disclosure and instead focus on an internal, psychological need that may motivate self-disclosure – the need for social connection.

The motivation to form and maintain interpersonal relationships is one of the most fundamental human needs (Baumeister and Leary, 1995) and many researchers have found that deprivation of belongingness has negative consequences (e.g., Twenge et al., 2001; Twenge et al., 2002; Williams, 2001). Given the negative effects of social exclusion and the universal need to affiliate with others, researchers have found that people respond to exclusion with a motivation for social reconnection (Maner et al., 2007), resulting in various cognitive and behavioral consequences, such as paying greater attention to social cues (Gardner et al., 2000) and conforming to others (Williams et al., 2000).

Here, we propose information disclosure as another form of behavior that can satisfy such social connection needs. As self-disclosure can serve as a strategic tool in creating and developing social relationships (Derlega and Grzelak, 1979), those who have been excluded and thus have greater social connection needs may be more willing to engage in a self-disclosure behavior to satisfy such needs. Through four studies, we explored how feelings of social exclusion can influence the extent to which consumers share their personal information with brands.

Study 1 demonstrated that social exclusion increases consumers' willingness to share their personal information with a brand. Social exclusion was manipulated by having the participants write about an experience when they were rejected by others or about a recent grocery shopping trip (i.e., baseline control). After the writing task, participants read a scenario in which they were asked to fill out an optional customer survey for a fictional clothing brand. The optional survey requested ten pieces of personal information (e.g., name, phone number, email address, income, clothing size, etc.). To measure participants' information disclosure intentions, we asked them to indicate on a 7-point scale how much they were willing to share each type of personal information with the clothing brand. The averaged index was used as the main dependent variable. An ANOVA revealed that those who wrote about being socially excluded were significantly more willing to disclose their personal information to the brand, compared to those who wrote about a neutral topic ( $F(1, 133) = 3.79, p = .05$ ). Furthermore, we found that desire for connection with the brand mediated the effect of social exclusion on disclosure intentions, with the 95% confidence interval ranging from .07 to .78.

In Study 2, we used a different exclusion manipulation, Cyberball (Williams et al., 2000), to confirm the robustness of the effect. More importantly, we tested the proposed mechanism by directly manipulating the degree to which such desire is satisfied subsequent to the exclusion experience. Specifically, right after playing the Cyberball game, half of the participants were asked to think about their favorite family member. This was intended to make existing close

relationships salient and thus satisfy the need for social connection. We then used the same scenario and dependent measures from Study 1. The results showed that among those who had not thought about a close relationship, excluded (vs. non-excluded) participants were significantly more willing to disclose their information with the brand ( $F(1, 177) = 6.39, p = .01$ ), replicating the main effect from the previous study. However, as predicted, when existing relationships were made salient, excluded (vs. non-excluded) participants no longer exhibited a greater willingness to disclose their personal information ( $F < 1$ ).

Study 3 was designed to further investigate why socially excluded consumers may be more willing to disclose their personal information with brands. Since being excluded heightens people's desire for social connection, we hypothesized that excluded (vs. non-excluded) individuals would exhibit greater intentions to share their information with a brand that offers *relational* benefits, rather than transactional ones, which are more commonly thought of as triggering information disclosure. To test this notion, we manipulated the benefits participants would potentially receive as a result of becoming a member of a fictional brand. The benefits were described as completely social (e.g., exclusive hotline) or monetary (e.g., deep discounts) in nature. We found that socially excluded (vs. non-excluded) participants had greater intentions to share their information when the brand offered relational benefits ( $F(1, 120) = 4.34, p = .04$ ), but not when the benefits were solely transactional ( $F < 1$ ).

In our last study, we found another boundary condition for the effect – the potential for being rejected by the brand. While social exclusion heightens people's desire for social connection, it is also likely to make them more sensitive to future rejection. Therefore, we predicted that socially excluded (vs. non-excluded) people would be more willing to disclose when the potential for rejection was low, but *less* willing to disclose when the possibility is high. As the dependent measure, we used participants' intentions to share their behavioral information (i.e., willingness to be tracked). Consistent with our expectation, excluded (vs. non-excluded) participants were more willing to share their information when the potential for rejection was low ( $F(1, 176) = 5.08, p = .03$ ), but marginally less willing to do so when it was highly likely that they would be rejected by the given brand ( $F(1, 176) = 3.09, p = .08$ ).

Our findings shed light on how desire for social connection arising from exclusion influences consumers' decisions to disclose their personal information to brands. We contribute to the consumer disclosure literature by uncovering a psychological need that influences consumers' disclosure behavior. We also extend the social exclusion literature by demonstrating that exclusion influences not only consumer' choice of products but also their decision to disclose personal information to brands.

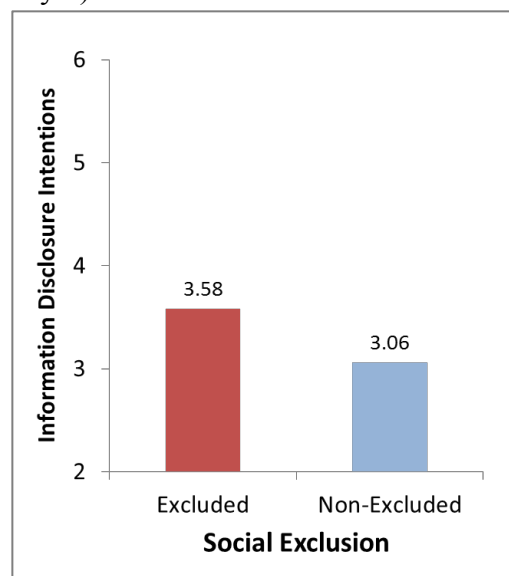
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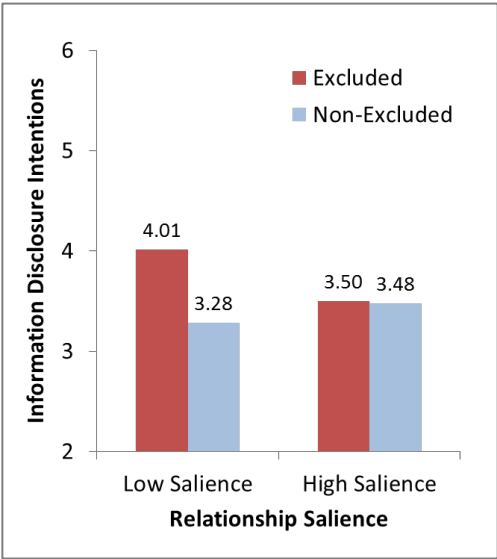
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### Figures

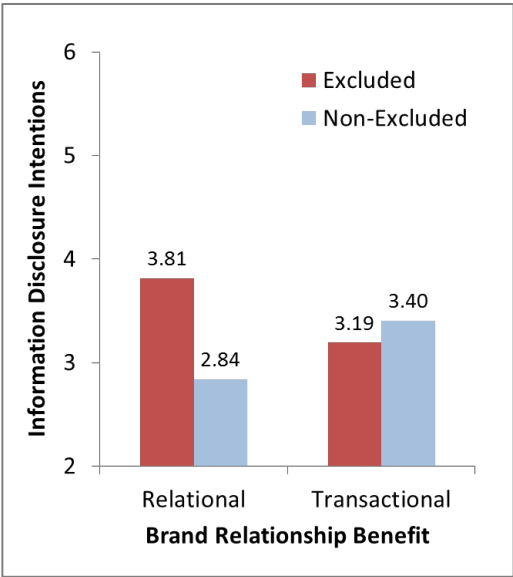
**Figure 1.** Socially excluded individuals show greater willingness to share their personal information with a brand (Study 1)



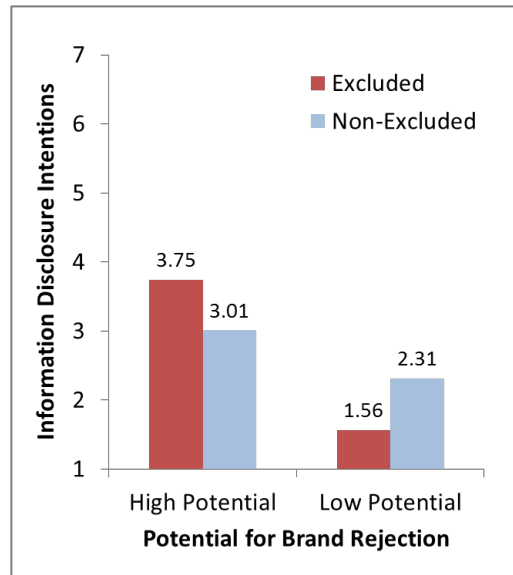
**Figure 2.** Making existing relationships salient attenuates the effect of social exclusion on information disclosure intentions (Study 2)



**Figure 3.** Brand relationship benefit moderates the effect of social exclusion on information disclosure intentions (Study 3)



**Figure 4.** Social exclusion heightens intentions to share information when the potential for brand rejection is low, but decreases such intentions when the potential for being rejected is high (Study 4)





## 7.6 4P's et al.: Consumer Responses to Pricing Strategies Individual Papers

### **There Ain't No Such Thing as a Free Lunch: Consumers' Reactions to Pseudo Free Offers**

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Vicki Morwitz, New York University, USA

Free offers abound in the marketplace—over 90% of smartphone apps are listed as free, airports regularly offer free Wi-Fi, and some hotel chains offer free hotel stays (ABC News, 2014; Perez, 2013). However, many of these “free” offers require a non-monetary payment. For example, consumers often can only download a “free” app or use “free” Wi-Fi if they provide valuable personal information (e.g., name, email) to the firm. Similarly, a “free” hotel stay offer may require attendance at a lengthy, high-pressure timeshare sales presentation.

This research examines how consumers respond to such “pseudo free” offers, which we define as offers that are presented as free but that require a non-monetary payment to receive the “free” good or service. Such offers are in contrast to truly free offers—which involve no costs—and non-free offers—which involve monetary costs. Although previous research has demonstrated that consumers are highly attracted to truly free offers (Chandran & Morwitz, 2006; Shampanier, Mazar, & Ariely, 2007), given that pseudo free offers involve a non-monetary cost, consumers should treat them differently. However, we do not expect this to generally be the case. Although pseudo free offers involve costs, their non-monetary nature makes them ambiguous and difficult to assess (Saini & Monga, 2008; Soman, 2001). We suggest that this ambiguity will trigger an attributional process, which in turn will determine how consumers respond to the pseudo free offer. Because free is salient and attractive to consumers (Chandran & Morwitz, 2006; Shampanier et al., 2007), we predict that, in general, consumers will spontaneously generate neutral or positive attributions regarding pseudo free offers, which will lead them to respond to the offer as if it is truly free. However, if consumers generate negative attributions—believing that the pseudo free offer is intended to exploit consumers—then we predict that consumers will significantly prefer a truly free to a pseudo free offer. We tested these hypotheses in four studies.

In study 1, a field study, 600 randomly selected members of a small high school's alumni database were sent an email offer. In the free condition, participants were offered a free mug. In the pseudo free condition, participants were offered a free mug *if* they completed a short alumni survey. In the non-free condition, participants were offered a mug if they donated \$5 to the school. As predicted, participants were significantly more likely to accept both the free (6.00%) and pseudo free (8.67%) offers than the non-free offer (0.67%; all  $X^2$ s > 6.62, all  $ps$  < .011), and there was no significant difference between the free and pseudo free conditions ( $X^2 < 1$ ,  $p > .370$ ). Now, these results make complete sense if completing the alumni survey was perceived as a negligible cost by participants. Accordingly, in the next study, we aimed to demonstrate that consumers, at least in some cases, respond irrationally to pseudo free offers, accepting them even when their cost exceeds their benefit.

In study 2 ( $N = 95$ ), participants entered the lab to complete an hour of unrelated studies. Midway through, participants were presented with an offer. In the free condition, they were offered a free chocolate bar. In the pseudo free condition, they were offered a free chocolate bar *if* they

completed an additional 5-minute study after the hour was up. In the non-free condition, they were offered a chocolate bar for \$0.50. In the paid survey condition, they were offered \$0.50 to complete the additional study. The results revealed that relatively few participants (31.82%) were willing to pay \$0.50 for the chocolate bar (i.e., the benefit of the chocolate bar was < \$0.50 for most participants) and relatively few participants (16.00%) were willing to complete the additional 5-minute study for \$0.50 (i.e., the cost of completing the study was > \$0.50). Nonetheless, the majority of participants in the pseudo free condition (58.33%) accepted the offer (vs. non-free condition:  $X^2(1) = 3.25, p = .071$ ; vs. paid survey condition:  $X^2(1) = 9.44, p = .002$ )—and there was no significant difference between the free (37.50%) and pseudo free condition ( $X^2(1) = 2.09, p = .149$ )—even though the non-monetary cost of the offer exceeded its benefit.

In study 3 (N = 148), we examined whether consumers' responses to pseudo free offers were moderated by an individual difference variable—dispositional suspicion—that should be related to the attributions consumers make. Participants were told that they were at the airport and that the airport either offered free Wi-Fi (free condition), free Wi-Fi *if* they downloaded the airport's app (pseudo free condition), or Wi-Fi for \$3.50 (non-free condition). They then responded to a dispositional suspicion scale. As shown in Figure 1, among those low in dispositional suspicion—those most likely to make neutral or positive attributions—there was no significant difference in likelihood to accept the free or pseudo free offers ( $p = .324$ ). However, those high in dispositional suspicion—those most likely to make negative attributions—were significantly more likely to accept the free offer than the pseudo free offer ( $p = .010$ ).

In study 4 (N = 161), participants read a similar airport scenario, and then indicated their spontaneous attributions. They also responded to questions that measured their affect, quality perceptions, and motivated reasoning. As shown in Figures 2A and 2B, mediational analyses revealed that the attributions consumers made best explained consumers' responses to the pseudo free offer (vs. the free and non-free offers), whereas the other process variables could not explain consumers' responses.

Overall this research demonstrates that consumers generally respond similarly to free and pseudo free offers even, at least in some cases, when such a response is irrational because the offer's non-monetary cost exceeds its benefit. We find evidence that this occurs because, in general, consumers generate neutral or positive attributions regarding pseudo free offers. However, if they generate negative attributions, they do not treat the pseudo free offer as if it is truly free, and they are significantly less likely to accept it than a truly free offer.

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FIGURE 1

STUDY 3: LIKELIHOOD TO ACCEPT THE AIRPORT'S WI-FI TERMS AS A FUNCTION OF DISPOSITIONAL SUSPICION AND WHETHER THE WI-FI IS FREE, PSEUDO FREE, OR NON-FREE

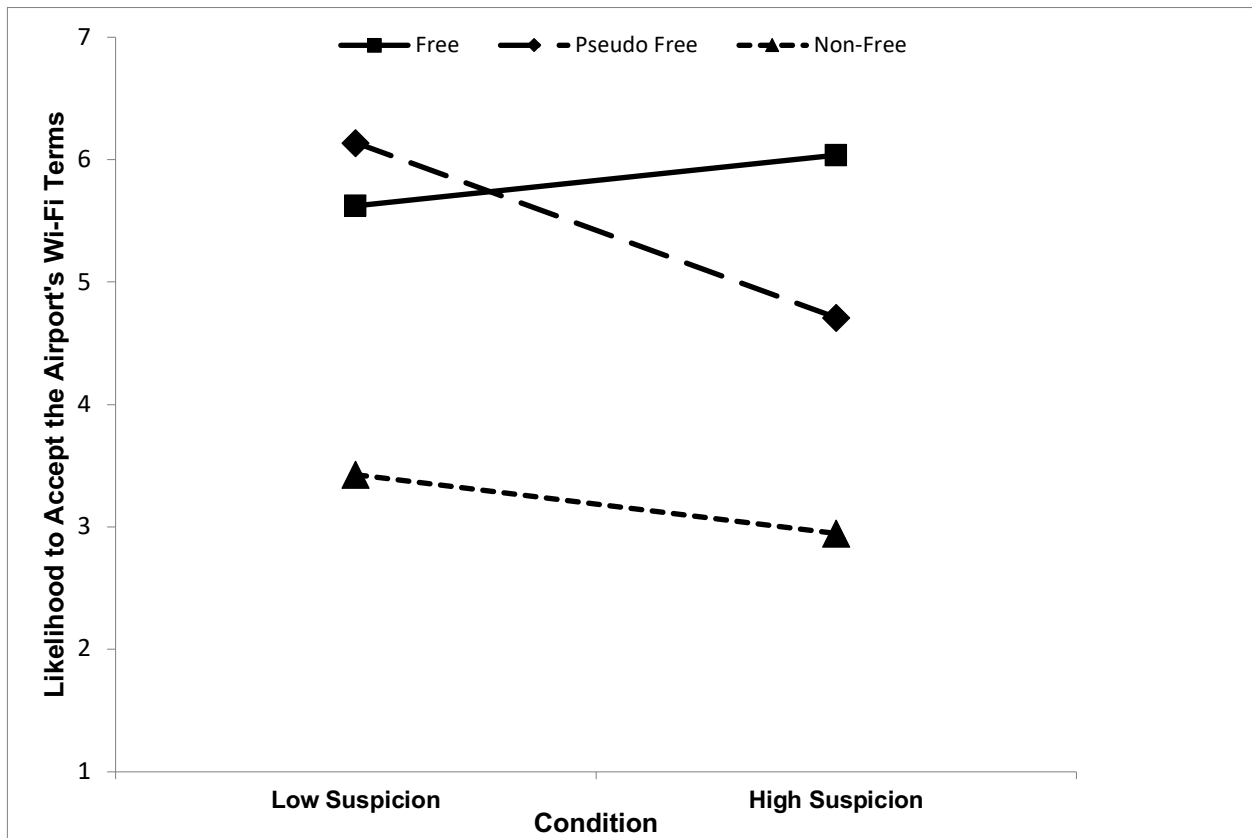


FIGURE 2A

STUDY 4: PATHS DEMONSTRATING EFFECT OF CONDITION (FREE VS. PSEUDO FREE) ON LIKELIHOOD TO ACCEPT THE AIRPORT'S WI-FI TERMS THROUGH ATTRIBUTIONS (BOOTSTRAP CONFIDENCE INTERVAL (95%) = [.06, .52])

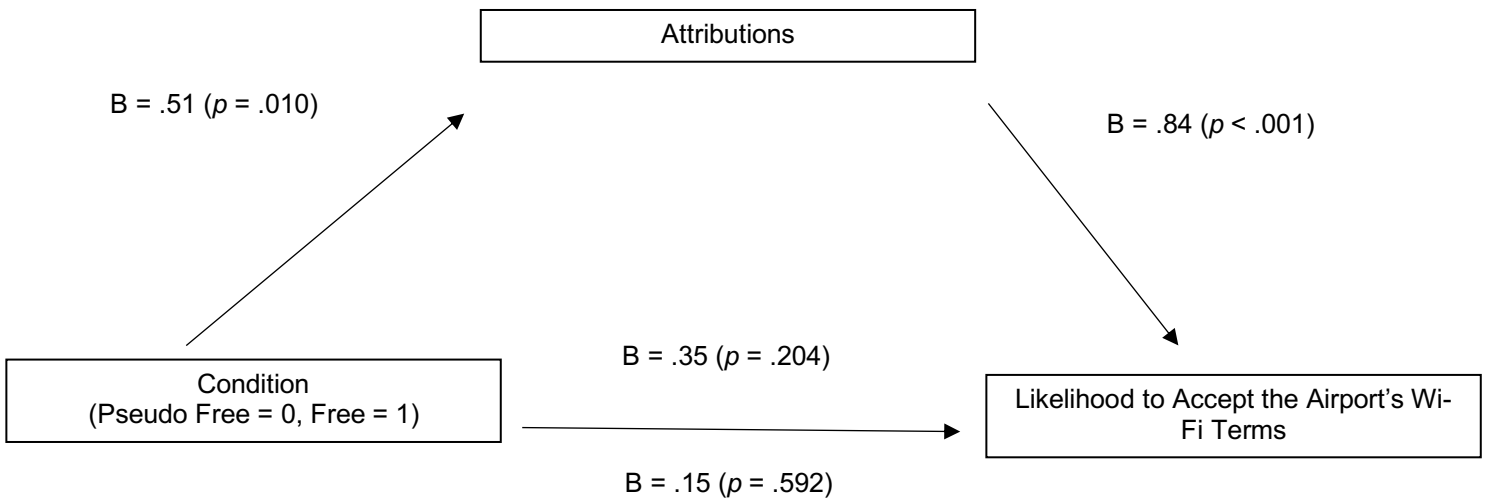
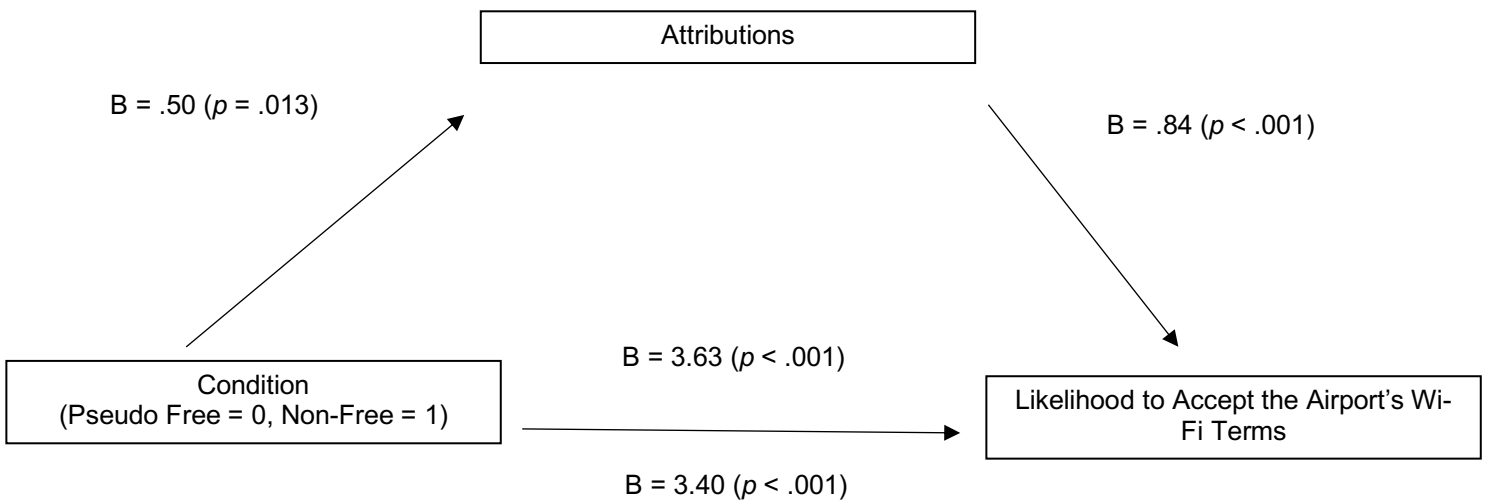


FIGURE 2B

STUDY 4: PATHS DEMONSTRATING EFFECT OF CONDITION (PSEUDO FREE VS. NON-FREE) ON LIKELIHOOD TO ACCEPT THE AIRPORT'S WI-FI TERMS THROUGH ATTRIBUTIONS (BOOTSTRAP CONFIDENCE INTERVAL (95%) = [-.51, -.05])



## **The Cost of Control: How Participative Pricing Shapes Attitudes and Purchases**

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Prices are often fixed prior to the point of sale, yet participative pricing is an alternative pricing mechanism that gives consumers some (negotiation) or all (pay-what-you-want or name-your-own-price) of the control in determining the price paid (Spann and Tellis 2006). For a time, sellers increasingly utilized participative pricing as part of their business models in industries such as music and travel (Thomaselli 2012). The allure of participative pricing faded—many sellers ultimately reverted back to fixed-price models (Bhattarai 2016). Extant research suggests participative pricing should equal if not outperform fixed pricing (e.g. Kim, Natter, and Spann 2009). In the present research, we seek to understand how consumers react to exchanges where they are given control in determining the final price.

In particular, we investigate two opposing processes. First, we expect consumers to generally prefer more participative (vs. fixed) pricing. This prediction is rooted in psychological theories of effort and expected outcome, which generally reinforce the notion that consumers value effort and hard work, especially in domains where rewards (e.g., lower prices) are expected, and generally view high-effort product more favorably (Cutright and Samper 2014; Weiner 1972; Schunk 1983). Ironically, we also expect consumers to avoid purchasing products and services paired with more participative (vs. fixed) pricing. Two key assertions give rise to this prediction: (i) participative pricing involves more cognitive effort than fixed pricing (Gerpott and Schneider 2016), and (ii) consumers are generally reluctant to engage in effortful processing (Garbarino and Edell 1997). Thus, we predict that participative pricing will seem effortful, and consumers will like the idea of making price determinations but ultimately avoid exchanges where effort is required to name their own price.

In three studies, we demonstrate the opposite effects of participative pricing on attitudes and purchase intentions. Participative pricing enhances attitudes toward the pricing strategy but decreases purchase intentions and actual purchase. Furthermore, we isolate perceived effort as the key underlying mechanism giving rise to these opposite effects via mediation and moderation.

Study 1 tested the main effect of participative pricing on consumer purchase intent and their attitude toward the pricing strategy. Three hundred mTurk participants ( $M_{age} = 35.2$ , Female: 47.4%) were randomly assigned to view one of the three versions of an ad that only varied on the price part: set price (“Price for all customers: \$99”), negotiable price (“Price most customers pay: \$99, but this price is negotiable”), and PWYW (“Price most customers pay: \$99, but customers are asked to pay any price they feel is appropriate”). After viewing the ad, participants were asked to answer their willingness to purchase this product and their attitude toward the pricing strategy. The results showed that participants presented with PWYW price indicated significantly more favorable attitude toward the pricing strategy than those presented with set price and negotiable price. However, participants were significantly more reluctant to purchase the product paired with PWY price.

Study 2 investigated the moderating role of depletion on attitude toward the pricing strategy and willingness to purchase and the mediating effect of perceived decision effort. Consumers become more sensitive toward effort and have less cognitive resources to spare when depleted (Baumeister et al. 2008). We suggest that the effects of participative pricing are

strongest when effort is magnified, as when consumers are depleted. One hundred and one mTurk participants ( $M_{age}= 35.1$ , Female: 47.4%) were randomly assigned to one of the two pricing conditions (set price vs. Pay-What-You-Want (PWYW)) in a similar scenario as in study 1. After indicating their willingness to purchase as well as attitude toward pricing strategy, participants rated the perceived effort toward the pricing strategy. Participants also reported their perceived depletion level at an ostensibly different task. The results confirmed the moderating effect of depletion on participative pricing. When participants felt depleted, they showed more favorable attitude toward the pricing strategy but were less willing to purchase the product. When participants felt less depleted, the positive effect of participative pricing on attitude and the negative effect on willingness to purchase disappeared. We also provided empirical evidence that the effect of participative pricing on attitude and purchase intent was mediated by perceived effortfulness of the pricing strategy.

Study 3 provided additional evidence in support of the moderating role of depletion on consumers' willingness to purchase products in a field experiment. Seventy-one U.S. adults in the community participated in the field study. Participants were assigned to one of the four conditions (2 Price strategy: set price vs. Pay-What-You-Want  $\times$  2 Depletion: high vs. low). The researchers set up a table on a busy street for three days to sell St. Patrick's Day rubber ducks. In the set price condition, it said "\$.50 per unit". In the PWYW condition, it said "Feel free to pay any price you feel appropriate" and a little note beneath that "Regular price \$.50 per unit". The signs were switched every 30 minutes. The depletion was naturally manipulated by recording the time of the day (Barton and Folkard 1991). The results revealed a significant interaction of pricing strategy and depletion on sales. For earlier of the day, 54% of the sales came from the set price condition, and 46% of the sales came from the PWYW condition. For later of the day, 68% of the sales came from the set price condition, and only 32% of the sales came from the PWYW condition.

The present research makes important theoretical contributions to existing literatures on pricing, depletion, and consumer effort. It systematically investigated the negative effect of participative pricing and delineated the attitude toward pricing from willingness to purchase and actual purchase behavior, which might help explain the inconsistent findings of how participative pricing has influenced business. Second, we extend the scope of investigation to situations where consumer's cognitive state is taken into consideration and find a boundary condition. Third, building upon previous research on consumers' struggle and uncertainty for a socially appropriate price, we proposed perceived decision effort as a critical construct that help explain consumers' avoidance to purchases products that offer participative pricing.

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### **Making Your Problem My Problem: Fees Seem More Unfair The More They Pay to Meet Rather Than Exceed Standards**

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Consumers often appreciate the transparency of partitioned pricing, when they are charged a base price plus one or more obligatory fees or surcharges, because they feel like can see exactly what they are paying for. But this appreciation is not universal. What people find acceptable in the marketplace and what they are willing to spend is determined not just by how much is being charged, but by their sense of what a typical transaction should be, as well (Kahneman, Knetsch, & Thaler, 1986). Companies often charge obligatory separate fees to cover services that seemingly should be included in the standard price, as when Uber charged a "Safe Rides" fee on every UberX ride. We suggest that such fees that are charged on services that seem like they should be standard actually feel less fair than mandatory fees for services that go above and beyond the standard, and companies that charge them are seen less positively, and that this stems from a sense that companies charging such fees are making their deficiencies the customer's responsibility to fix.

In Study 1, we examined the extent to which such fees are seen as acceptable by probing consumers' beliefs about how standard and how fair certain fees seem to be. Participants considered a list of 20 fees drawn from real life examples, such as "cleaning of a rental car" and "use of the pool and gym at a hotel," and rated either how standard or how fair each fee seemed to them. The more standard a service seems to be, the less fair it seems when a business charges an additional fee for it,  $r(20) = .65, p = .002$ .

Studies 2a and 2b tested this relationship experimentally. In Study 2a, participants imagined ordering room service at a hotel and paying a delivery fee, to test whether making a service more or less likely to be included in the standard price affects how fair it is perceived to be and whether a hotel that would charge extra for it seems like a better or worse company. Participants in the *room service typically extra* condition were told that roughly 90% of hotels of this quality provide similar room service for a similar fee, whereas the remaining 10% have decided that first class service will automatically include such services in the cost of the room. The *room service typically included* condition was identical, except that 10% of hotels, including this one, charge the fee when someone orders room service, and 90% include room service automatically in the cost of the room. Participants had a less positive view of the room service charge (thinking it a less good idea, less moral, and less fair on 1 to 7 scales) when most hotels automatically include room service delivery in the room price ( $M = 3.88, SD = 1.24$ ) than when few hotels include it and most hotels charge separately for it ( $M = 3.35, SD = 1.20$ ),  $t(170) = 2.80, p = .006, d = .28$ . They also had a less positive view of the hotel (seeing it as a less good company, as valuing its customers less, and treating its customers less fairly on 1 to 7 scales) when the fee paid for a service that most other hotels charge for by default ( $M = 4.63, SD = 1.11$ ) than when most hotels charge separately for it ( $M = 5.12, SD = .94$ ),  $t(170) = 3.11, p = .002, d = .40$ . In Study 2b, participants thought about buying a movie ticket online, which included two services with purchase: the ability to print one's ticket at home, and the ability to reserve a specific seat in the theater. Although all participants paid the same total amount and the same separate "convenience" fee for one of the services, participants in the *home printing extra* condition paid the fee for home printing (the more common service according to a pretest), while seat reservations were included in the base price; participants in the *home printing standard* condition paid the fee for seat reservations, while home printing was included in the base. Participants had a worse assessment of the separate convenience fee when it paid to print tickets at home ( $M = 2.97, SD = 1.54$ ) than to reserve a specific seat in the theater ( $M = 3.58, SD = 1.68$ ),  $t(273) = 3.12, p = .002, d = .42$ . They also had a less positive view of a theater that would charge the fee for home printing ( $M = 4.09, SD = 1.52$ ) than the one that would charge to reserve a particular seat ( $M = 4.66, SD = 1.55$ ),  $t(273) = 3.09, p = .002, d = .41$ .

Finally, Study 3 investigated why the same size fee prompts such different reactions. Here, a bank charged a fee to improve their phone service wait times from worse than *industry average to average*, or from *industry average to better than average*. Participants viewed the fee that only improved wait times to average less positively ( $M = 3.54, SD = 1.39$ ) than when the fee improved the wait time from average to better than average ( $M = 4.17, SD = 1.45$ ),  $t(258) = -3.62, p < .001, d = .44$ , and a company that would charge that fee seemed like a less good company ( $M = 4.15, SD = 1.18$ ) than to better than average ( $M = 5.05, SD = 1.24$ ),  $t(258) = -5.92, p < .001, d = .74$ . The differences in perceptions of the fees (95% CI = .09 to .43) and the company (95% CI = .07 to .35) were mediated by participants' sense that the company was making their failure to provide adequate service the customer's responsibility. Overall, this work expands on classic research examining the role of fairness in people's interest in interacting with a business and suggests reasons why certain fees are surprisingly frustrating to the customers who have to pay them.

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### **Consumer Reactions to Drip Pricing**

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Drip pricing occurs when a firm advertises part of a product's price up-front, and then reveals additional fees or surcharges as consumers proceed through the buying process (FTC, 2012, 2015). Examples of drip pricing abound, although perhaps the most common example is that of a low cost airline that advertises an exceptionally low base fare, and then charges fees for everything from printing your boarding pass to carry-on bags to being able to select your seat. Indeed, in 2016, U.S. airlines earned \$41 billion in "ancillary fee" revenue above base ticket prices (White, 2015). Drip pricing has become a major focus of regulators both in the U.S. and abroad who assert that the practice is deceptive. They also worry that it imposes undue monetary and search costs on consumers (Sullivan, 2017). In response, the U.S. Department of Transportation (DOT) now requires U.S. airlines to include all government taxes and fees in every advertised price and to allow reservations to be held at the quoted fare without payment or cancelled without penalty for at least 24 hours after the reservation is made (DOT, 2011a).

Despite its prevalence, research on drip pricing is scarce. Instead, scholars have largely presumed that the effects of drip pricing will mirror those of partitioned pricing (Morwitz et al., 1998): that when prices are partitioned (vs. not), consumers do not pay full attention to surcharges, they underestimate total costs (even when total cost information is provided), and are more likely to make a purchase (Chakravarti et al., 2002; Chetty et al., 2009; Greenleaf et al., 2016; Lee & Han, 2002; Morwitz et al., 1998; Xia & Monroe, 2004). However, a few studies that have compared drip pricing to partitioned pricing of mandatory surcharges show that drip pricing results in lower purchase intentions, more accurate total price estimation, higher perceptions of price unfairness, and stronger feelings of deception (Robbert & Roth, 2014; Robbert, 2015).

Because drip pricing differs from partitioned pricing in significant ways, and in light of the regulatory attention paid to it, a thorough examination of its effects on consumer behavior is warranted. We predict that, *ceteris paribus*, when surcharges are dripped, consumers will initially select the option with the *lower base price*. Conversely, when surcharges are presented up-front, consumers will select the option with *the lower total cost* (i.e., base price + surcharges), even if it has a higher base price. Thus, if the option with the lower base price has a higher total cost than the option with the higher base price—which is the case in all of our studies—participants in the dripped condition will select the lower base/higher total cost option significantly more often than the participants presented with the surcharges up front, and, because their selection is more expensive than anticipated, they will also be significantly less satisfied with their choice. However, even after these participants are exposed to the dripped surcharges and learn that this lower base price option is more expensive than anticipated, we predict that most will stick with their initial selection. We explore potential reasons for why participants exposed to drip pricing stick with their relatively expensive and unsatisfactory selection.

All five studies were conducted online or in a behavioral lab, including one that was

incentive compatible. Each study had three parts. In part 1, participants read a purchase scenario and made a choice between a lower base price option and a higher base price one (e.g., Airline A and Airline B). In part 2, they selected any optional add-ons they wanted to add onto their purchase (e.g., add a carry-on bag to their airline purchase; see Table 1). Participants were next given the opportunity to either complete the transaction or to start over. If they decided to start over, they returned to the initial choice page and went through the entire purchase process again from the beginning. Once participants completed the transaction, they moved on to part 3, where they responded to a series of choice satisfaction questions. This design allowed us to examine the effect of drip (vs. non-drip) pricing on participants' reactions in all three parts of each study—their choices, decisions regarding whether to start over, and satisfaction regarding their choices. For the incentive compatible study, participants chose between two hotels for a “stay-cation.” The budget was \$350. Participants were told that one person would be randomly selected to receive a hotel gift card equal to the value of the room and amenity choices they made during the study plus a VISA gift card equal to the difference between the \$350 budget and their hotel selections.

A summary of the information provided to participants in each study is provided in Table 1, and the results from each study are provided in Table 2. Across the five studies, we consistently find that drip pricing greatly increases the likelihood that consumers make a suboptimal purchase decision. That is, they *select low base price but higher total price alternatives* (Table 2, columns 1-3). Furthermore, we find that, in general, consumers exposed to drip pricing stick with this initial selection even when they are given the opportunity to change their selection (Table 2, columns 4-9) and even though they are relatively dissatisfied with their choice (Table 2, columns 10-12). We also show that initial choice mediates the effect of price presentation on both starting over and choice satisfaction. This choice pattern persists even when total price information is provided (S1) and choices are consequential (S2). We find evidence that this choice stickiness can be attributed to a false belief that all firms charge similar additional fees/surcharges (study 3), self-justification (study 4), and inertia (study 5).

Because our manipulations were designed to reflect industry practice and/or (proposed) federal regulations, this research has the potential to inform the important policy debate regarding drip pricing that is currently taking place around the world. Our results suggest that the current regulations are a modest step in the right direction but are insufficient in eliminating consumers' monetary and search costs.

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**Table 1. Pricing Structure for Lower Base/Higher Total Option and Higher Base/Lower Total Option Across Studies**

|                        |                           |           |                          |                        |                           |                       |             |
|------------------------|---------------------------|-----------|--------------------------|------------------------|---------------------------|-----------------------|-------------|
| <b>Studies 1 and 4</b> |                           | Base Fare | Carry-On Bag (Each Way)* | Checked Bag (Each Way) | Reserved Seat (Each Way)* | Total Price           |             |
|                        | Lower Base / Higher Total | \$194     | \$28                     | \$30                   | \$18                      | \$286                 |             |
|                        | Higher Base / Lower Total | \$239     | \$0                      | \$0                    | \$0                       | \$239                 |             |
| <b>Study 2</b>         |                           | Base Fare | Wi-Fi                    | Breakfast Buffet       | Self-Parking              | Gym, Pool, Spa Access | Total Price |
|                        | Lower Base / Higher Total | \$227     | \$13                     | \$30                   | \$38                      | \$25                  | Varied      |
|                        | Higher Base / Lower Total | \$239     | \$0                      | \$0                    | \$0                       | \$0                   | \$239       |
| <b>Study 3</b>         |                           | Base Fare | Wi-Fi*                   | Self-Parking*          | Gym, Pool, Spa Access*    | Total Price           |             |
|                        | Lower Base / Higher Total | \$185     | \$15                     | \$20                   | \$25                      | \$245                 |             |
|                        | Higher Base / Lower Total | \$225     | \$0                      | \$0                    | \$0                       | \$225                 |             |
| <b>Study 5</b>         |                           | Base Fare | Carry-On Bag*            | Checked Bag            | Reserved Seat*            | Total Price           |             |
|                        | Lower Base / Higher Total | \$98      | \$28                     | \$30                   | \$18                      | \$144                 |             |
|                        | Higher Base / Lower Total | \$121     | \$0                      | \$0                    | \$0                       | \$121                 |             |

\*Indicates that the scenario instructed participants to select that optional add-on.

**Table 2. Initial Choice, Start Over Decision, Ultimate Choice, and Overall Satisfaction Results Across Studies**

|                | % Initially Selecting Lower Base / Higher Total Option |                       | Test Statistic (0 = Non-Dripped, 1 = Dripped)  | % Starting Over   |                       | Test Statistic (0 = Non-Dripped, 1 = Dripped) | % Ultimately Selecting Lower Base / Higher Total Option |                       | Test Statistic (0 = Non-Dripped, 1 = Dripped)  | Mean Overall Satisfaction with Selection (SD) |                       | Test Statistic                |
|----------------|--------------------------------------------------------|-----------------------|------------------------------------------------|-------------------|-----------------------|-----------------------------------------------|---------------------------------------------------------|-----------------------|------------------------------------------------|-----------------------------------------------|-----------------------|-------------------------------|
|                | Dripped Condition                                      | Non-Dripped Condition |                                                | Dripped Condition | Non-Dripped Condition |                                               | Dripped Condition                                       | Non-Dripped Condition |                                                | Dripped Condition                             | Non-Dripped Condition |                               |
| <b>Study 1</b> | 94.0%                                                  | 18.9%                 | B = 4.21, SE = .35, Wald = 146.60, $p < .001$  | 11.9%             | 8.0%                  | B = .88, SE = .62, Wald = 2.00, $p = .157$    | 82.1%                                                   | 17.9%                 | B = 3.92, SE = .43, Wald = 82.91, $p < .001$   | 4.58 (1.22)                                   | 5.52 (1.08)           | $F(1, 398) = 65.52, p < .001$ |
| <b>Study 2</b> | 31.9%                                                  | 6.7%                  | (B = 1.91, SE = .67, Wald = 7.98, $p = .005$ ) | 0.0%              | 0.0%                  | N/A                                           | 31.9%                                                   | 6.7%                  | (B = 1.91, SE = .67, Wald = 7.98, $p = .005$ ) | 5.73 (.99)                                    | 5.84 (.92)            | $t(91) = .58, p = .563$       |
| <b>Study 3</b> | 58.6%                                                  | 6.4%                  | B = 2.49, SE = .40, Wald = 38.04, $p < .001$   | 19.7%             | 2.0%                  | B = 2.04, SE = .63, Wald = 10.34, $p = .001$  | 40.4%                                                   | 4.9%                  | B = 2.11, SE = .47, Wald = 20.35, $p < .001$   | 5.28 (1.35)                                   | 5.88 (.89)            | $F(1, 395) = 26.63, p < .001$ |

|                      |        |      |                                              |        |      |                                              |        |      |                                              |             |            |                             |
|----------------------|--------|------|----------------------------------------------|--------|------|----------------------------------------------|--------|------|----------------------------------------------|-------------|------------|-----------------------------|
|                      |        |      | .001                                         |        |      | .001                                         |        |      | .001                                         |             |            |                             |
| <b>Study 5 Pt. 1</b> | 54.3 % | 8.7% | B = 2.52, SE = .28, Wald = 79.55, $p < .001$ | 30.5 % | 4.3% | B = 2.27, SE = .37, Wald = 37.05, $p < .001$ | 30.5 % | 4.4% | B = 2.27, SE = .37, Wald = 37.05, $p < .001$ | 5.33 (1.21) | 5.71 (.91) | $t(41) = 3.64$ , $p < .001$ |
| <b>Study 5 Pt. 2</b> | 25.7 % | 4.8% | B = 1.92, SE = .36, Wald = 28.35, $p < .001$ | 11.4 % | 1.4% | B = 2.17, SE = .62, Wald = 12.24, $p < .001$ | 15.2 % | 4.4% | B = 1.38, SE = .39, Wald = 12.36, $p < .001$ | 5.51 (1.12) | 5.69 (.99) | $t(41) = 1.73$ , $p = .085$ |

## Session 8

### 8.1 Behavior Change Challenges: Understanding When and Why People Fail (or Succeed) to Engage in Beneficial Behaviors Symposium

#### **Paper #1: THE ENTRENCHMENT EFFECT**

Alicea J. Lieberman, University of California, San Diego, USA

On Amir, University of California, San Diego, USA

Ziv Carmon, INSEAD, Singapore

#### **Paper #2: CAN NFL PLAYERS BE VIEWED AS VICTIMS? HOW CAMERA ANGLES CAN INCREASE SYMPATHY TOWARDS ATHLETES**

Kirk Kristofferson, Arizona State University, USA

Andrea C. Morales, Arizona State University, USA

Brent McFerran, Simon Fraser University, USA

Darren W. Dahl, University of British Columbia, Canada

#### **Paper #3: MEDICATION AVERSION: HOW MORAL CHARACTER INFERENCES AFFECT MEDICAL DECISION MAKING**

Sydney E. Scott, Washington University in St. Louis, USA

Justin F. Landy, University of Chicago, USA

#### **Paper #4: SUSTAINING SUSTAINABLE HYDRATION: THE IMPORTANCE OF ALIGNING INFORMATION CUES TO MOTIVATE LONG TERM CONSUMER BEHAVIOR CHANGE**

Eleanor Putnam-Farr, Yale University, USA

Rhavi Dhar, Yale University, USA

Understanding when and why consumers fail to engage in beneficial behavior change has important consequences for individual and societal well-being. Key reasons why people are unable to change behaviors often include biases, misperceptions, and habits. The goal of this session is to further explore these key drivers and present novel insights on the rich dynamics that influence behavior change.

This series of four papers explores when and why people fail to engage in beneficial behaviors and considers how to influence both deliberative and automatic thought processes in order to encourage such changes. We collectively demonstrate that consumers' failure to change behaviors is due in part to misperceptions, irrational assumptions, and habits, but that even small changes to seemingly inconsequential marketing variables can successfully promote significant changes with substantial benefits to the self and society.

In the first paper, Lieberman, Amir, and Carmon explore a novel mechanism explaining behavior change failures. Specifically, that the mere perception of a cost to change behavior hinders one's willingness to do so, even when the cost is greatly outweighed by the benefit of the change. The authors further show that the longer consumers engage in an inferior behavior, the lower their likelihood to switch to a superior one.

The second paper expands the focus from the perceived cost of the change to the perceived risks associated with the disfavored behavior. Kristofferson, Morales, McFerran, and Dahl focus on the consequences of misperceiving a behavior as less risky than it truly is and examine ways to alter these perceptions to improve well-being. Specifically, the authors demonstrate that changing the way a sporting event is viewed (i.e., through zoomed-in camera angles) can shift feelings of amusement to sympathy and recalibrate risk perceptions, leading to beneficial changes in behaviors.

Next, Scott and Landy assess why consumers avoid medication treatments. The authors show that people dislike medications because they believe using medication reflects poor moral character for a wide variety of ailments, even though they are seen as effective.

In the final paper, Putnam-Farr and Dhar explore the effectiveness of reminders delivered at the moment of choice versus earlier in the choice process. In a 2-month field experiment encouraging the use of reusable water bottles, the authors demonstrate that triggering upstream consumption decisions, relative to in the moment reminders, was more effective at promoting behaviors that led to sustained habit change, even once the reminders were removed.

Collectively, these four papers provide a fresh understanding of the mechanisms underlying the perpetuation of detrimental behaviors and provide new insights about how to effectively promote positive behavior change. Across several domains, we find that consumers maintain existing negative behaviors because change can be misperceived as costly, viewed as unnecessary, deemed immoral, or overpowered by habit. The authors further demonstrate that manipulating the message framing and timing can overcome these behavior change barriers. We believe this session will have broad appeal, drawing researchers investigating behavior change, influence, risk, habits, health, and judgment and decision-making.

