25TH ANNUAL

ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM PROCEEDINGS

March 31 – April 2, 2016

DOCTORAL RESEARCH IN MARKETING

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ACKNOWLEDGEMENT

The Marketing Department would like to thank the Dean Donde Plowman and the Dean’s Office in the College of Business Administration for the partial financial support for this symposium. We also thank Michelle Jacobs for all of her assistance in organizing the symposium.

ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM

"The word “symposium” comes from the Greek word “symposion” which, in turn, derives from the Greek verb “sympeninein” which means to drink together. The Merriam Webster dictionary defines symposium as “a convivial party with music and conversation” or “a social gathering at which there is free interchange of ideas.” While the music may be in short supply, I trust that all of you – and especially those of you for whom this is your first time at a meeting like this – find this symposium both intellectually stimulating and socially rewarding. So, again, welcome to the Robert Mittelstaedt Doctoral Symposium."

- Robert Mittelstaedt

Dr. Robert Mittelstaedt retired on August 31, 2002, after 29 years of contributions to the University of Nebraska–Lincoln, College of Business Administration, Marketing Department and our graduate program.

Doctoral students share a common link to Bob. He was more than a fine educator, scholar, and academic citizen. He was also their mentor, friend, counselor, and supporter. He motivated them with his insights, kindness, and countless stories. He stimulated their ideas, made them smile, and warmed their spirits. In addition, Bob and Venita opened their home and hearts to many doctoral students and gave them many forms of moral support. Bob dedicated his career to doctoral education and has served as a role model to both doctoral students and junior faculty.

Bob also introduced macromarketing theory and issues to doctoral students and inspired them, for over 40 years. He has been more than a fine educator and scholar. His insights, seminars, and dedication to the Journal of Macromarketing and Macromarketing Conferences motivated their investigations of important issues in the field, presentations at the Conferences, and publications in JMM.

Despite being retired, Bob was lured back to the department for the 2004 and 2005 fall semesters to teach doctoral seminars.

At the time of Bob’s retirement, the faculty in the Department of Marketing decided to rename the Nebraska Doctoral Symposium to the Robert Mittelstaedt Doctoral Symposium in honor of Bob’s accomplishments at the University of Nebraska–Lincoln.
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If you would like to support the Robert Mittelstaedt Doctoral Symposium, send a check made payable to University of Nebraska Foundation (with Mittelstaedt Symposium in the memo area) and forward to the UNL Department of Marketing, PO Box 880492, Lincoln, NE 68588-0492.
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25TH ANNUAL ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM
MARCH 31 – APRIL 2, 2016

THURSDAY, MARCH 31 – AFTERNOON

Guests check in at the Courtyard by Marriott Lincoln Downtown, 808 R Street, (402) 904-4800

THURSDAY, MARCH 31 – EVENING (DRESS CASUALLY)

7:00 - 10:00  Welcome Reception and Cocktail Party
            Van Brunt Visitors Center, 313 North 13th Street
            Finger-foods will be served

FRIDAY, APRIL 1 – MORNING (DRESS PROFESSIONALLY)
LOCATION: SCARLET BALLROOM

Breakfast available for guests staying at the Courtyard

7:45 – 8:00  Welcome
            Dr. Jim Gentry, Mittelstaedt Doctoral Symposium Coordinator
            Dr. Tammy E. Beck, Associate Dean for Graduate Programs and
            External Engagement
            Dr. Robert Mittelstaedt, Nathan J. Gold Distinguished Professorship in
            Marketing, Emeritus

8:00 – 8:30  Do Payment Types Affect Consumer Preferences?
            Arvind Agrawal, University of Nebraska–Lincoln

8:30 – 8:40  Discussant: Raika Sadeghein, West Virginia University

8:40 – 8:50  General Discussion

8:50 – 9:00  Break

9:00 – 9:30  The Effects of Political Ideology on Consumer Creativity
            Heeryung (Claire) Kim, Indiana University

9:30 – 9:40  Discussant: Aaron Barnes, University of Illinois at Urbana-Champaign

9:40 – 9:50  General Discussion
9:50 – 10:00  Break

10:00 – 10:30  **Illuminating Consumers’ Proactive Pursuits of the Sense of Belonging**  
                Robert Arias, University of Illinois at Urbana-Champaign

10:30 – 10:40  Discussant: Aditya Gupta, University of Nebraska–Lincoln

10:40 – 10:50  General Discussion

10:50 – 11:00  Break

11:00 – 11:30  **Owning Community**  
                Meredith Thomas, University of Wisconsin-Madison