## **THE ENTRENCHMENT EFFECT**

Alicea J. Lieberman, University of California, San Diego, USA

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### **SHORT ABSTRACT**

It is expected that, all else being equal, people will engage in self-serving behaviors. However, consumers often maintain suboptimal, and sometimes harmful behaviors, even when the cost of change is minimal. We propose a novel mechanism explaining such behavior change failures: entrenchment. Once entrenched, people display cognitive tunnel vision and are less likely to change to a preferred state when given the opportunity to do so, even when the benefit of change greatly outweighs the cost. The more entrenched a consumer becomes in a suboptimal behavior, the lower the likelihood of change. However, preventing entrenchment can increase self-benefitting behaviors.

### **EXTENDED ABSTRACT**

Most research in the social sciences expects that consumers, all else being equal, will engage in self-serving behaviors. Further, prior work demonstrates that *optimal* experiences can



lead to flow, sometimes causing people to engage in an enjoyable behavior longer than anticipated (Kubey and Csikszentmihalyi 2002; Rau, Peng, and Yang 2006). However, consumers often maintain *suboptimal*—and even harmful—behaviors as well, even when the cost of changing the behavior is minimal and the benefit of doing so is large. Prior research shows that people prefer to stick with an existing option, the status quo (Samuelson and Zeckhauser 1988), which is often explained by a number of psychological factors, including loss aversion and the endowment effect (Kahneman, Knetsch, and Thaler 1991). We add to this literature by proposing a novel mechanism: engaging in a detrimental behavior can lead to a negative flow-like-state, which we call entrenchment. Across 4 studies, we demonstrate that the more entrenched a consumer becomes, the less likely they are to change to a preferred state, even when the benefit of a change greatly outweighs the cost of doing so, there is no potential loss to the individual, and there is no uncertainty. Further, the longer one is engaged in a behavior, the more entrenched they become, increasing the probability they will fail to make a positive behavior change.

In an initial study, we tested whether consumers indeed fail to switch from a less preferred behavior to one that is preferred. We also tested whether the likelihood to improve one's state decreases the longer one is engaged (i.e., more entrenched) in a suboptimal behavior. Participants ( $n = 273$ ) rated different tasks and were then assigned to complete 10 rounds of a tedious task (transcribing sideways paragraphs) and were given the opportunity to switch to a fun task (word game) either on their third round (low entrenchment) or on their sixth round (high entrenchment). Participants who chose not to switch simply continued transcribing, thus the only cost of switching was the action of clicking one additional button. Social science research would predict that participants should switch to their preferred activity when given the opportunity. However, when provided the option to switch, 24% of participants failed to do so! Further, a significantly greater proportion failed to switch in high entrenchment (32%) compared to low entrenchment (16%),  $\chi^2(1, 195) = 6.93, p = .008$ . However, in this study participants did have to click one extra button to switch, requiring they perform an action (Ritov and Baron 1992), whereas if they chose to stay they simply continued transcribing.

In a second study we further equated the cost of switching such that participants had to click on a button to stay or click on a button to switch. Similarly to Study 1, participants ( $n = 882$ ) were assigned to 10 rounds of a tedious transcription task and were given the opportunity to switch to a fun word-game on their sixth round. Participants either saw the same switching opportunity as in Study 1 or a cost-equated switching opportunity where they had to actively click on a button to switch or to stay. Yet, across conditions, 23% of participants who preferred the word-game once again failed to switch when given the opportunity, and this proportion did not differ based on whether participants had to passively or actively make the decision ( $p > .4$ ).

Study 3 provides additional support for our proposed mechanism, entrenchment, while also ruling out an alternative explanation, goal completion (Bargh et. al 2001). Participants ( $n = 442$ ) were presented with a similar paradigm as the first 2 studies, but here we set up an infinite horizon such that they were unaware of the number of rounds they would complete. Participants were given the opportunity to switch from transcribing to the word-game on round 3 (low entrenchment), round 6 (medium entrenchment), or round 9 (high entrenchment), all while remaining unaware of how many rounds remained. Participants behaved in a manner consistent with the first 2 studies. Across conditions, despite preferring the word-game, 21% of participants failed to switch, and a significantly greater proportion failed to change tasks in high entrenchment (28%) than in low entrenchment (16%),  $\chi^2(1, 201) = 4.49, p = .034$ .

In a final study we generalize to new tasks and demonstrate that preventing entrenchment reduces the likelihood of maintaining the suboptimal behavior. Research suggests that increasing the salience of time can attenuate time loss (Wood, Griffiths, and Park 2007), a key element of flow. Thus, by preventing time distortion, we predicted that participants would be less entrenched in their task and more likely to switch to their preferred task. Participants ( $n = 208$ ) tested and rated new tasks and were then randomly assigned to one of two conditions: unknown time vs. time-salient. In both conditions participants completed a tedious task (completing captchas) for 2 minutes and were then given the option to switch to a preferred task (rating jokes) for their remaining time. In the unknown time condition, participants were unaware of the task length, while in the time-salient condition timing was revealed at several intermittent points. As predicted, 20% of participants in the unknown time condition failed to switch to their preferred activity when given the opportunity, compared to only 8% in the time-salient condition ( $\chi^2 (1, N = 162) = 4.62, p = .031$ ). Thus, preventing entrenchment increased likelihood of a positive behavior change.

Across 4 studies we present a novel mechanism explaining that consumers fail to change their behaviors, even when changing clearly outweighs the cost of the change itself, in part because they become entrenched. These findings shed light on the reasons why behavior change is so difficult and provide unique insights relevant to a broad audience of practitioners and researchers.

## **CAN NFL PLAYERS BE VIEWED AS VICTIMS? HOW CAMERA ANGLES CAN INCREASE SYMPATHY TOWARDS ATHLETES**

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### **SHORT ABSTRACT**

We propose that camera angles can change the way consumers watch sporting events. Specifically, building on work on identifiable victims, we demonstrate that watching football through zoomed-in (vs. regular) camera angles can elicit heightened negative emotions that cause consumers to view players as victims, thereby changing their attitudes and behaviors.

### **EXTENDED ABSTRACT**

In 2015, the top 12 television shows of the fall season were all NFL games and *Sunday Night Football* was the #1 most watched primetime show, averaging 23.7 million viewers per telecast (Chase 2015). The staggering and continual popularity of football stands in stark contrast to the dangerous, and sometimes fatal, injuries that we now know the game can cause its players. Case in point, in a recent study, 96% of NFL players (and 79% of all football players) examined by the Department of Veterans Affairs and Boston University were identified to have chronic traumatic encephalopathy, or CTE, a degenerative disease believed to be caused by repeated head trauma (Breslow 2015; Omalu et al. 2005).

The juxtaposition of high viewership and the potential for severe harm to its players provides an opportune context for examining some of the psychological factors that increase or decrease consumers' support for players. Specifically, the current work examines this issue through the theoretical lens of prosociality, to determine possible ways to increase sympathy towards NFL players. In other words, are there factors that can shift consumers' views of the players to victims in need of help, instead of professional athletes who entertain them?

Previous work in prosocial behavior and value of life has focused primarily on increasing sympathy towards victims in order to increase charitable giving; we contend that many of the same psychological underpinnings apply to the current context. Consistent with prior work that shows people are more inclined to help identified victims than unidentified or statistical victims (Schelling 1968; Jenni and Loewenstein 1997; Small and Loewenstein 2003; Kogut and Ritov 2005a; 2005b), we propose that multiple factors contribute to football players being perceived as unidentifiable. For instance, the uniforms and helmets they wear greatly reduce their individuality on the field (Joseph and Alex 1972), and referring to them by number instead of name also leads to increased dehumanization (Haney, Banks, and Zimbardo 1973). The football context may actually be a stronger test than prior work on identifiable victims: football players do not typically engender much sympathy (given their high incomes and celebrity status) and the degree of behavioral change required may be greater (shifting consumers from a state of enjoyment, rather than apathy).

In the current research, we examine how the camera angles used to broadcast games can change the way consumers perceive players. Specifically, we contend that when consumers view physical contact between football players through a zoomed-in (vs. regular) camera angle, consumers will feel heightened negative emotions that cause them to view players as victims, resulting in changes in attitudes and behaviors. In particular, we demonstrate in 2 laboratory studies that using camera angles to increase negative emotions leads to higher risk assessments of football related injuries, lower attitudes towards the NFL, and decreased support for the game of football.

Study 1 provided an initial test for our hypothesis. Undergraduate participants ( $n = 228$ ) were assigned to one of two between-subject conditions (camera angle: regular vs. zoomed-in). Participants were told they would be watching a video clip and then answering questions about their experience. In actuality, all participants viewed a 40-second clip that highlighted some of the biggest hits of the 2015 NFL season. We digitally edited the clip in the zoomed-in condition such that the moment of contact between the two players was zoomed-in to a level similar to a close-up during a broadcast airing. For internal validity, the audio was removed from both videos. To assess emotional reactions, participants completed a modified version of the consumption emotions scale (Richins 1997). After completing cover story questions, participants were presented with a series of questions to assess their sympathy towards football players (e.g., *How likely are football players to get seriously injured while playing? How risky do you think football is?*) and their attitudes towards the game (e.g., attitude towards NFL, experienced excitement at seeing extreme hits). Finally, participants were asked to imagine they had a son and answered the likelihood of allowing him to play football (1-7). Supporting our predictions, the zoomed-in clip elicited significantly higher negative emotional reactions than the regular clip ( $p < .05$ ). These heightened emotional reactions in turn increased sympathy towards professional football players (all  $ps < .05$ ), decreased attitudes towards the NFL and enjoyment of watching football ( $ps < .001$ ), and reduced the likelihood of allowing one's own son to play football ( $p = .01$ ).

Study 2 built on study 1 by including a behavioral dependent measure of football support (choice of tickets) and added an additional condition to examine whether other digital edits (i.e., slow-motion) also induce sympathy. Undergraduate participants (n=126) were assigned to one of three between-subjects conditions (camera angle: regular vs. zoomed-in vs. slow-motion). In addition to completing the same measures as study 1, participants were given the choice of being entered in a draw for two tickets to a football or basketball game featuring their university team. ANOVA results replicated the emotional reaction and attitude results from study 1 ( $p < .05$ ); the zoomed-in clip elicited stronger emotional reactions and subsequent sympathy than either the control or slow-motion conditions (all  $ps < .05$ ). Notably, the zoomed-in clip also led to a shift in choice of tickets to attend the college basketball vs. football game ( $p < .05$ ). A replication of this study is also in process to better understand the null effects of the slow-motion condition. Preliminary analyses suggest watching an entire clip in slow-motion was generally unpleasant for participants, but additional research is needed.

Several additional studies are also currently in preparation to provide process evidence for the above effects. In particular, we contend that vividness is, in part, responsible for the effects in this particular context. Thus, although Schelling (1968) claimed “the more we know, the more we care,” we propose that for increasing sympathy in this domain, the more closely we see what’s actually happening, the more we care and the more likely we are to change our attitudes and behavior.

## **MEDICATION AVERSION: HOW MORAL CHARACTER INFERENCES AFFECT MEDICAL DECISION MAKING**

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### **SHORT ABSTRACT**

We examine aversion to taking medication and one reason for it. We show consumers often dislike medication treatments (e.g., antidepressants, high blood pressure medication), even when they understand that medications are the most effective treatments in the consideration set. One reason consumers dislike using medication is they believe taking medications reflects poor moral character, and in particular a lack of willpower. When medication is framed as signaling good willpower, medication aversion disappears.

### **EXTENDED ABSTRACT**

Why might consumers dislike medication treatments? For example, why might an alcoholic prefer to quit drinking cold turkey instead of taking Naltrexone, an effective anti-craving medication for alcohol addiction? We demonstrate that consumers sometimes dislike medication, and this is not due to mistaken beliefs that medication is ineffective. Consistent with a person-centered approach to moral judgment (Tannenbaum, Uhlmann, and Diermeier 2011; Uhlmann, Pizarro, and Diermeier 2015), consumers see taking medication as reflective of poor moral character, and in particular of a lack of willpower.

In study 1, we examined a broad set of 56 ailments (e.g., alcoholism) with behavioral treatments (e.g., Alcoholics Anonymous) and medication treatments (e.g., Naltrexone). Through random assignment, half of participants indicated their preferences for each treatment and half indicated the efficacy of each treatment. Analyses were conducted at the treatment level (i.e., on average preference ratings and efficacy ratings for each treatment). Across the fifty-six ailments, medication treatments were less preferred ( $p < .001$ ,  $d = 1.34$ ) even though medications were directionally considered more effective ( $p = .12$ ,  $d = .21$ ). In regression analyses controlling for perceived efficacy, there was a substantial effect of medication reducing preferences for a treatment ( $b = -1.13$ ,  $p < .001$ ).

In study 2 ( $N = 361$ ), we examined whether consumers dislike medication treatments relative to no intervention at all, and why that might be the case. Participants considered four ailments, treated by either a medication or no outside intervention. These ailments and their treatments were: alcoholism, treated Naltrexone or by quitting cold turkey; depression, treated with Prozac or by staying positive; insomnia, treated with Ambien or by trying to sleep; and high blood pressure, treated with Microzide or by “not stressing out.” We measured preferences for treatments, efficacy of treatments, and character inferences based on treatment choices. Participants disliked medication treatments, relative to no intervention ( $ps < .001$ ,  $ds$  between .21 and .73). Participants understood that medication treatments were effective (judged as more effective short term,  $ps < .001$ ,  $ds$  between .33 and .63; judged as equally effective long term, with the exception of insomnia where medication was judged as less effective long term,  $p < .001$ ,  $d = -.31$ ). To assess character inferences, participants viewed scenarios for each ailment about two individuals, one who took medication and one who used no outside intervention. Consistent with our character account, in these scenarios participants judged the person who chose medication as having worse character than the person who chose no intervention ( $ps < .001$ ,  $ds$  between .31 and .45). Most importantly, these character judgments predicted dislike of medication ( $b^* = .37$ ,  $p < .001$ ). Character judgments continued to predict preferences for medication after controlling for efficacy judgments ( $b^* = .15$ ,  $p = .002$ ). Thus, we find strong evidence that consumers dislike medication in part because medication use reflects poor character.

In study 3 ( $N = 765$ ), we examined whether medication aversion attenuates or reverses when medication is described as signaling better character, and in particular better willpower. According to our account, medication aversion occurs in part because people infer that medication users lack willpower. One corollary of this is that if we change people’s inferences, such that using medication reflects positively on one’s character, then medication aversion will be reduced or even reversed. Participants considered a hypothetical scenario where they were suffering from an ailment (either alcoholism or high blood pressure, to assess robustness across ailments) and discussing treatment options with a doctor. In a Control condition, the doctor told participants that they could choose between therapy and medication, which were equally effective, equally expensive, and equally safe. In a Medication Signals Willpower condition, the doctor told participants medication signaled commitment (e.g., “medication is the route that reflects the most dedication and commitment”), and in a Therapy Signals Willpower condition, the doctor told participants therapy signals commitment. In all conditions, the doctor explicitly told participants that medication and therapy “are equally valid options, and I can’t decide for you which one is the right choice for you.” Consumers showed significant medication aversion in the Control condition ( $d = .30$ ,  $p < .001$ ) and the Therapy Reflects Willpower Condition ( $d = .27$ ,  $p < .001$ ), and these two conditions did not significantly differ from each other ( $p = .681$ ). In

contrast, medication aversion directionally reversed in the Medication Reflects Willpower Condition ( $d = -.08$ ,  $p = .17$ ), and this condition was significantly different from both the Control and Therapy Reflects Willpower conditions ( $ps < .001$ ).

Across three studies, we find an aversion to medication treatments. This aversion occurs in part because using medication treatments reflects poor character, and in particular a lack of willpower. When medication is framed as signaling good willpower, medication aversion no longer occurs.

## **SUSTAINING SUSTAINABLE HYDRATION: THE IMPORTANCE OF ALIGNING INFORMATION CUES TO MOTIVATE LONG TERM CONSUMER BEHAVIOR CHANGE**

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### **SHORT ABSTRACT**

Extensive research focus is given to the language of reminders, like phrasing and tone, but less formal attention has been paid to the context of reminders and even less to how these reminders impact behavior once they are no longer salient. Practitioners have, however, often recognized the importance of positioning their messages in the environment, and the rapid decline in reminder effectiveness. We formally test the importance of type and position of reminders on both immediate action and subsequent persistence of the behavior (refilling of reusable water bottles) and find environmental context matters more than content for long term persistence.

### **EXTENDED ABSTRACT**

The standard theory of consumer choice assumes that customers select the option that has the highest value. In contrast, a vast body of choice research finds that preferences are often constructed in the moment rather determined by a careful evaluation of all available options, leading to systematic biases, such as for the status quo option (Samuelson & Zeckhauser, 1988; Tversky & Simonson, 1993). Furthermore, the status quo option in the real world is often a choice that reflects an existing habit and is hence difficult to change (Wood & Neal, 2009). We propose that changing behavior away from the status quo option relies on System 1 rather than System 2 processing (Dhar & Gorlin, 2013), both in the immediate, when customers are influenced by salience of available options, and in the long term, through prolonged exposure to a change in the underlying contextual cues linked to habits. The current article has two objectives: to explore the most effective way of presenting information that will nudge consumers toward a new desired behavior in the short term, and to measure the persistence of different nudges once those nudges are no longer immediately salient (i.e. after the “campaign” has ended). Even effective treatments tend to quickly wear off once the treatment is no longer present (Gneezy & List, 2006; Loewenstein, 2005), presenting a challenge for those who wish to understand and influence longer term behavior. We partnered with a large technology company to shift people from the practice of grabbing a disposable plastic bottle of water towards refilling

of reusable bottles, with the goal of understanding which reminders were most effective both during and after the reminder campaign.

While traditional communications literature on behavior change has focused on the persuasive power of relevant information, focusing on System 1 processing suggests that timeliness and salience of the information is more likely to impact the outcome of decisions (Bordalo, Gennaioli, & Shleifer, 2013). While timely persuasive information is often effective in the short term (Dale & Strauss, 2014; Webb & Eves, 2007) or at changing opinions (Cacioppo & Petty, 1989), research in habit formation has suggested that changing the environment (Chance, Dhar, Hatzis, & Huskey, 2016; Verplanken & Wood, 2006) and identifying situational prompts which can lead to automatic activation of a goal (Holland, Aarts, & Langendam, 2006) are more effective in changing long term behavior. Indeed, in our setting, efforts to promote the use of reusable bottles with giveaways and informational campaigns have had limited long-term success, with 58% of employees citing convenience as the primary reason for their continued use of disposable bottles. We thus distinguish between moment of choice reminders, which are delivered at the moment of the desired behavior and focus on changing the salience of different options in the choice set, and reminders which are delivered earlier in the choice process, which focus on environmental cues that can trigger situational activation of a behavioral prompt.

There are two key moments in the hydration decision-making process: the obvious one occurs when people are near water, and its availability can be made salient (Posavac, Sanbonmatsu, & Fazio, 1997). However, targeting communications near the water dispensers misses the window of opportunity to bring a reusable bottle from their desks. Getting them to use a reusable bottle requires targeting the upstream behavior of actually taking the water bottle with them when they leave the desk. Targeting the communications at the desk also links the behavior (refilling a water bottle) to the situational context of the desk area, and may be more effective at changing behavior even without the reminder, if the link between desk and water bottle can become automatically activated.

In a seven week field experiment, we randomly assigned six different office areas to have posters in one of two different locations – either near water dispensers (moment of choice) or near desks (environmental trigger). We used three different posters with slight differences in how the information was presented (e.g., visual vs. text), but there were no differences in outcomes between posters so we combined the different posters and focused on the location of the messages as the manipulation of interest. The focal behavioral outcome was the total amount of water consumption from the water dispensers. We collected three weeks of baseline data, two weeks of poster data, and an additional two weeks of data after the posters were taken down.

Dispensed water consumption during the period the posters was displayed increased an average of 24% across all conditions ( $t=3.06$ ,  $p=.003$ ). A full regression model controlling for time and office area effects shows a significant difference between the baseline and poster periods, but no interaction with poster location condition. Posters near water and near desks were equally effective at driving water consumption while salient.

This general positive effect was not unexpected, and we were more interested in potential differences in persistence, where we do see significant differences between location conditions. There was no long term effect on dispensed water in the locations where the posters were displayed near water dispensers, while consumption remained significantly higher than baseline in the locations where posters were displayed near desks (interaction  $t=1.95$ ,  $p=.05$ ). On average, putting posters near desks resulted in an additional two gallons per day of water dispensed to

reusable containers in the two weeks *after posters came down*, equivalent to 16 plastic bottles per day from one location. This translates to an 8% reduction in the average daily use of bottles.

Overall, this experiment shows that information presentation can serve as effective reminders for short term and long term behavior change. Posters placed near the moment of choice can trigger salience and are effective at changing short-term behavior. In order to build new habits and motivate sustainable behavior change, it may be more effective to target upstream triggers in the environment. These upstream reminders are likely to be most effective when they link the behavior to situational cues, linking the behavior to the environment, rather than the prompt.

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## 8.2 Calling Questions into Question: The Influence of Question Framing on Consumer Judgments and Decisions Symposium

Marketers form a variety of questions every day that impact consumer decisions: *Would you like to add fries to your order? Will you donate to charity? How much would you be willing to pay for this product? How satisfied are you with your experience? Who should be exposed to the company's advertising?* This session sheds light on how small changes to the presentation of such questions can lead to demonstrable shifts in perceptions, behaviors, and welfare-relevant outcomes.

Collectively, we draw on extant research on question-framing effects (e.g., Schwarz, Hippler, Deutsch and Strack 1985; Schwarz et al. 1991; Strack, Schwarz, and Wanke 1991) to identify surprising consequences of subtle changes in framing. Four talks investigate the central premise that the manner in which a question or its answer options are presented can alter the psychological processes invoked when consumers generate a response, and consequently change the responses provided. We present evidence of novel framing effects on consumers' inferences, judgments, and choices, and identify the unique psychological mechanisms underlying these effects. Beyond these theoretical contributions, we also provide data-driven, practical recommendations for researchers, marketers, and policymakers in four key domains: prosocial behavior, purchasing, attitude measurement, and advertising.

*How can question framing increase donations?* First, **Moon and VanEpps** demonstrate that presenting consumers with an expanded set of options to choose from (vs. yes or no) when deciding whether to aid a charity increases consumers' propensity to donate and to complete effortful tasks. The authors implicate an inferential process: consumers who are presented with a variety of options infer stronger descriptive social norms of acting prosocially.

*How can question framing increase purchase rates?* Next, **Duke and Amir** extend the effect of expanding the choice set into the purchasing domain. They find that consumers are significantly more likely to buy when deciding simultaneously whether to purchase and the quantity to purchase than when first deciding only whether or not to buy. In this context, the authors demonstrate that quantity-integrated decisions reduce the perceived significance of purchasing, thus lowering the psychological barrier to buy.

*How can question framing influence consumer metrics?* Whereas the first and second talks investigate effects of the number of choice options presented, the third talk explores changes to the mere presentation of a given set of options. Specifically, **Brucks and Levav** contrast two answer formats that are often used interchangeably: radio buttons and sliding scales. They find that these formats elicit distinct psychological processes that result in significantly different reported attitudes, willingness to pay, customer satisfaction, and other outcomes.

*How can question framing influence targeted advertising?* In the final talk, **Schwartz and Mochon** turn the tables on the marketer. They find that considering which groups to include (vs. which to exclude) in targeting ad delivery can lead to increased gender-, race-, and income-based discrimination. Thus, the characteristics of the consumers targeted in appeals to, e.g., increase donations, increase purchase rates, or provide marketing metrics may vary depending upon how marketers conceptualize the targeting decision.

The four papers in this session present exciting, original data supporting the core idea that the answer you get depends upon how you ask the question. We expect this session to appeal to a broad audience, including individuals interested in judgment and decision-making, consumer

choice, prosocial behavior, attitudes, measurement methods, and ad targeting. By encouraging consideration of overlapping insights from each of these domains, we hope to cultivate fresh, unique collaborations. Data collection in all papers is complete and all participants have agreed to present, should the session be accepted.

## ABSTRACTS

### SHOULD I GIVE OR HOW MUCH SHOULD I GIVE? CONTINUOUS (VERSUS DISCRETE) REQUESTS INCREASE LIKELIHOOD OF PROSOCIAL ENGAGEMENT

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How does the presentation of prosocial requests influence the likelihood of prosocial engagement? We demonstrate that compared to providing discrete choice options (e.g., yes/no; charity A/B/C or no charity), providing continuous choice options (e.g., \$1/\$5/\$10 versus no) increases donation rates (Study 1). This extends beyond monetary anchors: people are also more likely to complete surveys for a prosocial cause when presented with continuous versus discrete requests (Studies 2 and 3). Finally, we provide evidence that this is because continuous requests promote consideration of *how much to give*, whereas discrete requests promote consideration of *whether to give* (Study 4).

### EXTENDED

How does the presentation of prosocial requests influence the likelihood of engaging in prosocial acts? We present and test an approach to increase the likelihood of prosocial action by shifting the request from a *discrete* decision, which we propose promotes a consideration of “whether to give”, to a *continuous* decision which instead promotes consideration of “how much to give.” When a choice to donate is presented as categorically discrete options (e.g., a binary yes versus no; charity A/B/C or no charity), one must consider each option at the expense of the other options. On the other hand, when a choice to donate is presented on a single, inclusive continuum with increasing amounts of engagement (e.g., \$1/\$5/\$10 or no donation), the option *not to donate* is diminished relative to the range of options *to donate*. This, in turn, shifts one’s consideration toward deciding *how much* to donate as opposed to *whether* to donate. We propose that when choice options fall along a single, inclusive continuum (e.g., increasing donation amounts, increasing lengths of a survey, etc.), people will be more likely to contribute than when choice options are discrete.

**Study 1.** 603 participants were entered to win a \$25 bonus, and had the opportunity to donate to the American Red Cross should they win. Participants were asked, “If you were to win the bonus, would you like to donate a portion of the winnings to the American Red Cross?”

Participants were randomly assigned to either a Discrete Choice, Continuous Choice, or Higher Continuous Choice condition. In the Discrete Choice condition, participants made a binary choice of whether or not to donate. Those who selected “Yes” then indicated how much of they wanted to donate. In the Continuous Choice condition, participants chose from seven “Yes” options (\$1/\$5/\$10/\$15/\$20/\$25/“another amount”) and a “No” option. As a robustness

check, the Higher Continuous Choice condition included the same options as in Continuous Choice minus the “\$1” option.

Participants in the Continuous Choice condition were significantly more likely to make a donation (71.1%) than participants in the Discrete Choice condition (50.3%),  $X^2(1)=17.97$ ,  $p<.001$ . Moreover, our effect did not hinge on the \$1: participants in the Higher Continuous Choice condition were significantly more likely to make a donation (65.2%) than participants in the Discrete Choice condition,  $X^2(1)=9.32$ ,  $p=.002$ , but were not significantly different from the Continuous Choice condition,  $X^2(1)=1.59$ ,  $p=.21$ .

**Study 2.** Study 2 investigated whether our effect extended to non-numeric requests. By our hypotheses, any prosocial request that considers prosocial behavior on a continuum should increase the likelihood of prosocial behavior. 1206 MTurk participants considered taking a survey to contribute to efforts to defend net neutrality. The survey could consist of demographics survey; demographics and internet use survey; or demographics, internet use, and political attitudes survey.

Participants were randomly assigned to either a Discrete Choice or a Continuous Choice condition. Participants in the Discrete Choice condition made a binary choice regarding whether they would complete a survey. If they agreed, they then indicated the survey length. Participants in the Continuous Choice condition were asked whether they would complete one of the three lengths of surveys or no survey.

Conceptually replicating Study 1, participants in the Continuous Choice condition were significantly more likely to complete a survey to defend net neutrality (67.8%) than participants in the Discrete Choice condition (53.7%),  $X^2(1)=24.88$ ,  $p<.001$ .

**Study 3.** One alternative explanation is that presenting options that vary in extremity makes the less extreme request seem more reasonable in contrast to the more extreme request. Such an explanation would predict that the benefits of continuous choice extend to *any* request that increases in extremity. However, according to our explanation, giving options that vary in extremity should *only* increase likelihood of engagement when options are continuous (e.g., signing a petition, or signing a petition *and* putting a sign in your yard) rather than categorically discrete (e.g., signing a petition *or* putting a sign in your yard). Therefore, Study 3 included *discrete* choice options that increased in extremity.

403 participants considered contributing to efforts to defend net neutrality. Participants could take one of three actions: (a) signing a petition, (b) sharing a petition on Facebook, or (c) writing an email to a local representative. Participants were randomly assigned to either a Discrete Choice or Multiple Discrete Choice condition. Participants in the Discrete Choice condition made a binary choice regarding whether they would take action. If they agreed, they then indicated which action. Participants in the Multiple Discrete Choice condition were asked whether they would complete one of the three actions or no action.

Consistent with our hypotheses, we found no significant difference in the likelihood of prosocial engagement between the Discrete Choice (44.9%) and Multiple Discrete Choice (49.3%) conditions,  $X^2(1)=.77$ ,  $p=.38$ .

**Study 4.** We hypothesized that continuous requests promote a *how much to give* mindset, whereas discrete requests promote a *whether to give* mindset. Study 4 more directly manipulated these mindsets by manipulating the sequence in which participants saw a discrete versus continuous request. We predicted that first answering a continuous (versus discrete) question would induce a continuous mindset throughout the decision and increase donation likelihood.

402 participants were entered to win a \$25 bonus, and had the opportunity to donate to one of three charities should they win. Participants were randomly assigned to either a Charity First or an Amount First condition. Participants in the Charity First condition were first asked to which charity they would like to donate (Wikimedia; charity:water; Make-A-Wish; None). If participants chose a charity, they then indicated how much they would donate. Participants in the Amount First condition were first asked how much they would donate (\$1/\$5/\$10/\$15/\$20/\$25/ Another amount, or \$0). If participants chose to donate, they then indicated which charity.

Consistent with our hypotheses, participants in the Amount First condition were significantly more likely to make a donation (69.6%) than participants in the Charity First condition (56.9%),  $X^2(1)=6.03, p=.01$ .

Together, these findings offer a simple new intervention to increase donation likelihood.

## **THE QUANTITY INTEGRATION EFFECT: INTEGRATING PURCHASE AND QUANTITY DECISIONS INCREASES SALES BY PROVIDING CLOSURE**

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Customers often decide not only whether to purchase, but also what quantity to purchase. We investigate the consequences of integrating these decisions. Specifically, we contrast the common two-stage selling format, under which individuals first decide whether to purchase and then choose the quantity, with a quantity-integrated selling format, under which individuals simultaneously decide both whether and how much to buy. Because the quantity-integrated format affords greater cognitive closure, it increases purchase incidence: across 23 experiments with over 13,000 observations, the quantity-integrated format yields a 40% increase in average likelihood of purchase, and a 29% increase in overall sales volume.

### **EXTENDED**

Consumers have countless opportunities to purchase products in multiple quantities. For example, when shopping online, they may encounter a pop-up advertisement with an appeal such as, “Would you like to add any cookies to your order?” In response, consumers must first decide whether to buy, and then decide which quantity. In contrast to this two-stage process, an appeal can be quantity-integrated, as in, “How many cookies would you like to add to your order?” Although these two formats provide consumers with the same ultimate choice (deciding whether and how many cookies to order), this research demonstrates that quantity-integrated decisions significantly increase purchase rates.

We propose that the available choice options change how consumers perceive the notion of buying (e.g., Schwarz et al. 1985; Schwarz et al. 1991). Specifically, quantity-integrated decisions present consumers with a gradient of options to choose from (i.e., not buying, buying 1 item, buying 2 items, etc.), which we suggest reduces the perceived significance of purchasing. In contrast, we find that two-stage decisions, in which consumers first choose between only two options (buying and not buying), lead consumers to perceive purchasing as a larger “leap” from non-purchasing, increasing the perceived significance of buying and ultimately reducing their likelihood of doing so.

In study 1 ( $N = 261$ ), participants received \$2 that they could use to purchase 25-cent raffle tickets. They indicated their purchase decision by placing a check-mark next to their choice. Two-stage participants first chose between, “Yes: I would like to purchase some tickets” and “No: I would not like to purchase any tickets.” Subsequently, they indicated the quantity they wanted to purchase. Quantity-integrated participants instead made both decisions simultaneously, first choosing among: 0 tickets, 1 ticket, (...) 8 tickets. As predicted, significantly more quantity-integrated (66%) than two-stage (45%) participants purchased tickets ( $\chi^2(1) = 10.28, p = .001$ ), netting a 38% increase in total revenue (\$129.75 vs. \$94.25).

Study 2 ( $N = 793$ ) replicates this effect in a common consumer context. Participants imagined ordering a pizza online and encountering a pop-up advertising a sale on Coke. Two-stage participants answered, “Would you like to add any 2 liter bottles of Coke to your order?” with either “yes” or “no.” Quantity-integrated participants instead answered, “How many 2 Liter bottles of Coke would you like to add to your order?” on either a sliding scale or a drop-down menu, with options: 0 (the default), 1, 2, 3, 4, and 5. As predicted, two-stage participants were significantly less likely to purchase (22%) than both quantity-integrated slider participants (38%;  $\chi^2(1) = 17.50, p < .001$ ) and quantity-integrated drop-down participants (34%;  $\chi^2(1) = 9.04, p = .003$ ); the two quantity-integrated formats did not differ ( $\chi^2(1) = .86, p = .35$ ).

Next, we rule out two alternative accounts: first, that this effect arises because of the mere phrasing of the questions (“Would you...” vs. “How many”) lends different conversational norms (e.g., Strack et al. 1991), and second, that it arises merely because the maximum purchase quantity is explicit in quantity-integrated decisions, but not in two-stage decisions. Study 3 participants ( $N = 302$ ) imagined encountering a sale on chewing gum, where they could purchase up to 5 packs. All participants responded to the same question, indicating what they “would do in this situation.” For two-stage participants, the options were: “Not buy any” and “Buy.” For quantity-integrated participants, the options were instead: “Not buy any,” “Buy 1 pack,” (...) “Buy 5 packs.” Two-stage participants were again significantly less likely to purchase (45%) than were quantity-integrated participants (67%,  $\chi^2(1) = 9.37, p = .002$ ).

In a series of 20 additional experiments and over 11,000 observations, we investigate a variety of purchase contexts, replicating our central effect across several product offers and purchase situations (e.g., under time pressure vs. not; when purchasing for the self vs. others; when purchasers typically buy 1 item vs. several). Across experiments, two-stage (vs. quantity-integrated) participants, both those who purchase and those who do not, report that the choice feels more important ( $\beta = .45, t = 5.58, p < .001$ ) and more significant ( $\beta = .48, t = 6.18, p < .001$ ), and that choosing to buy feels like more of a “big deal” ( $\beta = .60, t = 5.65, p < .001$ ). Furthermore, while two-stage and quantity-integrated *purchasers* report similar certainty about their decision ( $\beta = -.08, t = -.68, p = .50$ ), similar regret ( $\beta = .09, t = .79, p = .43$ ), and similar choice conflict ( $\beta = -.07, t = -.68, p = .50$ ), two-stage (vs. quantity-integrated) *non-purchasers* express less certainty that they made the right choice ( $\beta = -.18, t = -3.92, p < .001$ ), higher conflict reaching their decision ( $\beta = .20, t = 2.66, p = .008$ ), and greater regret over the choice not to purchase ( $\beta = .36, t = 3.82, p < .001$ ). Altogether, these measures support the notion that individuals faced with two-stage decisions may experience conflict and uncertainty over the greater perceived significance of purchasing, and often ultimately choose not to buy.

Examining the magnitude of this effect across product offers and experimental treatments reveals an important moderator: the attractiveness of the product ( $\beta = -.19, t(38) = -3.02, p = .005$ ). That is, we find the largest difference in purchase rates between two-stage and quantity-integrated decisions among product offers that are the least immediately attractive—i.e., those

for whom the initial barrier to buy is highest. Thus, a managerial strategy of changing a two-stage appeal to a quantity-integrated appeal appears most effective for the product offers that need it most.

Broadly, individuals face many decisions that could be framed as two-stage or quantity-integrated decisions: whether or how much to save for retirement, whether or how much to invest in the stock market, whether or how much to stock up during a sale, and more. Through the lens of purchase decisions, we identify a critical difference in how individuals respond to these two choice processes, opening the door to further exploration of the power of integrating opt-in and quantity decisions.

## **HOW THE KINESTHETIC PROPERTIES OF A RESPONSE SCALE AFFECT JUDGMENT**

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We explore how the physical movements used when responding can induce different psychological processes used to generate the response. Specifically, we compare responding using a slider scale, where the respondent must hold the cursor down and drag past other possible selection options, to responding using radio buttons, where the respondent must click the cursor directly on the desired response. Across four experiments, we find that responding on a sliding scale elicits the momentary consideration of each value the cursor passes, yielding responses that are closer to the scale endpoint and reducing confidence.

### **EXTENDED**

The physical ways in which consumers can respond to a question or indicate a preference have multiplied with the growth of new technologies (e.g., swiping on Tinder, scanning a finger print with Apple Pay, or sliding on a scale in a consumer satisfaction survey). The present research investigates how these kinesthetic properties of responding can induce different psychological processes used to generate the response and thus, change the response itself. We rely on a long tradition of literature (Prinz 1987) that suggests that how people process information is grounded in physical experiences (Barsalou 2008). We often use our bodies to guide and orient processing, like counting with our fingers (Wilson 2002) and using gestures (Kita, Alibali, and Chu 2017). Because of this connection between sensorimotor function and cognition, research demonstrates that physical actions can influence processing (e.g., Labroo and Nielsen 2010; Wells and Petty 1980). In line with these findings and drawing on work showing that preferences and judgments are partially determined by tasks that influence the information attended to when responding (Fischhoff 1991; Payne and Bettman 1992), we hypothesize that the physical motion of responding can impact how information is processed, changing the judgment or decision made.

Specifically, we embark on this investigation in the context of radio button and slider multiple choice scales, which differ in the kinesthetic nature of their responses. For radio buttons, the respondent must click the cursor directly on the desired response; for a slider, the respondent must hold the cursor down and drag past other possible selection options. By

restricting the slider to the exact same discrete responses as the radio buttons, the only difference between these two scales is the movement required to provide a response. Importantly, these two scale types are used ubiquitously (and oftentimes interchangeably) in research, and thus constitute a meaningful context to begin our empirical exploration into the impact of response kinesthesia.

We propose that the sensorimotor action of dragging the cursor to an answer prompts a corresponding psychological process of serial hypothesis testing (Tversky and Kahneman 1974). Specifically, we predict sliding past each value on the scale elicits the momentary consideration of that value, leading to the selection of the first response that fits within the latitude of acceptance (i.e., the first to seem suitable), which produces responses that are closer to the scale endpoint and decreases confidence.

We conducted four studies to examine the impact of physical movements on judgments using the slider and radio button scales. In Study 1, as an initial test of the effect of scale type and its generalizability, 6017 participants were randomly assigned to use a radio button or slider scale to respond to questions regarding personality, numerical estimates, moral judgments, willingness to pay, attitudes, net promoter score, consumer satisfaction and philosophical standing across three batches of data collection. Each scale had the same discrete options available and, to control for anchoring, both scales were preset on a non-option of “0” (see Appendix). Merging the data across all tasks, we observe a small, robust effect of scale type on response: participants using a slider ( $M = 4.66$ ) responded with significantly lower values than participants using radio buttons ( $M = 4.86$ ,  $p < 2 \times 10^{-16}$ ). This effect consistently emerged for each individual task when analyzed separately.

We predict that using a slider lowers the response because participants select the lowest value that falls within their range of plausible responses. If this is the case, the slider effect should be reversed if participants begin at the highest value of the scale and drag the cursor past lower values. To test this, in Study 2, participants entered a 2 (slider vs. radio button)  $\times$  2 (side: left vs. right) design where they made numerical estimates. All participants selected a value from 1-8, but participants assigned to the left (right) side had the non-option of “0” (“9”) preselected as a holding place. We observe a significant interaction of scale type and side ( $p < .0001$ ), such that participants assigned the left side replicated Study 1 ( $p < .001$ ) but participants assigned the right observed a flip: responding via slider yielded higher values than responding via radio buttons ( $p < .001$ ).

Study 3 extends the generalizability of the effect to an incentive-compatible context and tests process in a new way. Specifically, serial hypothesis testing stipulates that participants will select the response at the edge of their latitude of acceptance. If this is the case, participants that have more knowledge about the question context (i.e., a narrower latitude of acceptance), should exhibit an attenuated slider effect. To test this, in Study 3, 2016 participants watched a trailer for the movie “Office Christmas Party,” estimated how much money the movie would make during its opening weekend using either the slider or radio buttons, and then indicated self-reported knowledge of movie box office revenue. Estimates closest to the actual value earned them an extra 50 cents. We replicate the scale effect: participants responding via slider reported a lower estimate than participants using radio buttons ( $p = .003$ ). Importantly, this effect was moderated by knowledge ( $p < .10$ ), such that the effect of scale type was significant among people with low knowledge (1SD below), but not among participants who were knowledgeable (1SD above).

If the slider scale induces serial hypothesis testing, then participants using this scale should feel less confident in their response, as they satisfied by stopping at the boundary of their



latitude of acceptance rather than generating the number that is most reflective of the latent value in their head. To test this, in Study 4, we had 2014 participants estimate numerical values and after each estimate, we asked them about their confidence in the estimate. As expected, not only were the estimates on average lower in the slider condition compared to the radio button ( $p < .001$ ), but participants were also less confident in their responses ( $p = .001$ ).

These findings provide initial evidence for the hypothesis that the kinesthetic properties of a response scale can impact people's judgments.

### Appendix



### WHAT THE ADS YOU DON'T SEE SAY ABOUT YOU: IMPLICIT VERSUS EXPLICIT DISCRIMINATION IN ONLINE ADVERTISING

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Targeted advertising based on specific demographics, likes, and past behavior is common online. While targeting certain groups to optimize ad reach is generally considered good business practice, limiting ads to certain users based on sensitive demographic information raises the possibility of both implicit and explicit discrimination. In this project, we show that people are significantly more exclusive when deciding which demographic groups to include in brands' targeted advertising than when deciding which demographic groups to exclude, and that this bias is particularly pronounced for protected groups (female, non-white, low-income or older).

#### EXTENDED

Social media sites allow brands to deliver ads to the most receptive customers. Ad managers target their online reach by selecting groups of users based on demographics, likes or other online activity. For example, Coca-Cola can serve ads to any Facebook user who likes Coke or doesn't already like Pepsi. Likewise, they can also exclude anyone who likes Pepsi. While targeting certain groups to optimize ad reach is generally considered good business practice, limiting ads to certain users based on sensitive demographic information raises the possibility of both implicit and explicit discrimination. Our paper explores how advertisers' user-group selection criterion affects customer reach in online targeted advertising. Over three studies

we show that participants are significantly more exclusive when deciding which demographic groups to include in brands' targeted advertising than when deciding which demographic groups to exclude. The effect is not driven by differences in perceived product relevance across the different frames, but rather reflects a general aversion to explicitly excluding certain groups of people and is particularly pronounced for protected groups (female, non-white, low-income or older).

Study 1 participants ( $N = 200$ ) assumed the role of a digital advertising manager for Coach purses who selects groups to target with Facebook ads based on demographics, interests, and/or purchase history. Participants were randomly assigned to one of two conditions: one half selected the groups they wanted to show the ads to (INCLUDE) and the other half selected groups to exclude from seeing the ads (EXCLUDE). They next saw a list of groups to choose from, which included filler interest categories (e.g., "likes CNN") and two demographic categories, gender and income. INCLUDE condition managers could choose to show the ads "only to women" and/or people "only with incomes  $> \$50,000$ " and EXCLUDE condition managers could choose to "exclude men" and/or people with "incomes  $< \$50,000$ " from seeing the ads. Thus, gender and income were complementary across conditions such that including only women was the implicit equivalent to explicitly excluding men. As predicted, managers were more exclusive of men and less wealthy customers in the INCLUDE condition than in the EXCLUDE condition. In fact, the mere framing of the selection criteria resulted in managers being 30% more likely to show Coach ads to men and lower income consumers when they excluded rather than included certain groups.

**Study 1 targeting choices**

|                                   | Yes   |                               | Yes   |                           |
|-----------------------------------|-------|-------------------------------|-------|---------------------------|
| Include Women only?               | 87.3% | Exclude Men?                  | 42.2% | $\chi_{(1)}=43.1, p<.001$ |
| Include income $> \$50,000$ only? | 87.2% | Exclude income $< \$50,000$ ? | 51.0% | $\chi_{(1)}=31.6, p<.001$ |

Next, we questioned why selecting certain groups in targeted ad reach was biased by INCLUDE vs. EXCLUDE framing. It's possible that INCLUDE managers exhibited confirmation bias where the options to "include only women" or "include only income  $> \$50,000$ " were simply consistent with intuitions that Coach's target customers are wealthier women. However, EXCLUDE managers' intuitions were challenged because the options to "exclude men" or "income  $< \$50,000$ " present counterfactual information that may have prompted more consideration about the brands' relevance to other groups. Alternatively, participants may have had strong reactance to explicitly excluding people on the basis of gender or income because those actions can be perceived as discriminatory. In Study 2, we explored the relevance vs. morality explanations as the source of bias in managers' decisions. Participants ( $N = 202$ ) were randomly assigned to INCLUDE vs. EXCLUDE conditions and made targeted ad selections for four products based on demographics (gender, income, race, age) and product-relevant filler interests (e.g., "Likes running"). The managers rated the relevance of the targeting variables to each brand (e.g., How relevant is gender to Warby Parker's ads for eyeglass frames?) on 7-point scales. Across the INCLUDE/EXCLUDE frames there was no significant difference in the relevance ratings of demographics ( $M_{\text{Include}} = 4.41 (.11)$  vs.  $M_{\text{Exclude}} = 4.35 (.11)$ ,  $t(200) = .36, ns$ ). Despite this, however, participants were still more exclusive when including than excluding demographic groups. That is, while targeting variables such as income were rated as equally relevant to Warby Parker's ad targeting choices across the include and exclude frames

– INCLUDE managers were more likely to exclude users based on demographics than EXCLUDE managers. These results replicate our previous findings and suggest that participants have a general aversion to explicitly excluding groups, rather than fail to include them because the task doesn't prompt them to consider their relevance.

### Study 2 targeting choices

|                                                                         | Yes   |                                                                     | Yes   |                          |
|-------------------------------------------------------------------------|-------|---------------------------------------------------------------------|-------|--------------------------|
| <b>Include</b> only: Men?<br>Caucasians? Under 50?<br>Income >\$75,000? | 51.9% | <b>Exclude:</b> Women? Non-<br>Caucasians? 50+?<br>Income <\$75,000 | 16.2% | $t(200)=12.47, p < .001$ |

Study 3 examined whether exclusion aversion was stronger for “protected” groups (i.e., women, non-whites, and older or lower income individuals), which suggests that people avoid being explicitly discriminatory. Participants ( $N = 202$ ) again made targeted advertising decisions for two products, each of which showed a set of demographic categories (e.g. gender, ethnicity) and filler interests (e.g., exercise habits). Each category contained a set of sub-groups that managers could choose from (e.g. 5 age ranges, 4 income bands, multiple ethnicities and both genders) by selecting “as many or as few groups” to target. They were randomly assigned to either the INCLUDE vs. EXCLUDE conditions and selected which groups within each category they wanted to see or not to see the ads, respectively. INCLUDE managers were more exclusive than EXCLUDE managers; their selections resulted in ad exposure to only half of the groups in each demographic category, whereas the EXCLUDE managers’ selections resulted in ad exposure to more than 75% of the groups in each category ( $M_{\text{Include}} = 53.03\%$  (1.59) vs.  $M_{\text{Exclude}} = 76.6\%$  (1.32),  $t(200)=11.46, p < .001$ ). Importantly, a significant interaction showed that the exclusion pattern was not identical across groups ( $F(1,200) = 81.2, p < .001$ ). For example, managers’ selections resulted in whites being targeted equally across conditions ( $M_{\text{Include}} = 93.5\%$  (2.09) vs.  $M_{\text{Exclude}} = 94.1\%$  (2.00),  $t(200) = .21, ns$ ), but non-whites being targeted significantly less when managers included rather than excluded ( $M_{\text{Include}} = 44.7\%$  (3.13) vs.  $M_{\text{Exclude}} = 84.4\%$  (1.86),  $t(200) = 10.95, p < .001$ ). In sum, participants were significantly more likely to implicitly exclude minorities and other protected groups from advertising than to explicitly exclude them.

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## 8.3 Determinants of Consumers' Financial Resource Allocation Symposium

Consumers regularly make decisions about how to allocate resources, like time and money, for themselves and others both regarding how much to spend now and in the future. Given the importance of these decisions for consumers' long-term well-being (e.g., saving for retirement, avoiding debt, and increasing charitable giving), understanding what shapes their decisions is critical and has occupied much of marketing research for several decades. This session brings together four papers examining novel factors that affect these decisions. Specifically, the session will examine how time and self-versus-other considerations shape consumers' allocations of their constrained resources.

The first paper by Litovsky and Olivola examines how resource allocations in terms of time and money are affected by framing. When consumers are focused on time (money), they are less (more) willing to spend time in order to save money and more (less) willing to spend money in order to save time. For example, asking consumers to indicate the amount of time they are willing to spend to save money or the amount of money they need to save for a given time expenditure leads to preference reversals. These preference reversals are observed across multiple studies varying contexts, wording, and solicitation methods.

In the second paper, Greenberg and Hershfield look at the determinants of time allocations. Because consumers tend to construct memories of the past as snapshots in time (like photographs) rather than a continuous stream of experiences (like a video), they tend to think about the future and their future selves as snapshots rather than continuations of the present and their present selves. As a consequence of the snapshot-representation of their future, consumers feel more disconnected from their future selves. Promoting continuous (videographic) representation of their future (compared to snapshot-like photographic representation) leads consumers to feel more connected to their future selves, which is hypothesized to influence consumers' savings decisions.

The third paper by Berman, Bhattacharjee, Small, and Zauberger looks at how self-versus other considerations influence money allocations. Because consumers expect those with higher incomes to have more available spare money (resource slack), they expect them to donate more to charity. This holds across all income levels, suggesting that consumers are quick to "pass the buck" onto wealthier others.

The fourth paper by Powell, Jung, Pe'er, and Vosgerau investigates the combined effect of time and self-versus-other considerations on consumers' resource allocations in the domain of charitable giving. Because charitable giving entails a tradeoff of "warm glow" and "pain of paying", temporally separating the two increases warm glow and thus donation amounts. In four studies, it is shown that adding a time delay between the decision to donate to a charitable organization and the actual payment of the donation substantially increases consumers' donations amount.

Together, the four papers investigate new determinants of how consumers allocate their constrained resources of time and money. Framing and how consumers represent their future selves affects how they allocate time and money. How much consumers earn affects how much they believe others should donate, and separating warm glow from the pain of paying increases their own donation amounts.

**Papers to be presented:** (presenting authors underlined)

**1. The Resource Focusing Effect: Nudging Consumer Preferences in Time-Money Tradeoffs**

Yana Litovsky, Carnegie Mellon University  
Christopher Olivola, Carnegie Mellon University

**2. Videographic Thinking Promotes Future Self Continuity**

Adam Eric Greenberg, UCLA Anderson School of Management  
Hal E. Hershfield, UCLA Anderson School of Management

**3. Passing the Buck to the Wealthier**

Jonathan Z. Berman, London Business School  
Amit K. Bhattacharjee, Erasmus University  
Deborah Small, The Wharton School  
Gal Zauberman, Yale School of Management

**4. How and Why Adding a Time Delay Increases Charitable Giving**

Emily Powell, New York University  
Minah Jung, New York University  
Eyal Pe'er, Bar-Ilan University  
Joachim Vosgerau, Bocconi University

**PAPER ABSTRACTS**

**The Resource Focusing effect: Nudging Consumer Preferences in Time-Money Tradeoffs**

Yana Litovsky, *Carnegie Mellon University*  
Christopher Olivola, *Carnegie Mellon University*

**Short Abstract**

Five studies show that subtly focusing decision-makers on time versus money leads to preference reversals for identical tradeoffs between these two important resources. Focusing on time (money) decreases (increases) willingness to spend time in order to save money and increases (decreases) willingness to spend money in order to save time. This *resource focusing effect* is robust to various features of the elicitation procedure, such as wording and the order in which time-money tradeoffs are considered, and occurs regardless of whether decision-makers are considering spending time to save money or spending money to save time.

**Long Abstract**

Consumers regularly face tradeoffs between saving time and saving money –two of our most valuable resources. They can spend time to save money (e.g., waiting in line for a discount on purchases) or spend money to save time (e.g., paying a premium for an express train ticket). Despite a rich literature on the valuation of money (e.g., Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) and a (sparser) literature on the valuation of time (e.g., Odaka & Hoch, 2004; Monga & Saini, 2009), few studies have examined how people choose among these time-money ‘tradeoff-bundles’ (e.g., Olivola & Wang, 2016), and fewer still have done so in the context of real-world consumer decisions.

We compare consumer preferences for *identical* time-money bundles under two normatively equivalent elicitation procedures. Specifically, before presenting them with the key decision, we have consumers either focus on: (i) the amount of time spent (or saved) that is

equivalent to a given amount of money saved (or spent) or (ii) the amount of money saved (or spent) that is equivalent to a given amount of time spent (or saved). While a rational decision-maker should, in theory, exhibit consistent preferences for time-money bundles regardless of how the choice is framed, we show that people's preferences –and, by extension, their implied levels of patience– depend on which resource is brought into focus. Specifically, focusing on time (vs. money) decreases (vs. increases) their likelihood of spending time to save money and increases (vs. decreases) their likelihood of spending money to save time –essentially, encouraging less patience. We document this *resource focusing effect* across five studies, and rule-out alternative explanations for the observed preference reversal when choosing among time-money bundles.

Studies 1 and 2 ( $N = 1407$ ) presented participants with one of two hypothetical time-money tradeoff scenarios, in which they imagined choosing between purchasing a \$100 coat at full price versus spending time (traveling or waiting in line) to purchase the coat at a discount. Participants were randomly assigned to either a time-focus condition, in which they indicated whether they would be willing to wait/travel 10, 20, 30, 40 and 50 minutes for a fixed \$30 discount, or a money-focus condition, in which they indicated whether they would be willing to incur a fixed 30-minute time cost for a \$10, \$20, \$30, \$40 and \$50 discount. In both conditions, the five binary-choice tradeoffs were presented on a single page, in either ascending or descending order. Critically, each condition included an identical time-money tradeoff-bundle: spending 30 minutes to save \$30. We compared the likelihood of opting for this bundle (vs. paying full price) across the two conditions, and found that participants in the time-focus condition were less likely to spend 30 minutes to save \$30 (willingness-to-wait scenario:  $M_{\text{money-focus}} = 90\%$  vs.  $M_{\text{time-focus}} = 79\%$ ,  $p < .001$ ; willingness-to-travel scenario:  $M_{\text{money-focus}} = 89\%$  vs.  $M_{\text{time-focus}} = 72\%$ ,  $p < .001$ ). This effect was robust to the order in which time and money were mentioned in the tradeoff statements as well as the order of the statements themselves (ascending versus descending), thus ruling out two possible confounds.

In the first two studies, the scenarios involved spending time to save money. In Study 3 ( $N = 585$ ), we instead used a scenario that involved *spending money* in order to *save time* (buying an express train ticket to shorten travel time). Again, focusing on time significantly decreased expressed patience, manifested by a *higher* willingness to spend \$30 to save 30 minutes ( $M_{\text{money-focus}} = 14\%$  vs.  $M_{\text{time-focus}} = 22\%$ ,  $p = .007$ ), indicating that the *resource focusing effect* occurs regardless of whether time (or money) is being saved or spent.

Study 4 ( $N = 1216$ ) combined the main design elements from Studies 1-3, but we presented the five binary-choice tradeoffs one-at-a-time and in random order. Study 4 replicated the results of Studies 1-3 (willingness-to-travel scenario:  $M_{\text{money-focus}} = 88\%$  vs.  $M_{\text{time-focus}} = 80\%$ ,  $p = .005$ ; express-train scenario:  $M_{\text{money-focus}} = 22\%$  vs.  $M_{\text{time-focus}} = 41\%$ ,  $p < .001$ ), indicating that the *resource focusing effect* does not require simultaneous or monotonic presentation of the binary-choice tradeoffs.

Study 5 ( $N = 593$ ) replicated the main design elements of Study 4 but added a 'neutral' control condition in which participants indicated their willingness to accept a single time/money tradeoff without being focused on either resource, and also adjusted the delay and monetary amounts in the time/money tradeoffs so that approximately 50% of participants accepted these tradeoffs in the neutral condition. We again found that patience was significantly higher in the money-focus than time-focus condition (Study 5: willingness-to-travel scenario:  $M_{\text{money-focus}} = 64\%$  vs.  $M_{\text{time-focus}} = 27\%$ ,  $p < .001$ ; express-train scenario:  $M_{\text{money-focus}} = 53\%$  vs.  $M_{\text{time-focus}} = 73\%$ ,  $p < .005$ ). Additionally, we found equal levels of patience in the neutral and money-focus

conditions (Study 5: willingness-to-travel scenario:  $M_{\text{neutral}} = 53\%$ ; express-train scenario:  $M_{\text{neutral}} = 50\%$ ), indicating that people are naturally more focused on money than on time. Thus, focusing on time decreases patience more so than focusing on money increases it.

In sum, we identify a novel preference reversal phenomenon for time-money tradeoff-bundles: focusing consumers on expenditures or savings of time (vs. money) decreases their willingness to spend time (vs. money) and increases their willingness to save time (vs. money). We show that this *resource focusing effect* is robust to various features of the elicitation procedure and that it occurs regardless of whether the resource is being saved or spent.

### **Videographic Thinking Promotes Future Self Continuity**

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#### **Short Abstract**

Prior research has found that consumers feel a lack of continuity with their future selves, yet no work has explored the origins of why consumers view the future self in this disconnected manner. Drawing on the possibility that memories are constructed snapshots in time, we propose that consumers similarly construct the future, thereby neglecting the continuity that exists between future selves. Across three studies, we show that videographic thinking (i.e., replaying all that has happened between the current self and a temporally distinct self) rather than photographic thinking (i.e., mentally jumping to a temporally distinct self) promotes future self-continuity. Implications for decision-making will be discussed.

#### **Long Abstract**

Prior research has found that many consumers feel a lack of continuity with their future selves, yet no work has explored origins of why consumers view the future self in this disconnected manner. Drawing on the possibility that memories are constructed snapshots in time, we propose that consumers similarly construct the future, thereby neglecting the continuity that exists between selves over time.

Study 1 aimed to show that consumers tend to imagine their past and future selves by using a photographic method (i.e., mentally jumping to a memory or future point in time) rather than a videographic method (i.e., replaying all that has happened between the present and the past or what will happen between the present and the future). Participants on MTurk ( $N = 170$ ) were asked to imagine themselves in the past or the future (between-subjects) and to write a few sentences about their thoughts. They were then presented with a table of two methods (counterbalanced) for thinking about themselves in the past or future. Method A (the photographic method) read, “mentally jump [backward/forward] in time (almost like jumping from the present to [an earlier/a later] point on a timeline, skipping everything in between).” Method B (the videographic method) read, “mentally travel [backward/forward] along a time line (almost like [rewinding/fast-forwarding] from the present to [an earlier/a later] point on a timeline, seeing various points along the way.” When asked which method participants feel like they used, participants were significantly more likely to choose the photographic method (74.1% vs. 25.9%,  $\chi^2(1) = 39.55, p < .001$ ); there were no differences between past and future conditions ( $p = .166$ ).

Study 2 examined whether videographic thinking is perceived as a more naturalistic method for thinking about past and future selves. All participants read descriptions of both the videographic and photographic methods and looked at a 10-second video depicting the method;



the order in which these descriptions were presented as counterbalanced. Participants were assigned to one of two conditions: past or future. The photographic method was described as follows: “One method is to go straight from thinking about the current self to thinking about the past [future] self at a particular point on a timeline, skipping everything in between.” The videographic method was described as follows: “One method is to mentally travel backwards [forwards] along a timeline, almost like rewinding [fast-forwarding] from the current self to a past [future] self, seeing various past [future] selves along the way before arriving at a past [future] self at a particular point in time.” Then participants had to choose which method was more natural along a number of dimensions. Across all of the dimensions, the videographic condition was considered less natural. Participants chose the videographic method as harder to use and more unnatural, and they chose the photographic method as more automatic, more comfortable, more regularly used, more intuitive, and more often experienced (all  $ps < .001$ ).

Study 3 examined whether thinking about the future self videographically (rather than photographically) promotes future self-continuity. One reason why videographic thinking may promote connectedness is because it makes salient the connections between several future selves. Participants on MTurk ( $N = 166$ ) were asked to evaluate how similar they felt to their future selves. In the accumulative condition, which is suggestive of videographic thinking, participants were asked to assess how similar their future selves were to each other. In particular, they were asked to evaluate how similar they were to their selves in 1 year, then how similar their selves in 1 year were to their selves in 2 years, then how similar their selves in 2 years were to their selves in 3 years, and so forth, up to their selves in 10 years. In the iterative condition which is suggestive of photographic thinking, participants were simply asked to imagine how similar they were to their selves in 1 year, how similar they were to their selves in 2 years, how similar they were to their selves in 3 years, and so forth, also up to 10 years. All participants were then asked to assess how connected they were to their selves in 11 years. All assessments were made via a choice of one of seven diagrams depicting overlapping circles, with the left circle representing an earlier self, that varied in the degree of overlap. Participants in the accumulative condition ( $M = 4.20$ ,  $SD = 2.21$ ) felt more similar to their future selves than those in the iterative condition ( $M = 3.25$ ,  $SD = 1.96$ ,  $t(164) = 2.91$ ,  $p = .004$ ).

Taken together, these findings suggest that videographic thinking is a less common and less intuitive approach to constructing future selves, but could, at the same time, be useful in promoting connections to these distant selves. Future research will examine how these thinking modes map on to financial decision-making. In particular, videographic thinking could make it easier to conjure, imagine, and take the perspective of one’s future self, a tendency that may make it easier to sacrifice dollars today for gains tomorrow (e.g., saving for retirement).

### **Passing the Buck to the Wealthier**

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### **Short Abstract**

We investigate how much consumers believe that they and others should donate to charity each year. Judgments of donation obligation depend not only on how much a given target individual earns, but also on how much the evaluator earns. The less an evaluator earns, relative

to a target, the more spare money an evaluator believes the target to have, and the more the evaluator believes that the target should donate to charity. Across all income levels assessed, consumers are quick to “pass the buck” onto wealthier others, who in turn, “pass the buck” onto even wealthier others.

### **Long Abstract**

How much do consumers believe that they and others should donate to charity? Experimental studies of generosity show that a sense of obligation often motivates giving (Dana, Cain & Dawes, 2006; Berman & Small, 2010; Gneezy et al., 2010). However, existing research typically examines isolated factors that influence charitable donations in any single instance. In contrast, little research has examined budgetary beliefs regarding how much of one’s income consumers feel should be sacrificed to help others (cf. Piff, et al., 2010; Sussman, Sharma & Alter, 2015).

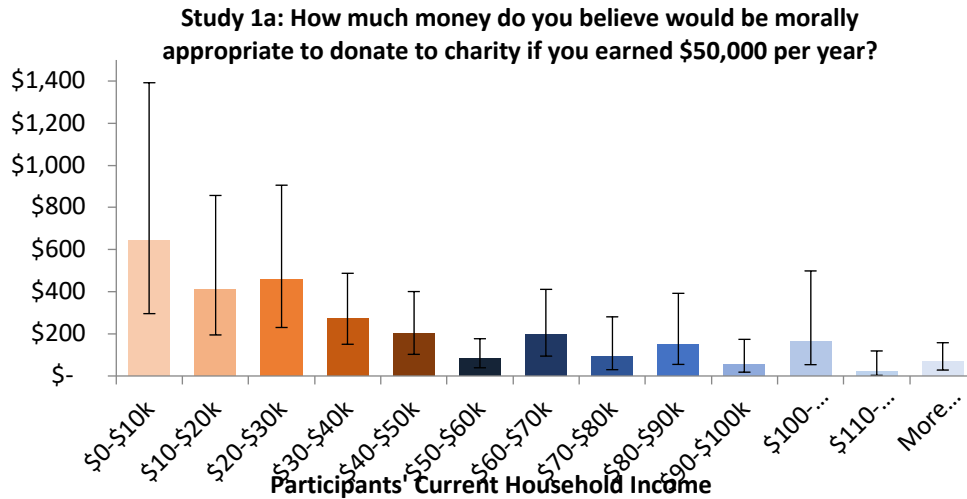
This paper investigates judgments of donation obligations across the income spectrum. We expect that consumers think that the more one earns, the more money they have to spare, and the more they should to donate to charity. Yet, even if consumers agree that those with higher incomes should donate more, how do individuals’ own financial situation shape the standards of generosity they apply to themselves and to others?

To test this, we ask individuals how much they believe that someone with a specified income should donate to charity each year. We find that judged donation obligations depend not only on the target’s absolute income, but also on the evaluator’s income relative to the target. The less an evaluator earns, relative to a target, the more the evaluator believes that the target should donate to charity.

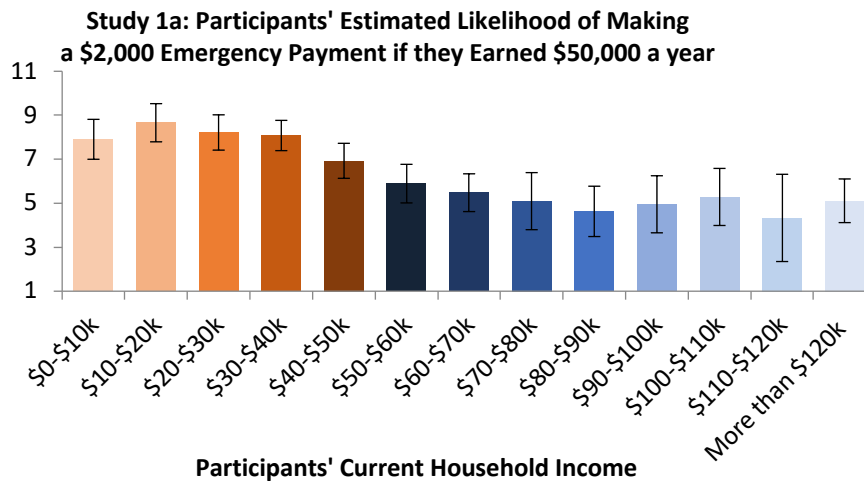
Moreover, these judgments appear to be driven by misperceptions of the extent to which earning more or less money translate to perceived changes in available spare money, or financial slack (Zauberman & Lynch, 2005). While consumers often feel constrained for spare money, they also imagine that earning more income will alleviate their financial constraint (Berman et al., 2015). As a result, they believe that higher earners are flush with spare money and can easily donate without experiencing much self-sacrifice. In contrast, higher earners do not report having as much spare money as lower earners expect, and do not believe they should donate as much as a result.

In Study 1a, participants (MTurk, N = 505) were asked to imagine what their life would be like if their combined household income was \$50,000 per year. They then were asked to consider how much they should donate to charity (in dollars) if they earned this amount. Participants additionally evaluated the likelihood that they would be able to make a one-time payment of \$2,000 without having to dip into their retirement fund or borrow money if they earned this amount (1 = “extremely unlikely” to 11 = “extremely likely”). This served as our measure of estimated spare money.

A univariate linear regression with participant income predicting judged donation obligations shows that the less a respondent earns, the more they believe they should donate if they earned \$50,000 a year ( $\beta = -0.19$ ,  $SE = 0.03$ ),  $p < .001$ . We repeated the above analysis for our measure of spare money as the DV, and find the same pattern of results: the less that participants earn, the more they believe they would be able to make a one-time payment of \$2,000 if they earned \$50,000 a year ( $\beta = -0.37$ ,  $SE = 0.04$ ),  $p < .001$ . Figures 1 and 2 display these results.



*Figure 1.* The less participants earn, the more they believe they would donate to charity if they earned \$50,000 a year. Mean values and 95% confidence intervals for each income bracket are computed on the log transformed dollar amounts ( $\ln + 1$ ), are then transformed back into dollar amounts for ease of interpretation. Blue bars correspond to those who earn more than \$50,000 and red bars correspond to those who earn less than \$50,000.



*Figure 2.* The less participants earn, the more likely they believe they could make a one-time payment of \$2,000 if they earned \$50,000 a year. Error bars correspond to 95% confidence intervals. Blue bars correspond to those who earn more than \$50,000 and red bars correspond to those who earn less than \$50,000.

In Study 1b (MTurk, N = 1,002), we test whether this relationship holds when consumers evaluate others. Participants were asked to evaluate a target with similar demographics as themselves, except that the target's income was set at \$50,000 per year. Participants then evaluated how much this person should donate to charity (as a percent of income) and how much

spare money they expect this person to have (in the same manner as in Study 1a). Consistent with our previous results, participants' current income was a significant negative predictor of donation obligations ( $\beta = -0.30$ ,  $SE = 0.10$ ,  $p = .003$ ), and estimated spare money ( $\beta = -0.34$ ,  $SE = 0.03$ ,  $p < .001$ ).

Study 2 further tests the robustness of these results. This study was pre-registered (<https://osf.io/pm7dn/>), and utilized an online panel to recruit a balanced sample of participants who varied in their household income ( $N = 1,023$ ). Participants evaluated five target individuals who differed only in their yearly income (ranging from \$20,000 to \$100,000/year). For each target, participants first evaluated the percentage of household income that they believe that the target should donate to charity and then estimated the available spare money of each target.

We computed a mixed model linear analysis to estimate the simple slope of each target individual for the donation obligation and spare money measures separately. Table 1 displays these results. For each target income evaluated, the coefficient is significant and negative: the less that participants earn relative to the target, the more they believe that the target has in spare money, and the more they believe that the target should donate to charity.

| Target Income | Donation Obligation  |      |           | Spare Money          |      |          |
|---------------|----------------------|------|-----------|----------------------|------|----------|
|               | Relative Income Beta | S.E. | t(1,515)  | Relative Income Beta | S.E. | t(1,515) |
| \$20k         | -0.39%               | 0.12 | -3.22**   | -0.09                | 0.02 | -4.42*** |
| \$40k         | -0.69%               | 0.12 | -5.72***  | -0.14                | 0.02 | -6.66*** |
| \$60k         | -0.81%               | 0.12 | -6.78***  | -0.14                | 0.02 | -6.76*** |
| \$80k         | -1.04%               | 0.12 | -8.64***  | -0.09                | 0.02 | -4.35*** |
| \$100k        | -1.20%               | 0.12 | -10.00*** | -0.06                | 0.02 | -2.72**  |

Notes \*\*  $p < .01$ , \*\*\*  $p < .001$

*Table 1.* The simple effect of participant's relative income on their judgments of how much a given target individual should donate to charity as a percent of their total income, and how much spare money they expect the target income to have. Relative income is measured in units of \$10,000.

Finally, Study 3 directly manipulates perceptions of spare money to show that this impacts perceived donation obligations. Participants evaluated one of two couples earning \$50,000 per year. We manipulated the extent to which the couple earmarked money for retirement versus leaving their unspent money as uncommitted savings. Relative to saving for retirement, the more uncommitted savings the couple had, the more that couple was perceived to have in spare money ( $M_{\text{UncommittedSavings}} = 4.25$ ,  $M_{\text{Retirement}} = 3.52$ ,  $t(296) = 4.49$ ,  $p < .001$ ), and the more they were expected to donate to charity ( $M_{\text{UncommittedSavings}} = \$1,171$ ,  $M_{\text{Retirement}} = \$866$ ,  $t(296) = 1.96$ ,  $p = .05$ ).

Together, these studies show that consumers believe that those who have more income than they do have more spare money, and should therefore donate more to charity, than those higher earners report when evaluating for themselves. Across all income levels, consumers consistently pass the buck to the wealthier.

## How and Why Adding a Time Delay Increase Charitable Giving

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### Short Abstract

Charitable giving involves trading-off the utility of helping others with the disutility of incurring costs. In four studies, we show that adding a delay period between pledging to donate and actually paying for the donation can increase donations dramatically by reducing the disutility of giving. Study 1a and 1b demonstrate that amount donated increases when a time delay of six to twelve months is introduced. Study 2 shows the effect applies to donations of time as well. Finally, Studies 3 and 4 provide evidence that the delay increases donations specifically because it reduces the pain of payment.

### Long Abstract

Charitable giving makes consumers feel happy (Dunn, Aknin, and Norton 2008; Andreoni 1989, 1990), but it also comes, quite literally, at a cost. In this work, we show how reducing the disutility of donating can create dramatic increases in the amounts donated.

Donations provide utility, known as “warm glow,” that creates feelings of joy (Andreoni, 1989, 1990) and enhances one’s self-image (Bénabou and Tirole, 2006). Giving also comes with a “pain” analogous to pain of paying for goods (Prelec and Loewenstein, 1998). Thus, when deciding how much to donate, consumers must trade-off the utility of warm glow and the disutility of losing money (i.e., pain of giving). We propose that introducing a time delay between the decision to donate and the actual payment of the donation can increase donation amounts, because it allows consumers to experience warm glow without incurring the full extent of pain of paying at the time of the decision.

Previous research in economics has shown that more consumers are willing to donate when a time-delay is added (e.g., Breman, 2011; Andreoni and Serra-Garcia, 2016). This work, using real charitable donation decisions in the lab and in the field, suggests that for some consumers it is painful to decline a donation request. These consumers will be happy to pledge to donate in the future but their pledges are insincere. However, they can be socially pressured into honoring their pledges when reminded about them. In contrast to this explanation that insincere pledges can be solicited and subsequently enforced, we suggest and provide evidence for donations being larger when a time-delay is added because the time delay separates the warm-glow of donating from the pain of paying. Note that the economic theory based on insincere pledges cannot explain why individual donation amounts become larger when a time-delay is added, it can only explain why more pledges would be made.

In Study 1a ( $N=504$ ), participants read a scenario explaining that they could commit to donating today while the donation would be charged to them either today, in one month, or in one year (between-subjects). As expected, those pledging to donate in one year ( $M=\$62.91$ ) donated significantly more than those donating today ( $M=\$21.70$ ) or in one month ( $M=\$23.49$ ),  $F(2, 501)=10.91, p<0.001, \eta^2=0.04$  (in this and subsequent analyses income is entered as a covariate). Study 1b ( $N=601$ ) replicated these results across additional time periods: those who were charged today donated substantially less ( $M=\$26.80$ ) than those pledging to donate in three months ( $M=\$47.14$ ), six months ( $M=\$52.23$ ), or in one year ( $M=\$76.26$ ),  $F(3, 379)=16.99,$

$p < 0.001$ ,  $\eta^2 = 0.12$ . So, by offering a delay in hypothetical donations amounts increased by up to 287%.

To determine if the observed temporal delay effect is specific to monetary donations, Study 2 ( $N=621$ ) compared donations of time versus money at different time periods. Replicating Studies 1a and 1b, consumers were willing to donate more money in six months ( $M = \$61.47$ ) than today ( $M = \$38.62$ ),  $t(199) = 3.49$ ,  $p = 0.001$ ,  $d = 0.49$ . They were also willing to donate more time in six months ( $M = 7.06$  hrs) than today ( $M = 5.88$  hrs),  $t(247) = 3.05$ ,  $p = 0.003$ ,  $d = 0.39$ .

To test the robustness of the effect of time delay on increasing amount donated, Study 3 ( $N=201$ ) used a within-subjects design. After indicating the amount they would be willing to donate today or in one year as in previous studies, participants were asked how much they would donate at each of six time periods in increasing (decreasing) increments of 2 months depending on condition. As expected, a mixed-design ANOVA revealed a significant effect of time period on donation amounts,  $F(2.28, 452.81) = 21.89$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.10$  (Mauchly's  $W$  was significant,  $p < 0.001$ , thus the Greenhouse-Geisser Adjustment is used). The same participants indicated they would donate more in one year ( $M_{ascending} = \$33.35$ ,  $SD_{ascending} = 60.54$ ,  $M_{descending} = \$45.75$ ,  $SD_{descending} = 51.66$ ) than they would donate today ( $M_{ascending} = \$17.15$ ,  $SD_{ascending} = 15.92$ ,  $M_{descending} = \$25.86$ ,  $SD_{descending} = 26.33$ ),  $t_{ascending}(100) = 3.03$ ,  $p_{ascending} = 0.003$ ,  $d_{ascending} = 0.45$ ,  $t_{descending}(99) = 4.53$ ,  $p_{descending} < 0.001$ ,  $d_{descending} = 0.53$ . The effect of time delay is qualified by a time period by order interaction ( $F(2.28, 445.34) = 3.20$ ,  $p = 0.036$ ,  $\eta_p^2 = 0.016$ ). The linear increase of donation amounts over time was steeper for those who first indicated how much they would donate in one year and then asked about less-time delayed donation amounts in a descending order.

This pattern suggests that when deciding how much to donate in the future, consumers think primarily about the warm glow surrounding their donation and subsequently donate more. However, as payments get closer in time, the pain of paying gets stronger and consumers reduce their donation amounts. Conversely, when beginning with a payment today, consumers first consider the pain of paying and as payments move into the future, feelings of warm glow become more prominent.

In Study 4 ( $N=609$ ), we further test whether reducing the pain of paying underlies the observed effect of time delay by directly manipulating pain of payment. Consumers are typically more willing to spend windfall gains than earned money, as the former involves lesser pain of payment (Arkes et al. 1994; Epley and Gneezy 2007). Hence, the effect of time delay on donations should be attenuated when windfall gains rather than earned money is donated. To test this hypothesis, we ran a 2 (delay: now vs. six months) x 2 (source: windfall vs. earned money) between-subjects experiment. As expected, the delay by source interaction was significant,  $F(1, 458) = 7.01$ ,  $p = 0.008$ ,  $\eta^2 = 0.02$ . In the control condition, donations were significantly greater in six months ( $M = \$128.94$ ) than today ( $M = \$66.67$ ),  $F(1, 458) = 26.12$ ,  $p < 0.001$ ,  $\eta^2 = 0.05$ , whereas in the windfall conditions they did not differ ( $M_{today} = \$89.18$  vs.  $M_{six\ months} = \$106.09$ ),  $F(1, 458) = 1.96$ ,  $p = 0.162$ ,  $\eta^2 = 0.004$ . This pattern of results suggests that time delays increase donations only when they reduce the pain of paying.

Concluding, across five studies, we show that offering a time delay between pledging a donation and actual payment can increase donation amounts by separating the warm glow of giving from the pain of paying. Apart from increasing donations, pledged donations with delayed payments could also make it easier for charities to engage in long-term planning and financing of projects.

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## 8.4 JDM: Wait for It... Temporal Effects Individual Papers

### Introducing Temporal Dependencies: Optimal Deadlines and the Behavioral Efficacy of Planning Prompts

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It is not uncommon for consumers to miss deadlines. To encourage follow-through, some interventions have emphasized plan-making as a light-touch way to increase deadline fulfillment (e.g., election voting; Nickerson and Rogers 2010). Often, however, such interventions only consider singular, terminal deadlines (e.g., federal income tax filings, doctoral program applications). What happens when consumers are faced with several deadlines separating different classes of benefits (e.g., coupons that decrease in value)? In such cases, are planning interventions consistently effective in promoting behavioral engagement?

In this paper, we investigate how multiple deadlines alter consumers' mental representations of the period surrounding each deadline and examine the implications for consumer responsiveness to planning interventions. Specifically, we consider the situation in which a consumer encounters *both* an optimal and an ultimate deadline. Drawing on prior work on temporal landmarks (Dai, Milkman, and Riis 2014), we propose that dual deadlines demarcate time periods into discrete segments. We predict that the optimal deadline, in particular, operates as a salient reference point that shapes consumers' valuation of behavioral action as a gain or a loss (Kahneman and Tversky 1979), subsequently influencing consumers' sensitivity to planning prompts before and after an optimal deadline.

We tested our predictions in three studies. In Study 1, we conducted a field study using a 2 (timing: before optimal, after optimal) x 2 (framing: planning, control) mixed design, with timing as the within-subjects factor. Prospective students ( $n=1,247$ ) received two university financial aid email communications: 3 days before and 2 days after the first instantiation of FAFSA's early-application date (October 1, 2016). All emails contained the same basic FAFSA completion information, but we modified the content and subject line of planning-framed emails to additionally include planning prompts (e.g., "If you can't start today, then schedule a day when you will"). We measured students' behavioral engagement with each email (0 = didn't open, 1 = opened) and conducted a repeated measures logistic regression, controlling for GPA, in-state status, and gender. As predicted, results showed a significant timing x framing interaction ( $\chi^2(1)=5.00, p=.025$ ). Compared to students in the control condition, students who received planning-framed messages were no more likely to open the first email (68.22% vs. 65.06%;  $\chi^2(1)<.001, p=.989$ ) but were significantly more likely to open the second email (70.30% vs. 63.78%;  $\chi^2(1)=4.35, p=.033$ ). As such, these results provide initial support for our predictions, demonstrating that planning-framed messages boosted students' behavioral engagement after, but not prior to, the optimal deadline.

Study 2 replicated this pattern of results using a different consequential behavioral outcome and an alternative optimal deadline manipulation in a 2 (timing: before optimal, after optimal) x 2 (framing: planning, control) between-subjects design. At the end of an unrelated study, MTurk participants ( $n=699$ ) learned that they were eligible to participate in a bonus lottery, which was presented with or without planning-framed content. Each participant received

an alphanumeric code and had eight days (starting the next day) to enter the lottery. Participants could only enter the lottery once, but earlier enrollment earned extra entries. In four entry phases (each lasting two days), participants could receive 15, 10, 5, or 1 total lottery entries. Because participants could not enter the lottery until the following day, the next opportunity was identical for all participants (i.e., 15 total entries). However, those in the after optimal deadline condition learned the deadline had just closed for the phase in which they could have earned 20 total entries. Using lottery enrollment to assess behavioral engagement, we conducted a logistic regression, controlling for participant income and day of survey administration, finding a marginally significant timing x framing interaction ( $\chi^2(1)=3.19, p=.074$ ). Consistent with our predictions, the planning-framed lottery did not increase the likelihood of enrollment for participants who believed the optimal deadline had not yet passed (29.31% vs. 30.68%;  $\chi^2(1)=.04, p=.838$ ). However, for participants who believed the optimal deadline had passed, the planning-framed lottery significantly increased the likelihood of entering (28.74% vs. 17.71%;  $\chi^2(1)=5.84, p=.016$ ). Thus, these results further demonstrate that individuals' sensitivity to planning-framed content can differ depending on an intervention's proximity to the optimal deadline.

In Study 3 we investigate process, examining whether planning prompts before vs. after an optimal deadline influence the perceived benefits of action. Using a 3 (timing: before optimal, after optimal, after optimal with extension) x 2 (framing: planning, control) between-subjects design, MTurk participants (n=576) imagined receiving a postcard with a coupon discount to an outlet mall. The discount decreased in value after one week (from 40% to 20%), such that participants received the postcard before or after the optimal discount. Some postcards indicating the participant missed the optimal discount, however, framed the available (suboptimal) discount as a promotion extension. If reframing the suboptimal discount as an extension successfully shifts people from a loss frame to a gain frame, then we would not expect a difference between planning conditions in the extension condition. After viewing the postcards, participants completed a three-item index assessing perceived benefit of the discount ( $\alpha=.91$ ). Consistent with our predictions, regression analyses showed a significant timing x framing interaction ( $F(2,568)=4.32, p=.013$ ). Prior to the optimal deadline, planning had no effect on the discount's perceived benefit ( $M_{plan}=6.09$  vs.  $M_{noplan}=5.80$ ;  $F(1,568)=2.43, p=.120$ ). After the optimal deadline, planning prompts increased the discount's perceived value when no extension was mentioned ( $M_{plan}=4.16$  vs.  $M_{noplan}=3.76$ ;  $F(1,568)=4.32, p=.003$ ) but had no effect when the suboptimal discount was positioned as an extension of the original promotion ( $M_{plan}=4.37$  vs.  $M_{noplan}=4.53$ ;  $F(1,568)=1.34, p=.247$ ). Taken together, these findings support our prediction that the differential effects of planning interventions surrounding optimal deadlines result from altered perceptions of benefits of action.

This paper demonstrates that the behavioral efficacy of planning interventions is shaped by proximity to optimal deadlines. In doing so, this research extends recent studies examining how consumers' cognitive representation and categorization of time markers influences the likelihood of subsequent action (e.g., Dai, Milkman, and Riis 2015; Tu and Soman 2014) and contributes, more broadly, to work on time perception, goals, and framing effects.

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### **Situation Neglect Underlies Both Psychological Myopia and Psychological Hyperopia**

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Lives consist of joy (e.g., play) and pain (e.g., work). How much time we spend on joy in the present often inversely determines how much time we spend on pain in the future. The more one work instead of play today (or when young), the more one can play instead of having to work tomorrow (or when older).

To maximize the overall happiness combined in the present and future, how much time we spend on joy (vs. pain) should depend on the future-present relationship. Future-present relationship refers to the extent to which one's choice now will influence one's experience later. If for every unit of time one spends on pain (joy) now, one can enjoy two units of joy (endure two units of pain) later, we say the future is more important than the present. Conversely, if for every unit of time one spends on pain (joy) today, one can enjoy only half a unit of time on joy (endure only half a unit of time on pain) later, we say the future is less important than the present. To maximize the overall happiness combined in the present and the future, the more (less) important future is relative to the present, the more (less) time one should spend on pain in the present.

However, we propose that due to situation neglect, people are insensitive to this future-present relationship, and choose more regressively than what would maximize their overall happiness. Specifically, we propose:

H1: When the future is more important than the present, people spend less time on pain now than what would maximize their overall happiness, and hence appear "myopic."

H2: When the future is less important than the present, people spend less time on joy now than what would maximize their overall happiness, and hence appear "hyperopic."

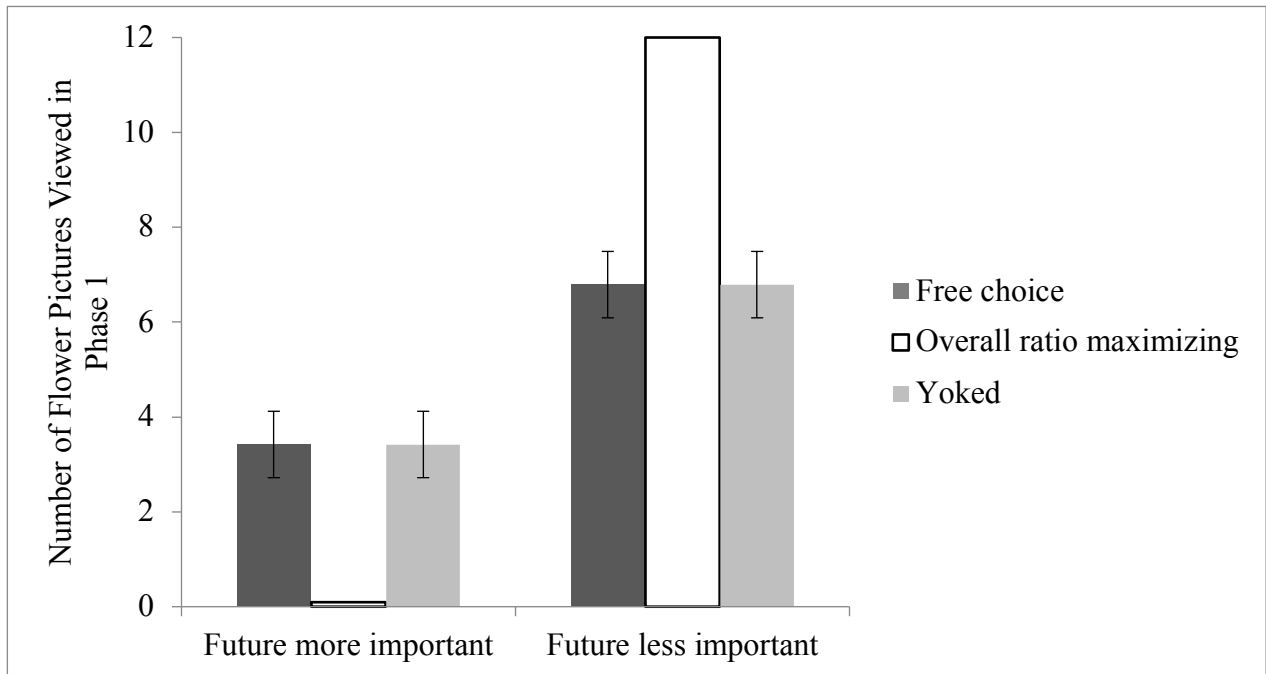
H3: The choice that maximizes joy-to-pain ratio yields greater overall happiness than people's own choices (i.e., myopic and hyperopic choices).

H4: Nudging people to deliberate the hedonic consequence of their choices increases joy-to-pain ratio as well as their overall happiness.

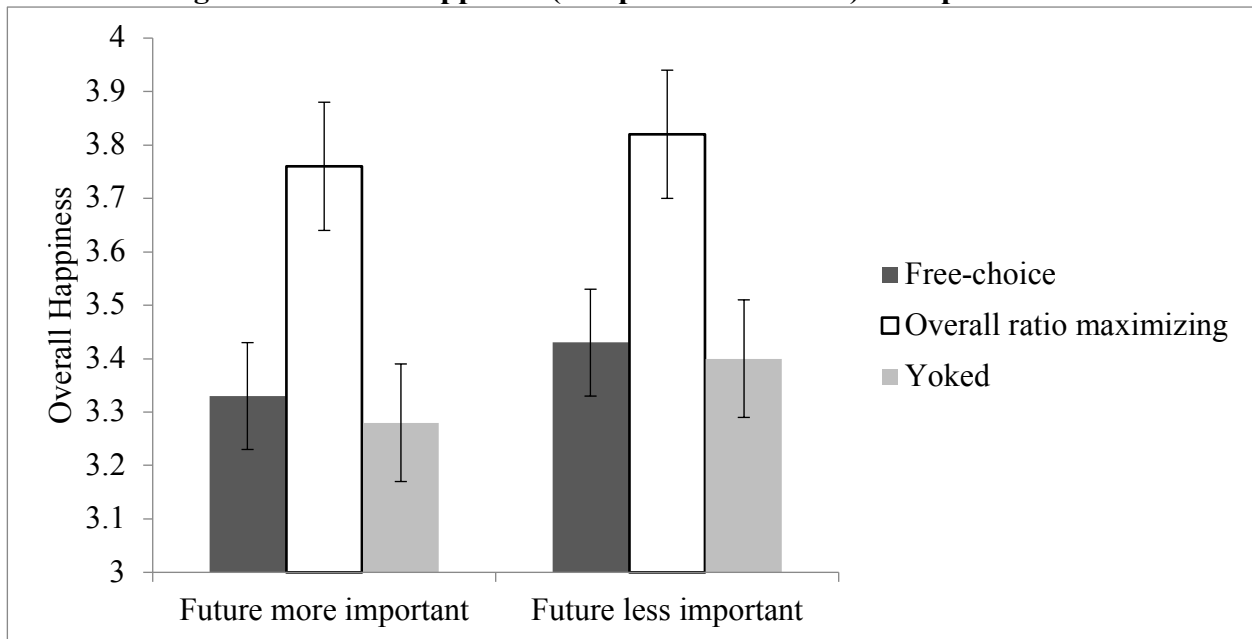
We demonstrate two experiments that examined and replicated the hypothesized effect. In both experiments, participants were instructed to view flower pictures (joy) and cockroach pictures (pain) in two phases. Participants could choose any combinations of flower and cockroach pictures they wished to view only in Phase 1. In Phase 2, the proportion of flower versus cockroach pictures is inversely related to that in Phase 1: The more flower (cockroach) pictures participants chose to view in Phase 1, the more cockroach (flower) pictures they must view in Phase 2. We manipulated the future-present relationship through changing the number of pictures in two phases. When participant needed to view more (fewer) pictures in Phase 2 than Phase 1, the choice in the present commanded greater (less) importance for the future than for the present. And we measured how many pictures of each type participants chose to view in Phase 1, and their overall happiness (i.e., mean value of sampled hedonic experience after viewing each picture: 1-bad, 5-good).

Experiment 1 employed a 2 (future-present relationship: future-more-important vs. future-less-important) x 3 (strategy: free-choice vs. overall-ratio-maximizing vs. yoked) between-subjects design. In the free-choice condition, participants made their own choice in Phase 1. In the overall-ratio-maximizing condition, participants viewed the combinations of pictures that maximized the overall flower-picture-to-cockroach-picture ratio without making any selections. In the yoked condition, participants viewed the combinations of pictures following the choice made by each participant in the free-choice condition. We kept Phase 1 constant with 12 pictures. As hypothesized, when Phase 2 was long (i.e., 36 pictures), participants chose more flower pictures in Phase 1 than what would maximize the flower-picture-to-cockroach-picture ratio ( $M=3.42$ ,  $t(49)=6.33$ ,  $p < .01$ ). When Phase 2 was short (i.e., 4 pictures), participants chose more cockroach pictures in Phase 1 than what would maximize the flower-picture-to-cockroach-picture ratio ( $M=6.79$ ,  $t(42)=-8.52$ ,  $p < .01$ ). Regardless of the future-present relationship, participants in the overall-ratio-maximizing condition were happier than both participants in the free-choice condition (future-more-important:  $M_{\text{Free-Choice}}=3.32$  vs.  $M_{\text{Ratio-Maximizing}}=3.76$ ;  $t(272)=3.55$ ,  $p < .001$ ; future-less-important:  $M_{\text{Free-Choice}}=3.43$  vs.  $M_{\text{Ratio-Maximizing}}=3.82$ ;  $t(272)=3.62$ ,  $p < .001$ ) and participants in the yoked condition (future-more-important:  $M_{\text{Yoked}}=3.40$ ;  $t(272)=3.89$ ,  $p < .001$ ; future-less-important:  $M_{\text{Yoked}}=3.28$ ,  $t(272)=4.04$ ,  $p < .001$ ).