11:30 – 11:40  Discussant: Alejandra Rodriguez, Oklahoma State University

11:40 – 11:50  General Discussion

11:50  Group Photo

12:00 – 1:00  Lunch in the Bistro area, Courtyard

**Friday, April 1 – Afternoon**  
**Session One**  
**Location: Scarlet North**

1:00 – 1:30  **Predicting Bundle Preference Using Configuration Data**  
I-Hsuan (Shaine) Chiu, University of Iowa

1:30 – 1:40  Discussant: Yeji Lim, University of Missouri-Columbia

1:40 – 1:50  General Discussion

1:50 – 2:00  Break

2:00 – 2:30  **Salesperson Decision Authority and Productivity: The Moderating Role of Salesperson Characteristics**  
Zhen (Richard) Tang, University of Arizona

2:30 – 2:40  Discussant: Peng Liu, Indiana University

2:40 – 2:50  General Discussion

2:50 – 3:00  Break
3:00 – 3:30  Do Salespeople Add Value in an Online World? Financial Implications of Multichannel Business Customers  
Justin Lawrence, University of Missouri-Columbia

3:30 – 3:40  Discussant: ShinHye Kim, Washington State University

3:40 – 3:50  General Discussion

3:50 – 4:00  Break

4:00 – 4:30  Benign Envy: The Positive Influence of Watching Others Receive Preferential Treatment  
Yu-Shan (Sandy) Huang, Oklahoma State University

4:30 – 4:40  Discussant: Brandon Reich, University of Oregon

4:40 – 4:50  General Discussion

FRIDAY, APRIL 1 – AFTERNOON  
SESSION TWO  
LOCATION: SCARLET SOUTH

1:00 – 1:30  Drawing Conclusions from Distraction: Distracting Ads Cue Consumers to Infer Product Interest Through Metacognitive Inferences  
Daniel Zane, The Ohio State University

1:30 – 1:40  Discussant: Gaurav Jain, University of Iowa

1:40 – 1:50  General Discussion

1:50 – 2:00  Break

2:00 – 2:30  Does Priming A Sense of Powerfulness Encourage Consumers to Buy Healthy Foods?  
Xin (Cindy) Wang, University of Oregon

2:30 – 2:40  Discussant: Eric Krszjzaniek, University of Wyoming

2:40 – 2:50  General Discussion

2:50 – 3:00  Break
3:00 – 3:30  **Essays on the Role of Product Characteristics on Information Source Importance**  
Saeed Tajdini, The University of Texas at El Paso

3:30 – 3:40  Discussant: Amit Singh, The Ohio State University

3:40 – 3:50  General Discussion

3:50 – 4:00  Break

4:00 – 4:30  **Your Goldilocks Is Out There! Consumer Lay Expertise in the Destigmatization of Misunderstood Consumption Practices**  
Edna Ndichu, University of Wyoming

4:30 – 4:40  Discussant: Scott Connors, Washington State University

4:40 – 4:50  General Discussion

**FRIDAY, APRIL 1 – EVENING (DRESS CASUALLY)**  
**LOCATION: SCARLET BALLROOM**

6:30 – 9:00  Evening Reception and Banquet  
6:30 - Social  
7:00 - Banquet

9:00  On your own

**SATURDAY, APRIL 2 – MORNING (DRESS PROFESSIONALLY)**  
**LOCATION: SCARLET BALLROOM**

Breakfast available for guests staying at the Courtyard

8:00 – 8:30  **Negative Open-Loop Exchange Spirals: How Third Party Observers Respond to Overheard Service Failures**  
Ismail Karabas, Washington State University

8:30 – 8:40  Discussant: Yue (Zoe) Lu, University of Wisconsin-Madison

8:40 – 8:50  General Discussion

8:50 – 9:00  Break
9:00 – 9:30  **Swayed by the Numbers: The Unintended Consequences of Displaying Review Counts**  
Jared Watson, University of Maryland

9:30 – 9:40  Discussant: Brandon McAlexander, University of Arkansas

9:40 – 9:50  General Discussion

9:50 – 10:00  Break

10:00 – 10:30  **Why is Menu Labeling Often Ineffective? The Role of Consumers’ Food Value Orientations**  
Christopher Berry, University of Arkansas

10:30 – 10:40  Discussant: Marija Grishin, University of Kansas

10:40 – 10:50  General Discussion

10:50 – 11:00  Break

11:00 – 11:30  **The Effects of Pre-Giving Incentives on Charitable Donations**  
Bingqing (Miranda) Yin, University of Kansas

11:30 – 11:40  Discussant: Smriti Kumar, Iowa State University

11:45 – 11:50  General Discussion

11:50 – 12:00  Closing
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March 31 – April 2, 2016

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DO PAYMENT TYPES AFFECT CONSUMER PREFERENCES?