**Figure 3. Number of flower pictures viewed in phase 1 of Experiment 1.**



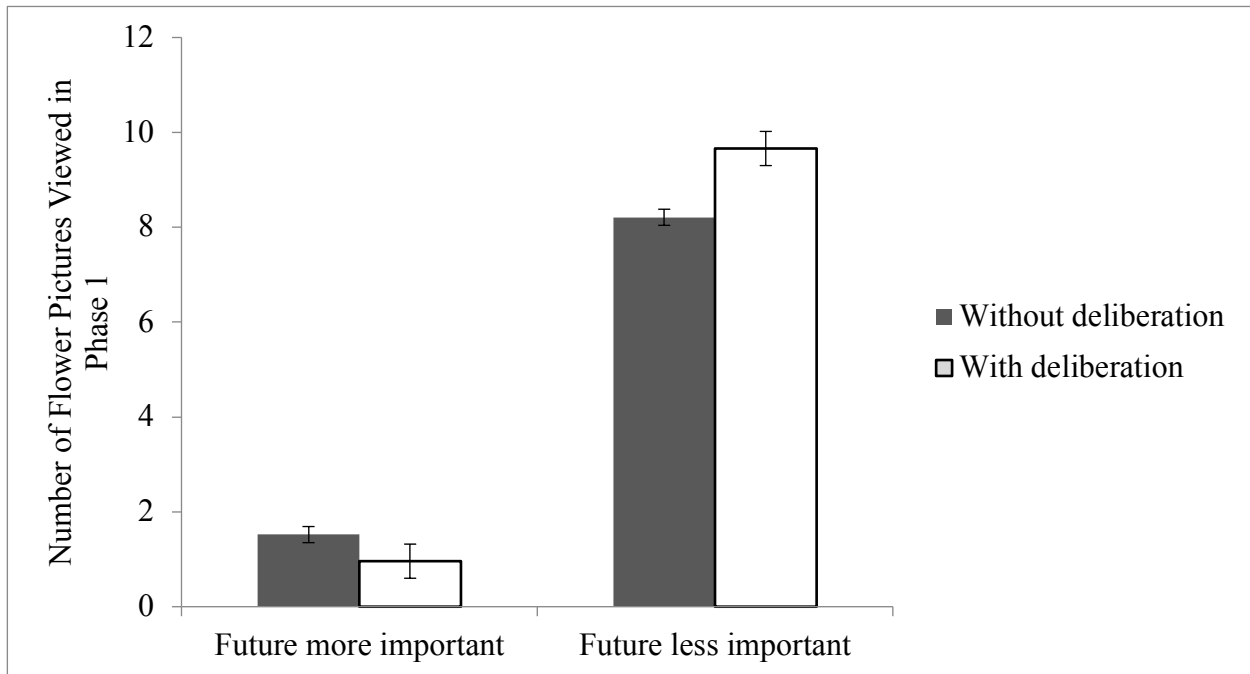
**Figure 4. Overall happiness (two phases combined) in Experiment 1.**



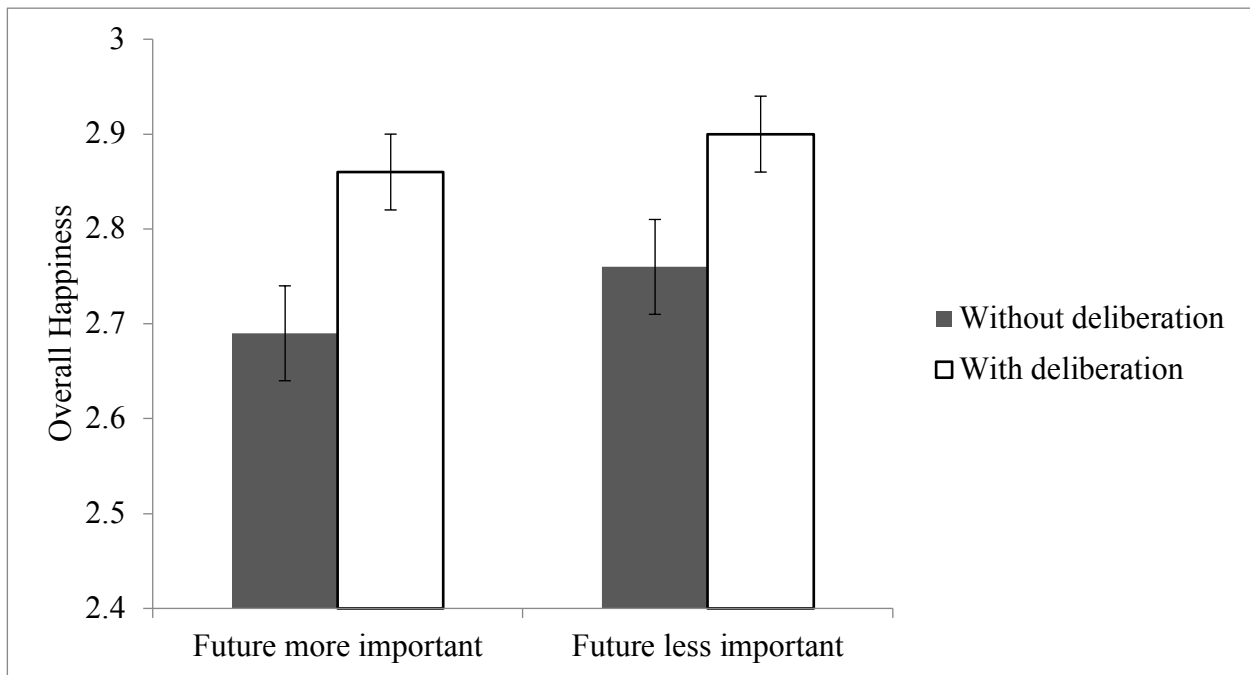
Experiment 2 examined the situation neglect as the psychological process, through asking participants to deliberate the hedonic consequences before making a choice. Deliberation should make participants realize their insufficient sensitivity to the future-present relationship and adjust their choice. If participants did not maximize the flower-picture-to-cockroach-picture ratio because they mistakenly believed in other factors' impact on their overall happiness, such as

variety-seeking (Read et al., 2001; Simonson, 1990) or improving patterns (Hsee & Abelson, 1991; Loewenstein & Prelec, 1993), deliberation should not influence their choice. Experiment 2 employed a 2 (future-present relationship: future-more-important vs. future-less-important) x 2 (deliberation: with vs. without) between-subjects design. In all the conditions, participants were free to choose how many cockroach pictures and flower pictures to view in Phase 1. And we held the overall duration constant (i.e., 16 pictures) and manipulated the length of Phase 1 and Phase 2 (4 vs. 12 pictures). Replicating results in Experiment 1, participants' choices did not maximize the flower-picture-to-cockroach-picture ratio in the future-more-important condition ( $M=1.52$ ,  $t(62)= 8.70$ ,  $p < .01$ ) and the future-less-important condition ( $M=8.10$ ,  $t(70)=-10.84$ ,  $p < .01$ ). Importantly, having participant deliberate the hedonic consequence of their choice increased the flower-picture-to-cockroach-picture ratio in both the future-more-important condition ( $M_{\text{Without-Deliberation}}=1.52$  vs.  $M_{\text{Deliberation}}=0.96$ ;  $t(277)=-3.13$ ,  $p=.002$ ) and the future-less-important condition ( $M_{\text{Without-Deliberation}}=8.21$  vs.  $M_{\text{Deliberation}}=9.66$ ;  $t(277)=2.38$ ,  $p=.019$ ), which also increased their overall happiness in both the future-more-important condition ( $M_{\text{Without-Deliberation}}=2.69$  vs.  $M_{\text{Deliberation}}=2.86$ ;  $t(277)=-2.18$ ,  $p=.030$ ) and the future-less-important condition ( $M_{\text{Without-Deliberation}}=2.76$  vs.  $M_{\text{Deliberation}}=2.90$ ,  $t(277)=2.09$ ,  $p=.039$ ).

**Figure 5. Number of flower pictures viewed in phase 1 of Experiment 2.**



**Figure 6. Overall happiness (two phases combined) in Experiment 2.**



This research offers a new look at psychological myopia and hyperopia. Our results suggest that myopia and hyperopia are not necessarily biases. Rather, the situation neglect of the

future-present relationship is a general bias. People appear myopic when the future is more important than the present, and hyperopic when the future is less important than the present. Consequently, both myopia and hyperopia reduce people's happiness.

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## Understanding the Expense Prediction Bias

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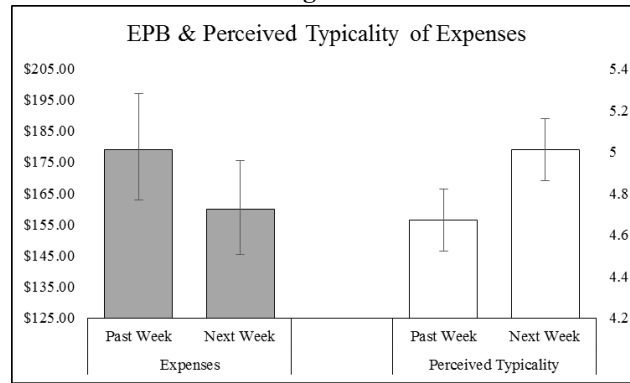
Prior research suggests that consumers tend to under-predict their future expenses (e.g., Ulkumen et al., 2008; Sussman and Alter, 2012), a phenomenon we've labeled the *expense prediction bias* (EPB). We theorize and demonstrate across three studies (N = 1,899) that this bias is driven in part by temporal asymmetry, a tendency to mentally represent the future as more typical than the past (Van Boven, Kane, & McGraw 2008). Building on this insight, we introduce a simple intervention that improves the accuracy of consumers' expense predictions. We also provide the first comprehensive understanding of the expense prediction bias by identifying its magnitude and associated financial consequences in large non-student samples.

Research investigating how individuals bridge the psychological gap between the present, past and future often assumes temporal symmetry between prospection and retrospection (Kane, Van Boven, & McGraw 2012). However, there is evidence that prospection and retrospection differ in terms of content and experience, such that prospection is more deeply rooted in mental representations of what people, places, and events are typically like (Kane, Van Boven, & McGraw 2012; Van Boven, Kane, and McGraw 2008; Johnson and Raye 1981). This account of “the future as typical” is consistent with work suggesting that consumers are prone to under-estimating their spending on larger infrequent expenses but not smaller more common expenses (Sussman and Alter 2012). Therefore, we hypothesized that consumers would predict their future expenses to be more typical than their past expenses. Furthermore, because a typical future excludes atypical expenses, we hypothesized that higher perceived typicality of future expenses would be associated with lower expense predictions, and, accordingly, that decreasing perceived typicality of future expenses would increase expense predictions.



In study 1 we had 499 Mturkers recall and predict their expenses for the past and next week, then indicate how different or similar they believed their expenses were (would be) relative to a typical week. As shown in figure 1, participants predicted that their future expenses would be lower than their past expenses ( $t(498) = 3.15, p = .002$ ), and that they believed their future expenses would be more typical than their past expenses ( $t(498) = 4.36, p < .001$ ). Correlational analysis confirmed that *higher* perceived typicality of future expenses was associated with *lower* expense predictions ( $r(497) = -.20, p < .01$ ).

**Figure 1**

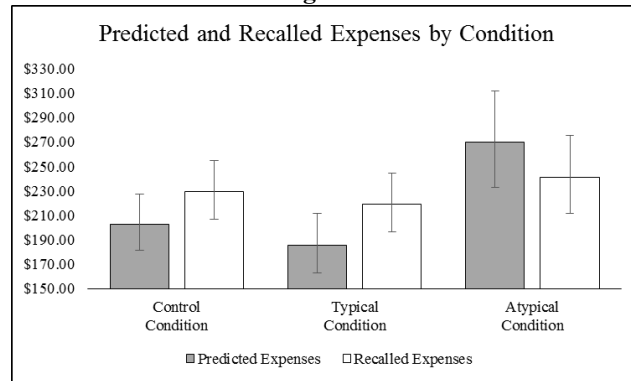


**Error bars represent 95% confidence intervals**

For study 2 we recruited a nationally representative sample of adult Americans ( $N = 1,108$ ) and randomly assigned participants to one of three conditions. In the control condition participants recalled and predicted their expenses for the past and next week, with instructions to account for all expenses (to be) incurred “except monthly expenses like rent that happen to be due in the next week.” The “atypical” condition mirrored the control condition but also had participants list three reasons why their expenses for the next week might be different from a typical week before making their prediction. We reasoned that this intervention would decrease perceived typicality of future expenses and increase expense predictions. In the “typical” condition participants listed three reasons why their expenses would be similar to a typical week before making their prediction.

A 3(condition: control vs. typical vs. atypical) x 2(time: past week vs. next week) between-within ANOVA revealed a main effect of condition ( $F(2, 1105) = 4.45, p = .012$ ), a marginal main effect of time ( $F(1, 1105) = 3.10, p = .079$ ), and a condition by time interaction ( $F(2, 1005) = 6.06, p = .002$ ). As illustrated in figure 2, simple main effect analysis revealed that recalled expenses did not differ by condition ( $F(2, 1105) = .62, p = .54$ ), but predicted expenses were significantly higher in the atypical condition as compared to the control and typical conditions ( $t(1105) = 3.97, p < .001$ ).

**Figure 2**

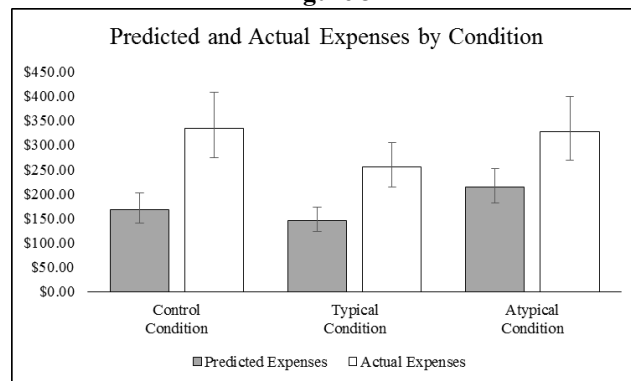


**Error bars represent 95% confidence intervals.**

In study 3 we recruited 292 people from 21 different countries via the online platform [www.prolific.ac](http://www.prolific.ac) to participate in a week long consumer finance diary study. Participants were randomly assigned to one of the three prediction conditions used in study 2. Participants then reported their expenses online at the end of every day for the next 7 days. Each of these daily diary entries also included a brief set of questions about financial well-being.

A 3(condition: control vs. typical vs. atypical) x 2(expenses: predicted vs. actual) between-within ANOVA revealed a main effect of condition ( $F(2, 289) = 3.68, p = .027$ ), a main effect of expenses ( $F(1, 289) = 178.93, p < .001$ ), and a significant condition by expenses interaction ( $F(2, 289) = 3.16, p = .044$ ). As illustrated in figure 3, simple main effect analysis revealed that actual expenses did not differ by condition ( $F(2, 289) = 2.42, p = .091$ ), but predicted expenses were significantly higher in the atypical condition as compared to the control and typical conditions ( $t(289) = 2.94, p = .004$ ). In practical terms, our intervention represents a 31.2% improvement in prediction accuracy vs. control.

**Figure 3**



**Error bars represent 95% confidence intervals**

To assess the relationship between expense prediction bias and financial well-being, we created an EPB score for each participant by subtracting their expense prediction from their actual expenses. We then performed a series of regressions with each financial well-being measure as the DV and the bias score and participant income as IVs. The results suggest that EPB is predictive of lower savings ( $p = .01$ ), higher family debt ( $p = .035$ ), lower credit scores ( $p = .05$ ), and more frequently incurring credit card interest charges ( $p = .034$ ).

In sum, we have provided compelling evidence that the expense prediction bias is driven by temporal asymmetry, and we have leveraged this theoretical insight to create a simple intervention that increases expense prediction accuracy. In light of our finding that the bias is associated with negative financial consequences, our intervention is also of substantive importance because improving expense prediction accuracy may well improve consumer financial well-being. We have also demonstrated that the explanatory power of temporal asymmetry extends beyond abstract concepts like time and place to include more concrete concepts like money, suggesting that temporal asymmetry may contribute to a more general theory of consumer (mis)prediction.

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### **The influence of vague and precise waiting-information on perception of wait time: A field study in healthcare field**

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Himanshu Mishra, University of Utah, USA

Would providing consumers with precise information about the wait decrease time-perception? Many would likely say *yes* without hesitation. Based on type of waiting-information (precise versus vague), we present in this research that the answer to the above question is not *necessarily true*. All of past work on time perception and customer satisfaction strongly suggests that waiting-information must be communicated to reduce consumer’s perception of waiting-time and to increase their overall satisfaction (Hue & Tse, 1996; Tran et al., 2002; Watkins et al. 2011). However, past work doesn’t specifically answer the influence of types of (vague versus precise) waiting-information on the perception of time.

In this work, we propose that vague information increases one’s attention towards the information, leading consumers to be less aware of the passage of wait. On being less aware of the passage of time, consumer perceive the wait-time to be lower. We operationalize wait-time perception for a “take-a-number” queuing system in this research. Many organizations, such as DMV offices, passport offices, visa consulates, and physician’s office employ “take-a-number”-

queue management system, which is a traditional method to control-queues. The token numbers handed over are either in numbers (precise) or in alphanumeric sequences (vague). Consider a patient who has been given a token of 7 (numeric) versus H7 (alphanumeric) to indicate her place in the queue. Who would perceive wait time to be longer? And who would be more satisfied with the waiting system? Would vague versus precise waiting-information behave differently when the environment is prone to delays?

We examine a health care situation in a developing country to demonstrate our proposition. Hospitals are one of the most critical places, where waiting-information not only has influence on the perception of waiting time but also has a considerable influence on the consumer's overall satisfaction. Evidence shows that patients promptly form opinion about local hospitals based on their wait-time perception to see the physician (Thompson et al. 1996). Second, we consider patient care in a developing country because one, patients arrive at the physician's office and are seen on a first-come first-served basis, and two it offers a real-life experimental setting where "take a number" queuing system is commonplace.

Our findings have important implications for improving patient care. We also contribute to theories on wait time, learning under ambiguity (such as delays), and processing of vague versus precise information.

## THEORETICAL DEVELOPMENT

Utilizing healthcare scenario, we specifically suggest that the nature of the token can influence wait time perception. In this research, we also discuss need for cognition moderator that can be used for our study setting. Last, we focus on the role of delays in service to propose disparate increase in perception of time with two token-systems (vague – alphanumeric versus precise - numeric).

*Time Perception & Overall Satisfaction.* In a broad sense, the research (Zakay, 1989; Brown, 1997) on time perception suggests that the more attention devoted to time, the greater the lengthening of perceived duration because additional resources enhance the accumulation of temporal cues. Time judgments often show that perceived time is shortened when an individual pays attention to a complex task; people lose sight of the time and predict time to be shorter. Further, Houston et al. (1998) demonstrated that there is a strong negative correlation between waiting time and a customer's evaluation of the quality of a service.

*Processing of Alphanumeric & Numeric Characters.* Alphanumeric are complex to process and furnish incomplete information about the position in the queue (Pavia & Costa, 1993; Yan & Duclos, 2013). The resulting alphanumeric tokens give vague waiting-information. Whereas numbers possess both cardinal and ordinal meanings, and are easy to process (Jou, 2003; Klahr et al. 1983).

Utilizing research on the time perception and the processing of alphanumeric and numeric characters, we can make certain predictions. First, we propose that when a patient has vague alphanumeric tokens, they will pay more attention towards tokens and less towards passage of time. Second, this shift in attention away from time should result in estimating the perceived wait-time to be shorter. The numeric tokens, on the other hand, are less difficult to evaluate, so when a patient views precise numeric tokens, they easily understands their position in the queue, pay less attention to numeric tokens, and consequently perceive the waiting-time to be longer. Second, we suggest that vague alphanumeric tokens should eventually result in more satisfaction among patients than precise numeric tokens.

*Moderating Role of Effortful Cognitive Activities.* Cohen et al. (1955) defined need for cognition, as when an individual is unable to make sense of the situation in meaningful ways, he is likely to experience feelings of tension and deprivation, which, in turn, is likely to cause the individual to initiate active efforts to structure the situation and increase understanding. While all individuals need to make sense of their world, they have this need in differing degrees. In line with the above characterization of need for cognition, we use it as one of our moderators. According to our proposition, alphanumeric is more vague than numeric due to processing complexity. We expect that individuals with high need for cognition would behave differently than individuals with low need for cognition with alphanumeric tokens (see figure 1).

*Delays and Learning Under Ambiguity.* Delays in service can have an effect on the consumer's perception of waiting-time and the customer's satisfaction (Larson, 1987; Taylor, 1994). The delay in an environment results in an ambiguous environment as the time in the queue increases and the service gets delayed. It is important to understand how vague (alphanumeric tokens) versus precise (numeric tokens) waiting-information would influence perception of waiting-time and overall satisfaction in the presence of delays in the environment (see figure 2).

## OVERVIEW OF STUDIES

In order to test our research propositions and the underlying theoretical mechanisms we ran two field studies in a Physician's Office in India. Patients were randomly given numeric or alphanumeric tokens to indicate their place in the queue. While they were waiting they responded to questions concerning wait time. After three days of the visit they were contacted via phone and responded to how satisfied they were with the visit.

### *Study 1*

This study was conducted in a physician's office in West Delhi (India), a district with a population of about 2.5 million. This study was regulated for about 3 days. We used a two (Token Type: Alphanumeric and Numeric) cells between-participants design. There were a total of 96 patients who completed the survey. In Study 1, we provided evidence for the key proposition that alphanumeric tokens lead to a shorter perceived wait-time ( $t(96) = 2.63$ ,  $p$ -value = 0.011) and higher satisfaction, whereas numeric tokens lead to a longer perceived wait-time and lower satisfaction. In addition, we showed a theoretical mechanism in which we see the affect of attention levels (self-reported measure) on the relationship between tokens and time-perception estimates ( $\beta = 0.07$ ; 95% CI [0.003 - 0.201]). Further, we included and tested patients ahead in queue and need for cognition scale as moderators (see Table 1 for sample characteristics).

### *Study 2*

Our second study was designed to investigate the time perception of patients for alphanumeric and numeric tokens in the environment prone to delays. This study was conducted in the same physician's office in West Delhi (India) for 6 days, excluding Sundays when the office remained closed. We introduced delay in the environment in this study. Therefore, we used a 2 (Token Type: Alphanumeric and Numeric) X 2 (Delay: Yes and No) between-participants design. There were a total of 212 patients who completed the survey.

The findings of study 2 provided converging evidence for our proposed theoretical account, by showing that (in no-delay condition) alphanumeric tokens result in less perception of wait-time and more satisfaction whereas numeric tokens result in more perception of wait-time

( $M_{\text{number}} = 0.04$ ,  $M_{\text{alpha-numeric}} = -0.37$ ,  $p\text{-value} = 0.003$ ) and less satisfaction ( $M_{\text{number}} = 5.04$ ,  $M_{\text{alpha-numeric}} = 6.46$ ,  $p\text{-value} < 0.01$ ). After manipulating for delay, patients reported no difference in time-estimates ( $M_{\text{number}} = 0.14$ ,  $M_{\text{alpha-numeric}} = 0.03$ ,  $p\text{-value} > 0.10$ ) and satisfaction ( $M_{\text{number}} = 4.91$ ,  $M_{\text{alpha-numeric}} = 5.34$ ,  $p\text{-value} > 0.10$ ) between alphanumeric and numeric tokens. However, there was a contrasting increase in perception of wait-time (and satisfaction levels) from no-delay to delay environment between alphanumeric and numeric tokens (see Table 2 for sample characteristics).

## CONCLUSION

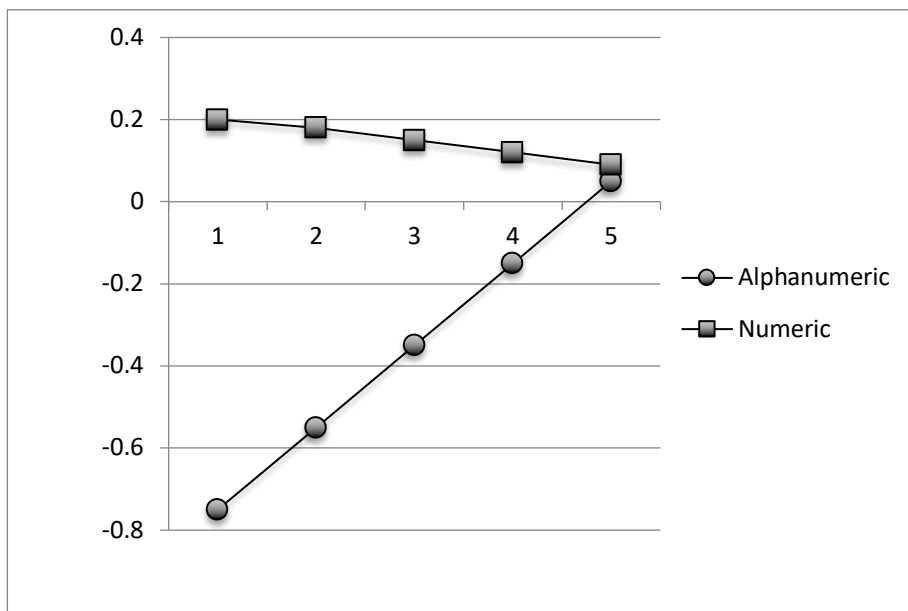
In this research we put forth one potential tactic that can reduce consumers' perception of wait-time and improve overall satisfaction. In particular, we introduced the distinction between vague versus precise waiting-information (alphanumeric versus numeric tokens). We provided evidence that alphanumeric tokens might be more suited than numeric tokens in no-delay environment (no-ambiguity), due to differential attention levels of consumers. However, in an ambiguous environment such as delays, it might be better to use numeric tokens than alphanumeric tokens.

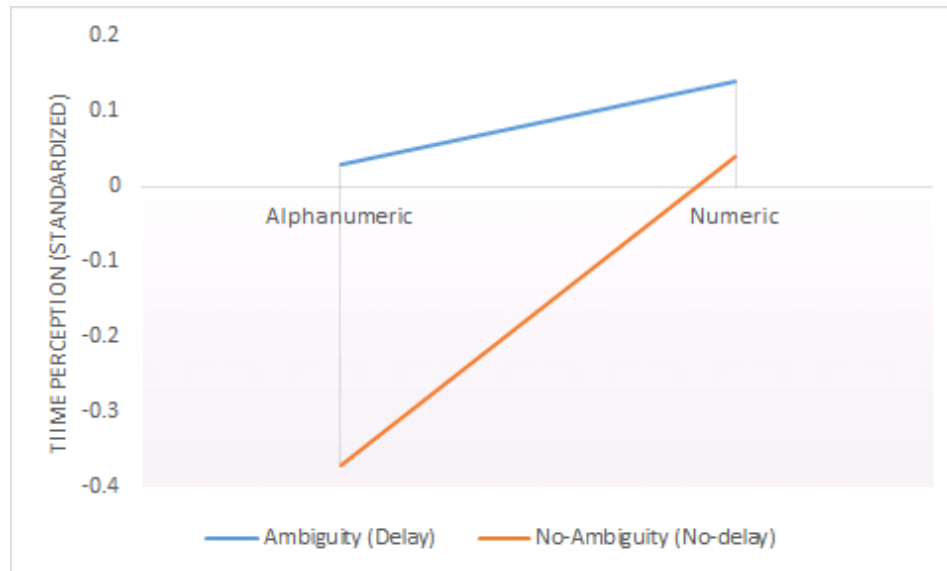
**TABLES**

|                               | <i>Median (range)</i> | <i>Meaning of High Score</i> | <i>Mean</i> |
|-------------------------------|-----------------------|------------------------------|-------------|
| <i>Patient Age, years</i>     | 35 (12 to 76)         |                              | 37          |
| <i>Sex:</i>                   |                       |                              |             |
| <i>Male</i>                   | 55%                   |                              |             |
| <i>Female</i>                 | 45%                   |                              |             |
| <i>Kids or Adults</i>         |                       |                              |             |
| <i>Kids (under age of 18)</i> | 16%                   |                              |             |
| <i>Adults</i>                 | 84%                   |                              |             |
| <i>Anxiety Levels</i>         | 3 (1 to 10)           | <i>Most Anxious</i>          | 3.4         |
| <i>Pain Levels</i>            | 3 (1 to 9)            | <i>Lot of Pain</i>           | 3.8         |
| <i>Discomfort Levels</i>      | 5 (1 to 10)           | <i>High Discomfort</i>       | 4.7         |

|                               | <i>Median (range)</i> | <i>Meaning of High Score</i> | <i>Mean</i> |
|-------------------------------|-----------------------|------------------------------|-------------|
| <i>Patient Age, years</i>     | 34 (13 to 74)         |                              | 36          |
| <i>Sex:</i>                   |                       |                              |             |
| <i>Male</i>                   | 52%                   |                              |             |
| <i>Female</i>                 | 48%                   |                              |             |
| <i>Kids or Adults</i>         |                       |                              |             |
| <i>Kids (under age of 18)</i> | 24%                   |                              |             |
| <i>Adults</i>                 | 76%                   |                              |             |
| <i>Anxiety Levels</i>         | 4 (1 to 9)            | <i>Most Anxious</i>          | 3.8         |
| <i>Pain Levels</i>            | 2 (1 to 8)            | <i>Lot of Pain</i>           | 3.6         |
| <i>Discomfort Levels</i>      | 5 (1 to 8)            | <i>High Discomfort</i>       | 4.4         |

### FIGURES





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## 8.6 4P's et al.: Effects of Sound, Touch, and Smell Individual Papers

### Music Frequency and Consumers' Perceptions

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Prior research in consumer behavior has shown that varying specific background music selections along dimensions of familiarity and liking can affect responses to target products (Alpert & Alpert, 1990), and whether music can improve the effectiveness of advertising depends on the congruency between music and the marketing message (e.g., Kellaris, Cox, & Cox, 1993).

According to Plack and Oxenham (2005), pitch is especially an important attribute of any auditory stimulus. Pitch depends primarily on the frequency content of the sound stimulus, and understanding of the effects of music frequency on consumers' perceptions and decision-making will increase marketers' ability to harness the findings in a variety of marketing contexts, such as advertising and in-store promotion. However, to date, little research has specifically examined whether and how background music influences consumers' decision-making from the viewpoint of musical frequency. Toward this end, this study proposes that differences in frequency of background music will affect consumers' perceptions and their subsequent decision-making.

As illustrated by the Doppler effect (Neuhoff & McBeath, 1996), the pitch of a moving sound source rises as the source approaches, and vice versa. Based on the statistical likelihood of the match in nature, it is feasible that low- (vs. high-) frequency music increases the perceived distance between the sound source and the perceiver. Prior studies have also demonstrated that abstract (concrete) messages profit from being presented at a distance (in proximity) (e.g., Hansen & Wänke 2010). Consequently, low- (high-) frequency music will match with abstract (concrete) representations, and the congruency will enhance consumers' evaluative responses to a marketing message.

The experiments reported here, except for Study 4, were all conducted via the Internet. In Study 1, fifty participants (female = 32.0%,  $M_{\text{age}} = 39.7$ ) listened to 18 sounds including 12 filler sounds, and indicated how far away they thought the sound was recorded from the sound source. The experiment used a one-factor (frequency: high vs. middle vs. low) within-participants design. Drawing on a version of "Canon" by Johann Pachelbel and "Boléro" by Joseph-Maurice Ravel, two sets of experimental sound pairs were created. For both the high-frequency and low-frequency versions, only the frequency was manipulated; the other acoustic elements were not changed from the original versions. Repeated-measures analyses of variance (ANOVAs) with frequency as a within-participant factor conducted on the perceived distance revealed significant main effects of the frequency regardless of piece and scale ( $F_s(2,98) > 5.31$ ,  $ps < .01$ ). Pairwise comparisons indicated that the participants perceived the music source as farther away when they listened to low- (vs. high-) frequency music ( $ps < .01$ ).

In Study 2, fifty new participants (female = 32.0%,  $M_{\text{age}} = 39.7$ , which was a very similar sample distribution to that in Study 1) evaluated how much they liked the sounds used in Study 1. The experiment used a one-factor (frequency: high vs. middle vs. low) within-participants design.

Repeated-measures ANOVAs with frequency as a within-participant factor conducted on the liking of the sound revealed significant main effects of frequency ( $F_s(2,98) > 7.68, p_s < .01$ ). Except the participants liked the middle-frequency version best, any consistent pattern of results between frequency and liking was not found. The results preclude the possibility that the feeling of liking (disliking) to a sound leads people to perceive the psychological distance between the sound source and the perceiver as near (far). That is, the participants' feeling of dislike might not be why they perceived the sound source of low-frequency (vs. high-frequency) music as farther away.

In Study 3, one-hundred and forty-one participants (female = 50.4%,  $M_{age} = 39.6$ ) viewed and evaluated a promotion movie for a website of an art exhibition. The design was a 2 (frequency: low vs. high)  $\times$  2 (abstractness: abstract vs. concrete) between-participants design. In the low- (high-) frequency condition, the participants were exposed to the low- (high-) frequency version of Canon used in Studies 1 and 2. On the other hand, in the abstract (concrete) condition, the participants were presented with a movie comprising eight Impressionist (Baroque) paintings. Note that the results of a pretest demonstrated that between these two groups of paintings, there was no difference in terms of liking ( $M_{Impressionist} = 4.32, M_{Baroque} = 4.28, t(407) = .59, p = .558$ ); however, the abstractness of Impressionist paintings was significantly higher than that of Baroque paintings ( $M_{Impressionist} = 3.99, M_{Baroque} = 2.64, t(407) = 15.62, p < .001$ ).

A 2 (frequency: low vs. high)  $\times$  2 (abstractness: abstract vs. concrete) multivariate ANOVA was conducted on the evaluation scores. The results revealed marginally significant interaction effects of frequency  $\times$  abstractness for all the scores ( $F_s(1,137) > 2.91, p_s < .09$ ). Planned contrasts revealed that the participants in the frequency-abstractness congruent (vs. incongruent) condition evaluated the marketing communication more positively ( $t_s(139) > 1.70, p_s < .09$ ).

In Study 4, a lab-based study was conducted in Osaka, Japan. Throughout the task, either low-frequency or high-frequency music was played through four ceiling-mounted speakers. The melody (Pachelbel's Canon) was played in the same key as in the other experimental conditions; however, it was played in different octaves. The music had a sound level of 40-60 decibels on everywhere in the room. One-hundred and two participants (female = 50%,  $M_{age} = 40.2$ ) indicated what paintings they would like to have if they were to get eight in return for taking part in the study. The list comprised the sixteen paintings used in Study 3, and the participants were told that they would ostensibly get post cards of eight paintings they chose. A  $t$ -test conducted on the number of Impressionist and Baroque paintings that the participants chose revealed that participants in the low- (vs. high-) frequency condition more often chose Impressionist paintings ( $M_{low} = 5.37, M_{high} = 4.67, t(100) = 2.21, p = .030$ ). In other words, the participants exposed to low- (vs. high-) frequency music were more likely to choose products with abstract representations.

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### **The Effects of Lyrical Music versus Instrumental Music on Consumer Choice**

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Past research has investigated how music genre, tempo, volume, etc. affects consumer behavior. The vocal versus instrumental component of music, however, has not been studied. Voices and instruments are the two performing media of music (Kamien and James 1988). We use the term “lyrical music” to refer to vocal music with lyrics (i.e., songs) and the term “instrumental music” to refer to the instrumental version of a song which is devoid of lyrics or singing. We examine the effects of lyrical music versus instrumental music on consumers’ mental construal and their subsequent product decisions.

We first posit that listening to lyrical music activates a high level of construal because lyrics connect the auditory stimuli to broader, more abstract concepts such as love, betrayal, happiness, sadness, etc. and help listeners interpret what they are hearing in higher level terms. The lyrics of many songs are scripted under common themes (Desmond 1987). These song themes readily activate the existing cognitive schemas in listeners (Schank and Abelson 1977). As a result, listeners often process song lyrics in a top-down, schematic fashion (Hansen and Hansen 1991), deriving the main theme of a song based on a few key lines or even a few key phrases of its lyrics which are sung repetitively. Previous research shows that quite often there is a lack of word-by-word, localized processing of song lyrics (Greenfield et al. 1987) and even when lyrics are available, its comprehension is imperfect and listeners oftentimes include schema-consistent contents (though not existent in the song) when asked to recall the lyrics of the song (Hansen and Hansen 1991).

Second, we theorize that listening to instrumental music induces a relatively lower level of construal because the lack of song lyrics renders schematic processing less likely and higher order meanings not available for average listeners. Instrumental sounds per se do not provide meaning due to the lack of well-accepted conventions that connect musical expression (the audible aspect, or sound) to musical content (the semantic aspect, or meaning) (Baroni 1983). As such, the auditory experience is semantically obscure (Kamien and James 1988). It is also perceptually “concrete” (Baroni 1983, p. 182) because perceiving a musical piece as a whole first requires a bottom-up, localized processing of individual musical elements to understand the

syntactical relationships among them (Tillmann, Bigand, and Madurell 1998). For average listeners, however, this localized processing is sticky. Based on music puzzle tasks, Tillmann et al. observed that "...local processing of harmonic cadences prevails over global processing" (p. 160) and listeners focus on individual musical segments and interpret them in narrower, more isolated contexts rather than the overall structural of the musical piece.

We test our key assertions in studies 1-3 using well-established measures of construal level. In Studies 1-2, participants listened to the song *A Whole New World* (with vocals) or the song's instrumental version (without vocals). Both versions lasted for about four minutes and were identical except that the lyrical version included sung words. Participants in Study 1 completed the 25-item Behavioral Identification Form (BIF, Vallacher and Wegner 1989). Analysis conducted on the BIF scores (0-25 with higher numbers indicating a tendency to engage in high-level interpretation) revealed that those listening to the lyrical (vs. instrumental) music were more likely to use high-level description to identify a target behavior ( $M_{\text{lyrical}} = 13.95$  vs.  $M_{\text{instrumental}} = 12.55$ ;  $F(1, 73) = 7.69, p = .01$ ). Participants in Study 2 engaged in a shoe categorization task (Lee, Deng, Unnava, and Fujita 2014). Analysis performed on the categorization scores (0-1 with higher numbers indicating a tendency to categorize based on functional form, a high-level feature, versus aesthetic details, a low-level feature) showed that those listening to the lyrical (vs. instrumental) music were more likely to categorize based on functional form ( $M_{\text{lyrical}} = .91$  vs.  $M_{\text{instrumental}} = .78$ ;  $F(1, 88) = 5.98, p = .02$ ).

In Studies 3AB, participants listened to the lyrical versus instrumental version of *Before I Fall in Love*. Study 3A utilized a video segmentation task (Lee et al. 2014) in which participants segmented a stream of behavior into meaningful sections by clicking their mouse when, in their judgment, one meaningful action ended and another began. Study 3B employed a picture segmentation task in which participants divided the floorplan of a house into as many areas as made sense to them. We anticipate that lyrical (vs. instrumental) music leads to segmentation that highlights fewer (vs. more) chunks. Analyses showed that those listening to the lyrical (vs. instrumental) music had fewer clicks ( $M_{\text{lyrical}} = 15.12$  vs.  $M_{\text{instrumental}} = 17.65$ ;  $F(1, 90) = 4.15, p = .045$ ) in Study 3A, and indicated fewer areas ( $M_{\text{lyrical}} = 10.38$  vs.  $M_{\text{instrumental}} = 12.02$ ;  $F(1, 83) = 4.59, p = .035$ ) in Study 3B.

The next two studies show that the higher (vs. lower) level of construal activated by listening to lyrical (vs. instrumental) music, as a procedural mind-set, can influence consumers' subsequent product decisions. In Study 4, after listening to the lyrical versus instrumental version of *Take Me to Your Heart*, participants made a choice between a restaurant with superior primary (food) but inferior secondary (dining view) features and a restaurant with inferior primary but superior secondary features (Wan and Agrawal 2011). The analysis revealed that lyrical (vs. instrumental) music induced greater preference for the restaurant with superior primary feature ( $M_{\text{lyrical}} = 7.49$  vs.  $M_{\text{instrumental}} = 6.71$ ;  $F(1, 64) = 4.62, p = .04$ ).

Study 5 tests the proposed mediation mechanism by priming global versus local processing. If lyrical (vs. instrumental) music indeed activates a global (vs. local) processing style, then the effect of music should be *strengthened* when participants are primed with a *consistent* processing style (i.e., global/lyrical and local/instrumental) but *weakened* when the priming task is *inconsistent* (i.e., local/lyrical and global/instrumental). After the music manipulation (same as in Study 4), participants viewed a map of a foreign city and were instructed to focus on its global shape versus details (Förster, Liberman, and Kuschel 2008). They then made a choice between a furniture with superior desirability aspects and a furniture with superior feasibility aspects (Aggarwal and Zhao 2015). A 2 (lyrical vs. instrumental music)

× 2 (consistent vs. inconsistent prime) ANOVA revealed a significant interaction effect ( $F(1, 116) = 3.95, p < .05$ ): among participants assigned to the consistent primes, those in the lyrical/global (vs. instrumental/local) condition reported the highest (vs. lowest) preference for the furniture with superior desirability ( $M_{\text{lyrical/global}} = 7.00$  vs.  $M_{\text{instrumental/local}} = 5.07$ ;  $F(1, 116) = 8.93, p = .003$ ); whereas participants assigned to the inconsistent primes (those in the lyrical/local and instrumental/global conditions) reported very similar preferences for the furniture with superior desirability ( $M_{\text{lyrical/local}} = 6.22$  vs.  $M_{\text{instrumental/global}} = 6.13$ ;  $F < 1, n.s.$ ).

In addition to contributing to literature on music effects by shedding light on how listening to lyrical versus instrumental music may alter consumers' level of information processing, this paper advances construal level research by adding a novel, sensory factor to the repertoire of antecedents of construal level. The ease of implementation of this factor suggests that marketers can use lyrical versus instrumental music as a convenient nudge to influence consumers.

### **To Touch or Not to Touch?: How Touch Influences Decision Confidence**

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An unfortunate reality of online shopping is that people do not have the opportunity to touch the actual products. When choosing between different options online, people often wish that they could touch the options in person and believe that doing so would result in an easier choice. Indeed, touching is the most fundamental way we interact with the world. Touch is not only the very first sense humans develop (Atkinson and Braddick, 1982; Bernhardt 1987), but we also constantly utilize touch to explore the world from the moment we are born (Lederman and Klatzky 1987; Gallace and Spence 2009). In most cases, touching provides useful information (see Krishna 2012 for a review). However, little is known for cases where touching does not provide any useful information. Do people still desire the opportunity to touch and expect touching to be helpful? Does touching in these cases actually help?

Building on the primordial nature of touch and the ubiquitous use of haptic information, we propose a conceptual model of overgeneralization for touch. We posit that people have long been accustomed to gathering information through touch, and thus expect that touching would invariably provide useful information. Similar to how internalized habits and heuristics continue to function in situations where they serve no purpose (Arkes and Ayton 1999; Amir and Ariely 2007; Hsee, Yang, and Ruan 2015; Peysakhovich and Rand 2015), we contend that people overgeneralize their belief in effectiveness of touch-for-information so as to predict that touching would aid their decisions even in situations where it explicitly provides no informative value. However, contrary to their prediction, we show that when people are actually given the opportunity to touch and realize that it provides no valid information, failure to meet the expectations and thwarted information search effort renders individuals frustrated (Glazer 1993; Strelbel, O'Donnell, and Myers 2004; Sun and Spears, 2012), which leads to decreased confidence (Berkowitz 1989; Roseman 1984). Tinted by the inherent penchant towards touch, however, people fail to anticipate the dismay; only after they experience the frustration do they realize it.

Study 1A first establishes that people generally mispredict that nondiagnostic haptic information would enhance one's decision confidence. Participants were asked to imagine two people, A and B, participating in a lucky draw for a free chocolate bar individually. Participants were given an image of two identical opaque envelopes. They were told that each person had to pick from two envelopes where one has a winning card with the letter X on it, and the other has a non-winning card with the letter Y on it. They were further informed that the instructor had person A touch both envelopes before making a decision and had person B make a choice by pointing to one of the envelopes without touching. Without learning about the outcome, participants were asked to predict each person's decision confidence and choice difficulty. Despite the fact that merely touching the two identical envelopes does not provide any useful information, participants predicted that doing so would increase confidence for the decision maker (see Table 1 for a summary of results). The results were reversed in study 1B where we had participants actually go through the lucky draw procedure described in Study 1A. Compared to those who did not touch the envelopes, participants felt less confident when they were given the opportunity to touch the envelopes.

We replicate this pair of results with an altered design to rule out an alternative explanation: touching increases attachment to both envelopes and makes it harder to forgo either option (Carmon and Wertenbroch 2003; Peck and Shu 2008), causing decreased confidence. Only one envelope was involved in the modified procedure. People were told that there were 20 envelopes in total of which 10 had a card with letter X and the other 10 had a card with letter Y written on it. The instructor would randomly pick one envelope and the lucky draw entrant's job was to guess which letter was inside the envelope. Participants in Study 2A (i.e., the predictors) expected the person with the opportunity to touch the envelope to have a higher confidence. However, participants in Study 2B (i.e., the experiencers) felt less confident when they actually touched the envelope compared to those who did not touch the envelope. We additionally measured involvement and ownership, but they were not different across the two conditions in Study 2B.

Studies 3A and 3B generalize the effect to product choice contexts. Participants were shown two bottles of wines (both 2014 Napa Valley Cabernet Sauvignons) and were told that they were priced equally. They were further told that one of the wines received a higher rating, and were asked to choose the wine they thought received the higher rating dittoing a typical purchase decision. Note that we used wines as touching the two identical bottles does not provide any useful information. The predictors judged the person who had the opportunity to touch to be more likely to have picked the better wine. In stark contrast to the pattern of predictors, people who actually touched both bottles of wine felt that they were less likely to have chosen the better wine (i.e., less confident) in comparison to the counterparts who made the decision without touching. Study 4 further replicates this effect using a different product (i.e., coffee pods) in a computer-mediated study, and hence rules out the experimenter effect.

The results shed light on the optimistic bias people hold for touching, and how such belief may negatively influence their decision confidence. While people expect touching to increase decision confidence even in situations where touching does not provide any useful information, the opportunity to touch actually reduces confidence.

**Table 1. Summary of Results**

| Study | Type        | n   | Measure    | Touch (A)                         | No touch (B) | Statistic           | p-value |
|-------|-------------|-----|------------|-----------------------------------|--------------|---------------------|---------|
| 1A    | Predictor   | 80  | Confidence | 4.48                              | 3.11         | F(1,79)=52.73       | <.001   |
| 1B    | Experiencer | 100 | Confidence | 3.34                              | 4.08         | F(1,98)=6.65        | 0.011   |
| 2A    | Predictor   | 72  | Confidence | 4.21                              | 3.21         | F(1,71)=18.39       | <.001   |
| 2B    | Experiencer | 102 | Confidence | 3.79                              | 4.30         | F(1,100)=4.65       | 0.033   |
| 3A    | Predictor   | 71  | Likelihood | Single scale 3.32<br>1 = A, 7 = B |              | vs4,<br>t(69)=-3.54 | <.001   |
| 3B    | Experiencer | 95  | Likelihood | 3.72                              | 4.46         | F(1,93)=8.40        | 0.005   |
| 4     | Experiencer | 114 | Likelihood | 4.39                              | 4.86         | F(1,112)=4.40       | 0.038   |

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### **When Keeping It Simple Isn't Stupid: The Cost Of Olfactory Complexity**

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Extant sensory marketing research demonstrates several benefits of pleasantly scented environments, including mood enhancement, increased time spent, higher perceived value of offerings and heightened memorability. While studying the effect of characteristics such as pleasantness and intensity, the impact of a third scent dimension, complexity, is often overlooked. Scent complexity refers to the physical composition of the scent and determines the way it smells (Herrmann et al., 2013). A scent may be composed of single or multiple ingredients (Reber, Schwarz, & Winkielman, 2004). For example, lime and rose are simple scents with a single ingredient. A combination of two or more simple scents yields a complex scent (i.e., scents containing multiple ingredients).

Hotels, casinos, and malls commonly use custom-developed, complex scents to enhance their atmospherics. While marketers deploy these customized scents with the intention of elevating mood and enhancing distinctiveness, we propose that the inherent complexity of the scents used may also be driving other effects at the consumer's level. Complex scents abound in retail environments where consumers perform a variety of tasks such as searching for specific products on cluttered shelves, calculating the price discounts in a supermarket, brainstorming in conferences/meetings in hotels, or deciding how much money to bet in a casino. In this research, we explore the possibility that scents (specifically, their complexity) in the physical environment can help or hurt consumers in performing these tasks effectively.

Across five studies, we demonstrate that exposure to complex scents deteriorates performance in cognitive tasks. This effect holds up consistently across multiple cognitive tasks that mirror some of the activities consumers perform in retail contexts. We posit that as complex scents require greater cognitive elaboration, they are resource depleting, leading to poorer performance. In addition, we hypothesize that resource depletion due to processing complex scents may lead to greater dependence on System 1 (heuristic thinking). Further, as familiar stimuli do not need significant cognitive elaboration, we posit that perceived familiarity will moderate the effect of complexity on task performance.

### **METHODOLOGY AND RESULTS**

Participants for all studies were students from a large university. We collaborated with a leading fragrance house to develop the scents and conducted extensive pre-tests to calibrate two pairs of

scents that belonged to the same olfactory family (citrus) and differed in complexity, but not in pleasantness and intensity.

Studies 1a and 1b explored the effect of scent complexity on participants' performance in two different cognitive tasks. For both studies, participants first evaluated a scent on its pleasantness, intensity and complexity before moving on to an unrelated task.

In Study 1a, they were asked to generate new brand names for two product categories (pain relievers and tablet computers; Galinsky et al., 2008). Participants in the simple scent condition ( $M_{\text{Simple}}=4.00$ ) generated significantly more brand names than the participants in complex scent condition ( $M_{\text{Complex}}=1.95$ ,  $F(1,38)=15.22$ ,  $p<.05$ ).

In Study 1b ( $N=69$ ), we used the Embedded Figures Task (EFT; Witkin, 1971) as a proxy for consumer's search activity in real-life. Shoppers often look for specific, known items on a cluttered shelf, and locating the required items quickly can save time and effort. The EFT requires participants to find a simple shape within a complex figure. As expected, participants in the simple scent condition ( $M_{\text{Simple}}=18.8$ ) were able to find significantly more figures than those in the complex scent condition ( $M_{\text{Complex}}=13.4$ ,  $F(1,67)=10.41$ ,  $p<.05$ ).

Study 2 ( $N=132$ ) explores the possibility that complex scents lead to greater reliance on System 1 (heuristic) thinking. Prior research shows that reliance on System 1 is likely to make people choose 'safer' options (Denes-Raj & Epstein, 1994). Participants were randomly assigned to one of the four conditions in 2 (scent type: simple, complex) x 2 (product: innovative, safe) design. They were asked to evaluate either an innovative or a conventional (i.e., safe) voice recorder. Regression analysis revealed a significant interaction between scent and product type ( $F(1,127)=4.47$ ,  $p<.05$ ). Participants in the simple scent condition who saw the innovative recorder were more likely to use it than those who saw the safe recorder ( $M_{\text{Innovative}}=4.42$ ,  $M_{\text{Regular}}=3.17$ ,  $p<.05$ ). In contrast, there was no difference in preference among participants in the complex condition. Planned contrasts revealed that among participants who saw the safe recorder, those in the complex scent condition were more likely to use it ( $M_{\text{Simple}}=3.17$ ,  $M_{\text{Comp}}=3.79$ ,  $p=.065$ , refer Figure 1). These results show that exposure to complex (vs. simple) scents reduced participants' likelihood of trying an innovative product.

Studies 3a and 3b explored the role of perceived familiarity in moderating the scent complexity effect. In Study 3a, we measured performance across two consecutive tasks to explore the time-decay effect of scent complexity. These tasks were: a) a verbal insights task (Nielsen et al., 2008) and b) a pattern-recognition task (Ashton-James & Chartrand, 2009). Results revealed a significant main effect of scent type ( $p<.05$ ). More interestingly, interaction between scent type and familiarity was significant,  $F(3,70)=4.69$ ,  $b=0.44$ ,  $p<.05$ . Complex scent led to a deterioration in performance when perceived familiarity was low ( $-1SD$ ,  $M_{\text{Simple}}=3.22$ ,  $M_{\text{Complex}}=2.66$ ,  $p<.05$ ) but not when the familiarity was high ( $p=NS$ ).

In Study 3b, we focused only on complex scents and manipulated familiarity (high, low). In the high familiarity condition, participants were given more information about the scent (vs. no additional information in the low familiarity condition). They were then asked to find several hidden words in a maze of words in a given time (Trimpe, 2003). As expected, participants identified significantly more words in the high familiarity condition ( $M_{\text{High}}=9.6$ ) than in the low familiarity condition ( $M_{\text{Low}}=7.30$ ,  $F(1,58)=4.46$ ,  $p<.05$ ).

## CONTRIBUTION AND FUTURE RESEARCH

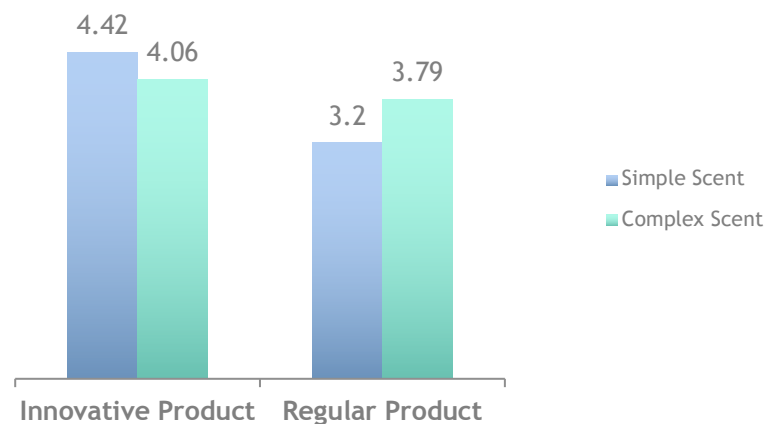
This research contributes to the scent literature in the following ways: first, it explores an under-investigated, but relevant characteristic of scent i.e., complexity; second, this research

provides a different (cognitive) explanation for the impact of scents on consumer behavior apart from the affective account (Warm et al., 1991). Our research further suggests that the use of scents in retail contexts elicits unintended effects that may be detrimental to consumers' well-being, including less optimal performance in cognitive tasks and subsequent decision making. Further, we plan to test the causal mechanism behind the effect.

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**Figure 1**



Study 2: Likelihood to use: innovative versus regular voice recorder

## Session 9

### 9.1 A New Toolkit for Goal Success: Counterintuitive Aspects Sustaining Goal-Congruent Choice Symposium

#### **Paper 1: The Self in Self-Sabotaging: Devaluing Instrumental Means When Pursuing Identity Central Goals**

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#### **Paper 2: Positive Effect of Anger in Goal-Directed Choices**

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#### **Paper 3: Journey Takes You beyond the Destination: Using Metaphor to Sustain Actions after Goal Attainment**

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#### **Paper 4: Mental Resets: A Change in Environmental Context Restores Self-Control**

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A goal that a consumer considers central to her identity should be among her most important, so why might the consumer instead choose inferior means to pursue these most important goals? Negative emotions such as anger are thought of as disruptive so why might they facilitate choice of instrumental means? Mindsets are typically thought of as being transient, so when might these cues sustain goal pursuit over months? Environmental change can cause anxiety and use up cognitive resources, so why might it instead facilitate goal-congruent choice? The four papers in this session investigate these counter-intuitive influences on goal-congruent choice. As a set, they investigate when and why three factors—identity, emotion, and cognition—typically disrupt (facilitate) goal-congruent choice instead facilitate (disrupt) it. All four papers thus provide novel and counterintuitive recommendations on how to foster goal-congruent choices.

For example, consumers pursuing important goals should choose the most effective means to ensure goal success. But in paper 1, Gamlin and Labroo posit that such goals also inform a consumer's self-concept and are therefore associated with a greater desire to self-credit. More effective means can take credit away from the consumer. Consumers therefore self-sabotage goal success by choosing less effective means when pursuing identity-goals. Thus, while marketers believe in the benefits of associating products to a consumer's identity, these counter-intuitive results show that doing so will backfire for those products that best facilitate consumer goals.

If identity disrupts goal pursuit by leading consumers to choose inferior means, then what about negative emotions such as anger that typically are believed to be disruptive? In paper 2, Khan and colleagues show another counter-intuitive result that because anger is associated with greater certainty, consumers become more goal-directed and therefore less susceptible to context effects associated with trade-offs when experiencing anger. Thus, anger can be leveraged, by individuals and marketers, in service of goal success, to reduce compromise choices, and boost satisfaction. Taken together, papers 1-2 show that identity is a context that disrupts goal pursuit though it is typically expected to facilitate it, and anger is a context that facilitates goal pursuit though it is typically assumed to be disruptive.

Huang and Aaker follow with paper 3 that shows the surprising power of metaphor in promoting goal-congruent choice over extended periods of time. Mindset effects are typically thought of as being transient but these authors find that consumers who apply the conceptual metaphor of taking a journey (vs. of reaching a destination) are more successful in sustaining goal-congruent choices over weeks, and even months, following goal attainment—a powerful tool for improving goal success. Finally, in paper 4, Mead and Levav show the surprising power of small changes in environment in facilitating goal-congruent choice. While a change in environment may typically be thought of as something that could cause a consumer anxiety or use cognitive resources, the authors instead propose change in environment can result in a mental reset. Thus, consumers exhausted after pursuing a challenging goal can find strength to persist by simply changing the room they use to pursue the goal, and in fact, simply by imagining the changed environment.

Overall, papers 3-4 add to findings of papers 1-2 that showed how identity and anger as context impact goal pursuit, by showing the enduring effects of mindset on goal pursuit once it is activated (paper 3), and how even imagining small changes in context can strengthen goal pursuit (paper 4). While these four papers span a variety of factors—i.e., identity, emotion, and cognitive changes—taken together, they present a new toolkit consumers can use in service of goal attainment. Further, each paper proposes a counterintuitive action a consumer may take to sustain goal-congruent choices: decoupling identity from the focal goal, harnessing anger, thinking about goal-pursuit as a journey, or simply changing rooms.

All papers thus provide important new counter-intuitive theoretical and practical insights that draw on and extend common understanding of a highly research area of goals and provide new directions for investigation. We expect the session to be well attended not only by researchers interested in goals and motivation but also in understanding the effects of identity, emotion, and contextual factors on consumer choice. We plan to leave sufficient time for audience questions and discussion. (705 words)

## SHORT ABSTRACTS

### **Paper 1: The Self in Self-Sabotaging: Devaluing Instrumental Means When Pursuing Identity Central Goals**

Jessica Gamburg Gamlin\* (Northwestern University) & Aparna A. Labroo (Northwestern University)

A consumer's most important goals (e.g., long-term financial security) are usually also central to the consumer's identity, and pursuing any goal with a more instrumental means (e.g., savings vs.

checking account) can facilitate goal attainment. However, when a goal is central to a consumer's identity, its pursuit might activate a desire to see the self as responsible for attaining the goal. And as more instrumental means are best at delivering goal success, they prevent a consumer from assuming full responsibility. Consumers might therefore choose less instrumental means for the pursuit of identity-central goals. Four studies support this theorizing. (98 words)

**Paper 2: Positive Effect of Anger in Goal-Directed Choices**

Uzma Khan\* (University of Miami), Alexander DePaoli (Northeastern University), Michal Maimaran (Northwestern University) & Ravi Dhar (Yale University)

Although choices are assumed to be goal-driven, consumers may be influenced by tradeoffs presented in the choice context, and hence may make choices inconsistent with their most important goal. We posit that anger improves consumers' ability to make goal-consistent choices. Our argument builds on research showing that angry individuals appraise events with greater certainty, and on research suggesting that greater certainty increases the likelihood of goal-directed behaviors. As predicted, we find that angry consumers place more importance on goal-relevant information and make more goal-consistent choices. As a result, they are less susceptible to context effects, and report increased post-choice satisfaction. (100 words)

**Paper 3: Journey Takes You beyond the Destination: Using Metaphor to Sustain Actions after Goal Attainment**

Szu-chi Huang\* (Stanford University) & Jennifer Aaker (Stanford University)

Five studies with executives in Africa, dieters, college and high school students, and exercisers in a walking program in the field demonstrated that applying a conceptual metaphor of a journey (compared to an alternative metaphor of reaching a destination, or a no-metaphor control) helped people sustain their goal-congruent behaviors a few weeks or even six months after achieving their goals. Mediation and moderation methodology revealed that the use of a journey metaphor as a cognitive tool helped people derive greater meaning and purpose from the completed pursuit, which served as the key driver for their continuous goal-congruent behavior. (98 words)

**Paper 4: Mental Resets: A Change in Environmental Context Restores Self-Control**

Nicole Mead\* (University of Melbourne) & Jonathan Levav (Stanford University)

Five experiments show that a change in environment restores self-control after prior self-control exertion (i.e., offsets ego depletion). Consistent with predictions, mentally or physically changing rooms between two self-control tasks restored self-control performance, an effect that was specific to environmental change and not mere physical movement or distraction. (48 words)

**DETAILED ABSTRACTS**

**Paper 1: The Self in Self-Sabotaging: Devaluing Instrumental Means When Pursuing Identity Central Goals**

Jessica Gamburg Gamlin\* (Northwestern University) & Aparna A. Labroo (Northwestern University)

Consumers can pursue an array of goals – from academic, to financial, to relationships. Instrumental means facilitate attainment of these goals. For example, use of a calculator over pencil and paper alone boosts academic performance, savings over checking accounts facilitate long-term financial security, and dating committed partners over players secures relationship goals. Consumers therefore prefer means that help, not hinder, their goals (Kruglanski et al., 2002). But consumers also derive information about their self-concept through goal pursuit (Cantor et al. 1986; Deci & Ryan, 2000). And although the most-instrumental means best facilitate goal attainment, these means may also “steal credit” from the consumer—if the means facilitates goal pursuit then how can the consumer say he alone is responsible for goal attainment? Furthermore, goals central to a consumer’s identity are those that inform self-concept the most. Thus, more identity-central goals might be associated with greater desire for benefactance—perceiving the self as responsible for effecting good outcomes (Greenwald 1980). As a result, consumers might prefer inferior to more instrumental means when pursuing identity-central goals. This preference is ironic and counter-productive, because identity-central goals also are the most important for a consumer. Choosing inferior means to pursue the most important goals can sabotage a consumer’s goal attainment and threaten her identity.

We tested our theory that consumers choose inferior means when pursuing identity-central goals due to benefactance in four studies. Study 1 employed a 2 (goal: salient vs. control)  $\times$  continuous (identity centrality) between-subjects design using preference for savings over checking accounts as dependent variable. A pretest ( $N = 50$ ) confirmed that a savings account ( $M = 5.88$ ) is more instrumental than a checking account ( $M = 4.03$ ,  $t(49) = 7.82$ ,  $p < .0001$ ) for long-term financial goals, but also associated with lower benefactance ( $M_{\text{savings}} = 4.63$  vs.  $M_{\text{checking}} = 5.03$ ;  $t(49) = -2.05$ ,  $p = .02$ ). In the main study ( $N = 300$ ), participants were primed with long-term financial goals (vs. control) through a writing task, then indicated their relative preference for the accounts and completed a measure of identity centrality of long-term financial goals. A regression of goal salience, identity centrality, and their interaction on preference for more instrumental means revealed a main effect of goal salience on preference ( $b = -0.22$ ,  $SE = .09$ ,  $t(287) = -2.35$ ,  $p = .0195$ ), replicating past research. More importantly, there was a significant goal  $\times$  centrality interaction ( $b = 0.19$ ,  $SE = .08$ ,  $t(287) = 2.35$ ,  $p = .0196$ ). At lower levels of identity centrality, individuals in the goal salient (vs. control) condition preferred the instrumental means ( $M_{\text{goal}} = 3.98$ ,  $M_{\text{control}} = 3.12$ ;  $b = -0.44$ ,  $SE = 0.13$ ,  $t(287) = -3.29$ ,  $p = .0011$ ); however, preference for instrumental means was attenuated at higher levels of identity-centrality ( $M_{\text{goal}} = 3.56$ ,  $M_{\text{control}} = 3.57$ ;  $t(287) = -0.04$ ,  $p = .97$ ), and as identity-centrality of salient financial goals increased among consumers, the preference for the instrumental means reduced marginally ( $b = -0.19$ ,  $SE = 0.12$ ,  $t(287) = -0.04$ ,  $p = .1066$ ). Thus, the more central long-term financial goals were to identity, the more consumers self-sabotaged, shifting away from the “instrumental” savings account towards the “benefactant” checking account.

Study 2 manipulated identity-centrality of a goal. College students ( $N = 203$ ) in a 2 (identity centrality: situationally-primed vs. control)  $\times$  chronic identity-centrality of math-goals between-subjects design, chose between a calculator or pencil and paper for a math test (controlling for effort). Pretests indicated calculators are more instrumental to, but less benefactant with respect to, math performance. Identity centrality was situationally-primed via writing one’s first name on math tests. Replicating study 1, participants with chronic identity-central math-goals chose the instrumental means less ( $b = -0.26$ ,  $\chi^2(3, N = 198) = 7.37$ ,  $p = .007$ ). Students with situationally-primed identity-centrality also self-sabotaged by selecting less effective means ( $M = 62\%$  vs.  $77\%$ ;  $\chi^2(3, N = 198) = 3.83$ ,  $p = .05$ ).

Study 3 tested the role of beneffectance. Heterosexual women aged 18-40 ( $N = 130$ ) participated in a 2 (identity-centrality: salient vs. not)  $\times$  continuous (beneffectance) between-subjects design indicating preferences for a dating partner, Bob, explicitly looking for “something casual.” Identity-centrality (vs. not) of relationship goals was manipulated through a writing task, then participants rated romantic interest based on Bob’s Tinder profile and completed a measure of beneffectance. A regression of identity-centrality, beneffectance, and their interaction on preference revealed a significant interaction ( $b = 0.24$ ,  $SE = .11$ ,  $t(124) = 2.18$ ,  $p = .031$ ). Expectedly, as beneffectance increased among consumers with identity-central goals, the preference for Bob increased ( $b = 0.40$ ,  $SE = 0.16$ ,  $t(124) = 2.49$ ,  $p = .0142$ ). Further, among consumers with non-identity central goals, the preference for Bob did not depend on beneffectance ( $t(124) = -0.50$ ,  $p = .62$ ). Making relationship goals identity-central increased self-sabotaging among women with higher beneffectance.

Would consumers also self-sabotage when the identity-central goal was clearly their most important? Would highlighting the possibility of goal failure by shifting focus to outcomes reverse sub-optimal choice? In Study 4 ( $N = 100$ ) participants allocated time (the most instrumental means) to identity-central goals. Participants identified these goals, then completed a baseline or outcome focus task, allocated time, and then reported beneffectance. A regression with focus, beneffectance, and their interaction on time allocated to identity-central goals revealed only a significant interaction ( $b = -3.71$ ,  $SE = 1.85$ ,  $t(96) = -2.00$ ,  $p = .048$ ). Participants allocated less time to identity-central goals in the baseline condition as beneffectance increased ( $b = -6.23$ ,  $SE = 2.58$ ,  $t(96) = -2.42$ ,  $p = .0174$ ). This effect was attenuated for participants reminded of (failed) outcomes ( $t(96) = .44$ ,  $p = .66$ ).

In sum, consumers chose sub-optimal means when identity-central goals were made salient (study 1), and when salient goals were situationally- or chronically-associated with their identity (study 2). Consumers with high beneffectance especially did so (study 3), even though these goals were their most important ones, but only as long as their attention was not drawn to a possibility of goal failure (study 4). (994 words)

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## **Paper 2: Positive Effect of Anger in Goal-Directed Choices**

Uzma Khan\* (University of Miami), Alexander DePaoli (Northeastern University), Michal Maimaran (Northwestern University) & Ravi Dhar (Yale University)

Goals drive most consumer behavior (Bargh & Chartrand, 1999). Yet when making choices, consumers may not readily consider their higher order goals. For example, when considering multiple options, choosing based on their most important goal would serve them best, but consumers often engage in making extensive tradeoffs simply because other features are present. Thus, is it not surprising that contextual and situational cues can steer consumers away from their goals (Fishbach & Dhar, 2007). We posit that one factor which may improve consumers' ability to make goal-consistent choices is the emotion of anger. Unlike prior findings, which suggest that negative emotions generally inhibit goal-directed behavior (Fishbach & Labroo, 2007), we build our emotion-specific argument on research showing that angry individuals tend to appraise events with certainty (Lerner & Keltner, 2000). High certainty increases the likelihood that consumers will act in accordance with stated goals and beliefs (Tormala & Rucker, 2007), and more certain goals positively predict goal-attainment (Locke et



al. 1989). We therefore predict that angry consumers will make more goal-consistent choices. Consistent with this theorizing, we find that angry consumers place more importance on goal-relevant information and make more goal-consistent choices. As a result, angry individuals' choices are less susceptible to context effects, and they report greater post-choice satisfaction.

Study 1 examined whether angry individuals make more goal-directed choices by attending to goal-consistent features of a choice. Participants ( $N = 62$ ), all primed with a goal of seeking high quality, were induced to feel either anger or a neutral mood using an autobiographical writing task (Lerner & Keltner, 2001). They then saw two televisions differing on price and quality, and rated perceived importance of price and quality (7-point scales). As expected, angry participants rated quality as more important ( $M = 4.90$ ) than did neutral participants ( $M = 4.17$ ;  $F(1, 61) = 5.68, p < .05$ ). Price ratings did not significantly vary between angry ( $M = 5.13$ ) and neutral participants ( $M = 5.39$ ;  $F(1, 61) = 0.27, p = .6$ ), indicating that angry individuals give higher ratings only to goal-consistent choice dimensions.

Study 2 further demonstrated that anger leads to more goal-consistent choices. Participants ( $N = 271$ ) induced to feel angry or neutral as above, were primed with either a speed goal, a capacity goal, or no goal before viewing two laptops, one faster and the other with higher capacity. They rated the options' attractiveness (7-point scales) and chose one. An ANOVA revealed a main effect of goal prime on attractiveness ( $F(2, 265) = 5.10, p < .005$ ) moderated by the interaction ( $F(2, 265) = 7.45, p < .005$ ). When primed with speed goals, angry participants rated the faster laptop more attractive ( $M = 2.01$ ) than neutral participants ( $M = 3.37$ ;  $t(269) = -2.94, p < .01$ ). Similarly, under capacity goals, angry participants rated the capacity laptop more attractive ( $M = 4.18$ ) than neutral participants ( $M = 3.23$ ;  $t(269) = 1.95, p = .05$ ). Within the anger condition, those primed with speed preferred the faster option compared to those not primed ( $t(265) = 2.24, p < .05$ ) or with capacity prime ( $t(265) = 4.86, p < .001$ ), while those primed with capacity (vs. no prime) preferred the capacity option ( $t(265) = -2.73, p < .01$ ). Among neutral participants, there were no differences between the priming conditions ( $p$ 's  $> .37$ ). Thus, angry participants' ratings were consistent with the primed goals while neutral participants were not. Choice results mirrored this pattern: angry participants primed with speed chose the faster laptop (88.1%) more than controls (69.2%;  $z(269) = 1.65, p = .098$ ), and angry participants primed with capacity chose the capacity option (51.3%) more than controls (36.4%;  $z(269) = -2.05, p < .05$ ). A logistic regression found an interaction between the affect and goal (Wald  $X^2 = 6.44, p < .05$ ) such that angry participants made more goal-consistent choices.

Study 3 investigated whether angry consumers are also less susceptible to context effects arising from the presence of goal-irrelevant information, such as the compromise effect. Participants ( $N = 97$ ) were induced to feel angry or neutral, and then choose between three laptops such that one option was low price/low quality, another was high price/high quality, and a compromise option offered mid-level price and quality. We did not explicitly prime a goal, but instead had participants write down what was important to their decision. As expected, anger predicted choice (Wald  $X^2 = 3.79, p = .05$ ) such that angry participants chose the compromise option less often (18.8%) than neutral participants (36.7%;  $X^2(1) = 3.90, p < .05$ ). Four judges coded the written explanations, and determined that angry participants were less likely to report making tradeoffs between different attributes ( $X^2(1) = 8.76, p < .005$ ). Thus, angry participants were less likely to consider attributes irrelevant to the goal.

Building on research suggesting that choosing greater certainty increases post-decisional satisfaction (Fishbach & Dhar, 2007), Study 4 tested whether angry participants were more satisfied with their choices. Participants ( $N = 81$ ) were induced to feel angry, sad, or neutral, and

then chose to receive either \$3 or one of two packs of cookies (varying on multiple dimensions). A week later, participants indicated their satisfaction with their choice (9-point scale). An ANOVA found a difference in satisfaction across the emotion conditions ( $F(2, 76) = 3.93, p < .05$ ): angry participants were more satisfied ( $M = 6.93$ ) compared to sad ( $M = 5.88; t(76) = 2.62, p < .05$ ) and neutral participants ( $M = 5.65; t(76) = 2.15, p < .05$ ). Satisfaction did not differ between sad and neutral participants ( $t < 1$ ).

These findings add to the under-researched intersection of emotion and goal-directed behaviors (Bagozzi, Baumgartner, and Pieters 1998), and provide a novel demonstration of a negative emotion having a positive impact on such behaviors. Given that anger is among the most frequently encountered negative emotions (Lerner & Tiedens, 2006), particularly in online and social media spaces where it is frequently used to motivate engagement in consumer activism, we provide marketers insight when to leverage vs. defuse the emotion. (999 words)

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### **Paper 3: Journey Takes You beyond the Destination: Using Metaphor to Sustain Actions after Goal Attainment**

Szu-chi Huang\* (Stanford University) & Jennifer Aaker (Stanford University)

People pursue goals throughout their lives. Students attend study groups to excel in school, and dieters monitor portion sizes to lose weight. While some of these pursuits end with failure, many end with success—the goal is attained. Despite the frequent occurrence of goal attainment experiences, prior literature remains relatively silent on what happens in the post-attainment stage. Attaining a goal implies that one can now disengage from actions directed at achieving this goal (Ferguson and Bargh 2004; Forster, Liberman, and Higgins 2005). This post-attainment disengagement could be detrimental, however, as goal-congruent behaviors could be beneficial in and of themselves.

In this research, we explore the use of metaphor, a cognitive tool that shapes people's perception of an experience without changing the experience itself (Kovecses 2010; Landau, Meier, and Keefer 2010). We show that adopting a journey metaphor (compared to no metaphor or a destination metaphor) helps people derive greater meaning from the attained goal and thus become more motivated to continue goal-congruent behaviors.

We began with two pilot studies that compared the journey metaphor against a control and a destination metaphor. All participants first listed a learning or fitness goal they recently attained, and indicated on a 100-point slider where they were right now on this goal as a check. The text then invited those in the journey [destination] condition to take a moment to: "...see yourself actually working [actually attaining this goal], taking the necessary steps *during this journey* [*reaching this final destination*], and have this picture in your mind." In Pilot Study A, participants received additional text prompts to enhance the effectiveness of linguistic metaphor. In Study B, participants received additional visual aid instead of text prompt. Following procedures in metaphor literature, participants in the control condition did not do any metaphor practice. The results of both studies showed that the journey metaphor stimuli successfully enhanced perceived continuity from the original goal-initiation state (i.e., who they were when they first started pursuing this goal) to the goal-attainment state, as suggested in prior literature (Landau, Sullivan, and Greenberg 2009; Landau, Meier, and Keefer 2010). We also ruled out alternative accounts such as perceived difficulty, effort, goal value, visualization vividness, and mood effects.

Next, Study 1 used linguistic metaphor to test its effect on executives who have successfully achieved a learning goal in an executive program in Africa. Three on-site interviewees executed a 30-minute individually-guided thought practice (journey vs. destination metaphor) during the graduation ceremony. The content of the thought practice was transcribed and emailed to the participants. Two cohorts were excluded from this practice to serve as the control group. Six months after graduation, executives received the follow-up survey from the program and reported their goal-congruent behaviors in the past six months. Executives who described their goal attainment experience as a journey were more likely to continue goal-congruent behaviors after completing the program ( $M = 4.73$ ), comparing to not having metaphor ( $M = 4.57$ ) or using a destination metaphor ( $M = 4.52$ ,  $t(91) = 2.06$ ,  $p = .042$ ); the latter two groups did not differ.

Study 2 replicated the findings in Study 1 with a different group of goal achievers—dieters who have recently attained a fitness goal. In addition, we included a future-journey condition to rule out construal level as an alternative account. Three hundred dieters wrote about the fitness goal they recently attained, went through the same manipulation check, and then proceeded with the linguistic metaphor thought practice (journey vs. destination vs. future-journey). Those in the future-journey condition were asked to visualize themselves continue working for this fitness goal in the future, “to see yourself actually working, taking the necessary steps *to continue this journey*, and have this picture in your mind.” The results revealed that participants in the journey condition were more motivated to continue goal-congruent actions ( $M = 6.70$ ) than those in the destination ( $M = 6.43$ ) and future-journey conditions ( $M = 6.35$ ,  $t(297) = 2.72$ ,  $p = .007$ ); the latter two groups did not differ. The follow-up survey on actual behaviors after two weeks revealed the same pattern.

Study 3 examined the driving role of meaning among students who recently completed an academic goal. College students were assigned to either a journey or destination metaphor condition to describe their goal attainment experience and the actions they took. They then reported their desire to continue these goal-congruent behaviors, as well as the meaning they derived from the completed pursuit. As predicted, the students who used the journey (vs. destination) metaphor derived greater meaning, which led to greater willingness to continue taking goal-congruent actions (mediational path Index = .0501; 95% CI = .0073 to .1067). The follow-up survey on actual behaviors after two weeks revealed the same pattern.

Study 4 employed a Metaphor (journey vs. destination)  $\times$  Goal Initiation (autonomous vs. imposed) design among high school students who recently completed an academic goal. We obtained our hypothesized effect of journey (vs. destination) metaphor among students who achieved the academic goals they autonomously adopted for themselves ( $M = 6.18$  vs.  $5.86$ ,  $t(209) = 2.18$ ,  $p = .030$ ), but not for those who achieved the academic goals others imposed on them. This finding provided further support that the impact of metaphor on goal-congruent behavior occurred by providing meaning; when the achieved goals were imposed by others, the meaning one could derive is limited, rendering the journey metaphor less effective.

In Study 5, we launched a walking program in the field and administered the metaphor manipulation (journey vs. destination) either when the exercisers reached 70% (goal not attained) or 100% (goal attained) of their walking goal. Results showed that when the exercisers had attained their goal, those who used a journey metaphor ( $M = 5.02$ ) were more likely to continue tracking their steps than those using a destination metaphor ( $M = 4.39$ ,  $t(174) = 3.27$ ,  $p = .001$ ). This did not occur when the goal had not been attained. This study underscored the temporal specificity for using metaphor to motivate goal-congruent behaviors. (994 words)

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#### **Paper 4: Mental Resets: A Change in Environmental Context Restores Self-Control**

Nicole Mead\* (University of Melbourne) & Jonathan Levav, Stanford University

Exerting self-control can be an important goal for consumers, but when people are tired and depleted, how can they sustain effective self-control? We propose that a change in context improves self-control, even though people do not predict it. Our theory is based on the notion that the brain is highly attuned to its environment. When people change environments, they must understand what is going on, so cognitive resources are redirected from the old to the new setting (Glenberg et al. 1987; Zwaan 1996). As such, a change in context may improve self-control performance – even after initial self-control exertion (i.e., offset the ego depletion effect).

Five experiments tested the mental-resets theory by randomly assigning participants to complete a task that requires more (vs. less) self-control (Task 1) and then measuring subsequent self-control (Task 2) in either the same (vs. different) room. We predicted that initial self-control exertion would hinder subsequent self-control performance among those who stayed in the same room, but that a change in context would restore self-control. Rest replenishes self-control (Tyler and Burns 2008), so the amount of time that elapsed between the two tasks was held constant across all conditions in all reported experiments.

In experiment 1, participants assigned to the depletion condition completed a thought-listing task suppressing thoughts of a white bear, whereas participants in the no-depletion condition did not suppress thoughts (Wegner et al. 1987). Participants then completed a potato-chip taste-test in the same or a different room. Chips consumption was the key dependent measure. An ANOVA on chips consumed revealed the predicted interaction ( $F(1,153) = 4.14, p = .04$ ). Replicating previous work, participants in the depletion condition ate more chips ( $M = 42.95\text{g}$ ) than participants in the no-depletion condition ( $M = 31.78\text{g}$ ), but only among those who stayed in the same room ( $F(1,153) = 4.85, p = .03$ ). Depleted participants who changed rooms consumed fewer chips ( $M = 30.43\text{g}$ ) than their depleted counterparts who stayed in the same room ( $F(1,153) = 4.71, p = .03$ ). There was no effect of moving rooms among non-depleted participants in this and any other experiments ( $F_s < 2, p_s > .16$ ).

In experiment 2, participants in the depletion condition wrote an essay without using words that contained the letters ‘A’ and ‘N’ whereas those assigned to the no-depletion condition omitted words containing the letters ‘X’ and ‘Z’ (Schmeichel 2007). The context manipulation was identical to experiment 1. The outcome measure of self-control was the amount of unearned money taken by participants (i.e., cheating). As predicted, there was a significant interaction between the depletion and room manipulations ( $F(1,118) = 4.51, p = .04$ ). Replicating previous work (Mead et al., 2009), depleted participants cheated more ( $M = 0.39$ ) than non-depleted participants ( $M = 0.11; F(1, 118) = 4.96, p = .03$ ). The context manipulation offset depletion: depleted participants who changed rooms cheated less ( $M = 0.07$ ) than depleted participants who stayed in the same room ( $F(1,118) = 7.28, p = .008$ ).

Experiment 3 examined executive functioning by assessing performance on the Stroop task (Stroop 1935). To manipulate depletion, participants were or were not required to regulate their emotions while reading a neutral, boring passage (Vohs and Schmeichel 2003). Then participants stayed in the same room or changed rooms to complete the Stroop task. The dependent measure was the time difference between incongruent and congruent trials on the

Stroop task (log transformed). An ANOVA on difference scores revealed the predicted interaction ( $F(1,201) = 4.99, p = .03$ ). Among those in the same-room condition, depleted participants performed worse on the Stroop task ( $M = 9.21s$ ) versus those in the no-depletion condition ( $M = 7.24s; F(1,201) = 8.20, p = .005$ ). Among depleted participants, those who changed rooms performed marginally better ( $M = 6.80s$ ) than those who stayed in the same room ( $F(1,201) = 3.13, p = .08$ ).

Experiment 4 ruled out the possibility that changing rooms restored self-control through disruption or physical movement by including a comparison condition in which participants completed both tasks in the same room but were led outside of the room in-between tasks. The depletion manipulation was the same as experiment 2 (essay task) and the dependent measure was Stroop performance. Conceptually replicating the previous studies, pairwise comparisons indicated that depleted participants performed better on the Stroop task when they changed rooms ( $M = 5.33s$ ) as compared to when they stayed in the same room ( $M = 7.65s; p = .01$ ). As predicted, self-control restoration was specific to a context change: depleted participants who physically moved (but did not experience a context change) performed worse than depleted participants who changed rooms ( $M = 7.34; p = .03$ ).

Mentally simulating an action activates the same psychological processes that are involved in performing the action (Decety and Grezes 2006). If self-control restoration is due to the psychological processes that stem from the context change, then mentally simulating the room change should also restore self-control. Participants completed the more (vs. less) depleting version of the essay task (experiment 2) and then stayed in the same room, changed rooms, or imagined changing rooms. Results revealed a significant interaction between depletion and context ( $F(2,290) = 3.62, p = .03$ ). Among those who stayed in the same room, depleted participants took longer to complete the incongruent (vs. congruent) trials of the Stroop task ( $M = 7.47$ ) as compared to non-depleted participants ( $M = 5.39; p = .02$ ). Physically changing rooms and imagining changing rooms both restored self-control. Among those in the depletion condition, changing rooms ( $M = 5.20$ ) or imagining changing rooms ( $M = 5.88$ ) ameliorated performance on the Stroop task as compared to those who stayed in the same room ( $p = .003$  and  $p = .055$  respectively).

In summary, five experiments show that a change in context restores self-control. Alternative explanations such as mere physical movement or disruption were ruled out. The studies have practical implications for how self-control functions in daily life and theoretical implications for models of self-control. (987 words)

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## 9.2 The Over-Discerning Consumer: How Numbers Affect Consumer Judgments Symposium

### 1. Making Each Unit Count: The Effect of Discretizing Units on Magnitude Perceptions

|                             |                                                    |                  |
|-----------------------------|----------------------------------------------------|------------------|
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### 2. How Consumer Price Rate Calculations Affect Deal Evaluations

|                         |                                            |                 |
|-------------------------|--------------------------------------------|-----------------|
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### 3. Fifty Shades of Medium: The Psychology of Intermediate Attribute Levels

|                      |                                                       |                            |
|----------------------|-------------------------------------------------------|----------------------------|
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### 4. Is Top 10 Better than Top 10%? How Different Rank Claim Formats Generate Preference Reversals

|                        |                                                             |                     |
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Consumers often have to make quantitative assessments based on numerical information—such as which box contains more chocolates or how well a company is performing. The focus of this symposium is on understanding the nuances involved in these judgments—such as how characteristics of the units, features of promotions, and different ranking claim formats affect judgments. This allows us to understand important aspects of how individuals integrate numerical information and which aspects are weighed more or are neglected. We discuss the four papers next.

The first paper by Lembregts and Van den Bergh explores how the units in which information about a specific product is presented affect inferences. These authors show how discretizing units (a box with 35 chocolates) enhance evaluability, and increases the ability to discriminate between choice options relative to a less discretizing more continuous unit (a box of chocolates of 500 grams).

The second paper by Villanova and Bagchi examines how consumers manipulate the numerical information in quantity offers (e.g., 3 lbs for \$9). They find that consumers tend to divide larger numbers by smaller numbers when computing price rates (unit prices or their reciprocal), leading to divergent evaluations of economically equivalent offers and differences in promotion sensitivity, depending on the relative numerosities of the elements (quantity, price) in the offer.

In the third paper, Schley, de Langhe, and Long focus on how consumers use certain aspects of information in distributions of product attributes. These authors show that people rely more on ordinal (vs. cardinal) information when cognitive resources are restricted, which impacts consumer valuations. This occurs because ordinal-information processing preempts cardinal processing.

Finally, in the fourth paper, Sevilla, Isaac, and Bagchi investigate how different claim formats—numerical (top 10 out of 50) or percentage (top 20% out of 50)—affect consumer judgments. They find that people rely more on the nominal position (10 or 20) and fail to fully consider claim format when assessing performance.

Together, these papers highlight the important role that numbers play in influencing consumer responses to marketing stimuli. They also raise an interesting question: why do people neglect diagnostic information in some cases but not in others? We demonstrate that, at different levels, different aspects of numbers influence judgments. At a product or offer level, units (paper 1) and numerosities (paper 2) play a role, and at a category level, ordinal information (paper 3) plays a role. Finally, even when explicit ranking claims are available, nominal position of the claim (paper 4) affects evaluations. Thus, these papers not only highlight theoretical nuances of how consumers evaluate number-based information (such as how and why they use certain pieces of information), they also offer managerially controllable factors (e.g., units, ranking format) to shift consumer judgments.

This session should appeal to a broad audience as it includes diverse theories and methodologies (experimental and model-comparison approaches). Several distinct aspects of numerical assessments – magnitude judgments, offer and ranking evaluations, and responses to distributional information – are considered, which should be of interest to researchers in the fields of numerical processing, pricing, promotions, numerosity, scope sensitivity, evaluability, and information framing, among other assorted marketing and consumer psychology domains.



## Making Each Unit Count: The Effect of Discretizing Units on Magnitude Perceptions

### Brief Abstract

Expressing quantitative information in alternative units has important consequences for magnitude judgments. We demonstrate that an attribute difference expressed in more discretizing units appears larger than one expressed using less discretizing units. We propose that this effect emerges because expressing quantities in discretizing units increases the evaluability of quantitative information.

### Extended Abstract

Expressing quantitative information in alternative units has important consequences for magnitude judgments (Monga and Bagchi 2012; Pandelaere, Briers, and Lembregts 2011). While prior research has examined the effects of the magnitude of the number component (e.g., a box of chocolates weighting 500 gram versus 0.5 kilogram), we turn attention to units that trigger a representation of a collection of individual elements. When quantitative information is specified in more discretizing units (such as chocolates, bedrooms or blocks), the quantity is discretized in the sense that it is more likely to be represented as a collection of elements (Butterworth 2000; Dantzig and Mazur 2005; Wiese 2003). In contrast, when quantitative product information is specified in less discretizing units (e.g., grams, square feet or meter), the quantity is less likely to be discretized and represented as a collection of individual elements, such as “1,1,1,1,1,1,1,1,1” gram, square feet or meter.

We demonstrate that specifying quantitative information in more discretizing units has important consequences for the perceived differences between products: An identical difference expressed in more discretizing units may appear larger than one expressed using less discretizing units. We propose that this effect emerges because expressing quantities as collections of elements increases the evaluability of quantitative product information (Butterworth 2000, 2001, 2007). We further speculate that this effect may even overrule the robust effect of number magnitude (Pandelaere et al., 2011): When information is specified in a more discretizing unit with smaller numbers, it may lead to larger perceived differences than a specification in a less discretizing unit with larger numbers. This reasoning is based on the observation that the *number of elements* in a collection is a more powerful driver of magnitude judgments than *symbolic number magnitude* (Pelham et al. 1994). That is, Pelham et al. (1994) demonstrated that people judge the outcomes of addition problems with more elements (e.g.,  $3.6 + 5.3 + 6.5 + 10.2 + 2.1 + 3.7 + 1.8 + 0.8$ ) as larger than addition problems with fewer elements (e.g.,  $7.7 + 12.0 + 6.2 + 8.1$ ) even though the *average symbolic number magnitude* (e.g., 4.25 vs. 8.50) of the individual elements is larger in the latter case.

In the first study (N = 100, 2 exclusions), we establish evidence for the effect of discretizing units on perceived differences between products. All participants judged a perceived difference between sugar content of two sodas. Sugar quantities were specified as either “*a sugar pile of 10 grams*” versus “*a sugar pile of 65 grams*” (less discretizing) or as “*2 sugar piles (of 5 grams each)*” versus “*13 sugar piles (of 5 grams each)*” (more discretizing). Results showed that specifying information in more discretizing units results in larger perceived differences than in less discretizing units, despite the latter having larger number magnitude ( $t(96) = -2.48, p < .05$ , Cohen's  $\delta = .50$ ). In a second study (N = 100, 1 exclusion), we replicated this effect by using an artificial unit (“RD”). When participants were asked to represent distances expressed in RD as collections of individual distances of “1RD” (more discretizing), the difference in distance

appeared larger than when participants were asked to represent distances expressed in RD as continuous distances (less discretizing;  $t(97) = -2.84, p < .01$ , Cohen's  $\delta = .57$ ). In addition, we show that enhanced evaluability mediates the effect of discretizing units on perceived differences. In study 4a and b, we provide support for General Evaluability Theory by demonstrating that the ability to evaluate (i.e. *knowledge*, Hsee and Zhang 2010) moderates the effect of discretizing units. In study 4a, we measure the ability to process numerical concepts (i.e., numeracy); while study 4b, we manipulate knowledge about quantitative information. In a final study, we show how specifying information in more discretizing units nudges consumers to a healthier alternative.

One major contribution of this work is that we document the previously unexplored effect of specifying quantitative information in discretizing units. We further contribute to research on evaluability by identifying how the type of unit may function as a novel antecedent of evaluability. Third, we identify an easy-to-implement intervention to help consumers make better choices by demonstrating that discretizing units can nudge consumers to prefer healthier products and that discretizing units attenuate differences between more and less numerically proficient consumers.

## **How Consumer Price Rate Calculations Affect Deal Evaluations**

### **Brief Abstract**

Consumers are often faced with quantity offers (e.g., 3 lbs of grapes for \$9); to evaluate the offer one can compute a price rate—a ratio of one element (quantity or price) to another to serve as a comparison metric. For example, consumers often use unit prices (e.g., dollars per unit; DPU). We identify a bias in how consumers compute these price rates; we show consumers use the large number as the numerator, which sometimes leads them to use a reciprocal unit—units per dollar (UPD). This not only influences offer evaluations, but also has other consequences.

### **Extended Abstract**

Consumers are often faced with quantity offers (e.g., 3 lbs of grapes for \$9); to evaluate the offer one can compute a price rate—a ratio of one element (quantity or price) to another to serve as a comparison metric. For example, consumers use unit prices (e.g., dollars per unit; DPU) as a measure of value (Zeithaml 1988). We argue that under certain conditions, consumers may use another price rate, units per dollar (UPD).

In particular, we argue that when computing ratios, consumers are more likely to use the larger (smaller) number as the numerator (denominator). This occurs because it is more intuitive to use the larger number as the numerator. Not only is it easier to divide a larger number by a smaller number, but this is consistent with early experience with fractions—sharing (e.g., a basket of apples among friends; Chase & Martin 1998; Squire & Bryant 2002)—in which the dividend (apples) is greater than the divisor (friends; Fischbein et al. 1985). This intuitive model of division carries forward and impacts responses to division problems.

For example, to assess a price rate for 3 lbs of grapes for \$9, it is intuitive to use  $9/3$ , or \$3/lb, the unit price in DPU format. However, if this offer were framed as 48 oz for \$9, the traditional unit price approach,  $9/48$ , would violate the intuitive model of division; instead, we argue consumers will use  $48/9$ , or 5.33 oz/\$ (in UPD format).

Although UPD is equally informative of value and facilitates comparisons, the dividend, either a cost (under DPU) or benefit (under UPD), differs between the two formats. With DPU (UPD), the focus is on costs (benefits), as the units highlight dollars spent (oz bought), which should lower evaluations.