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ABSTRACT

Through a survey-based experimental study, we assess the influence of payment type (credit and debit cards) on consumer purchase intentions. We find that consumer use of credit cards stimulates intention to purchase whereas the use of debit cards lessens consumer intention to purchase. We test the influence of payment type on consumer intention across three purchase situations – buy a TV (control condition), buy a TV plus accessories (buy more condition), and buy a more expensive TV (upgrade to better quality condition). Consumers using credit cards demonstrate positive purchase intentions when faced with a decision to “buy more” and when they are presented with an opportunity to “upgrade to better quality.” They are more likely to upgrade than to buy more, almost significantly so (p < .06). The traditional economic thought has been that preferences do not change with payment type, but the use of credit cards allows consumers to purchase more. Our results indicate that credit also changes preferences, as 60% of consumers using credit cards intend to upgrade their brand selection. We also find that with debit cards consumers are likely to have higher intentions to not purchase in the “buy more” and “upgrade to better quality” conditions than the control condition. We extend the buyer behavior model (Howard and Sheth 1969) and most subsequent research in consumer behavior to include the influence of payment type on purchase intentions. The differential effect of a number of individual characteristics is established on consumer intentions to purchase when using credit cards versus when using debit cards.

INTRODUCTION

Credit/debit cards have become the key payment instruments in the US with about two-thirds of consumer and business payments made with cards in 2012 (Reserve 2013). US consumers are fast replacing cash/checks with credit/debit cards (Humphrey 2004). Credit card purchases tend to be of larger dollar value than those made with cash (Hirschman 1979). Consumer use of credit and debit cards has been related to their desire to fulfill their lifestyle needs, reflect their status in the society, and achieve their goals in life (Bernthal, Crockett, and Rose 2005; Hirschman 1979; Peñaloza and Barnhart 2011). However, credit availability leads to puzzling outcomes for consumers, enticing them with the freedom to pursue their lifestyles and constraining them when they lack self-regulation (Bernthal et al. 2005). Money facilitates consumer realization of their lifestyle choices and thus transforms into a moral and social resource (Bradford 2015). Accordingly consumers pursue goals that originate in their moral values (economizing and sustaining) or in their social relationships (treating and rewarding). Money budgeted for thrift or splurging then becomes the conduit for consumers to achieve these goals. This has consequences for consumers as research has found that higher credit card usage accentuates money attitudes (power, distrust, and anxiety), often resulting in compulsive buying behavior for college students (Roberts and Jones 2001). However, debit cards are different since they draw on the available balance in the bank and thus could be driving purchase behavior differently than credit cards.

Of late, debit cards have found favor with consumers in the US accounting for 1.79 times the number of transactions on credit cards; however, in dollar value, general purpose credit cards account for far more (Reserve 2013). The average value of card payments (credit, debit, and prepaid combined) decreased to $55 in 2012 from $66 in 2003. This was primarily ascribed to greater adoption of cards for payments with the conversion of lower value cash payments to mostly debit cards. The enhanced use of debit cards has resulted in the reduction of the use of small denomination currency (Amromin and Chakravorti 2009), pointing to a changing conceptualization of money as symbolized by credit and debit cards. The changing conceptualization of money is due to a complex interplay of the economic, emotional, moral, social, and goal-oriented symbolization that is inherent in debit and credit cards as symbols of money (Bernthal et al. 2005; Bradford 2015; Roberts and Jones 2001). An understanding of how consumers
integrate these multiple payment types in achieving their life goals will be useful in ascertaining their marketplace exchange behavior.

Rewards motivate consumers to use credit cards (Arango, Huynh, and Sabetti 2011) and could change consumer value perceptions in market exchanges, possibly leading to greater consumer loyalty (Bolton, Kannan, and Bramlett 2000). However, greater psychological pain when paying with cash as compared to credit cards also leads to greater consumer commitment for the product post purchase (Shah et al. 2016). While Shah et al. (2016) did not include debit cards in their experiments, the pain of payment for debit cards is expected to fall in between cash and credit cards (Prelec and Loewenstein 1998; Raghubir and Srivastava 2008). Raghubir and Srivastava (2008) find that the spending amount is higher when paying with gift certificate and credit card as compared to paying with cash. It follows then that consumer motivation to purchase itself can be stimulated (or hindered) by the choice of payment type. Varying consumer benefits and value perceptions should translate into different types of payment cards driving consumer preferences differently towards marketplace spending. This is a gap in the literature as there is little information on differences in consumer preferences when presented with alternative choices of using debit versus credit cards. Assessing these differences in consumer preferences gets complicated due to the multiple factors that affect the choice of a payment mode by consumers as discussed earlier (Amromin and Chakravorti 2009; Arango et al. 2011; Bernthal et al. 2005; Hirschman 1979; Peñaloza and Barnhart 2011; Shah et al. 2016). A comprehensive understanding of the effects due to the choice of debit or credit card for payment on consumer purchase preferences is yet to be studied. Therefore, the research questions we ask are as follows:

**RQ1:** We know that the choice of payment type (debit versus credit card) leads to a difference in consumer spending amounts, but does it lead to a difference in consumer preferences in the purchase itself?