Thus, we hypothesize that consumers will be more inclined to use a UPD (DPU) price rate when the product quantity is greater (less) than the price. Further, evaluations will be more positive with UPD, even if the offers are economically equivalent. Finally, because DPU (UPD) increases focus on costs (benefits), consumers should be more sensitive to price discounts with DPU. This is because costs loom larger due to the shape of the value function (Kahneman & Tversky 1979) and a decrease in cost (vs. increase in benefit) is judged more positively. We test these hypotheses in three studies.

The goal of study 1 was to show the effect using different combinations of numbers (easy or difficult) and across different categories. We recruited 182 students to participate in a 2 larger element between-subjects (quantity, price) x 2 difficulty between-subjects (easy, difficult) x 4 product within-subjects (carpet, orange juice, milk, deli meat) mixed design. In the larger quantity (price) condition, the quantity (price) was larger than the price (quantity) (e.g., 80 [5] ounces [pounds] for \$60). In the easy (difficult) condition, the elements were (not) evenly divisible by five or ten (e.g., 80 [112] ounces for \$60 [\$84]; see appendix). Participants reported deal evaluations using a three-item scale. They also indicated if they computed a price rate and, if so, which numbers they used as the numerator and denominator.

A mixed model with deal evaluations revealed the hypothesized main effect of larger element. A Larger Element x Product interaction also emerged; although the effect of the larger element varied in magnitude, the pattern was consistent across products ( $M_{\text{quantity}} = 4.57$  vs.  $M_{\text{price}} = 3.92$ ). Overall, 74% (exceeding chance) of the calculations used the larger element as the numerator. Division difficulty did not impact results.

The goal of study 2 was to rule out order effects—that is, whether these effects emerge because of the order of information presentation—e.g., quantity is presented before price or vice versa. We recruited 186 students to participate in a 2 larger element (quantity, price) x 2 order (quantity-price, price-quantity) between-subjects study. We used the difficult-deli meat stimuli from study 1 (see appendix). Participants computed a price rate and evaluated the offer.

An ANOVA with deal evaluations revealed the hypothesized main effect of larger element ( $M_{\text{quantity}} = 3.89$  vs.  $M_{\text{price}} = 2.93$ ). Overall, 66% (exceeding chance) of the participants used the larger element as the numerator. Order did not impact our findings.

The objective of study 3 was to investigate how price rates influence discount evaluations. We expect consumers to be more sensitive to discounts when using DPU as costs are highlighted, and when discounts are higher. We recruited 242 panelists to participate in a 2 larger element (quantity, price) x 2 discount (small, large) between-subjects study. Participants in the large quantity (price) condition imagined seeing an advertisement for ground beef last week of 80 oz (5 lbs) for \$20. They computed a price rate and evaluated this offer.

Then, in the small (large) discount condition, they imagined being in the store viewing a discounted offer for \$3.50/lb (\$2/lb), expressed in the units they used for their price rate computations—that is, in DPU (e.g., \$3.50/lb) or in UPD (e.g., .30 lb/\$) format depending on what they used, thus allowing ready comparison with their reference price rate—and evaluated the offer (see appendix).

A model with offer as a within-subjects factor (reference, focal) revealed a Large Element x Discount x Offer interaction on evaluations. Across all conditions, the focal offer was evaluated more positively, as it was a better deal. In the low discount condition, the effects on offer evaluations did not differ across the larger element conditions. However, as expected, in the high discount condition, the effect in the large price (vs. large quantity) condition was significantly stronger, consistent with heightened consumer promotion sensitivity to a DPU (vs.

UPD) format. Overall, 59% (exceeding chance) of the participants used the larger element as the numerator.

Thus, we show that the relative numerosities of offer elements affect consumers' price computations, evaluations, and promotion sensitivities. These findings have important managerial and public policy implications—for example, using UPD as a metric may increase evaluations and sales. However, when prices are discounted, a DPU metric may provide positive evaluations.

## **Fifty Shades of Medium: The Psychology of Intermediate Attribute Levels**

### **Brief Abstract**

The current research integrates Range-Frequency Theory (RFT) from psychophysics to investigate how consumers value different distributions of product attributes. We use experiments and model-comparison approaches to demonstrate that consumer judgments are best explained by RFT. Additionally, we integrate research from the numerical-cognition literature to explore the psychological origins behind RFT.

### **Extended Abstract**

A foundational idea of marketing is that products can be seen as bundles of attributes and that demand for products can be traced to how consumers value individual product attributes. Underlying these value functions is the principle of diminishing marginal sensitivity (DMS) which presumes each additional unit of a stimulus provides marginally less value than the previous unit (Bernoulli 1738/1954, Von Neumann and Morgenstern 1947, Kahneman and Tversky 1979). This concept of diminishing marginal utility/value comes from early psychophysics research demonstrating DMS between absolute stimuli and subjective perception (Stevens 1957, Helson 1964). Expanding on DMS, Range-Frequency Theory (RFT; Parducci 1965) suggested that the magnitude of a stimulus was not only determined by its difference relative to a reference point, as in DMS, but also by the ordinal position of a stimulus within the set. Despite the foundation of psychophysics in theories of consumer decision-making, RFT has seen relatively little presence in the consumer-behavior literature.

RFT proposes that consumers process attributes (e.g., 10, 12, and 20 ounces) according to the cardinal amount of a stimulus (i.e., 10, 12, and 20) and the ordinal position of the stimulus (i.e., smallest, intermediate, and largest). Because the cardinal and ordinal properties are not always correlated perfectly, manipulating the distribution of attributes (e.g., 10/12/20 vs. 10/15/20 vs. 10/18/20) can produce diminishing, constant, and even increasing marginal sensitivity, quite to the contrary of traditional DMS.

To test the role of RFT in consumer valuations, Study 1 manipulated the distribution of digital camera resolutions between participants (positively-skewed:10/12/20 vs. uniform: 10/15/20 vs. negatively-skewed:10/18/20 Megapixels) and measured participants' willingness to pay (WTP) for the digital cameras. Results indicated that participants demonstrated traditional diminishing marginal sensitivity, constant, and even increasing marginal sensitivity, corresponding to the positively-, uniformly-, and negatively-skewed attribute distributions, respectively. Whereas study 1 held the range of cameras constant (i.e., 10 and 20 Megapixels) and manipulated the intermediate option, study 2 held the intermediate option constant and manipulated the lower- and higher-resolution options. Results replicated study 1, indicating

diminishing, constant, and increasing marginal sensitivity. Study 3 replicated these findings using a multi-attribute-multi-decision task.

While the results of studies 1-3 provide descriptive evidence for RFT as a more efficient predictor of consumer judgments, to further test the adequacy of RFT, we took a model-based approach comparing RFT to expected-value theory and Prospect Theory (Kahneman and Tversky 1979). Results demonstrated that RFT's model best fit the data from studies 1-3.

Study 4 directly tested the processing of cardinal and ordinal information in RFT by manipulating the salience of ordinal information. To do this, participants were presented pizzas with a positively- (i.e., 10, 12, 18 inches) or negatively-skewed (i.e., 10, 16, 18 inches) distribution of sizes. Additionally, the pizza sizes were either presented without primes (e.g., "10-inch pizza"), simple-numeric primes (e.g., "Option 1: 10-inch pizza"), or explicit-ordinal primes (e.g., "Small: 10-inch pizza). The intuition is that, relative to the no-prime condition, the other two conditions would make the ordinal information more salient. Consistent with RFT, results indicated relatively more diminishing marginal sensitivity for positively-skewed attributes and more increasing marginal sensitivity for negatively-skewed attributes when the ordinal cues were made salient.

Studies 5 and 6 aimed to investigate the psychological antecedents of RFT. RFT only argues that consumers process ordinal and cardinal information, not *why* these two types of information are processed. The numerical-cognition literature suggests that while many species can identify ordinal rank (e.g., recognizing that there are more apples in one field than another), few species can process cardinal quantity (Feigenson, Dehaene, and Spelke 2004). Some argue that ordinal-information processing is a necessary precondition for processing cardinal quantities (e.g., to understand how many is "5" one must comprehend that "5" is greater than "4" which is greater than "3" and so on; Brannon 2002, Wynn 1990). If ordinal-information processing preempts cardinal processing, then it is likely that ordinal-information processing requires fewer cognitive resources than cardinal-information processing.

Note that this proposition of ordinal and cardinal information utilizing different amounts of cognitive resources with consequences for consumer valuations is similar to the dual-process theory of value supposed by Hsee and Rottenstreich (2004). The authors argue that consumers have a linear value function corresponding to more calculative-information processing (i.e., more deliberative) and an extremely bowed value function for affective-information processing (i.e., more intuitive/automatic). Importantly, while the theory could be drawn up along this calculative-versus-affective line, Hsee and Rottenstreich's theory presumes that the more affective/automatic processing style always results in *less* sensitivity to stimuli. Conversely, our theory amalgamating numerical cognition and RFT suggests that more automatic processing increases reliance on ordinal information, which depending on the distribution of product attributes, can result in *less* or *more* sensitivity.

To test whether ordinal and cardinal information require differing amounts of cognitive resources, study 5 manipulated the correspondence between ordinal and cardinal information. Results indicated that consumers go through more laborious cardinal processing when using such processes yield a larger difference (i.e., when the information is less consistent), but simply rely on the ordinal cues when the ordinal cues provide a relatively close approximation for the cardinal information, suggesting that ordinal-information processing requires fewer cognitive resources.

Whereas study 5 held cognitive resources constant and manipulated the relative usefulness of the two types of information, study 6 held the information constant and

manipulated the availability of cognitive resources. Study-6 participants evaluated differently sized apartments. In the baseline condition, the apartments differed only along the square-footage dimension. To manipulate cognitive load, participants evaluated the apartments that differed along the focal square-footage dimension, but also along two additional dimensions (i.e., location in the building and layout) that were pretested to be of comparable importance and valence. These additional dimensions were manipulated orthogonally to the focal attribute within participant to avoid creating systematic response biases. Results indicated that compared to the baseline condition, participants in the multi-attribute condition exhibited relatively greater reliance on the ordinal component of RFT. Thus, consistent with our numerical-cognition explanation of RFT, consumers appear to rely relatively more on ordinal information when cognitive resources are restricted.

## **Is Top 10 Better than Top 10%? How Different Rank Claim Formats Generate Preference Reversals**

### **Brief Abstract**

This research documents the effect of numeric format on preference for ranking position information. Through five studies we demonstrate that for rankings involving less (more) than 100 items consumers react more favorably to nominal (percentage) ranking formats. This occurs due to a phenomenon we identify as “format neglect.”

### **Extended Abstract**

When marketers promote their products and services, they often claim to be part of an exclusive tier within their competitive set (e.g., “Product X is in the top 10”). Although recent behavioral research has investigated how consumers respond to rank claims (e.g., Isaac, Brough and Grayson 2016), this work has focused exclusively on claims having a numerical format (e.g., “top 10”). But marketers often communicate ranking information using percentages—such as “top 20%.” In the present research, we explore how the use of a numerical format claim (e.g., Product X is in the top 10 out of 50 products) versus an equivalent percentage format claim (e.g., Product X is in the top 20% out of 50 products) influences consumer judgments and decisions. We find robust evidence of a preference reversal whereby consumers respond more favorably to numerical rank claims when set sizes are smaller (i.e.,  $< 100$ ) but more favorably to percent rank claims when set sizes are larger (i.e.,  $> 100$ ), even when the claims are mathematically equivalent. This finding represents a violation to normative theory,

We further suggest that this preference reversal occurs because consumers who encounter rank claims fail to fully account for claim format (i.e., numerical vs. percentile), a phenomenon we describe as *format neglect*. As a result, they rely predominantly on the nominal position conveyed in the claim (e.g., 10 in “top 10” or 20 in “top 20%”) and insufficiently factor in set size when making their evaluation. Our theorizing is consistent with past research showing that consumers often overweight focal and specific information about a case while neglecting other relevant general information (e.g., Bar-Hillel 1980; Kahneman and Tversky 1973; Lyon and Slovic 1976; Nisbett and Ross 1980; Yan and Sengupta 2013). However, whereas previously identified biases in the processing of percentage information have been largely attributed to attentional oversight or calculation complexity (e.g., Bagchi and Ince 2016; Kruger and Vargas 2008), we posit that format neglect stems from consumers’ conscious belief that nominal position is more important to the evaluation task than set size, despite the fact that they are

equally important and must be considered in conjunction in order to appropriately judge ranking position information. As a result, we predict that consumers, rather than fully integrating both pieces of information to arrive at their evaluation, will rely relatively more [less] on nominal position [set size].

We report findings from five experiments across different consumer contexts that provide evidence for an interaction effect between rank claim format and set size on consumer evaluations and demonstrate that this interaction arises because of format neglect. Experiment 1 (N=205) provides initial evidence of our basic effect by showing that participants respond more favorably to a numerical rank claim when the item referenced in the claim is part of a small set, but that they respond more positively to a percent rank claim when the item is part of a large set ( $F(1, 201) = 16.15, p < .001, \eta_p^2 = .074$ ). Experiment 2 (N=233) replicates this preference reversal in a product evaluation setting ( $F(1, 229) = 16.76, p < .001, \eta_p^2 = .068$ ) and rules out the rival explanation that consumers simply favor percentile [numerical] formats when rank claims are more [less] favorable or vice versa. Experiments 3, 4, and 5 provide support for our proposed mechanism by demonstrating that when consumers are directly or indirectly cued to consider the implications of rank claim format on their evaluations, the effect observed in Experiments 1 and 2 is attenuated. Specifically, Experiment 3 (N=330) shows that when consumers are explicitly instructed to convert percentile claims to numerical claims (or vice versa), the claim's original rank format no longer affects evaluations. Hence, we found an interaction effect between ranking format and the debiasing task ( $F(1, 326) = 5.22, p = .023, \eta_p^2 = .016$ ). Experiment 4 (N=288) finds that joint exposure to a numerical claim and a percentile claim eliminates the effect of rank format on evaluations ( $t(285) = 4.98, p < .001, d = .590$ ), presumably because the simultaneous presentation of these claims leads consumers to consider claim format and therefore rely relatively more on set size. Because the difference in joint evaluation is within-participants and the difference in separate evaluation is between-participants, in this study we used the t-statistic calculation recommended by Hsee (1996). Finally, in Experiment 5 (N=266), we demonstrate that when the importance of set size on evaluations is highlighted, this consideration helps overcome format neglect by leading consumers to rely more on set size. Hence, in this study we observed a significant interaction between ranking format and set size salience ( $F(1, 262) = 6.12, p = .014, \eta_p^2 = .023$ ). Together, these five studies provide robust evidence in favor of our proposed effect and underlying mechanism.

In summary, the present research introduces the concept of percent rank claims to academic research and contributes to the numerical rankings literature by elucidating how different rank claim formats— such as numerical and percent claims— influence consumer evaluations. Our research uncovers a novel bias—when processing ranked list claims, people rely on the nominal position communicated in the claim (e.g., 10 in “top 10” or 20 in “top 20%”) to make inferences and neglect other equally diagnostic information, such as the ranking format employed and the size of the considered set. Hence, through a subtle manipulation such as ranking format, we uncover an unexpected exception to normative theory and a marketing relevant preference reversal.

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**(How Consumer Price Rate Calculations Affect Deal Evaluations)**

Table of Conditions for Studies 1 and 2

| Factor         | Factor       | Factor     | Stimulus           | Participant Behavior                  |
|----------------|--------------|------------|--------------------|---------------------------------------|
| Larger Element | Product      | Difficulty | Offer              | Expected Price Rate (Alternative PR)* |
| Quantity       | Carpet       | Easy       | 360 sq ft for \$60 | 6 sq ft/\$ (\$0.17/sq ft)             |
|                |              | Difficult  | 504 sq ft for \$84 |                                       |
|                | Orange Juice | Easy       | 60 pts for \$40    | 1.5 pt/\$ (\$0.67/pt)                 |
|                |              | Difficult  | 84 pts for \$56    |                                       |
|                | Milk         | Easy       | 40 qts for \$30    | 1.33 qt/\$ (\$0.75/qt)                |
|                |              | Difficult  | 56 qts for \$42    |                                       |
|                | Deli Meat    | Easy       | 80 oz for \$60     | 1.33 oz/\$ (\$0.75/qt)                |
|                |              | Difficult  | 112 oz for \$84    |                                       |
| Price          | Carpet       | Easy       | 40 sq yds for \$60 | \$1.50/sq yd (0.67 sq yd/\$)          |
|                |              | Difficult  | 56 sq yds for \$84 |                                       |
|                | Orange Juice | Easy       | 30 qts for \$40    | \$1.33/qt (0.75 qt/\$)                |
|                |              | Difficult  | 42 qts for \$56    |                                       |
|                | Milk         | Easy       | 10 gals for \$30   | \$3.00/gal (0.33 gal/\$)              |
|                |              | Difficult  | 14 gals for \$42   |                                       |
|                | Deli Meat    | Easy       | 5 lbs for \$60     | \$12.00/lb (0.08 lb/\$)               |
|                |              | Difficult  | 7 lbs for \$84     |                                       |

\*Note- We expect participants to use the larger element as the numerator. Study 2 used the difficult-deli meat stimuli with order manipulated as a factor (i.e., 112 oz for \$84, 7 lbs for \$84, \$84 for 112 oz, and \$84 for 7 lbs).

Table of Conditions for Study 3

| Factor         | Stimulus       | Participant Behavior                  | Factor   | Stimulus                                          |
|----------------|----------------|---------------------------------------|----------|---------------------------------------------------|
| Larger Element | Initial Price  | Expected Price Rate (Alternative PR)* | Discount | Focal PR (depends on the actual price rate used)* |
| Quantity       | 80 oz for \$20 | 4 oz/\$ (\$0.25/oz)                   | Small    | 4.5 oz/\$ (\$0.20/oz)                             |
|                |                |                                       | Large    | 8 oz/\$ (\$0.125/oz)                              |
| Price          | 5 lbs for \$20 | \$4/lb (0.25 lbs/\$)                  | Small    | \$3.50/lb (0.3 lb/\$)                             |
|                |                |                                       | Large    | \$2/lb (0.5 lb/\$)                                |

\*Note- We expect participants to use the larger element as the numerator. The focal price rate was provided in the format that each participant actually used. For example, if a participant in the quantity-small cell computed a 4 oz/\$ (\$0.25/oz) price rate, they then saw a 4.5 oz/\$ (\$0.20/oz) price rate for the discounted offer.

### **9.3 Understanding the Role of Control in Consumer Behavior: New Insights on How Perceived Control (or Lack Thereof) Influences Consumer Perception and Decision Making**

#### **Symposium**

#### **Paper #1: The Price is Right: Perceptions of Control Influence How Consumers Use Price In Judging Product Quality**

Boyoun (Grace) Chae, Temple University, USA\*

JoAndrea (Joey) Hoegg, University of British Columbia, Canada

Keisha Cutright, Duke University, USA

#### **Paper #2: Novelty as Risk and Opportunity: Opposite Effects of Low Personal Control and Low Predictability on Novelty Seeking**

Bora Min, University of Southern California, USA\*

Norbert Schwarz, University of Southern California, USA

#### **Paper #3: I Can Do More with My Time, but Less with My Money: The Role of Control on Resource Instrumentality Perceptions**

Jerry Han, University of Texas at Austin, USA\*

Adriana Samper, Arizona State University, USA

Andrew Gershoff, University of Texas at Austin, USA

#### **Paper #4: Collectors, Completion and Control: How Desire for Control Drives Collectors to Complete a Collection**

C. Clark Cao, University of Arizona, USA\*

Merrie Brucks, University of Arizona, USA

Martin Reimann, University of Arizona, USA

### **SESSION PROPOSAL**

Maintaining a sense of control is a fundamental human need, and consumption provides consumers with a means to fulfill this need when control is lacking. For instance, research has found that in seeking control, consumers tend to value bounded logos to reject randomness and unpredictability (Cutright 2012), purchase ritually in an superstitious attempt to produce desired outcomes (Hamerman and Johar 2013), prefer utilitarian (vs. hedonic) goods (Chen, Lee, and Yap 2016) or effortful consumption (Cutright and Samper 2014) to exert agency.

This current symposium attempts to push forward the burgeoning consumer research around the topic of control (which goes under various terms such as personal control, need for control, desire for control, compensatory control, etc.) by presenting the most recent research findings related to this topic. In doing so, we hope to develop a better understanding of the control construct and to improve our knowledge of how control (or lack thereof) influences consumer behavior -- more specifically, how control (and its absence) influences the way consumers perceiving such things as product-related information, or the way they make their buying decision.

All four papers included in this symposium serve this purpose by deepening our understanding of control in some ways, and therefore provide synergies towards a more

sophisticated consumer psychology of control. Furthermore, by discussing different aspects of control (ranging from various types of control-induced behavior to the difference between control and other constructs), this symposium will also contribute to a diversified and vivid discussion. Researchers in the field of control would be most likely to find this symposium of interest, but more general audience would also find this symposium useful because control can influence a myriad aspects of consumer behavior, and this symposium addresses many of these aspects (e.g., decision-making, pricing, novelty-seeking, time/money value perception, collecting behavior, and structure-seeking).

In Paper #1, Chae, Hoegg, and Cutright provide evidence that consumers low (vs. high) in perceived control are more inclined to rely on price to judge product quality, because low perceived control increases consumers' susceptibility to normative social influence. This finding reveals how control can influence consumers' perception around pricing, a novel phenomenon that neither control nor pricing literature has previously discussed. In doing so, this research examines the social aspect of control, and thus constitutes a novel and important expansion of the current consumer psychology of control, which focuses mainly on behavior at the individual level.

Paper #2 by Min and Schwarz investigates the distinction between personal control and predictability in the context of novelty seeking. Traditionally, the two terms have long been used interchangeably in control literature. The authors, however, demonstrate that low personal control and low predictability have divergent effects on consumers' novelty seeking; low personal control (vs. low predictability) elicit impaired (vs. enhanced) novelty seeking. This research makes the important theoretical distinction between two aspects of control and provides practical suggestions for managers to more strategically promote their existing as well as new products.

In Paper #3, Han, Samper, and Gershoff examine how control can influence consumer's time and money instrumentality perceptions. More specifically, low (vs. high) perceived control increases consumers' perceived instrumentality of their time resources but decreases their money instrumentality perceptions. This difference is due to the theoretical connection between self-concept and control. Threat to control is also a threat to the self, and because time (vs. money) is a resource more closely related to the self, attaching more value to time can thus serve to restore control. This research provides a theoretical account as to how control can systematically adjust consumers' evaluation towards resources, and how such constructs as self-concept and be conceptually linked to control.

In Paper #4, Cao, Brucks, and Reimann answer the question why consumers are motivated to complete their collections taking a control perspective. The authors discover that completing a collection can satisfy the very fundamental human desire for control, because a complete collection embodies an epistemic structure that serves to restore control. The authors further provide evidence that control-thirst consumers seek the conceptual structure (i.e., evidence that the world is not random but is intelligibly structured), rather than the perceptual structure (i.e., the visual coherence a complete collection features) within a complete collection. This research identifies a major motivation for a common consumer behavior (i.e., collecting),

and contributes to the control literature by shedding light on the conceptual (vs. perceptual) nature of control-driven structure seeking.

**THE PRICE IS RIGHT:  
PERCEPTIONS OF CONTROL INFLUENCE HOW CONSUMERS USE PRICE IN  
JUDGING PRODUCT QUALITY**

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JoAndrea (Joey) Hoegg, University of British Columbia, Canada  
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In the current research, we investigate whether feelings of control—the sense that one can make positive things happen in one’s life and avoid negative things—influences how much individuals rely on price to judge product quality. More specifically, we reason that price will have a greater impact on quality judgments when individuals’ personal control is threatened. A set of four studies offers convergent evidence for this central thesis. Further, we demonstrate an underlying psychological mechanism of the effect. Specifically, we find that in a state of low control, people become more susceptible to normative social influence. Given that price-quality judgments are often deemed to be normative, people in low control are more likely to increase their reliance on price in judging quality.

We hypothesize that low control increases people’s reliance on price in quality judgments by increasing their susceptibility to normative social influence. As a first step, we argue that when individuals’ feelings of control are low, they become more susceptible to normative social influence. While no existing research offers direct empirical evidence for this claim, related research points to its plausibility. For example, Terror Management Theory (TMT; Greenberg, Pyszczynski, and Solomon 1986) has shown that individuals who were reminded of death—which is perhaps the most fundamental obstacle to one’s ability to control the environment (Becker, 1973)—are more likely to endorse socially approved standards in judgment and decision making (Norenzayan, 2006). Research on social exclusion also provides support for the idea that low control should increase the susceptibility to normative social influence. For instance, Williams, Cheung, and Choi (2000) found that social exclusion in an online ball tossing game leads people to be more likely to follow the majority’s wrong opinion on a simple perception question than those socially included.

We further propose that this elevated susceptibility to normative social influence will result in greater reliance on price when judging product quality. We argue that this happens because people perceive that using price in judging quality is a social norm that is popularly practiced by other people. Consumer researchers have documented that people interpret high price as a cue for high quality (Broniarczyk and Alba 1994; Cronley et al. 2005). People who are susceptible to social influence tend to rely on others’ opinions in judging quality (Martin, Wentzel, and Tomczak 2008). In sum, this research suggests that in the absence of other signals or information, a reliance on price in the judgment of quality is what consumers have learned to be a socially accepted, normative approach to decision-making.

Taken together, we propose that low control heightens susceptibility to normative social influence, which in turn, increases reliance on price when making quality judgments. Four studies support our propositions.

Study 1 investigated the role of feelings of control on price-quality inferences. The study employed a 3 (control: low vs. high vs. neutral) x 2 (price: expensive vs. cheap) between subjects design. Participants in the high (low) control condition were asked to recall something positive that happened (not) because of something they did (Kay et al. 2008). The use of a positive memory enabled us to manipulate control while holding mood constant. Those in the neutral condition wrote about “a movie or television show that you saw and enjoyed in the past few months”. Next, participants judged a burger whose price was presented as either \$18 for the expensive condition or \$5 for the cheap condition. As predicted, the results showed that lowering control indeed increased the reliance of price in quality judgments (as opposed to high feelings of control dampening reliance on price).

Study 2 supported the proposed process by showing that merely describing the use of price in judging product quality as normative or not moderates the effect. The results revealed that low control enhanced reliance on price when reliance on price was described as popular and socially acceptable. Communicating the non-normative aspect of using price, however, decreased individuals’ reliance on price.

Study 3 examined whether uncertainty, lack of confidence in judgment, or desire for clarity could explain the effect. None of the variables was significant as a mediator.

Lastly, Study 4 documented that control moderates the downstream effect of price on actual quality experience. People in a low state of control rated an indulging food product as better when it was presented as expensive rather than as cheap. Such difference was not found among people in the high control condition.

In demonstrating the basic relationship between control and price reliance, this research makes several theoretical contributions. First, it extends the price literature by identifying a unique motivational driver for consumers’ reliance on price in judging product quality. In addition, this research offers a new perspective on why consumers rely on price. We suggest that the social aspects of price have been understudied and propose that relying on price-quality inferences can feel like the popular, socially accepted course of action.

This research also contributes to the personal control literature. Our research offers new insight into this area by providing the first investigation into how control influences perceptions around pricing. Further, our documentation of the underlying mechanism of susceptibility to normative social influence is novel; no systematic investigation has addressed the impact of personal control on susceptibility to social influence. By providing empirical evidence of the impact of control on the susceptibility to social influence, this research creates an opportunity to explore various implications of control on consumers’ social behaviors.

**NOVELTY AS RISK AND OPPORTUNITY:  
OPPOSITE EFFECTS OF LOW PERSONAL CONTROL AND LOW  
PREDICTABILITY ON NOVELTY SEEKING**

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Novelty can have two different implications in consumer behavior. Trying out new products can offer consumers opportunities to explore potentially superior alternatives (Hirschman 1980) but can also entail risks of handling uncertainty (Kalish 1985; Schiffman 1972). Since the propensities of consumers to adopt novel products play a critical role in forming brand loyalty (Thompson and Sinha 2008), decision making, and preferences (Bianchi 2006; Hekkert et al. 2003), understanding when consumers regard novel products as positive versus negative carries considerable weight.

One stream of research that investigates consumer novelty seeking concerns the warm glow effect (James 1961; Titchener 1910) which claims that familiarity is associated with security and safety, thus consumers tend to stick with familiar products when they confront problematic situations (e.g., “chicken soup for the soul”). Low control is one of the detrimental states that consumers are motivated to overcome (Janoff-Bulman 1992). Past research on control showed that consumers who lack personal control show aversion to novel products (Faraji-Rad et al. 2016). However, personal control is only one aspect of control; motivation for personal control fulfills the motivation to overcome perceptions of unpredictability/randomness (Hafer and Bègue 2005) so previous research has treated low personal control and low predictability as two interchangeable causes of low control (e.g., Rutjens et al. 2013). In this research, we examined whether perceptions of low personal control and low predictability would have the same downstream consequences on novelty seeking. In contrast to earlier work, we hypothesized that perceptions of low (vs. high) predictability would elicit higher novelty seeking, whereas perceptions of low (vs. high) personal control would elicit lower novelty seeking. Five studies confirmed these predictions.

In all studies, participants chose three chocolate bars from a set of six choice options that consisted of three familiar (domestic) and three unfamiliar (international) chocolate bars. In study 1, participants read a news excerpt (from Friesen et al. 2014) and wrote about an event where they felt like the world is unpredictable (vs. predictable) before choosing three chocolate bars (which they received for consumption). Those who thought about unpredictability chose more novel items ( $M = 1.15$ ) than those who thought about predictability ( $M = .74$ ;  $t(171) = -2.64, p = .009$ ).

Studies 2A and 2B directly juxtaposed two different aspects of low control: low predictability and low personal control. Consistent with previous findings, participants who wrote about an event where they had a complete lack (vs. sense) of control over the situation (from Faraji-Rad et al. 2016) were *less* likely to choose unfamiliar products ( $M_{\text{high-personal-control}} = .99$  vs.  $M_{\text{low-personal-control}} = .61$ ), whereas participants who wrote about the unpredictable (vs. predictable) world were *more* likely to choose unfamiliar products ( $M_{\text{predictability}} = .58$  vs.  $M_{\text{unpredictability}} = 1.07$ ) replicating study 1, yielding a significant 2-way interaction ( $F(1, 274) = 14.94, p < .001, \eta_p^2 = .052$ ).

These divergent effects of low personal control and low predictability highlight that the two constructs are distinct, although they are often treated as equivalent and subsumed under a generic “control” label (e.g., Rutjens et al. 2013). Study 3 added a neutral condition to make comparisons with a baseline. Participants in the neutral condition wrote a short summary about vitamins. This study replicated the 2-way interaction of studies 2A and 2B ( $M_{\text{predictability}} = .45$  vs.  $M_{\text{unpredictability}} = .95$ ;  $M_{\text{high-personal-control}} = .94$  vs.  $M_{\text{low-personal-control}} = .54$ ;  $F(1, 220) = 14.07, p < .001, \eta_p^2 = .06$ ). In addition, participants in the neutral condition ( $M_{\text{neutral}} = .96$ ) showed as much novelty seeking as participants in high personal control condition and low predictability

condition ( $t$ 's < .1), but more novelty seeking than low personal control condition and high predictability condition ( $p$ 's < .004). These comparisons showed that thinking about low personal control or high predictability decreased novelty seeking relative to baseline.

These findings presumably reflect that different control manipulations give rise to different perspectives on novelty. An unpredictable world requires flexible adaptation and preparation for change, making novel products an opportunity worth exploring. In contrast, familiar alternatives may be comforting in a context where one lacks an opportunity to exert influence. Study 4 explicitly manipulated these perspectives. It replicated all conditions of study 3 while adding conditions that highlighted that new products can be seen as new opportunities (opportunity framing) versus risks resulting in wasted resources (risk framing). The replication conditions reproduced the interaction pattern observed in studies 2 and 3. The frame manipulations produced the expected results in the absence of any control manipulation (i.e., increased novelty seeking under opportunity framing and decreased novelty seeking under risk framing). More important, the choices of the participants exposed to low predictability resembled those under *opportunity* framing, and the choices of the participants exposed to low personal control resembled those under *risk* framing.

These findings highlight that thinking about an unpredictable world differs from thinking about a lack of personal control, despite a long history of treating both manipulations as interchangeable. Whereas an unpredictable world fosters the exploration of novel products, a lack of personal control impairs it. We discuss the conceptual implications for theories of control, highlight the need for distinctions, and note their implications for consumer behavior.

### **I CAN DO MORE WITH MY TIME, BUT LESS WITH MY MONEY: THE ROLE OF CONTROL ON RESOURCE INSTRUMENTALITY PERCEPTIONS**

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As consumers, we all use resources such as time and money to obtain the outcomes we want. However, even though a unit of resource should have a fixed objective value, incidental factors may influence how people view their resources (e.g. Soster, Gershoff, & Bearden, 2014). It is important to understand how certain factors impact consumers' evaluation of resources, since such evaluations can further affect consumer expectations and satisfaction. In this paper, we show that while incidental low (vs. high) control increases people's time instrumentality perceptions, it decreases people's money instrumentality perceptions. Moreover, we find that this change in resource instrumentality perception has commensurate effects on consumer expectation and satisfaction.

Since the belief that one has control is integral to the self (Skinner 1995), incidental events that make one feel low control can be perceived as a threat to the self (e.g. Chaxel, 2016). Past work shows that one way in which people respond to such threats is by becoming defensive, where they reinforce their personal beliefs or engage in compensatory behavior (Hart et al. 2009). Alternatively, the literature also suggests that people can become more conservative, where they become more cautious during decision-relevant information search (Fischer et al. 2011). Importantly, past work shows that whether people become defensive or conservative in



response to a threat depends on the relevance of the subsequent task to the threat itself (Fischer et al. 2011). Considering that feelings of low control is a threat to the self, low control could lead to defensive processing for self-relevant evaluations, whereas it could result in conservative processing for non-self-relevant evaluations. A pertinent situation is when consumers are thinking of their time versus money resources. Specifically, the literature on consumer resources finds that people view their time (vs. money) as more reflective of the self (Mogilner and Aaker 2009; Reed, Aquino, and Levy 2007), and this could mean that consumers engage in defensive (conservative) processes when evaluating their time (money) resources in response to a threat to the self. Therefore, we predicted that incidental feelings of low (vs. high) control would heighten people's time instrumentality perceptions, whereas it would decrease their money instrumentality perceptions. We tested these predictions across four studies.

In study 1, we manipulated control by having participants read a purported science article on how effort (high control) or genes (low control) are responsible for people's life outcomes (Cutright and Samper 2014). Next, we measured people's resource instrumentality perceptions using an adopted version of the Instrumentality of Money Scale (Duclos, Wan, & Jiang, 2013). As expected, the data revealed a significant interaction effect ( $F(1, 166) = 7.36, p < .01$ ). Moreover, simple effects analyses showed that low (vs. high) control people felt higher time instrumentality perceptions ( $F(1, 166) = 3.54, p < .06$ ), but lower money instrumentality perceptions ( $F(1, 166) = 3.84, p < .05$ ). The results provided initial evidence that threats to control differentially affect time vs. money resource instrumentality perceptions.

Study 2 investigated the underlying process of our effect. Here, we measured perceived self-representativeness of the resource in addition to manipulating control and measuring people's perceived resource instrumentality. First, the results again yielded a significant interaction effect ( $F(1, 235) = 8.91, p < .01$ ). Also, low (vs. high) control people felt higher time instrumentality perceptions ( $F(1, 235) = 6.37, p < .01$ ), whereas they felt marginally lower money instrumentality perceptions ( $F(1, 235) = 2.88, p < .09$ ). Importantly, as our theory would predict, a mediated moderation model using the PROCESS macro (model 15; Preacher & Hayes, 2004) showed that perceived self-representativeness of the resource was driving the differential effect of low (vs. high) control on time versus money (95% CI in low control: [0.0189, 0.2164], high control: [-0.0395, 0.1842]).

In study 3, we examined the downstream consequences of biased resource instrumentality perceptions on expected outcomes. In the study, participants first went through a control manipulation task and then were instructed to imagine that they had to use either time or money in order to search for a moving company (Saini and Monga 2008). After reading the scenario, we measured participants' resource instrumentality perceptions and also their expectations toward the moving company. First, there was a significant interaction effect of control and resource type on instrumentality perceptions ( $F(1, 146) = 11.15, p < .001$ ), where the mean patterns replicated previous results. Moreover, there was a significant interaction effect of control and resource type on expected outcomes ( $F(1, 146) = 8.73, p < .004$ ), where low (vs. high) control people had higher expectations when spending time ( $F(1, 146) = 6.38, p < .01$ ), but marginally lower expectations when spending money ( $F(1, 146) = 2.76, p < .09$ ). Finally, a moderated mediation using the PROCESS macro (model 8) revealed that the interaction effect of control and resource type on outcome expectations was driven by the interaction effect of control and resource type on instrumentality perceptions (95% CI: [-0.2472, -0.0597]).

Finally, study 4 looked at how perceived control affects post-experience satisfaction. We expected that those who spent resources that were perceived as more instrumental would be less

satisfied with the same experience. After completing the control manipulation task, participants read a scenario in which they had spent either 4 hours of work (time) or \$ 50 (money) to purchase a restaurant dinner voucher and further read that the actual dinner was a mix of positive and negative experiences. Subsequently, they were asked how likely they would write a positive or negative review for the restaurant. The data again revealed a significant interaction effect ( $F(1, 165) = 10.41, p < .002$ ). As expected, low (vs. high) control led to decreased satisfaction when using time ( $F(1, 165) = 3.79, p < .05$ ), but increased satisfaction when using money ( $F(1, 165) = 6.88, p < .01$ ).

In short, the current paper finds that incidental feelings of control can differentially impact consumers' perceptions of time versus money resources and that control can further affect consumer expectations and satisfactions.

### **COLLECTORS, COMPLETION AND CONTROL: HOW DESIRE FOR CONTROL DRIVES COLLECTORS TO COMPLETE A COLLECTION**

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Consumers often feel a drive to complete their collections, but little is known about why this drive exists. In this research, we propose that completing a collection can satisfy desire for control (DC henceforth), the crucial human motivation to successfully manage events and outcomes in one's life.

To perceive control, consumers need to believe that events and outcomes are not generated randomly but follow predictable patterns. Therefore, consumers high (vs. low) in DC tend to reject the idea of a random/chaotic world (Kay, Moscovitch, and Laurin 2010; Legare and Souza 2014) and, consequently, favor structured items/patterns (Cutright 2012; Whitson and Galinsky 2008).

Collecting is a human endeavor that creates structure (therefore repels chaos and randomness) by handling and managing items (e.g., Baekeland 1981). This structure takes shape as the collector adds item, but only when the collection becomes complete is the structure stable and secure. Therefore, consumers should be more likely to complete a collection when they are high (vs. low) in DC. Also, since DC-driven consumers seek confirmation that the world is not randomly organized (rather than the visual pleasure a structured collection offers), we predict that DC-driven completion of collections is by nature driven by the conceptual, instead of perceptual, structure within a complete collection.

Across six experiments, we provide convergent evidence that DC motivates consumers to complete collections. We also demonstrate that the conceptual (as opposed to perceptual) structure within a complete collection serves to satisfy DC.

Experiments 1A and 1B examine the moderating role of DC in the tendency of completing a collection in real choice sets. In Experiment 1A, 177 undergraduates were endowed with a three-place holder and an incomplete set of magnetic clips. Participants in the "completable" condition were endowed with two clips that were thematically related, while the "incompletable" participants were endowed with unrelated clips. All participants were then

offered a third clip (to fill in the three-place holder) from a choice set including a target item and three thematically unrelated clips. Choosing the target item would create a thematic set of three clips for the completable condition, but not the incompletable condition. DC was measured as a personality trait on a scale adapted from Burger and Cooper (1979). As predicted, the interaction between trait DC and experimental condition was significant ( $B = 1.89$ ,  $SE = 0.76$ ,  $Wald = 6.15$ ,  $p < .05$ ). A floodlight analysis indicates that as trait DC increases, participants in the completable condition become more likely to choose the target item to complete their sets, compared to incompletable participants (Johnson-Neyman Point = 4.60).

Experiment 1B replicated this finding with three important differences: (1) DC was experimentally manipulated (vs. measured) and (2) the collection consists of four rather than three items; and (3) stamp collecting served as the context. Data from 178 participants replicated the interaction ( $B = 1.33$ ,  $SE = 0.67$ ,  $Wald = 3.92$ ,  $p < .05$ ) and pattern reported for Experiment 1A.

Experiment 2 examines directly the idea that it is the underlying structure within a complete collection that satisfies DC. mTurkers ( $N = 184$ ) were asked to imagine that they were hypothetically collecting €1 euro coins. We manipulated the structure by both theme (participants can form a themed collection vs. cannot) and the appearance of set completeness (the items can fill all the holes on the placeholder vs. cannot), and measure DC as a trait. As predicted, the three-way interaction was significant ( $B = 1.72$ ,  $SE = 0.87$ ,  $Wald = 3.87$ ,  $p < .05$ ). Results show that high (vs. low) DC participants are more likely to complete the collection only when the structure looked both themed and complete. In other words, DC's moderating role on collection completion found in Experiment 1A & 1B disappears when the structure is undermined either by the collection's incompleteness or lack of themes.

Experiment 3 further examines the hypothesis that the structure DC favors is of conceptual (vs. perceptual) nature. We introduced a new set item that completes the theme conceptually but undermines the collection's visual coherence. In such a case, the consumer must choose whether to complete the set conceptually by including the new item, or excluding the new item to maintain an appealing perceptual structure. Results show that high-DC consumers tend to include the new item ( $B = 0.40$ ,  $t(153) = -2.29$ ,  $p < .05$ ), suggesting DC-driven completion happens at conceptual (vs. perceptual) levels.

Experiment 4 supports the process underlying previous experiments with real collectors and their collections of experiences. For consumers collecting experiences with US national parks, DC indeed predicted how many parks they checked off a list ( $N = 324$ ,  $p < .005$ ).

If our theory holds, completing a collection should make consumer "perceive" control. Employing fMRI techniques, Experiment 5 demonstrates that when participants can (vs. when cannot) complete a collection, their brains feature greater activation in the ventromedial prefrontal cortex and deactivation in the dorsal raphe nucleus (see Figure 1). This finding is in accordance with learned helplessness literature that the ventromedial prefrontal cortex engages to inhibit the dorsal raphe nucleus when control is perceived (Amat et al. 2005; Maier and Seligman 2016), and shows that being able to complete a collection indeed makes consumers feel more control.

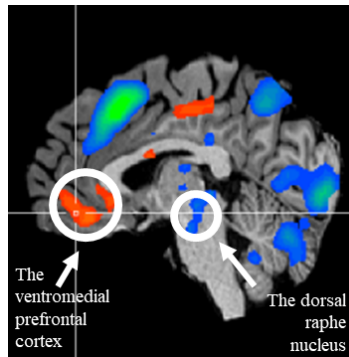


Fig. 1. The brain activity when participants can (compared to cannot) complete a collection

Taken together, across six studies, we demonstrate that DC is a crucial motivator for collection completion. This conclusion is robust as it was obtained via various contexts, set sizes (from 3 to 60), two ways to operationalize DC (measure and manipulation), and three ways to operationalize collections (hypothetical, actual endowment, and collections that collectors already possess). Moreover, we discovered that this DC-driven completion is of conceptual (vs. perceptual) nature. Together, our findings add to the fledgling list of motives for collecting behavior identified in previous experimental research. While Gao, Huang, and Simonson (2014) focus on the starting point of a collection and Keinan and Kivetz (2011) examine collection expansion, our study finishes the collection cycle by focusing on its completion.

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## **9.4 Thy Self & Others: You're So Picky... Customizing and the Shopping Experience**

### **Individual Papers**

#### **The Picky Shopper**

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Shoppers are “picky” across a range of contexts. From deciding which groceries to buy (Catalina Marketing 2013), to which person to date (Gottlieb 2011), to which funds to invest in (Hausman 1998), where there is selection, there are picky shoppers. Firms have attributed several business challenges to shopper pickiness. McKinsey reports that an important challenge over the next 30 years will be to satisfy picky consumers (Benson-Armer, Noble, and Thiel 2015).

The word “picky” originated in 1867 (Oxford English Dictionary 2017) and at its root is “to pick,” which suggests that being picky is inextricably linked with selection and entails a degree of excessiveness in the act of picking (Etymology Dictionary 2017). Yet despite how this construct is colloquially understood, important to marketers, and highly related to making choices, no research in consumer psychology has defined pickiness and discussed how it impacts decision making. In nine studies, we define the construct and a method to measure it, and explore how this individual difference relates to various other consumer behaviors.

We theorize that there are two underlying factors associated with the picky shopper (e.g., PP and FS), these factors drawn from literature fields outside of consumer psychology, such as clinical and food psychology (e.g. Mallinger 2009; Dovey et al. 2008). The first factor, “precise preferences” (PP), suggests that picky shoppers tend to articulate exactly what they want in great detail. This precision implies that for these individuals, there is little tolerance for error or compromise. As an example of someone who fits the PP factor is a shopper who goes into a store seeking for a predetermined set of attributes. This shopper is rigid in his desire to choose a product that matches perfectly with the ideal product in his head. The second factor, “flaw sensitivity” (FS), suggests having a heightened awareness of negative attributes in available options. High FS individuals tend to dwell on the attributes that they do not like in existing alternatives. An example of someone who is high on the FS factor is a shopper who goes into a store to examine a large range of products, but ultimately has a difficult time committing to anything because he sees an intolerable attribute in each alternative. We believe that both PP and FS contribute to being a picky shopper.

In studies 1a-1d, we use this 2-factor structure to develop a scale designed to assess shopper pickiness. This included item generation, EFA, and CFA to develop and purify a 10 item scale (5 items each for PP and FS). See Table 1 for scale items. In the EFA stage, we find both factors (PP and FS) emerge (Scree) to explain 50% of the total variance. In the CFA stage, the statistics (CFI = .97, NNFI = .96, RMSEA = .07, RMR = .05) suggest the scale has good fit. Additionally, each factor has a reliability of  $\alpha > .85$  across studies and a composite reliability of  $\rho \approx .90$ . Finally, both factors significantly contribute to an overarching latent construct of shopper pickiness in SEM analyses ( $ps < .01$ ). In addition, we find correlations

between pickiness and related constructs to evaluate fit in a larger nomological network (see Table 2 for coefficients).

In studies 2a-2d, we find relationships between our scale (and factors) with a range of consumer behaviors. For example, individuals high on PP provided more details in describing their ideal product ( $t=4.06, p<.01$ ), while people high on FS identified more flaws in a description of a focal product in the same category ( $t=2.43, p<.05$ ). Individuals scoring high on PP who had formed preferences but had not yet made a choice were less likely to be swayed by information signaling the popularity of a foregone option ( $t=-4.48, p<.01$ ). Individuals who scored high on FS were more irritated by a superficial blemish on a purchased product ( $t=3.84, p<.01$ ) and were more likely to return the product ( $t=3.38, p<.01$ ). Finally, pickier shoppers (based on both factors of the scale) form smaller consideration sets ( $t=-1.98, p<.05$ ). See table 3 for complete list of dependent variables and statistics.