**RQ2:** Does the choice of payment type influence the incremental purchase decisions by consumers in terms of whether they buy more versus upgrade to higher quality products/services?

**RQ3:** Do consumer demographics, benefits available on the card, and consumer payment practices differentially influence consumer purchase behavior when using debit versus credit cards?

With credit cards becoming a habitual mode of payment (Cohen 2007), one wonders if they simply represent the utility value of money in the exchange process? Or do credit cards provide the illusion of greater resource availability to the consumer, thereby reducing one of the barriers (lack of resources) noted by Howard and Sheth (1969) between attitude and behavioral intentions? Consumers may selectively use a particular payment type depending on the transaction characteristics, such as its size (Hirschman 1979). In this research, we test the effect of individual payment type for large transaction values ($1200 and above) across a number of variables that have been found to affect consumer learning over time.

We employ an experimental survey setting to assess the effect of debit versus credit card payment modes on consumer purchase behavior. We find that while credit cards encourage purchasing, debit cards dissuade consumers from spending and perhaps encourage savings. We assess these differences across incremental purchase settings as well as across multiple demographic, card benefit, and consumer payment practice variables. The rest of this manuscript establishes the theoretical foundation for this exchange phenomenon, followed by hypothesis development, methodology including sample selection, and finally the results with the discussion of theoretical and managerial implications of this study.

**THEORETICAL FOUNDATION**

While credit availability has been one of the important drivers of US economic growth in recent times, it is important to understand the longer term effect of credit in fashioning consumer behavior (DellaVigna 2007). Access to credit is an implicit necessity to be a middle-class consumer in the US. Available credit allows consumers access to daily necessities such as telephone, electricity, and banking
services (Foust and Pressman 2008). Credit cards could be said to possess a certain privilege and a social premium over debit cards as consumers need to be “eligible” and “qualify” for credit cards while debit cards are simply a matter of opening a bank account. Not only does the credit limit available on the card vary according to the “credit assessment” of an individual by the financial institution, but also credit card issuance itself could be denied with typically an upper limit to the number of credit cards a consumer can get from across different financial institutions. There is no such limit on debit cards. Being able to get a credit card, therefore, means that the consumer has been able to meet the standards set for financial prudence and foresight expected of a consumer by the financial institution. Credit cards serve as one of the tools desired by consumers for building a good credit history (Foust and Pressman 2008). Availability of credit, therefore, can be seen as a social triumph and can turn consumers agentic, empowering them, giving them strength, and creating optimism about their future (Peñaloza and Barnhart 2011). What effect does the choice of debit card have on the consumer?

Many research studies on payment types have focused on a combination of characteristics first highlighted by Hirschman (1979) that may determine the consumer’s choice of a payment type: (1) person, (2) payment system, (3) product, (4) the place accepting the remittance, and (5) the situation in which the transaction takes place. For example, Soman (2001) determined that the recall and aversive impact of past payments can affect the future spending behavior and thus the utility of the transaction. The “Theory of Buyer Behavior” identifies stimuli related to the product/service being transacted in the perceptual and learning processes leading to purchase behavior (Howard and Sheth 1969). These include the physical, pictorial, and linguistic stimuli (manifested in quality, price, distinctiveness, service, and availability), and social stimuli (influence of family, reference group, and social class). In this model, the type of money used in the transaction has been assumed to be effect neutral and thus does not figure as an antecedent that could change the internal state of the buyer and thus result in distinct purchase behavior. Subsequent research built on this earlier theory carried out in the contexts of relationship marketing (Sheth and Parvatiyar 1995), constructive consumer choice processes (Bettman, Luce, and Payne 1998), and even value conceptualizations (Ravald and Grönroos 1996) similarly did not include the value that payment mode may add to the exchange process.

As noted earlier making payments with a relatively more painful form of payment (such as cash or checks) increase the commitment to the product purchased, or in the case of donations increase the commitment to the organization to whom the donation is made (Shah et al. 2016). Credit cards are a relatively less painful form of payment as compared to debit cards which result in instantaneous wealth reduction and thus lead to a feeling of immediate loss to the consumer (Prelec and Loewenstein 1998; Raghubir and Srivastava 2008). In the case of credit cards since the consumer is required to pay the bill after a lag time (usually after 30 days of receiving the bill and on an average 45 days after purchase), the feeling of loss is delayed and could even be diminished due to the time-inconsistent behavior of consumers (Hoch and Loewenstein 1991). Thus, the choice of payment type in market transactions (debit card vs credit card) should influence the consumer willingness to make the market transaction. While monetary considerations could be explained by the economic theory of utility maximization, the differences in non-monetary incentive may lead to a range of consumption behaviors across consumers (DellaVigna 2007).

Consumers construct choice strategies contingent on task demands instead of having well-defined pre-existing preferences (Bettman et al. 1998). The primary reason for this is that consumers are limited by their processing capacity. Choice strategies are influenced by consumers’ limited attention, their selective comprehension of information, and their perception of the situation. Pre-existing goals, therefore, gain predominance in consumer construction of choices and lead to motivated reasoning (Kunda 1991). Preference for a payment mode could be reflective of consumer effort to achieve their goals through an efficient use of their money. As noted earlier, research has identified credit availability as leading to consumer’s agency and strength (Peñaloza and Barnhart 2011), which leaves us to wonder what a lack of credit could mean? This question can be answered by studying the differential effects on purchase intentions.
of the two main types of payment modes (credit and debit cards) in use today as they account for almost half of all consumer transactions in the US (Foster et al. 2011).

We propose an extension of the “Theory of Buyer Behavior” to include payment mode as an antecedent to consumer choice influencing the consumption process. Specifically, this research tests the effects of debit versus credit cards in influencing consumer purchase decisions (Figure 1). We test for three purchase conditions in this research: (1) a control condition ($1200 purchase), (2) decision to buy-more ($1500 purchase), and (3) decision to upgrade to a better quality product ($1500 purchase). Next we establish the hypotheses for this study.

HYPOTHESIS DEVELOPMENT

Consumer perception of payment type is reflected in the choice of payment mode for different transaction characteristics (Arango et al. 2011; Bounie and François 2006; Reserve 2013; Soman 2001, 2003). Cash is generally used for low value ($25 and less) transactions due to speed, merchant acceptance, and low costs. Debit and credit cards (as compared to cash) are used more frequently for higher transaction values where safety, record keeping, and the ability to delay payment gain prominence (Arango et al. 2011). Research on the use of credit cards has clearly established their effect on purchase amount with consumers buying more with credit cards (Feinberg 1986; Hirschman 1979; Roberts and Jones 2001; Soman 1999). Consumer behavior is shaped by the extent of the social status that they are able to derive from a particular transaction. Consumers need to qualify for credit cards and credit limits as noted earlier. This means that credit cards are a source of social status (Feinberg 1986; Peñaloza and Barnhart 2011). Hirschman (1979) found that consumers make a larger total dollar purchase with credit cards than those paying by cash. The total dollars spent by the purchaser are higher when at least one transaction is made with a credit card then when all transactions are made with cash (Hirschman 1979). Credit cards being lower on the pain of payment and payment coupling as compared to debit cards (Prelec and Loewenstein 1998; Raghubir and Srivastava 2008) leads us to infer that:

H1: Credit card usage will lead to positive and higher consumer buying intention across (a) control condition, (b) buy more condition, and (c) upgrade to the better quality condition as compared to debit cards.

Roberts and Jones (2001) found that money attitudes (power-prestige, distrust, and anxiety) are moderated by credit card usage, sometimes leading to compulsive buying among American college students. Credit limits signal future income potential to consumers and so they lead to a feeling of liquidity and immediacy of consumption (Soman and Cheema 2002). Consumers are driven by status consciousness and use “convenient credit” provided by credit cards to lead lifestyles that may be beyond their immediate financial means (Cohen 2007). Consumers primed with credit cards expressed higher reservation prices (Chatterjee and Rose 2012). Research has shown that consumers would choose quality products when the price to quality trade-off offered in the market is lower than their own price-quality trade-off threshold (Diehl, Kornish, and Lynch 2003). CCs direct consumers’ attention to product benefits in product evaluations (Chatterjee and Rose 2012), which is expected to change the inherent meaning that consumers assign to CCs in product comparisons from mere objectification of the various items under evaluation to the access cost of quality (Zelizer 1989). The extra-economic motivations shaping the meaning of money represented by different payment types (DCs versus CCs) are expected to affect the price the consumer is willing to pay for an additional quality. The benefit focus in product evaluations with CCs thus should lead to a greater willingness to pay for quality. Combining the benefits focus of consumers when using CCs, lower payment coupling and thus lower psychological pain of payment with CCs, and an illusion of liquidity for the consumer leads us to infer that:

H2: Credit card usage will mean higher purchase intentions when upgrading to better quality goods/services than the intention to buy more.
Debit card transaction size is less than half that of credit cards as noted before (Amromin and Chakravorti 2009). Debit cards’ increased usage by consumers has led to reductions in change and small currency in circulation which means that they have replaced cash in market exchanges. Payment mechanisms vary in terms of their transparency with higher transparency correlating to greater levels of the pain of payment and negatively with consumption and spending (Prelec and Loewenstein 1998; Soman 2003). Debit cards have higher payment transparency as compared to credit cards. Past payments strongly reduce purchase intention when the consumer is reminded of immediate wealth depletion (Soman 2001). This leads us to infer that debit card usage leads to a more conservative consumer behavior and thus:

H3: Debit card usage will more likely lead to negative purchase intentions across control, (b) buy more, and (c) upgrade to better quality conditions.

We first test the three hypotheses that are offered in this research and then follow-up our findings with an investigation of the impact on consumer purchase intentions across a number of consumer characteristics for each individual purchase context.

**METHODOLOGY**

An experimental survey methodology is used to investigate consumer choice (buy / no buy) in a three (control condition, buy more, buy better quality) by two (access only to credit card / access only to debit card) design. The control condition presented here is the option to buy a $1200 Samsung 55” TV. The buy more option refers to $1500 for the Samsung 55” TV plus surround sound system. The buy better quality option refers to purchase of $1500 Sony 55” TV. The buying more and buying better quality are consumer perception-based measures. So these conditions are established through an explanation contained in the scenario. The price of items was taken from an e-commerce website in order to make realistic representations of consumer choices. Participants were randomly assigned to either the credit card only or the debit card only condition. For details on the three scenarios, please refer to Appendix 1.

The participants for this research are members of University of Nebraska Federal Credit Union, Lincoln (UNFCU). Any member of UNFCU 20 years old or over was targeted for the survey. A total of 4032 surveys were sent using the “Qualtrics” online survey platform, of which 396 bounced back. Subsequent to a reminder sent four weeks after the initial email, we received a total of 727 completed responses for a 20% net response rate. The early and late responders were compared and revealed non-significant differences in response. The respondent profile is given in Table 1. We note that the respondents to this study have a higher level of education and income as compared to the US population. This is expected since the sample is drawn from the University of Nebraska employees, alumni, and student population.

Table 1 About Here

Participants started with answering questions about their family, card ownership, and financial situation. They were asked to assume that they had available only the payment type they were randomly assigned to in the study while answering their purchase preferences (binary choice: buy / not buy) in the three scenarios which came next. They ended the survey sharing their demographic characteristics.

The research used several measures across which the responses have been analyzed. Measures are selected based on their inclusion in earlier studies of payment types (Ching and Hayashi 2010; Kara, Kaynak, and Kucukemiroglu 1996; Reserve 2013; Zelizer 1996). These include: (1) demographic characteristics of the consumer (gender, education, marital status, household (HH) income, age, ethnicity); (2) consumer family characteristics (family size, number of adults, number of children); (3) consumer financial situation (earning members, HH spending versus HH income annually, satisfaction with financial condition, ability to cover monthly expenses); (4) payment card ownership (number of credit cards (CCs), number of debit cards (DCs), number of other cards, number of CC with rewards, number of CC with fees,
number of DC with rewards, number of DC with fees, number of other cards with rewards, number of other cards with fees); (5) card benefit perceptions and experience across different shopping formats (interest on outstanding balance, experience shopping with CC on-line, experience shopping with CC face-to-face, experience shopping with DC on-line, experience shopping with DC face-to-face, CC provide freedom to spend, accustomed to using CC, CC allow increased spending, CC help build credit profile); and (6) consumer payment practices (bills paid in full, revolve on card, pay minimum bill amount, charged late payment fees).