In study 3, we directly compare the pickier shopper against those categorized as maximizers (Schwartz et al. 2002). We view maximizers, people who desire to get the very best, as a group of individuals that is distinct from pickiness, despite how both groups may exhibit choice selectivity. We found in this study that the picky shopper scale predicts how much individuals care about horizontally-distinguished product attributes, attributes whose levels are unrankable ( $t=3.84, p<.01$ ) while the maximizer scale does not ( $t=-.03, p=.98$ ). The findings highlight differences between being picky versus being a maximizer, and illustrate a unique predictive ability of the picky shopper scale.

The proliferation of product choice in global marketplaces opens many doors for modern consumers to be pickier than ever before. Identifying which shopper are more likely to exhibit choice selectivity as well as deviate from shopping norms (e.g., shop only for a precise item in mind; reject all alternatives because of perceived flaws) is of interest to marketing practitioners who interact with this segment. Our research states that pickiness exists as an individual difference across shoppers, and this individual difference is directly related to several ways people form perceptions and make decisions.

Table 1  
THE PICKY SHOPPER SCALE

- 
1. I know exactly what I want. (PP)
  2. I often go into a store with specific requirements in mind. (PP)
  3. I have very precise attribute preferences. (PP)
  4. I have rigid requirements for what I want to buy. (PP)
  5. I picture features I want to buy in great detail. (PP)
  6. I dwell upon features I don't like in potential purchases. (FS)
  7. I am sensitive to negative aspects in products that others don't seem to care about. (FS)
  8. It is hard for me to ignore even the tiniest negative features. (FS)
  9. I notice product "flaws" without deliberately looking for them. (FS)
  10. I find little things to nit-pick about when making purchases. (FS)
-



Notes: PP = precise preferences, and FS = flaw sensitivity. Scale items anchored by “does not describe me at all” (1) and “describes me very well” (9).

Table 2  
CONSTRUCT VALIDITY FOR THE PICKY SHOPPER SCALE (CORRELATION COEFFICIENTS)

| <i>Construct</i>                            | <i>Ran With</i>             | <i>PP</i> | <i>FS</i> | <i>Composite Scale</i> | <i>Reference for Construct Measured</i> |
|---------------------------------------------|-----------------------------|-----------|-----------|------------------------|-----------------------------------------|
| Social desirability (impression management) | Study 2a                    | -.006     | -.09      | -.06                   | Paulhus (1984)                          |
| Maximizing                                  | Study 1d                    | .13*      | .46**     | .38**                  | Schwartz et al. 2002                    |
| Need for control                            | Study 1c                    | .19**     | .25**     | .25**                  | Burger and Cooper (1979)                |
| Variety seeking                             | Study 1c                    | -.10*     | -.02      | -.07                   | Raju (1980)                             |
| Decisiveness                                | Study 2b                    | .45**     | -.14      | .07                    | Webster and Kruglanski (1994)           |
| Promotion focus                             | Study 1b                    | .22**     | .07       | .18**                  | Lockwood, Jordan, and Kunda (2002)      |
| Prevention focus                            | Study 1b                    | .01       | .17**     | .12*                   | Lockwood, Jordan, and Kunda (2002)      |
| Self-oriented perfectionism                 | Separate study <sup>a</sup> | .38**     | .32**     | .40**                  | Hewitt and Flett (1991)                 |

<sup>a</sup>Participants in this study were 130 undergraduate participants from a large public university (males = 65.4%, median age = 19 years). In this study, we administered the Picky Shopper scale, Hewitt and Flett’s Multidimensional Perfectionism scale, and Goldberg’s (1992)’s Big Five factor scale. The sole purpose was to test construct validity. We note that out of the five factors of Big Five, only conscientiousness significantly correlated with the Picky Shopper scale ( $r = .33, p < .001$ ).

\* $p < .05$ .

\*\* $p < .01$ .

Table 3

## STUDIES 2–3: CORRELATIONS BETWEEN EACH PP, FS, THE AND DEPENDENT VARIABLE

|                                                  | <i>PP (r)</i> | <i>PP (Test Statistic)</i> | <i>FS (r)</i> | <i>FS (Test Statistic)</i> |
|--------------------------------------------------|---------------|----------------------------|---------------|----------------------------|
| <i>Study 2a (domain: apartments)</i>             |               |                            |               |                            |
| Detail in ideal product description              | .22           | t = 3.34**                 | .08           | t = 1.21                   |
| Number of flaws identified in focal product      | -.02          | t = -.30                   | .16           | t = 2.43*                  |
| <i>Study 2b (domain: chocolate)</i>              |               |                            |               |                            |
| Attractiveness of own choice                     | .36           | t = 4.08**                 | .08           | t = .86                    |
| Desire to Switch to popular choice               | -.20          | Wald = 4.46*               | .03           | Wald = .05                 |
| <i>Study 2c (domain: phone)</i>                  |               |                            |               |                            |
| Care about minor product flaw                    | .23           | t = 2.46**                 | .38           | t = 4.59**                 |
| Feel irritated about minor product flaw          | .09           | t = .94                    | .33           | t = 3.84**                 |
| Return product                                   | .16           | t = 1.83                   | .27           | t = 3.16**                 |
| Switch product                                   | .20           | t = 2.24*                  | .29           | t = 3.38**                 |
| Complain about product (spread negative WOM)     | .11           | t = 1.31                   | .29           | t = 3.42**                 |
| <i>Study 2d (domain: jams)</i>                   |               |                            |               |                            |
| Consideration set size                           | -.10          | t = -1.97*                 | -.10          | t = -2.09*                 |
| Total attribute importance ratings               | .18           | t = 3.83**                 | .16           | t = 3.25**                 |
| <i>Study 3 (domain: clothing)</i>                |               |                            |               |                            |
| Importance of horizontal attributes <sup>a</sup> | .28           | t = 3.23**                 | .25           | t = 2.82**                 |
| Importance of vertical attributes <sup>b</sup>   | .47           | t = 5.66**                 | .40           | t = 4.64**                 |

<sup>a</sup> Horizontal attributes include: size, packaging, color, design, fit with wardrobe, fit on body, type of add on (e.g., pockets; buttons), type of raw material, formality, endorsed by a particular celebrity, and endorsed by a particular friend.

<sup>b</sup> Vertical attributes include: value, quality, beauty, fashionable (vs not), brand, brand line extension, scarcity, durability, and reviewer ratings.

\* $p < .05$

\*\* $p < .01$ .

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### **Let Me Customize That! The Effect of Self-Construal and Customization on Perceived Ownership**

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The ability for consumers to design their own products is becoming ubiquitous in the marketplace (Dellaert & Stremersch, 2005; Franke & Piller, 2004; Randall et al., 2005). Online mass customization toolkits allow consumers to purchase products of their own designs (Thomke & von Hippel, 2002; Ulrich, 2009; von Hippel & Katz, 2002). For example, Nike generated over \$100 million in revenue in 2009 from their NikeID co-creation platform (Wong, 2010). In 2015, McDonald’s introduced “Create Your Taste,” allowing consumers to customize their burgers (Herman, 2015). Franke and colleagues (2010) suggest that customizing induces the “I designed it myself” effect, which generates higher willingness to pay and leads to increased perceived ownership. However, the extent to which the customization process should be constrained (i.e. instructional guidance, specific outcomes) is sparse in the literature (Dahl & Moreau, 2007). We propose that one’s perception of the self or self-construal differentially impacts the perceived ownership of products customized with constraints.

Cross-cultural evidence showed that individuals’ self representations differ and can be categorized as an independent or an interdependent self-construal focusing on self versus others, respectively (Brewer & Gardner, 1996; Markus & Kitayama, 1991; Triandis, 1989). Differences in self-construal suggest that individuals also perceive choice differently. For example, Americans (independents) are more likely to perceive actions as choices compared to Indians (interdependents) (Savani et al., 2010). Overall, previous research shows that the sense of agency

matters for independents more than interdependents because it allows independents to freely express themselves (Savani et al., 2010; Escalas & Bettman, 2005).

Although extant literature demonstrates the importance of agency for independents, agency under certain conditions can also be important for interdependents. Iyengar and Lepper (1999) found that Asian American children (interdependent) were most intrinsically motivated when choices were made by authority figures and trusted peers compared to their Anglo American counterparts (independents). However, Westerners lowered their performance and intrinsic motivation when choices were usurped (Iyengar & Lepper, 1999; Deci & Ryan, 1985; Nuttin, 1973; Zuckerman et al., 1978).

We hypothesize that interdependents feel a greater sense of perceived ownership when constrained compared to independents, but do not differ when unconstrained or in the control condition. When customization is constrained, independents feel that their sense of agency is restricted. However, our hypothesis implies that interdependents feel a greater sense of agency when constrained because they prefer if their choices are made by others.

Study 1 employed a 2 (customization condition: unconstrained vs. constrained) x 2 (self-construal: interdependent vs. independent) between-subjects design. First, we measured self-construal (Singelis, 1994). Next, participants shopped online for a customized sweatshirt where they chose the color of the sweatshirt, color of the drawstring, and type of fabric. In the unconstrained condition, participants chose 1 of the 4 available options in each category. However, in the constrained condition, participants were informed that only 1 of the 4 options was available. Afterwards, participants indicated their perceived ownership using a 3-item scale (Peck & Shu, 2009).

Confirming our hypothesis, the interaction effect between customization and self-construal on perceived ownership was significant ( $F(1, 218) = 7.50, p < .01$ ). In the constrained condition, interdependents ( $M = 3.50$ ) felt a greater sense of perceived ownership compared to independents ( $M = 2.48, F(1, 108) = 8.29, p < .01$ ). However, there was no difference between interdependents ( $M = 5.23$ ) and independents ( $M = 5.44, F(1, 110) = .60, p = .44$ ) when unconstrained.

In study 2, we added a control and altered the customization scenario in a 3 (customization condition: control vs. unconstrained vs. constrained) x 2 (self-construal: interdependent vs. independent) between-subjects design. Then, we measured self-construal. In the control, participants were asked to imagine purchasing a white mug. Unconstrained participants were instructed to freely customize a mug using an online customization toolkit (<https://www.customink.com>). However, constrained participants designed a mug with a preset design (i.e. university logo) and all participants indicated their perceived ownership.

As expected, we replicated our results from study 1 and also found a significant interaction between the control and constrained conditions ( $F(1, 101) = 5.14, p = .03$ ). Interdependents ( $M = 3.94$ ) experienced a greater perceived ownership of the mug compared to independents ( $M = 2.15, F(1, 48) = 9.27, p < .01$ ) when constrained. Independents and interdependents did not differ in the control or in the constrained conditions ( $F_s < 1$ ) and there was no interaction between the unconstrained and constrained conditions ( $F_s < 1$ ).

Study 3 was a 3 (customization condition: control vs. unconstrained vs. constrained) x 2 (self-construal: interdependent vs. independent) between-subjects design. The procedures were the same as in study 2, but constrained participants designed a mug with a preset arrow design. Next, we measured perceived ownership and participants' sense of agency as the mediator (Bhattacharjee, Berger, & Menon, 2014).

The results yielded a significant interaction between the control and constrained conditions on a sense of ownership ( $F(1, 150) = 4.82, p = .03$ ). Interdependents ( $M = 3.71$ ) experienced a greater perceived ownership of the mug compared to independents ( $M = 2.33, F(1, 75) = 12.54, p = .001$ ) when constrained. Independents and interdependents did not differ between control and constrained conditions ( $F_s < 1$ ) and there was no interaction between the unconstrained and constrained conditions ( $F_s < 1$ ).

In addition, moderated mediation using Hayes' (2012) PROCESS Model 7 revealed a significant conditional indirect effect of perceived agency ( $\beta = -.70, SE = .32$ , bias-corrected 95% CI = [-1.35, -.08]). Interdependents felt a greater sense of agency when constrained than in the control ( $\beta = .47, SE = .22$ , bias-corrected 95% CI = [.04, .93]), but not independents.

Overall, interdependents felt a greater sense of perceived ownership for products customized with constraints compared to independents because of a greater sense of agency. As firms employ mass customization toolkits, it is important to distinguish between constrained and unconstrained customization for market segmentation. Firms should leverage constraints during the customization process for interdependents, but not independents. Constraining the customization process serves as an inexpensive strategy to enhance perceived ownership.

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### **Seeing more in less: How connecting and separating mindsets affect the process and outcome of product customization**

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Recent years have witnessed a growth in mass customized products. For example, Nike lets customers design their own shoes, and Pizza Hut's online pizza builder allows people to create their ideal pizza from an array of different options. Although consumers find customization desirable, providing greater variety of component ingredients has direct cost implications for marketers. Thus, marketers are left asking the question: will offering more options for customization necessarily increase consumer value (i.e., the amount they are willing to pay)? We suggest that the answer to this question might lie in the mindsets that consumers have accessible.

Wyer and Xu (2010) introduced the concept of behavioral mindsets as cognitive procedures that get activated while pursuing a goal. Once activated, they have an effect on judgments and decisions that are made in a later, quite different situation. Two mindsets that are particularly applicable to this paper are a connecting and separating mindset (Oyserman et al. 2009). In conceptualizing cultural differences in information processing, Oyserman and colleagues suggested that broad differences in individualism and collectivism give rise to different mindsets or information processing tendencies. Individualism leads to a tendency to think of oneself as separate from others and this enables these individuals to separate out from the context (a separating mindset). In contrast, collectivism fosters a tendency to think of how one is connected to others giving rise to a tendency to make connections (a connecting mindset).

Oyserman and colleagues (2009) showed that connecting and separating mindsets influence the way in which people process information. For example, Mourey, Oyserman and Yoon (2013) showed that participants with a connecting (vs. separating) mindset were less (vs. more) likely to purchase a bundle if they were later told that one of the items in the bundle was unavailable,

presumably because they had formed a connection between the items and therefore couldn't consider them separately.

These information-processing strategies are, thus, likely to affect how people consider options for customization. Suppose a consumer at a frozen yogurt shop is trying to decide which toppings (fruits, chocolate, candy etc.) they would like to add to their yogurt. Those with a connecting mindset, given their tendency to make connections, focus on how the various toppings relate to each other along different dimensions (are they sweet or sour, soft or crunchy, etc.). However, consumers with a separating mindset, given their tendency to parse out key features, notice the more focal dimensions on which the toppings differ (e.g., fruit/chocolate, healthy/unhealthy). This difference leads to a tendency to consider more (vs. less) dimensions in categorizing the assortment.

The above difference in number of dimensions generated has implications for how these groups react to assortment size increases. Consumers with a connecting mindset are able to create many combinations even with a small assortment because of their tendency to generate more dimensions and combine them in different ways. When they make their final choice from a set of many possible combinations, they are willing to pay more for that option given that they have considered several options and then picked one (Muthukrishnan and Wathieu 2007). Therefore, increasing assortment size for these consumers should not have any appreciable effect on value given the large number of combinations they can generate from both small and large assortments.

In contrast, those primed with a separating mindset generate few dimensions and can generate only a limited number of combinations with a small assortment. Consequently the option they finally choose from the limited set appears to be of limited value. But when assortment size is increased, these consumers can generate more combinations which increases the perceived value from their final choice. Furthermore, consumers' perception of value and number of combinations generated mediates the effect of assortment size on willingness-to-pay for their choice.

Study 1 tested the basic hypothesis that people primed with different mindsets differ in their tendency to generate more or less dimensions. Results showed that participants primed with a connecting mindset were able to generate higher number of dimensions for the food toppings ( $M_{\text{connecting}} = 3.32$ ) compared to those primed with a separating mindset ( $M_{\text{separating}} = 2.81$ ),  $F(1, 150) = 3.99$ ,  $p = .047$ .

Study 2 showed that those with a connecting mindset made more combinations from both small ( $M_{\text{small}} = 9.37$ ) and large ( $M_{\text{large}} = 9.20$ ) assortments and thus did not differ in their willingness-to-pay ( $M_{\text{small}} = \$2.75$ ) ( $M_{\text{large}} = \$2.77$ ),  $F < 1$ , for their chosen option across assortments. However those with a separating mindset made more combinations and had a higher willingness-to-pay for their choice when they were given a large assortment ( $M_{\text{large}} = \$3.32$  vs.  $M_{\text{small}} = \$2.47$ ,  $F(1, 236) = 8.88$ ,  $p < .01$ ). Furthermore, for those with a separating mindset, number of combinations mediated the effect of mindsets and assortments size on willingness-to-pay ( $\beta = .10$ , with a 95% CI exclusive of 0 [.0041, .4252]) but not for those with a connecting mindset.

Study 3 used eye-tracking data to show that mindsets only had an effect at the integration stage but not at encoding. Specifically, when it came to time taken to choose their toppings, those primed with a connecting mindset took much longer ( $M_{\text{connecting}} = 77.99$  secs,  $SD = 38.84$ ) relative to those primed with a separating mindset ( $M_{\text{separating}} = 43.36$  secs,  $SD = 12.49$ ), ( $F(1, 71) = 25.93$ ,  $p = .00$ ).

Finally, study 4 showed that mindsets affected type but not depth of processing by looking at spatial and general memory for the encoded items. Results showed that when it came to general memory, there was no difference between the two mindsets, but when it came to spatial memory participants primed with a connecting mindset had a higher memory score ( $M_{\text{connecting}}=7.95$ ,  $SD=6.21$ ) as compared to participants primed with a separating mindset ( $M_{\text{separating}}=5.18$ ,  $SD=4.20$ ) ( $F(1, 114)=7.91$ ,  $p=.006$ ).

This work makes a number of theoretical and substantive contributions. First, it provides a general framework for understanding the process of product customization. It also suggests that in a customization context some consumers might perceive enough variety even with a small assortment and increases in assortment size might not matter much in terms of their willingness-to-pay.

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### Summary of Results

| Dependent Var.                          | Mindset    | Mean (SD)                     |                          |
|-----------------------------------------|------------|-------------------------------|--------------------------|
| <b>Study 1</b>                          |            |                               |                          |
| <i>Number of dimensions listed</i>      | Connecting | 3.32 <sup>a</sup> (1.58)      |                          |
|                                         | Separating | 2.81 <sup>b</sup> (1.56)      |                          |
| <hr/>                                   |            |                               |                          |
| <b>Study 2</b>                          |            |                               |                          |
| <i>Number of combinations generated</i> | Connecting | Small                         | 9.37 <sup>a</sup> (2.71) |
|                                         |            | Large                         | 9.20 <sup>a</sup> (2.49) |
|                                         | Separating | Small                         | 7.97 <sup>b</sup> (2.66) |
|                                         |            | Large                         | 9.38 <sup>a</sup> (2.42) |
| <i>Willingness-to-pay</i>               | Connecting | Small                         | 2.75 <sup>a</sup> (1.50) |
|                                         |            | Large                         | 2.77 <sup>a</sup> (1.38) |
|                                         | Separating | Small                         | 2.47 <sup>a</sup> (1.11) |
|                                         |            | Large                         | 3.32 <sup>b</sup> (2.07) |
| <hr/>                                   |            |                               |                          |
| <b>Study 3</b>                          |            |                               |                          |
| <i>Number of fixations</i>              | Connecting | 71.83 <sup>a</sup> (24.96)    |                          |
|                                         | Separating | 79.47 <sup>a</sup> (35.77)    |                          |
| <i>Fixation time (ms)</i>               | Connecting | 1137.75 <sup>a</sup> (432.93) |                          |
|                                         | Separating | 1295.42 <sup>a</sup> (587.23) |                          |
| <i>Time taken to list toppings (s)</i>  | Connecting | 77.99 <sup>a</sup> (38.84)    |                          |
|                                         | Separating | 43.36 <sup>b</sup> (12.49)    |                          |

|                                   |                |                           |
|-----------------------------------|----------------|---------------------------|
| <i>Multi-dimensional thinking</i> | Connecting     | .36 <sup>a</sup> (.49)    |
|                                   | Separating     | .17 <sup>b</sup> (.38)    |
| <hr/>                             |                |                           |
| <b>Study 4</b>                    | <b>Mindset</b> | <b>Mean (SD)</b>          |
| <i>Spatial memory score</i>       | Connecting     | 7.95 <sup>a</sup> (6.21)  |
|                                   | Separating     | 5.18 <sup>b</sup> (4.20)  |
| <i>General memory score</i>       | Connecting     | 16.07 <sup>a</sup> (7.58) |
|                                   | Separating     | 14.07 <sup>a</sup> (6.66) |

*Note.* Means with dissimilar superscripts significantly differ at  $p < .05$  for each dependent variable.

### **Write or Type? How Digital vs. Paper Shopping List Influences the Way Consumers Plan and Shop**

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Shopping list has long been regarded as an aid for grocery shopping, helping consumers make planned purchases and avoid unplanned purchases in the store (e.g., Block and Morwitz 1999). Traditionally, paper-and-pencil shopping list is common among consumers. However, with the development of technology and the widespread adoption of smart devices in recent decades, consumers now also create a digital shopping list on their smartphones using “Notes” or similar applications. Based on our pretest among 539 MTurk participants and 172 undergraduate students, 75.3% of MTurk participants and 66.9% of undergraduate students use shopping list for grocery shopping at least half of the time. Furthermore, digital shopping list was ranked as the primary shopping list tool by 57.6% of undergraduate students and 27.3% of MTurk participants. Our results are consistent with recent findings from Nielsen (2017).

The current research aims to examine how traditional handwritten shopping list differs from digital shopping list that is created on smart devices in impacting consumers’ subsequent shopping behavior in the store. Regardless of the prevalent use of shopping list in consumers’ daily life, only sparse research has been conducted on this topic (Arnaud, Kollmann, and Berndt 2015). Most of the research contrasted presence with absence of a shopping list. To our knowledge, no prior research has investigated how using a digital shopping list impacts consumer behavior differently than a traditional paper shopping list. This research takes an initial explorative step to fill in this important gap.

We first predict that the use of a digital list will lead to more unplanned purchases in the store. Recent research (e.g., Hattula, Herzog, and Dhar 2017) shows that multi-touch computer

interface creates an illusion of confidence. Given that overconfidence may lead to miscalibration in a lot of cases (e.g., Soll 1996), there is possibility that making a digital shopping list (through touch screen) makes people become over confident in the comprehensiveness of the list. Therefore, the digital list might lead to more unplanned purchases in the store because consumers would be more subjected to the influence of in-store stimuli. In the meantime, the use of paper shopping list will lead to more planned purchases and less failed planned purchases. We argue that this might happen because generating a paper list is more involving and requires more mental engagement (James and Engelhardt 2012), and mental engagement improves goal commitment (Oettingen et al. 2009). As a result, when generating paper list compared with digital list, consumers will become more committed to their shopping goal (i.e., fulfilling shopping list). We tested our hypotheses in three studies where we either measured or manipulated shopping list type and tracked consumer purchases in either simulated online shopping or real grocery shopping trip.

In study 1, four hundred and nineteen MTurk participants were asked to self-report the types of shopping list tool they used during their most recent grocery shopping trips, and then recall their actual shopping behaviors. Our main focus was their unplanned purchase behavior. We conducted ANOVA to analyze continuous variables (e.g., spent on unplanned items) and negative binomial regression to analyze count variables (e.g., quantity of unplanned purchases). Consistent with our hypotheses, participants who used a digital shopping list purchased more unplanned items ( $M_{\text{paper}} = 2.96$ ,  $M_{\text{digital}} = 3.59$ ,  $p = .06$ ) and spent more on unplanned purchases ( $M_{\text{paper}} = 16.68$ ,  $M_{\text{digital}} = 14.02$ ,  $p = .058$ ) than those with a paper shopping list.

Study 1 was self-reported by participants and the validity might be subject to the accuracy of their memory. To overcome this limitation, we conducted a well-controlled lab experiment in Study 2, where we asked undergraduate participants ( $N=242$ ) to make either a digital shopping list using their own smartphones or a paper list using the paper provided, and then take a simulated grocery shopping trip. Participants' shopping list contents and shopping behaviors were recorded and compared across conditions. We found that participants who made and used a paper shopping list spent more money during their grocery shopping trips ( $M_{\text{paper}} = 33.61$ ,  $M_{\text{digital}} = 26.71$ ,  $p < .01$ ), and this effect was driven by spending on planned items ( $M_{\text{paper}} = 24.97$ ,  $M_{\text{digital}} = 19.29$ ,  $p < .01$ ) but not on unplanned items ( $M_{\text{paper}} = 8.65$ ,  $M_{\text{digital}} = 7.42$ ,  $p > .32$ ). When looking in more details, participants with a paper shopping list tended to purchase more items that they planned on their shopping lists ( $M_{\text{paper}} = 4.75$ ,  $M_{\text{digital}} = 4.19$ ,  $p = .04$ ). Meanwhile, participants using a digital shopping list had more failed planned purchases ( $M_{\text{paper}} = 0.84$ ,  $M_{\text{digital}} = 1.18$ ,  $p = .04$ ).

Study 3 aims to examine the effect in more realistic settings, and explore the underlying process. One hundred and ten MTurk workers completed this two-part study: (1). compose a shopping list (either digital or paper, randomly assignment) for the upcoming grocery shopping trip and upload the shopping list; (2). use the shopping list to complete a grocery shopping trip and upload the shopping receipt. We compared participants' final purchases on their receipts with their shopping list contents. Consistent with our hypotheses and previous findings, participants with a paper shopping list tended to purchase more planned products ( $M_{\text{paper}} = 15.22$ ,  $M_{\text{digital}} = 7.05$ ,  $p = .04$ ) and spent more money on planned purchases ( $M_{\text{paper}} = 43.37$ ,  $M_{\text{digital}} = 22.67$ ,  $p < .01$ ). On the contrary, participants with a digital shopping list purchased more unplanned

products ( $M_{\text{paper}} = 3.71$ ,  $M_{\text{digital}} = 7.11$ ,  $p < .01$ ), spent more money on unplanned purchases ( $M_{\text{paper}} = 12.05$  vs.  $M_{\text{digital}} = 23.41$ ,  $p = .02$ ), and were more likely to fail to purchase planned products ( $M_{\text{paper}} = 1.31$  vs.  $M_{\text{digital}} = 2.38$ ,  $p < .01$ ). Furthermore, participants in the paper shopping list condition reported a higher commitment to fulfilling their shopping list ( $M_{\text{paper}} = 5.25$  vs.  $M_{\text{digital}} = 4.83$ ,  $p = .05$ ), and a bootstrap analysis showed that goal commitment mediated the effect of shopping list type and the number of planned purchases (bootstrap 95% CI =  $-.0784$ ,  $-.0059$ ).

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## 9.5 Goals and Motivations: You Can Do It!

### Individual Papers

#### Want to stick to your goal? Think about "dissimilar" alternatives that you've foregone!

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How people consider unchosen options shapes how they interpret what they did choose. Past research demonstrates that thinking about alternative uses of money not only decreases purchase intention (Frederick et al., 2009), but also influences utility from a chosen option. Consumers obtain higher utility when choosing a virtue from a mixed set that contains both vices and virtues than choosing from a homogeneous set that only contains virtuous options (Dhar and Wertenbroch, 2012). Further, Sagi and Friedland (2007) suggest that when choosing from diverse alternatives, evaluations of a chosen option depend on the summed utility of all of the unchosen alternatives, not just the second-best alternative's utility.

Extending these findings, the current research explores how the similarity of foregone alternatives impacts perceived goal achievement and subsequent decisions. Specifically, we find that when consumers consider dissimilar (vs. similar) goal-inconsistent alternatives that they could have chosen, they believe that they have made more progress towards their goal. Further, they are then more likely to stick to the goal in a subsequent choice. However, considering dissimilar (vs. similar) unchosen options impacts goal perceptions only when the focal goal is personally relevant. Our findings are replicated in varying goal-conflict situations (saving vs. spending: study 1, donating vs. spending: study 2, healthy vs. tasty food: study 3 and 4).

Study 1 ( $N = 124$ ) provides an initial demonstration of the effect of option similarity on perceived goal achievement. We employed saving (vs. spending) as a general goal context – in our pre-test ( $N = 142$ ), 96% of people indicated they currently endorse saving as their active personal goal. All participants were first asked to think about and write down how they would like to spend \$150 for themselves. Next, they were asked to briefly list two similar (dissimilar) alternative ways to spend the same amount of money, and explained why the three ways are similar (dissimilar) from one another. After the alternative-listing phase, participants imagined a situation in which they decided to save the unexpected \$150 of income, instead of spending it on one of the alternatives. Participants then indicated how much of an achievement, contribution, or progress they think they've made towards their savings goal (averaged into a perceived goal achievement score,  $\alpha = .91$ ), as well as how satisfied and good about themselves they felt, and their difficulty of making the decision.

The manipulated similarity of considered alternatives significantly impacted perceived goal achievement. Despite considering the same objective savings, participants who generated dissimilar alternative ways of spending reported higher perceived achievement ( $M_{\text{similar}} = 5.05$ ,  $M_{\text{dissimilar}} = 5.51$ ,  $p = .04$ ). However, option similarity did not yield any significant differences on the other measures, including choice difficulty.

In study 2 ( $N = 375$ ), a different goal context (donating) was employed to examine whether the personal relevance of a focal goal moderates the effect of option similarity on goal achievement

perception. The goal's relevance was manipulated by having participants read an article stressing the role of individual donors or of a few wealthy donors (manipulation check: e.g., "I feel personally responsible to make charitable contributions",  $M_{\text{high}} = 7.01$ ,  $M_{\text{low}} = 6.40$ ,  $p < .01$ ). When the goal was relevant, those who generated dissimilar ways of spending money felt they had made a greater achievement by instead making the donation than those who considered similar alternatives ( $M_{\text{similar}} = 5.30$ ,  $M_{\text{dissimilar}} = 5.97$ ,  $p < .01$ ). However, when the donating goal was less relevant, similarity of the alternatives did not affect perceptions of donating ( $M_{\text{similar}} = 5.45$ ,  $M_{\text{dissimilar}} = 5.45$ ,  $p = .98$ ). A 2 (similarity: similar vs. dissimilar) X 2 (salience: high vs. low) ANOVA confirmed a significant interaction ( $F(1, 371) = 5.87$ ,  $p = .01$ ), even after controlling for the attractiveness of the alternatives that participants generated.

Study 3 ( $N = 469$ ) extends the previous findings in three ways: 1) measuring pre-existing differences in individuals' goal relevance, 2) generalizing to a different goal context (dieting), 3) providing pre-set alternatives, instead of using self-generated alternatives. All participants imagined being on a diet and choosing to have apple chips instead of high-calorie snacks. They were shown 3 high-calorie alternative snacks they could have chosen, either in the same category (e.g., 3 different flavors of donuts) or in different categories (e.g., 1 donut, 1 cupcake, 1 chocolate). After evaluating perceived goal achievement, participants indicated the attractiveness of each alternative and rated the relevance of dieting goals using Concern with Food and Eating subscale of Restraint Questionnaire (Herman and Mack 1975). Replicating our previous results, a moderated regression analysis revealed a significant interaction of similarity and goal salience ( $F(1, 458) = 8.92$ ,  $p < .01$ ). The more the dieting goal was personally relevant, the higher achievement participants felt by foregoing dissimilar (vs. similar) goal-inconsistent alternatives.

Finally, in study 4 ( $N = 174$ ), we measured subjective goal achievement based on individuals' actual experiences, rather than an imagined situation, and tested the consequences for subsequent goal-relevant decisions. As in previous studies, participants showed higher perceived goal achievement when they considered their past dissimilar (vs. similar) unhealthy alternatives ( $M_{\text{similar}} = 4.71$ ,  $M_{\text{dissimilar}} = 5.23$ ,  $p = .01$ ). Furthermore, when making an immediate choice (tomorrow), participants were more likely to choose a healthy food when they thought about dissimilar unhealthy options to a prior healthy choice, compared to when they thought about similar unhealthy options (51% vs. 83%,  $p < .01$ ). However, the foregone alternatives had no effect when participants instead made choices about the future (1 month away, 80% vs. 70%,  $p = .30$ ). A logistic regression analysis revealed that when making an immediate decision, higher perceived goal achievement due to considering dissimilar alternatives increased choices of the healthy option ( $b = .32$ , 95% CI = [.02, .87]).

Taken together, these results can advance our understanding about the role of choice set in goal-directed behavior. Our findings offer practical insight into how to enhance motivation by merely shifting which foregone alternatives people focus on.

## **A Theory of Goal Maintenance: A Distinct and Vivid Pre-Goal Self Predicts Post-Goal Maintenance Behavior**

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We develop and test a theory of goal maintenance which posits that individuals who achieve a life-changing goal – such as getting out of debt, becoming sober, or losing a substantial amount of weight – are more likely to maintain the progress achieved during goal attainment if they psychologically distance themselves from their pre-goal self and routinely engage in activities that activate memories of their past, less flattering self. This new model is an extension of self-discrepancy theory (Higgins, 1987), as it relates discrepancies in self-state representation to motivation and intertemporal behavior. We posit that the accessibility and closeness of the prior, pre-goal self, when activated, will continue to elicit emotions that motivate behavior of the current, improved self. We are currently applying this model of goal maintenance to weight loss maintenance. Through four studies, we explore whether accessibility and perceived closeness of the overweight past self predict successful weight maintenance after a weight loss goal has been achieved.

Study 1, a survey of 400 Amazon Mechanical Turk subjects who reportedly lost at least 10% of their body weight, revealed correlational evidence that weight maintainers are more likely to see themselves as psychologically distant from their past, overweight selves and are also more likely to activate memories of their past, overweight selves compared to weight regainers. Regression analysis was performed on the survey dataset to determine what, if any, behaviors consistent with our proposed theory explain weight loss outcomes when controlling for demographic factors - such as age, race, and gender. Consistent with our theory, the analysis revealed that posting before-and-after pictures of oneself on social media, feeling motivated when thinking about weight regain, and feeling psychologically distant to one's past, overweight self were predictive of weight maintenance. Table 1 provides more detailed regression results.

Study 2, an online study of 220 participants from the UCLA Anderson Behavioral Lab subject pool who reportedly lost at least 10% of their body weight, provided evidence that manipulating the vividness of the past, overweight self activates implicit goal maintenance behavior, conducive to sustaining weight loss. Study 2 explored whether manipulating vividness of the past, overweight-self activates implicit goal maintenance behavior, reflected by reported willingness to pay (WTP) for healthy and unhealthy products and services. Eligible participants were randomly assigned to three conditions: a baseline condition, where the past self was not made salient before a WTP task, a past self condition, where the past self was made salient before a WTP task, and a past self contrast condition, where the past self and closeness to the past self were made salient before a WTP task for specific products and services (e.g. an all-you-can-eat buffet, a pound of grapes, a slice of cheesecake, a one-on-one personal training session, and a one-hour tennis lesson). Figure 1 displays the results of the WTP analysis for all three conditions. A one-way MANOVA indicated that assignment to condition significantly affected participants' WTP ( $F(10, 426), p < 0.001$ )<sup>2</sup>. Participant motivation levels to maintain weight loss, as evaluated by WTP for products, increased when the past self was made salient and increased even further when the past self and closeness to the past self were made salient before the WTP

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<sup>2</sup> Wilks' Lambda

task. Accordingly, accessibility of the past self in memory and evaluations of closeness between the past self to the current self appear to work cooperatively to increase goal-related motivation.

Study 3, a text and sentiment analysis of over 400 blogs from a popular weight management website, demonstrated that those more successful in weight loss and maintenance focus less on the future and use more discrepancy language than those who are less successful. Blog posts were evaluated using the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Francis & Booth, 2007). Specifically, sentiment categories that may indicate focus on the past self and distinctions between the past and current selves – including discrepancy, time orientation (i.e. past, current, future), compare, and difference scores – were analyzed. The regression results indicate that the blogs of those more successful in weight loss or maintenance express less negative emotions, are less future focused, and are more likely to express the cognitive process of discrepancy. Complete regression results are provided in Table 3. Overall, the natural language processing analysis suggests that successful weight loss outcomes are associated with language that includes greater discrepancy content and is focused significantly less on the future.

Finally, Study 4, a longitudinal study of 32 subjects from the UCLA Anderson Behavioral Lab subject pool, provided preliminary evidence that constant reminders of a past, overweight self through digital media can lead to more successful weight maintenance overtime among individuals who recently met a weight loss goal. Participants assigned to the baseline condition received two inspirational quotes via email each week over a four-week period. Participants assigned to the past contrast condition received the same inspirational quotes via email, but their messages also included their personal before-and-after weight loss pictures as a vivid reminder of their past selves. Over the four-week period, participants in the baseline condition gained 0.02% ( $SD = 1.52\%$ ) weight on average whereas those in the past contrast condition lost 0.4% ( $SD = 2.21\%$ ) weight on average as shown in Figure 2. These results were consistent with our theory. However, this effect did not reach conventional levels of statistical significance due to our small sample size. Seven subjects did not complete the study by participating in the final weigh out. We plan to rerun this study with a larger subject pool ( $n=130$ ) and over a 3-month time period in the fall of 2017.



Tables/Figures:

**Table 1.** Study 1 regression models of weight loss outcomes. All regressions are ordinary least squares with the exception of column 2, which is a logistic regression model.

| VARIABLES                | (1)<br>weight loss | (2)<br>maintained<br>weight | (3)<br>regained<br>pounds | (4)<br>regained<br>percent |
|--------------------------|--------------------|-----------------------------|---------------------------|----------------------------|
| struggle                 | <b>9.301***</b>    | -0.338                      | <b>2.753*</b>             | -0.000525                  |
| before/after<br>pictures | <b>13.48***</b>    | <b>0.585*</b>               | -3.015                    | <b>-0.164***</b>           |
| closeness <sup>3</sup>   | -0.135             | <b>-0.175***</b>            | <b>0.810**</b>            | <b>0.0313***</b>           |
| regained pounds          | <b>0.305***</b>    |                             |                           |                            |
| motivated                | 3.430              | <b>0.618***</b>             | <b>-5.137***</b>          | <b>-0.141***</b>           |
| emot_effect              | <b>11.58***</b>    |                             | <b>4.044*</b>             | 0.0228                     |
| age                      | 0.601              | -0.0624                     | 0.318                     | 0.000572                   |
| age squared              | -0.00617           | 0.000764                    | -0.00445                  | -3.98e-05                  |
| male                     | <b>11.09***</b>    | -0.0827                     | 0.776                     | -0.0481                    |
| college education        | <b>-7.134**</b>    | 0.168                       | -0.844                    | 0.0197                     |
| Observations             | 347                | 347                         | 347                       | 347                        |

The regression table shows results from four different regressions where the dependent variables were total weight loss (column 1), maintained weight – binary variable (column 2), regained pounds (column 3), and regained percent of total weight loss (column 4). The description of variables is provided in Table 2.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

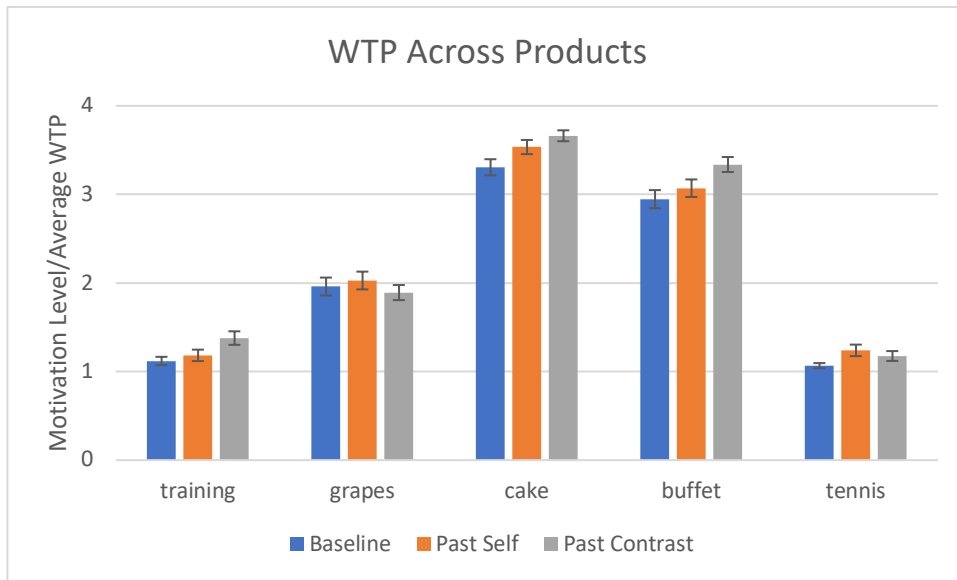
**Table 2.** Description of variables in Study 1

| Variable                                  | Description                                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Dependent Variables</b>                |                                                                                                                     |
| weight loss                               | Amount of total weight respondent lost                                                                              |
| maintained weight                         | Binary variable – 1 if maintained weight loss, 0 if regained weight                                                 |
| regained pounds                           | Number of pounds regained                                                                                           |
| regained percent                          | Weight regained as a percentage of weight loss                                                                      |
| <b>Explanatory Variables (covariates)</b> |                                                                                                                     |
| closeness                                 | Measure of psychological closeness to past, overweight self from 1 to 7 (1 – not close at all; 7 – extremely close) |
| struggle                                  | Binary variable – 1 if respondent considers himself someone who has constantly struggled with weight; 0 if not      |
| before/after pictures                     | Binary variable – 1 if respondent posted before and after pictures on social media; 0 if not                        |
| motivated                                 | Binary variable – 1 if respondent feels motivated when thinking about regaining his weight; 0 if not                |

<sup>3</sup> Measure of psychological closeness. Negative correlation means psychological distance.

|                   |                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| emot_eff          | Binary variable – 1 if respondent feels agitated, uneasy, and disgusted when thinking about regaining his weight; 0 if not |
| age               | Respondent’s current age                                                                                                   |
| age squared       | Respondent’s current age squared                                                                                           |
| male              | Binary variable – 1 if respondent is a man; 0 if not                                                                       |
| college education | Binary variable – 1 if respondent at least has an associate’s degree                                                       |

**Figure 1.** Study 2 motivation levels measured as average WTP across products. Standard error bars around average values are included.



Average willingness to pay (coded as a nominal variable from 1-4 where 1 corresponded to the lowest monetary value and 4 corresponded to highest monetary value) is equated to motivation levels across the three conditions in Study 2: baseline, past self, and past self contrast. The unhealthy items (e.g. buffet and cake) were reverse coded for consistency where a higher willingness to pay indicated lower motivation.

**Table 3.** Study 3 regression analysis of weight profile and sentiment indicators from blog observations.

| VARIABLES | progress           |
|-----------|--------------------|
| days      | <b>0.000375***</b> |
| tolose    | <b>-0.00246***</b> |
| start     | <b>0.00113***</b>  |
| blograte  | <b>-0.00313***</b> |
| compare   | 0.0225             |
| posemo    | 0.0154             |
| negemo    | <b>-0.0560***</b>  |
| differ    | <b>-0.0251*</b>    |

|              |                  |
|--------------|------------------|
| reward       | 0.00461          |
| risk         | 0.0546           |
| focuspast    | -0.00521         |
| focuspresent | -0.00574         |
| focusfuture  | <b>-0.0524**</b> |
| discrep      | <b>0.0507*</b>   |
| Observations | 370              |
| R-squared    | 0.235            |

All blog posts up to the February 2016 pull date were used in the LIWC analysis. The dependent variable, “progress”, is the proportion of weight loss toward the stated weight loss goal (i.e. meeting one’s goal yields a value of 1). The description of variables is included in Table 4.

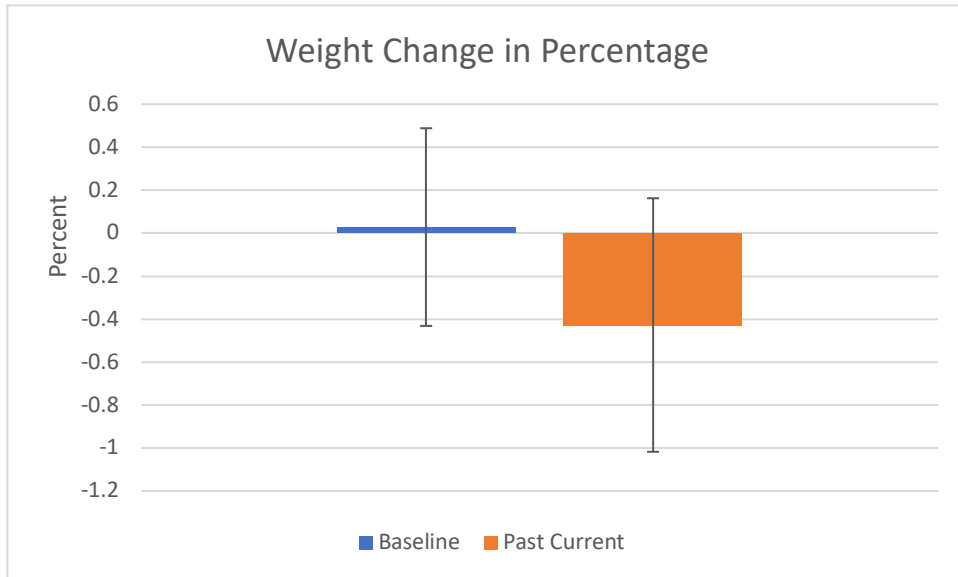
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4.** Description of variables in Study 3

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| progress     | The proportion of weight loss toward the stated weight loss goal                                        |
| days         | The number of days in weight management community, as of August 2015                                    |
| tolose       | The reported number of pounds to lose                                                                   |
| start        | The starting weight                                                                                     |
| blograte     | The number of days between blog posts                                                                   |
| compare      | LIWC category <sup>4</sup> : Comparatives in grammar                                                    |
| posemo       | LIWC category: Positive emotion                                                                         |
| negemo       | LIWC category: Negative emotion                                                                         |
| differ       | LIWC category: Cognitive process of differentiation                                                     |
| reward       | LIWC category: Driven by a reward focus                                                                 |
| risk         | LIWC category: Driven by a risk/prevention focus                                                        |
| focuspast    | LIWC category: Past tense language psychologically correlated with a focus on the past                  |
| focuspresent | LIWC category: Present tense language psychologically correlated with living here and now               |
| focusfuture  | LIWC category: Future tense language psychologically correlated with the future and being goal oriented |
| discrep      | LIWC category: Cognitive process of discrepancies                                                       |

<sup>4</sup> (Pennebaker et al, 2007; Tausczik & Pennebaker, 2010)

**Figure 2.** Study 4 average percentage weight change by condition. Standard error bars are included for each average.



Study 4 participants in the baseline condition, without the frequent reminders of their pre-goal self to their post-goal self, essentially maintained their weight throughout the four-week period. Participants in the past current condition who received biweekly, vivid reminders of their past and current selves, had greater success in maintaining weight. However, as illustrated with the standard error bars about the mean values, these results do not reach conventional levels of statistical significance.

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## **Beyond the Desired End-state: How Mere Completion of a Goal Can Motivate More than the Reward Itself**

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What motivates people to pursue goals? Extant research converges on the idea that goals are cognitive representations of desired end-states (Bargh 1990; Ferguson and Cone 2013; Fishbach and Ferguson 2007) and the positivity associated with these desired end states is what imbues goals with motivational force (Atkinson 1974; Tolman 1932). For example, in a punch-card-style loyalty program, the acquisition of rewards is a desirable end state and the motivation to collect stamps originates in the desire to acquire rewards.