RESULTS

Hypothesis Tests

Overall we find (Table 2) that across each of the three conditions CCs versus DCs produce purchase intentions that are significantly different (Control condition: $\chi^2 (1, 585) = 87.67$, $p<.01$; Buy More condition: $\chi^2 (1, 581) = 45.71$, $p<.01$; Upgrade to Better Quality condition: $\chi^2 (1, 577) = 63.88$, $p<.01$). Across each of the three conditions (control, buy more, upgrade to better quality) CC usage leads to consumer intentions to purchase (odds in favor of buying for control condition: 3.01, buy more: 1.10, and upgrade to better quality: 1.51). Thus, H1a, H1b, and H1c are supported. DC usage across the three scenarios leads to consumer intentions to not purchase (odds in favor of buying for control condition: 0.58, buy more: 0.33, and upgrade to better quality: 0.37). Thus, H3a, H3b, and H3c are supported. Both CCs and DCs produce significant differences across the three conditions. We use confidence intervals (CI) to assess the relationship between the three conditions. Here the CI is calculated on the natural log scale and then converted back to the original scale. If the CI does not contain “one” then we infer that there is an association between the two nominal variables. If the entire interval is higher than “one”, then the numerator has a higher probability. If the entire interval is lower than “one,” then numerator has a lower probability. With CCs, the odds of buying in the buy more condition are similar to the odds of buying in the upgrade to better quality condition (95% CI = (0.52, 1.02)). Given that 1.0 is almost excluded from the range, we can conclude that H2 is marginally supported as consumers are more likely to upgrade to better quality than to buy more.

This study finds that CCs generally generate higher consumer preferences to purchase than DCs. While the use of CCs promotes purchase intentions, use of DCs inhibits consumer intention to purchase. However, this is not always true. Respondents who disagree that CCs are convenient prefer not to buy with their CCs (percent respondents prefer not to buy- control condition: 67%; buy more condition: 78%; upgrade to the better quality condition: 67%). Respondents who are not accustomed to using CCs prefer not to buy with their CCs (percent respondents prefer not to buy- control condition: 54%; buy more condition: 78%; upgrade to the better quality condition: 70%). In these cases, consumer use of CC triggers intentions to not buy that are generally observed when consumers have to use their DC to pay. Similarly, this study finds a reverse influence on consumers who do not own CCs with rewards. For these consumers, DC use triggers an intention to purchase in the control condition.

Consumer Characteristics Influence on Purchase Intentions in the Presence of DCs versus CCs

Now that we have found that CC usage influences decisions both to buy more and to buy better, we will investigate demographic and attitudinal variables in an attempt to provide more insight into under what conditions does the use of CCs has such effects. Many consumer characteristics were found to have no significant effect on consumer purchase intentions when using either DCs or CCs: education, marital status, perception of HH spending versus HH income, satisfaction with financial conditions, whether the respondent is able to cover her/his monthly expenses, number of CCs or DCs with rewards that they hold, number of CCs or DCs with fees, number of other cards (prepaid, gift, charge) that they hold, good or bad experience using CCs or DCs in a face-to-face environment, experience using DCs in an online environment, whether the respondent pays bills in full or revolves on their CC, and whether they were charged late payment fees or not.
The consumer characteristics that affected respondent intention to purchase using a CC or DC are discussed next.

**Consumer Characteristics with Distinct Purchase Intentions due to CC Usage**

CC use influences consumer purchase intentions differently across consumers with different HH incomes, ethnicities, family size, the number of CCs owned, the number of CCs with rewards owned, the experience of using CCs online, consumer perception of whether CCs provide freedom to spend, and whether consumers are accustomed to using CCs. The influence of each of these variables is presented below.

**Income:** CCs are instrumental in consumers exhibiting increasing purchase intentions as HH incomes increase. Consumers at all levels of HH income display higher intentions to buy except when those with incomes of less than $50,000 annually are faced with buying more or upgrading to higher quality, in which case consumers show a preference to not buy. The effect of CCs is visible across all three scenarios (control condition: $\chi^2 (7, 269) = 26.74, p < 0.01$; buy more condition: $\chi^2 (7, 267) = 17.76, p < 0.01$; upgrade to better quality condition: $\chi^2 (7, 264) = 20.14, p < 0.005$). The higher the household income, the greater the tendency among respondents to purchase with credit cards in the control condition (the willingness to buy increases with income, from 60% of those with incomes under $50,000 to 93% of those with incomes over $100,000). It is interesting to note that when respondents use a CC, they have a greater purchase intention when they upgrade to better quality than when they buy more. However, household income does not have any effect on respondent’s purchase intentions when they use DCs for payment across the three scenarios.

**Ethnicity:** Ethnicity predicts purchase intention when respondents use a CC in the control ($\chi^2 (5, 281) = 17.08, p < 0.004$) and upgrade to better quality ($\chi^2 (5, 276) = 11.41, p < 0.04$) conditions. In the control condition, Whites/Caucasians have the highest intent to purchase with a CC (78%) whereas in the upgrade to the better quality condition it is the Asians/Pacific Islanders who have the highest intent to purchase (82%). It has been commonly observed that Asians (especially East Asians) have preferences for brands seen to have higher quality.