In this research, however, we suggest an additional source of motivation that is entirely distinct from the particular desired end-state obtained by fulfilling a goal. Specifically, we argue that, quite separate from the reward for completing a goal, people are also motivated by the fact that the mere completion of goal means (e.g., collecting the required number of stamps in a loyalty program) is satisfying in its own right. Put simply, people like to complete things – it feels satisfying. Apparent as it may seem, the motivation to complete per se has been largely overlooked in extant goal research. While it has been shown that people do seek the mere completion of things (Halkjelsvik and Rise 2015; Ovsiankina 1928), we are unaware of any research directly exploring how a motivation to merely complete interacts with the pursuit of a desirable end-state in determining aggregate motivation to pursue the goal. The current research was envisaged to disentangle the two, and to show that a desire for mere completion represents a distinct motivation guiding progress toward goal completion.

Building on the proposition that mere completion is satisfying in its own right, we further propose that 1) people will become gradually insensitive to the magnitude of a goal reward with the proximity to completing a goal, because of the increase in the motivation to seek mere completion, and that 2) people will prefer a goal that is almost complete over one that is already complete, because the former implies that they will get to complete it, and therefore reap the hedonic benefits that accompany a feeling of completion.

We have run ten studies in total. We will next report five of them that are central to testing our hypotheses.

Study 1 tested the utility of mere completion. It required participants to do a boring task – clicking on buttons on a computer screen. Participants were informed that the computer would tell them to stop when they had reached the total required number of clicks. In the complete-set condition, participants were stopped after they had clicked all nine buttons ten times each. In the incomplete-set condition, they were stopped after they had clicked eight of the nine buttons ten times each. Although complete-set participants repeated the boring task more times, at the end of the study, they felt overall better ( $M = 4.34$ ,  $SD = .80$ ) than incomplete-set participants ( $M = 4.05$ ,  $SD = .73$ ;  $F(1, 120) = 4.43$ ,  $p = .037$ ). Study 1 also included two measures of the feeling of completion, both of which mediated the effect of our manipulation on feelings, with the indirect effects significantly differing from zero ( $\beta_s > .09$ , 95% confidence intervals [CIs]  $\subset [.01, .77]$ ).

Study 2 tested the hypothesis regarding how much people value a goal that is almost complete vs. one that is already complete. Participants were told that they had collected either six or seven stamps in a loyalty program where they could get \$3 after collecting seven stamps. Contradicting pure economic considerations, participants charged a higher price for six stamps

( $M = 4.98$ ,  $SD = 5.23$ ) than seven stamps ( $M = 3.32$ ,  $SD = 2.27$ ;  $F(1, 183) = 8.01$ ,  $p = .005$ ). We name this effect as the one-away effect. The results of Study 2 provided compelling evidence that people obtain utility from the mere completion of a goal, which may even bias their valuation of a goal that is almost complete. Consistent with our theory, Study 3 found that expected excitement of collecting the next stamp mediated the one-away effect ( $\beta = -.65$ , 95% CI: [-1.33, -.04]), and Study 4 showed that the one-away effect disappeared when the acquisition of reward was not associated with the eventual completion of collecting stamps (e.g., for a loyalty card that has twelve slots and awards \$3 for every 6 stamps collected, the acquisition of the first \$3 reward leaves six slots unstamped.) Figure 1 summarizes the main results of Study 4.

Study 5 tested the hypothesis regarding scope-(in)sensitivity to the magnitude of a goal reward. Study 5 represented a 2 (Progress: 1 stamp vs. 9 stamps)  $\times$  2 (Reward: \$3 vs. \$9) between-participants design. Participants were told that they had collected either one stamp or nine stamps in a loyalty program that offered either \$3 or \$9, depending on the condition they were randomly assigned to. Participants then indicated to which extent they were motivated to collect the next stamp. A two-way ANOVA between progress and reward revealed a significant effect of progress ( $F(1, 654) = 52.17$ ,  $p < .001$ ), a significant effect of reward ( $F(1, 654) = 19.53$ ,  $p < .001$ ), and more importantly, a significant interaction effect ( $F(1, 654) = 4.82$ ,  $p = .029$ ). The results suggested that in the early stage of collecting stamps, participants were primarily driven by a motivation to obtain rewards and thus were sensitive to the value of a reward, whereas in the near-to-completion stage, participants were primarily driven by a motivation to complete per se and thus became relatively insensitive the value of a reward.

The current research has important implications. In theoretical terms, this research complements the existing goal literature and bridges findings in seemingly disparate research domains (e.g., goal-gradients, set-collection, loyalty cards, curiosity, escalation behavior, medium maximization). In practical terms, our research suggests (and tests) news way of nudging consumers to engage in certain behaviors such as trying novel products, based upon mere completion tactics.

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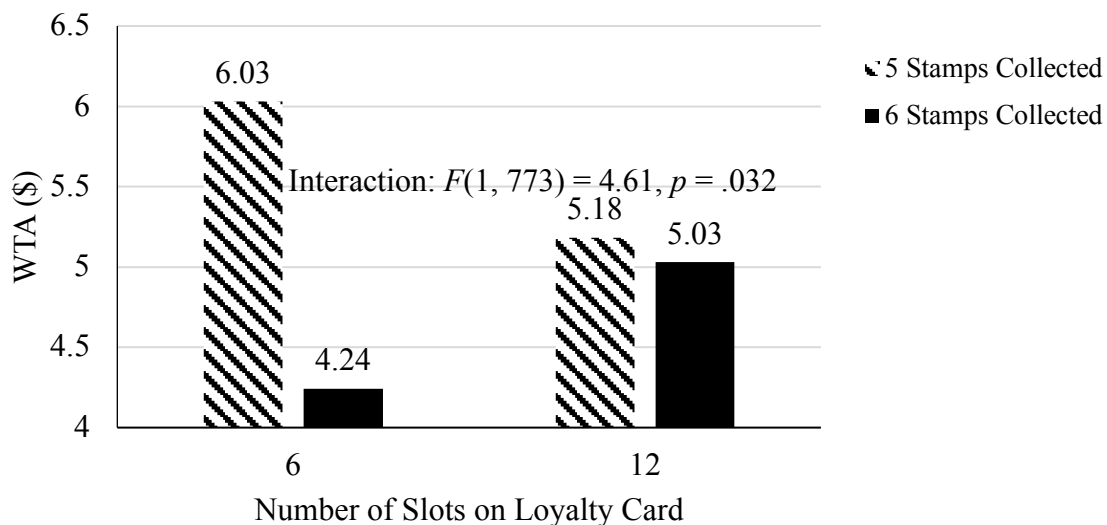
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**FIGURE 1. MAIN RESULTS OF STUDY 4**





## Resource Availability and the Autonomous Motivation to Learn

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While resource abundance has emerged as the norm in modern, industrialized societies, consumers are frequently exposed to contextual cues that may remind them of the limited nature of resources (Laran and Salerno 2013; Mehta and Zhu 2016; Zhu and Ratner 2015). In this paper, we examine how resource unavailability (vs. availability) impacts consumers' autonomous motivation to learn (i.e., doing a behavior because of one's internal volition rather than external contingencies; Black and Deci 2000; Deci and Ryan 2000, 2008; Vansteenkiste et al. 2004). For example, will individuals under resource unavailability (vs. availability) exert more or less efforts to learn in the absence of tangible incentives? Will consumers under resource unavailability (vs. availability) enjoy learning more or less, or be more or less interested in intrinsically-rewarding learning materials?

Building on prior research suggesting a possible connection between resource unavailability and low psychological freedom (Haushofer and Fehr 2014; Mittal and Griskevicius 2014; Mehta and Zhu 2016), and a well-established linkage between the satisfaction of psychological needs to act freely and the origination of autonomous motivation (e.g., Black and Deci 2000), we propose that resource unavailability (vs. availability) lowers individuals' psychological freedom, which consequently hinders the autonomous motivation to learn. We test our hypotheses in four experiments.

Experiment 1 ( $N=193$ ) examined the main thesis that resource unavailability (vs. availability) undermines the autonomous motivation to learn. Participants were first asked to recall incidents where they either felt they did not have enough resources ("resource-unavailability" condition) or had plenty of resources ("resource-availability" condition; Fischhoff et al. 2003; Mehta and Zhu 2016; Roux et al. 2015). Next, all participants were given a learning task where they could read and learn about forty festivals in different countries. Participants read one festival description at a time (each festival was presented on the screen for a fixed duration), and they could stop the task whenever they wanted to. The number of the festival descriptions read served as the measure of autonomous motivation. Supporting our hypothesis, participants in the "resource-unavailability" (vs. "resource-availability") condition read a significantly smaller number of festivals ( $M_{\text{unavailability}}=19.37$  vs.  $M_{\text{availability}}=24.34$ ;  $p<.04$ ), and spent marginally less time on the learning task ( $M_{\text{unavailability}}=267.82$  vs.  $M_{\text{availability}}=285.62$  seconds;  $p<0.08$ ).

Experiment 2 ( $N=195$ ) tested the proposed mediating role of psychological freedom in the relationship between resource unavailability and the autonomous motivation to learn. Participants first read a fictitious news article that was either about the scarce supply of natural resources ("resource-unavailability" condition) or the growing abundance of natural resources ("resource-availability" condition). Next, participants responded to the measures examining the satisfaction of psychological freedom (Chen et al. 2015). Finally, all participants completed a joke-learning task in which they read and rated ten jokes (each of which was presented on the screen for a fixed duration; Woolley and Fishbach 2015). As a measure of the decreases of autonomous motivation to learn, we assessed the extent to which participants perceived the joke-learning task as an obligation to work (Laran and Janiszewski 2011). As predicted, participants in the "resource-unavailability" (vs. "resource-availability") condition were more likely to perceive the learning task as an obligation to work ( $M_{\text{unavailability}}=4.09$  vs.  $M_{\text{availability}}=3.50$ ;  $p<.05$ ),

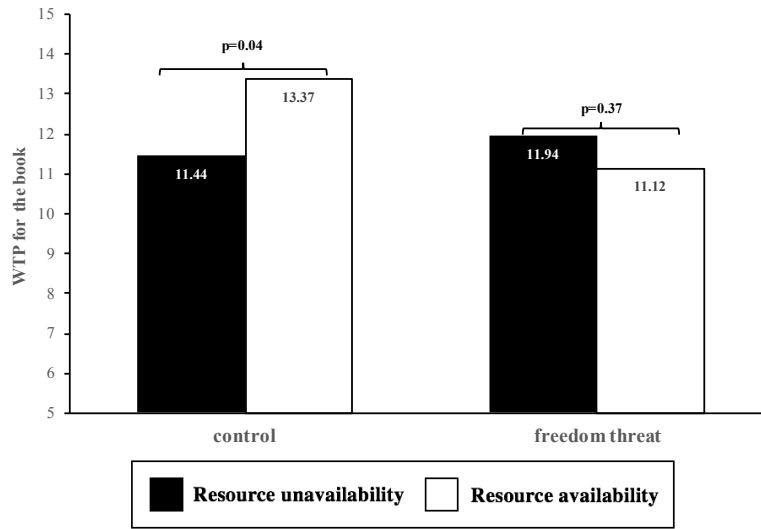
which was mediated by the lower psychological freedom associated with resource unavailability (95% CI=[0.01,0.32]).

The last two studies provided further evidence for the proposed mechanism of psychological freedom. If resource unavailability impacts one's autonomous motivation to learn through psychological freedom, we should be able to moderate this effect by experimentally threatening (experiment 3) or fulfilling participants' psychological freedom (experiment 4). Experiment 3 ( $N=425$ ) manipulated both resource unavailability (vs. availability) and the presence of psychological freedom threat. Participants first completed the resource unavailability (vs. availability) manipulation as used in experiment 2. Next, participants in the "freedom-threat" condition were asked to recall three situations where they felt forced to do things they would not otherwise choose to do, whereas those assigned to the "control" condition were asked to list three activities they did in the past week. Finally, all participants read ten festival descriptions that were randomly chosen from a festival book. The maximum amount of money that participants were willing to pay for this book (\$0-\$100) served as a proxy of the autonomous motivation to learn. As predicted, in the "control" condition where the psychological freedom was not threatened, participants' willingness-to-pay for the book in the "resource-unavailability" (vs. "resource-availability") condition was significantly lower ( $p<.04$ ); this difference disappeared when psychological freedom was experimentally threatened ( $NS$ ). In addition, consistent with our theorizing, participants in the "resource-availability" conditions were willing to pay less for the book when their psychological freedom was threatened versus not threatened (figure 1).

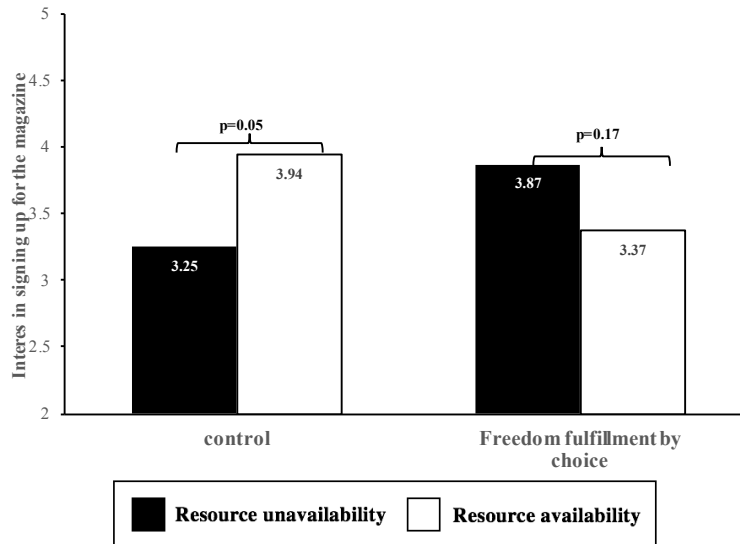
The last experiment ( $N=201$ ) manipulated the fulfillment of psychological freedom in addition to a resource unavailability (vs. availability) to further test the mechanism. Participants first completed the resource unavailability (vs. availability) manipulation as used in experiments 2-3. Next, participants were asked to read a sample of a magazine that introduced products launched in the market. In the "freedom-fulfillment" condition, participants could choose a magazine issue they would like to read amongst four options. In the "control" condition, the computer randomly chose one of the four magazine issues for the participants to read (Brehm 1966). All participants then read the same ten product descriptions. Enjoyment of the learning task and participants' interests in signing up for a free subscription of the magazine were used to assess the autonomous motivation to learn. As predicted, in the "control" condition where the psychological freedom was not fulfilled, participants' enjoyment and interests in signing up for the magazine in the "resource-unavailability" (vs. "resource-availability") condition were significantly less ( $ps<.05$ ); this difference disappeared when psychological freedom was experimentally fulfilled. In addition, participants in "resource-unavailability" conditions enjoyed the learning task more and were more interested in signing up for the magazine when their psychological freedom was fulfilled versus not fulfilled (figures 2-3).

Collectively, we demonstrate that resource unavailability (vs. availability) lowers psychological freedom, which in turn undermines the autonomous motivation to learn. These effects are moderated when consumers' psychological freedom is experimentally threatened or fulfilled.

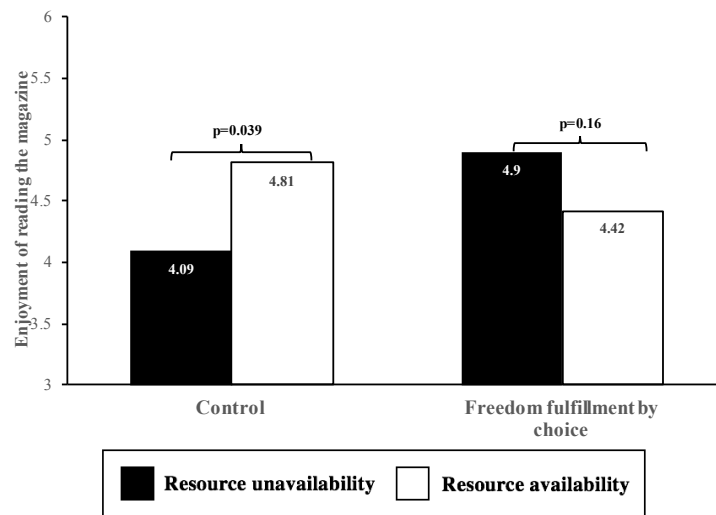
**Figure 1**  
Impact of Resource Availability and Psychological Freedom Threat on WTP in Experiment 3



**Figure 2**  
Impact of Resource Availability and Psychological Freedom Fulfillment on Magazine Subscription in Experiment 4



**Figure 3**  
Impact of Resource Availability and Psychological Freedom Fulfillment on Enjoyment in Experiment 4



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## 9.6 4P's et al.: Marketing Stimuli and Promotions Individual Papers

### **The Brand That Wasn't There: The Impact of Product Displacement on Brand Outcomes**

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Traditional product placement has found generally positive outcomes for brands such as attitudes, recognition, and choice (d'Astous and Sequin 1999; Russell 2002). However, high product placement licensing fees have led marketers to reduce spending on this tactic (Block 2010). In addition to financial reasons, companies may refuse to allow entertainment producers usage of their brands as a means to protect brand image. For example, Mercedes-Benz and Coca-Cola refused to allow *Slumdog Millionaire* to use their logos because they believed association with the slums of Mumbai would harm their brand image (Brodesser-akner 2009). Both cases result in the brand logo being removed, or “displaced” from the production either physically or digitally to adhere to copyright law, a practice we define as product displacement. Interestingly, although the practice of product displacement is quite commonplace (e.g., *Nashville*, *Scrubs*), no research has examined how consumers respond psychologically to a displaced brand or the impact product displacement might have on brand outcomes. This research provides the first empirical investigation of product displacement and explores both the psychological impact of exposure to a displaced brand and the downstream marketing consequences of such exposure.

To guide our investigation, we conducted an exploratory study using EEG technology. Participants (n=139) watched a clip from the movie *Elf* in which the Coca-Cola logo was placed or digitally displaced from the red bottle while wearing an EEG headset (Fig. 1). The EEG headset measured emotional reactions and immersion in real-time. After watching the clip and completing an unrelated study for 20 minutes, we measured unaided brand recall by asking participants to list the top three brands that came to mind. If Coca-Cola was recalled in the first, second, third position, or not mentioned, we assigned scores of 3, 2, 1, and 0 respectively. EEG results showed that when the cola bottle appeared on the screen, participant immersion levels were significantly higher in the displacement vs. placement condition ( $p < .05$ ). Unaided recall was also significantly stronger in displacement versus placement clip ( $p = .002$ ). Thus, it appears that product displacement has both psychological and practical consequences.

We hypothesize that the effect of product displacement is moderated by need for cognition (Cacioppo and Petty 1982) and *increases* immersion among high need for cognition (HNFC) consumers because the displaced brand aligns with their natural motivation and enjoyment of information processing. This heightened immersion leads to positive marketing benefits for the brand. Conversely, we propose that product displacement *decreases* immersion among low need for cognition (LNFC) consumers and reduces marketing benefits relative to traditional product placement. This is because LNFC consumers actively avoid effortful processing. Being forced to engage in effortful processing through exposure to the displaced brand elicits a negative emotional reaction, which we propose decreases immersion.

Study 1 shows support for our full framework and demonstrates the moderating role of need for cognition and the mediating role of immersion on the downstream consequences of product displacement. Participants (n=227) first completed the NFC scale and then watched one of the two *Elf* clips from the exploratory study. Next, they completed immersion measures, the consumption emotions scale (Richins 1997), and brand attitude measures. Supporting our

predictions, product displacement led to higher (lower) immersion than product placement among HNFC (LNFC) participants and the reduced immersion among LNFC is driven by a negative emotional reaction (Fig.2). Immersion significantly predicted brand attitude ( $p < .05$ ) but was dependent on NFC. Importantly, both opposing effects were mediated by immersion.

Study 2 moderates immersion to find that when immersion is encouraged (v. discouraged) consumers report positive downstream consequences in response to displacement. The reverse pattern is found when immersion is discouraged – traditional product placement leads to more positive downstream consequences. Participants ( $n=119$ ) were randomly assigned in a 2 (Displacement, Placement) x 2 (Engagement: Low, High) design. Prior to watching one of the two *Elf* clips, participants received an immersion manipulation (Green and Brock 2000). Participants in the low immersion condition were instructed to focus on the details of the conversation – effectively preventing participants from immersing in the video. Participants in the high immersion condition were instructed to watch the clip as if they were in a movie theatre thus fostering immersion. Finally, participants completed the brand attitude measures. Results revealed the expected interaction ( $p = .002$ ). Participants whose immersion was mitigated exhibited higher brand attitudes in the placement vs. displacement condition ( $p = .007$ ) However, when immersion was fostered, participants expressed higher brand attitudes in the displacement vs. placement conditions ( $p = .07$ ).

Study 3 focuses on the detrimental effects of displacement among low NFC consumers by exploring the role of negative emotion in immersion. If a negative emotional experience reduces immersion, then LNFC who are able to attribute their negative affect as a positive experience should result in positive brand outcomes under displacement. Participants ( $n=375$ ) completed the NFC scale then either received the negative emotion attribution (i.e., told that negative affect was actually indicative of enjoyment) or moved directly on to the clip. Participants then watched a clip from *Fight Club* in which the Starbucks brand logo was displaced from the coffee cup. After a filler study, we assessed brand recall by asking participants what brands they saw in the clip (1 = Starbucks, 0 = Did Not Recall). The expected NFC x attribution condition emerged ( $p = .03$ , Fig.3). In the control condition, previous results were replicated in that recall was higher for high (vs. low) NFC ( $p < .01$ ). However, when LNFC participants attributed negative emotional reactions to accurately experiencing the clip, brand recall significantly improved relative to the attribution absent condition ( $B_{JN} = -.78, -1.58$  SD).

This research provides the first empirical investigation into product displacement. We demonstrate the moderating role of NFC and show that displacement can have positive effects for brands because it increases immersion into the medium. However, the opposite occurs for LNFC consumers. Indeed, the brand that wasn't there may be the very one we want to buy.

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FIGURES 1a-1e: PRODUCT PLACEMENT AND DISPLACEMENT STUDY STIMULI

Product Displacement (Exploratory Study, Studies 1 and 2):



Product Placement (Exploratory Study, Studies 1 and 2):



Product Displacement (Study 1 Follow-Up Study)



Product Placement (Study 1 Follow-Up Study)



Product Displacement (Study 3)



FIGURE 2: ENGAGEMENT AS A FUNCTION OF (DIS)PLACEMENT CONDITION AND NEED FOR COGNITION (Study 1)

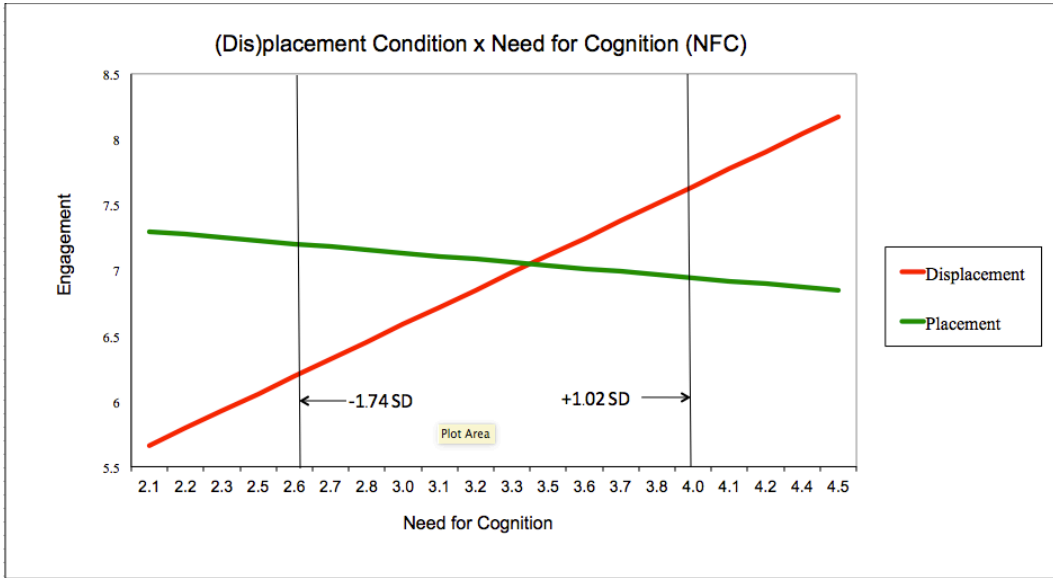


FIGURE 3: BRAND RECALL AS A FUNCTION OF NEED FOR COGNITION AND NEGATIVE EMOTIONAL REACTION ATTRIBUTION (Study 3)

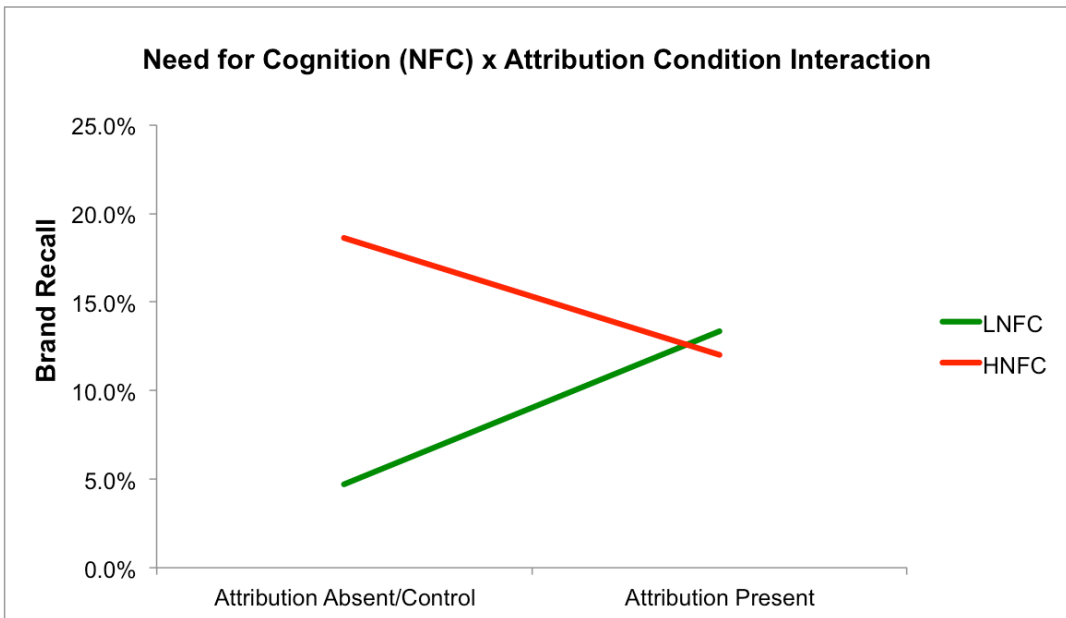


TABLE: STATISTICAL RESULTS

| Study       | DV                                | Descriptive Statistics                                    | Main Effects                                                                                       | Interaction                      |
|-------------|-----------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------|
| Preliminary | Engagement (EEG moment-to-moment) | <i>N/A</i>                                                | $p < .05$                                                                                          |                                  |
|             | Brand Recall (Strength)           | $M_{Displacement} = 1.55, vs. M_{Placement} = .55$        | $t(137) = 3.13, p = .002$                                                                          |                                  |
|             | Brand Recall (Probability)        | $P_{Displacement} = 44.4\% vs. P_{Placement} = 22.4\%$    | $\chi^2(1) = 7.54, p = .006$                                                                       |                                  |
| Study 1     | Engagement                        |                                                           |                                                                                                    | $b = -.62, t = -2.42, p = 0.016$ |
|             | Indirect Effect: HNFC             |                                                           | $B_{JN} = -.36, SE = .18, p = .05$                                                                 | $b = .19, t = 2.58, p = .010$    |
|             | Indirect Effect: LNFC             |                                                           | $B_{JN} = .51, SE = .26, p = .05$                                                                  |                                  |
|             | Negative Emotions                 |                                                           | NFC: $b = -.20, t = -2.70, p = .008$<br>Cond: $b = -.09, t = -2.54, p = .012$<br>NS                |                                  |
|             | Indirect Effect: HNFC             |                                                           | $B_{JN} = -.07, SE = .04, p = .05$                                                                 |                                  |
|             | Indirect Effect: LNFC             |                                                           |                                                                                                    |                                  |
|             | Brand Attitude                    |                                                           |                                                                                                    |                                  |
|             | Indirect Effect: HNFC             |                                                           | $b = .10, t = 1.98, p = .049$                                                                      |                                  |
|             | Indirect Effect: LNFC             |                                                           | $b = -.04, CI_{95}: -.12, -.002$<br>$b = .03, CI_{95}: .001, .11$<br>$b = .24, t = 1.86, p = .063$ |                                  |
|             | Behavioral Brand Support          |                                                           |                                                                                                    |                                  |
|             | Indirect Effect: HNFC             |                                                           | $b = -.10, CI_{95}: -.31, -.002$                                                                   |                                  |
|             | Indirect Effect: LNFC             |                                                           | $b = .08, CI_{90}: .01, .25$                                                                       |                                  |
|             | Attitude Towards Medium           |                                                           |                                                                                                    | $b = .49, t = 9.37, p < .0001$   |
|             | Indirect Effect: HNFC             |                                                           | $b = -.20, CI_{95}: -.39, -.01$                                                                    |                                  |
|             | Indirect Effect: LNFC             |                                                           | $b = .17, CI_{95}: .0003, .38$                                                                     |                                  |
| Study 2     | Brand Attitude                    |                                                           |                                                                                                    | $F(1,119) = 10.3, p = .002$      |
|             |                                   | High: $M_{Displacement} = 4.86, vs. M_{Placement} = 4.17$ | $F(1, 119) = 3.25, p = .074$                                                                       |                                  |

|         |                                |                                                                                            |                                              |                               |
|---------|--------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------|
|         |                                | <i>Low: M<sub>Displacement</sub></i><br>= 3.91, vs.<br><i>M<sub>Placement</sub></i> = 4.91 | $F(1, 119) = 7.59, p = .007$                 |                               |
| Study 3 | Brand Recall                   |                                                                                            |                                              | $b = .44, t = 2.16, p = .031$ |
|         | Control Condition              | <i>High NFC &gt;</i>                                                                       | $b = .82, SE = .31, Z =$                     |                               |
|         | Simple Effect                  | <i>Low NFC</i>                                                                             | $2.67, p = .008$                             |                               |
|         | Negative Attribution Condition | NS                                                                                         |                                              |                               |
|         | LNFC Floodlight Analysis       |                                                                                            | $B_{JN} = -.78, SE = .40, p = .05, -1.58 SD$ |                               |

## Sizes are Gendered: The Effect of Semantic Size Cues in Brand Names on Brand Perception

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What comes to your mind when you think of the brand name “Mini Cooper” or “Grand Cherokee”? Physical size would probably be among the first few associations that come to mind - Mini Cooper is physically smaller, whereas Grand Cherokee is physically bigger. However, do semantic size cues in brand names also evoke other associations?

This research proposes that beyond physical size, such semantic size cues would trigger ingrained gender stereotypes. Specifically, we argue that semantic size cues of “small-ness” (e.g., little, small) versus “big-ness” (e.g., grand, big) in brand names can activate female versus male gender stereotype, which subsequently affects the warmth and competence perceptions of the brand.

This possibility arises from anecdotal evidence and linguistics research. With some exceptions, men are generally physically bigger in size than women (Touraille & Gouyon, 2008). Linguistically, in many languages with grammatical gender, an inanimate noun is allocated to masculine (vs. feminine) grammatical gender if it is associated with a big (vs. small) shape (Aikhenvald, 2016). Similarly, people tend to generate descriptions such as big (vs. little) when they evaluate an object that has a masculine (vs. feminine) grammatical gender in their native language (Boroditsky, Schmidt, & Phillips, 2003).

These findings lead to the proposition that consumers have a general mental association between size (small vs. big) and gender (female vs. male). As such, brand names involving size cues related to smallness (vs. bigness) would evoke female (vs. male) gender stereotype, and this has important implications on how consumers perceive a brand. Specifically, it has been well-established that women are stereotyped as warm whereas men are stereotyped as competent (Bakan, 1966; Eagly & Steffen, 1984; Fiske et al., 2002; Parsons & Bales, 1955; Ramos et al., 2016; White & Gardner, 2009). Building on this stream of research, we hypothesize that brand names with semantic cues related to “small-ness” are perceived to be higher on warmth-related traits but lower on competence-related traits than brand names with semantic cues related to “big-ness.” We further hypothesize that gender stereotyping mediates the effect of semantic size cues on brand perceptions.

Six studies were conducted to test the proposed hypotheses. In study 1, we conducted a standard IAT to test the basic premise. In this IAT, participants sorted either semantic size cues (e.g., small, big) or person names (e.g., David, Mary) into one of the two disjunctive categories

(“female or small” and “male or big” vs. “female or big” and “male or small”). The average D score was 0.46 and significantly greater than zero ( $t(69)=8.46, p<.001$ ). Specifically, participants’ RTs were faster when small was paired with female and big was paired with male ( $M=693.64$  milliseconds) than when small was paired with male and big was paired with female ( $M=824.37$  milliseconds), suggesting that people indeed associate smallness with femaleness and bigness with maleness.

In studies 2A and 2B, we examined the effect of semantic size cues on brand perception among both US and Chinese consumers. In study 2A, US participants were randomly assigned to one of the two semantic size (small vs. big) conditions. Specifically, participants were presented with the same brand logo and information, but with different brand names (Little Salon vs. Grand Salon). Results showed that brand name with small (vs. big) semantic cue was perceived to be higher in warmth ( $M_{small}=5.30$  vs.  $M_{big}=4.44$ ;  $F(1,207)=36.46, p<.001$ ) but lower in competence ( $M_{small}=4.70$  vs.  $M_{big}=5.15$ ;  $F(1,207)=11.18, p<.01$ ). In study 2B, we replicated these findings among Chinese consumers.

Study 3 replicated previous findings by utilizing yet another consumption context (Little Cafe vs. Grand Cafe). Importantly, in this study we also measured the extent to which participants associate the brand names with maleness (vs. femaleness). We showed that participants associated the brand name containing small (vs. big) semantic cue more strongly with femaleness than maleness ( $M_{small}=2.92$  vs.  $M_{big}=4.18$ ;  $F(1,207)=73.05, p<.001$ ), and that such gender association mediated the effect of semantic size on both warmth perception ( $b=.29$ ; 95% CI=[.10, .57]) and competence perception ( $b=-.19$ ; 95% CI=[-.35, -.04]).

One could argue that people may derive certain inferences about the physical size of a restaurant based on its name, which subsequently affect their brand perceptions. In study 4, we ruled out this alternative explanation related to physical size. This study followed a 2 (semantic size: small vs. big)  $\times$  2 (physical size: small vs. big) between-subjects design. To manipulate semantic size, we followed the same method used in previous studies by using different brand names (Small Kitchen vs. Big Kitchen). To manipulate physical size, we created two different mall maps and manipulated the visual size of the target store as either smaller or bigger than other stores. A two-way ANOVA revealed only a significant main effect of semantic size cues on warmth and competence perceptions. In other words, we found that physical size of the store did not affect warmth and competence perceptions.

In study 5, we examined how semantic size cues affect purchase intention by manipulating the salience of a communal versus agentic goal in the consumption context. This study followed a 2 (semantic size: small vs. big)  $\times$  2 (consumption goal: communal vs. agentic) between-subjects design. To manipulate consumption goal, participants were told to imagine they were looking for a restaurant to meet either a friend (communal goal) or a business associate (agentic goal). We found a significant interaction effect between semantic size and consumption goal on purchase intention ( $F(1, 204)=28.21, p<.001$ ). Participants reported greater purchase intention for brand name containing small semantic cue when they had a communal goal ( $M_{small}=5.10$  vs.  $M_{big}=3.98$ ;  $F(1,204)=16.37, p<.001$ ). Conversely, participants reported greater purchase intention for brand name containing big semantic cue when they had an agentic goal ( $M_{small}=3.88$  vs.  $M_{big}=4.98$ ;  $F(1,204)=11.95, p<.01$ ).

Taken together, this research shows that semantic size cues of small-ness (vs. big-ness) invoke female (vs. male) gender stereotype and thereby increase the warmth (vs. competence) perceptions of brands. These findings provide a novel understanding of how brand name itself

can affect consumers' perception of the brand in terms of its warmth and competence traits and offer important implications for branding research.

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## Visual Coherence in Dynamic Marketing Stimuli: A Grounded Theory Approach

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Various animation techniques such as cartoons, motion graphics, and kinetic typography have been actively utilized in multimedia (Krasner 2008). Among the different animations, motion graphics have become more prevalent since they first appeared in commercial settings for film opening titles in the 1960s. The recent advancement of newer digital technologies such as JavaScript, Flash, and streaming media enables firms to easily and cheaply generate motion graphics for their marketing and advertising (Yoo and Kim 2005). There is also plentiful anecdotal evidence showing the effectiveness of motion graphics as dynamic visual stimuli in marketing communication. Recent reports have shown that digital commercial and rich media advertising that utilize motion graphics elements garnered revenues of more than \$5.5 billion in 2015 (Interactive Advertising Bureau 2016, p. 13). Furthermore, recent practitioner surveys have also indicated that an increasing number of marketers choose motion graphics as their preferred marketing tactic on account of its cost effectiveness (eMarketer 2013). As such, motion-based visual stimuli have emerged as popular visual communication methods in the current multimedia environment.

Despite the explosive growth in the use of dynamic tools in visual communication, this area has received little attention in the marketing literature. Relevant discussions on how to

develop effective dynamic visual stimuli are limited to various rules of thumb proposed in the practitioner press that have neither drawn upon related theories nor empirically tested specific propositions. Although extant marketing literature has examined the design aspects of visual elements in marketing communication, this body of work has mainly examined *static* stimuli such as printed ad images, brand logos, and typeface design (Hagtvedt 2011; Henderson and Cote 1998; Henderson, Giese, and Cote 2004; Jiang et al. 2016; Orth and Malkewitz 2008; Peracchio and Meyers-Levy 2005; Pieters, Wedel, and Batra 2010).

Recent studies have begun exploring dynamic elements in marketing communication, but these studies have generally focused on the dynamic nature of animations and examined how the use of dynamic content affects consumers' visual attention (Brasel and Gips 2008; Goldstein et al. 2014). Thus, little is known about how to develop dynamic visual stimuli that can better communicate marketing messages to shape consumers' inference-making and judgments above and beyond low-level visual processing. That is, there is a lack of theoretical understanding regarding the antecedents of better (or worse) dynamic visual stimuli that affect communication effectiveness.

To fill this gap in the literature, this research develops and tests a grounded-theory framework that provides new insights on how to create effective motion graphics-based advertisements. Moreover, this research proposes visual coherence as a design outcome that can shape how consumers process, understand, and respond to motion graphics-based advertisements. This investigation spans two phases: 1) Using an inductive, process-oriented approach, we first identify design properties (i.e., atomistic and relational properties) that shape motion graphics stimuli at component- and scene-levels. In addition, we uncover the underlying structure and latent factors that determine consumer perceptions of visual coherence in motion graphics stimuli; 2) Then, we experimentally test whether and how the identified design properties and factors shape visual coherence as well as and downstream marketing outcomes in a series of confirmatory studies.

Studies 1-2 outline the empirical groundwork that forms the base upon which we develop key theoretical insights. Drawing upon theories such as gestalt psychology, recognition-by-components, visual complexity, experimental aesthetics, and graphic design, we delineate a large set of atomistic and relational properties that characterize design and perception of motion-based dynamic content. Then, based on 2,072 consumer responses to real-world motion graphics stimuli, Study 1 explores how consumers process motion graphics-based advertisements and identifies the structure of atomistic properties that can be employed as individual design parameters. Subsequently, from relational properties, Study 2 uncovers three latent design factors that can enhance visual coherence in motion graphics by coordinating individual design parameters. First, we propose *figure-ground contrast*, which represents a fundamental factor—often a necessary condition—in determining the visibility of motion-based executions. Second, we suggest *scene simplicity*, which is a higher-order scene-related factor that determines the framing of the overall scene. Lastly, we identify a component-level factor, *component coordination* – executional arrangement that determines how individual graphical components move and change within the frame.

Next, in a series of experimental studies, we empirically validate the role of the identified design properties and factors as actionable determinants of visual coherence. We also explore how visual coherence further affects marketing outcomes. In Study 3, we examine the main effect of component coordination in a laboratory experiment. Study 3 demonstrates that systematically coordinating graphical components in motion graphics-based ads (e.g.,



symmetrical and parallel motion path, similarity in motion velocity) enhances perceived coherence, which in turn leads to greater product evaluations. Study 4 further shows that scene simplicity framing overall scenes in the ad as a single visual increases visual coherence and willingness to pay. Then, Study 5 documents the interaction effect between scene simplicity and component coordination – when the overall scenes of the ad are simple, component coordination exclusively determines visual coherence; whereas, when the overall ad scenes are complicated, scene simplicity and component coordination jointly drive visual coherence.

Our research contributes to extant literature in several aspects. Theoretically, we contribute to the literature exploring the visual design of marketing communication tools by expanding the domain of inquiry from static to dynamic forms. Moreover, this research is the first to propose a theoretical framework on how to develop visually coherent motion-based marketing stimuli. We also add a new perspective to the discussion on part–whole distinction in visual stimuli by identifying high-level design concepts that capture the essence of both componential and holistic aspects of motion graphics. From a managerial standpoint, this research facilitates firms’ decision-making processes on how to effectively utilize motion graphics for visual communication by proposing a simplified structure of motion graphics design. Overall, this research aims to build an integrative groundwork that can help both researchers and practitioners understand how to design coherent motion graphics for advertising and promotion in multimedia-rich environments.

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### **Promoting Pi Day: Consumer Inferences about Creative Event Promotions**

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Using promotions to attract customers is so prevalent that it takes something special for a given promotion to stand out (Kalwani & Yim, 1992). In the age of the Internet, where marketers can ensure that a promotion is distributed on a specific day, firms now offer more creative promotions around non-typical holidays (e.g., a 31.4% discount for Pi Day on March 14<sup>th</sup>) in addition to typical holiday promotions (e.g., standard Christmas discounts). But are such appeals effective? This research explores the effectiveness as well as the unique psychological consequences of such "special day" promotions.

Research on "marketplace metacognition" explores consumers' thoughts about marketers' actions and intentions (Wright, 2002). Prior work has shown an increased willingness-to-pay for products when consumers think marketers put extra effort into designing product displays (Morales, 2005). Consumers' responses to behaviorally targeted ads are also influenced by the inferences consumers make about how they were targeted (Summers, Smith, & Reczek 2016). Based on the literature on metacognition more generally (Schwarz, 2004), which demonstrates that people are particularly likely to draw inferences about experiences that are unexpected, we argue that consumers are especially likely to draw inferences about non-typical holiday promotions compared to standard promotional events. Specifically, we expect consumers to draw the inference that the marketer is creative when they encounter a special day promotion (subject to boundary conditions on which we elaborate below). Consumers then "reward" these more creative promotions with more positive evaluations of the promotion itself and increased purchase intentions. In other words, we predict that consumers reward firms for being creative in their promotional offerings.

In **study 1**, we test for the key effect using discount levels similar to, but actually slightly higher and lower than the special day discount. Participants in all three conditions imagined receiving an email promotion for a clothing retailer on March 14<sup>th</sup> (Pi Day). In the special day promotion condition, participants saw a 31.4% discount for an "Ultimate Pi Day" one-day sale. In the standard smaller [larger] promotion condition, they saw a 30% [35%] discount for a standard one-day sale. Participants then assessed their liking of the promotion using five items ( $\alpha = .90$ ). Participants who viewed the Pi Day discount had significantly more positive evaluations of the promotion ( $M = 3.49$ ) compared to participants who viewed a standard, smaller discount ( $M = 2.29$ ;  $t(168) = 5.30$ ,  $p < .0001$ ), and participants who viewed a standard, larger discount ( $M = 2.14$ ,  $t(186) = 5.88$ ,  $p < .0001$ ). Consumers appear to like a creative promotion more than an objectively better, but less creative, promotion.

**Study 2** extends these findings using a different non-typical holiday and different type of promotion held constant across conditions. Additionally, we explore an important boundary condition by measuring participants' familiarity with the holiday. All participants viewed a promotion for Lego valid on May 4<sup>th</sup> only (the study was conducted in real-time on the actual holiday): "Buy any 3 Star Wars Lego items, Get the 4<sup>th</sup> Star Wars Lego item FREE." In the special day promotion condition, the promotion was linked to "Star Wars Day" and the accompanying slogan, "May the Fourth Be With You." In the standard promotion condition, the advertisement included no mention of this holiday or slogan. Participants then reported their evaluation of the promotion using the study 1 measures ( $\alpha = .92$ ).

A significant interaction emerged between the promotion manipulation and participants' familiarity with the holiday ( $F(1,148) = 8.76, p < .01$ ). Floodlight analyses revealed that among participants who were familiar with the holiday (above 5.67 on 7-point scale; ~51% of participants), those who viewed the special day promotion had significantly more positive evaluations than those who viewed the standard promotion. This pattern flipped among individuals who were not familiar with the holiday (below 1.13; ~18%); the special day promotion now led to significantly more negative evaluations. Thus, creative event promotions are only effective when consumers can understand the marketer's creativity, but can backfire otherwise.

**Study 3** provides direct process evidence that consumers react favorably to special day promotions because they reward the marketer for being creative. We also demonstrate that positive evaluations of these promotions drive consumers' increased intentions to use such promotions. All participants first browsed a shoe company's sandals inventory and then viewed a 30% discount valid for "today only." Because the study was run on June 1<sup>st</sup> (i.e., National Go Barefoot Day), participants in the special day condition viewed a National Go Barefoot Day sale with the tagline "You might not need shoes today, but we've got you covered for tomorrow!" Participants in the traditional event condition viewed a Start of Summer sale ("With summer in sight, we've got you covered for new shoes!"). In the no event condition, participants saw a standard one-day sale. Participants reported their evaluations of the promotion, perceptions of the marketer's creativity, and intentions to use the promotion.

Participants in the special day condition had significantly more positive evaluations of the promotion ( $M = 4.66$ ) than those in the traditional event ( $M = 3.94, t(162) = 2.62, p < .05$ ) and no event conditions ( $M = 3.58, t(162) = 4.04, p < .001$ ). The same pattern resulted for participants' perceptions of the marketer's creativity. To rule out an alternative explanation, participants found all three promotions to be equally appropriate ( $F(2,162) = 0.35, ns$ ). Finally, serial mediation models, comparing (1) the special day to the traditional event condition and (2) the special day to the no event condition revealed that increased perceptions of the marketer's creativity in the special day condition led to more positive evaluations of the promotion, which then led to higher intentions of using the promotion to make a purchase, compared to the other two conditions.

Together, these studies provide evidence that special day promotions boost participants' evaluations and lead to increased usage intentions even compared to standard promotions that are more favorable financially (study 1) and so long as participants understand the marketer's creativity (study 2). Such creativity will then be rewarded with higher purchase intentions (study 3).

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