**Family Size:** Respondent family size has a significant influence on their purchase intention when they use a CC to make purchases in the control ($\chi^2 (4, 287) = 9.60, p < 0.05$) and upgrade to better quality ($\chi^2 (4, 280) = 8.94, p < 0.06$) conditions. In the control condition, respondents with any family size show a preference to buy with a family size of two showing the highest intention to purchase with CCs (84%). This changes when it comes to making a decision in the upgrade to the better quality condition. Here a family size of four shows the highest intention to purchase (69%). Family size does not affect purchase intention in the buy more condition with CCs and when respondents use DCs in any of the three scenarios.

**Number of Credit Cards:** The greater the number of CCs owned by our respondents, the greater the intention to buy when using a CC in the control condition ($\chi^2 (5, 290) = 18.08, p < 0.003$; purchase intentions with number of CCs owned: none – 47%, one – 63%, two – 74%, three to four – 84%, > five – 87%). Since CCs are linked to credit availability on each card, ownership of a greater number of CCs could mean qualification for more credit. This is corroborated by the number of CCs that are strongly correlated with household income (Pearson correlation $r = 0.196, p < 0.001$). Thus, ownership of a greater number of CCs may lead to higher spending (Soman 1999; Soman and Cheema 2002). With CCs offering the most expensive means of credit, we might assume that respondents holding more CCs would be under greater financial pressure in cases when they are using all of their CCs. To check this assumption, we ran the correlation of CC ownership with the satisfaction with the financial condition (Pearson correlation $r = 0.066, p < 0.10$) which are not correlated. Thus, the use of multiple CCs does not appear to reflect situations where consumers were maximizing the credit limits on some of them.
Number of Credit Cards with Rewards: “Ownership status of CCs with rewards” as a consumer characteristic is related to purchase intentions across all the three scenarios whether they use a CC for purchase (control condition: $\chi^2 (1, 293) = 10.99, p<.001$; buy more condition: $\chi^2 (1, 290) = 10.24, p<.001$; upgrade to better quality condition: $\chi^2 (1, 286) = 9.90, p<.002$) or use a DC for purchase (control condition: $\chi^2 (1, 292) = 15.03, p<.001$; buy more condition: $\chi^2 (1, 291) = 15.40, p<.001$; upgrade to better quality condition: $\chi^2 (1, 291) = 14.33, p<.001$).

When using CC for purchases in the control condition, it does not matter whether the CC has rewards on it or not as respondents prefer to buy (purchase intentions: own no CCs with rewards – 63%, own CCs with rewards – 81%). However, this changes in the buy more and upgrade to the better quality condition. Respondents continue to prefer to buy when they use a CC with rewards (percentage of respondents preferring to purchase: in the buy more condition – 59%, in the upgrade to better quality condition – 67%). When they do not have rewards on their CC, they reverse their preference to not buy (percentage of respondents preferring to purchase: in the buy more condition – 39%, in the upgrade to better quality condition – 47%). We notice therefore that respondents (using CC with rewards) when upgrading to a better quality show a higher intention to purchase than when they want to buy more (67% versus 59%). Thus, CCs with rewards have a significant impact on consumer purchase intentions whether consumers use CCs or DCs for purchase.

Credit Card Experience Online: Respondent CC experience online predicts purchase intentions when respondents use a CC in the control condition ($\chi^2 (4, 265) = 9.82, p<0.04$). Respondent inclination is to buy (percentage of respondents preferring to purchase when CC experience online is: poor – 50%, fair – 71%, good – 76%, and very good – 82%) but not when they have a very poor experience of using the CC in an online environment, in which case they do not prefer to buy (percentage of respondents preferring to purchase – 0%). However respondent experience with CC use in an online environment does not have any effect when they have to make incremental purchase decisions in the buy more and upgrade to better quality conditions.

Credit Cards Provide Freedom to Spend: Respondent perception of whether CCs provide freedom to spend influences them as to whether they will spend (or not) when using a CC across all the three scenarios (control condition: $\chi^2 (4, 286) = 22.94, p<0.001$; buy more condition: $\chi^2 (4, 285) = 11.22, p<0.02$; upgrade to better quality condition: $\chi^2 (4, 281) = 17.59, p<0.001$). Respondents who agree or strongly agree that CCs provide freedom to spend prefer to buy when using a CC (percentage of respondents with purchase intention in (a) control condition: strongly agree that CCs provide freedom to spend – 91%, agree that CCs provide freedom to spend – 74%; (b) buy more condition: strongly agree that CCs provide freedom to spend – 72%, agree that CCs provide freedom to spend – 53%; (c) upgrade to better quality: strongly agree that CCs provide freedom to spend – 79%, agree that CCs provide freedom to spend – 60%). In the control condition respondents who strongly disagree that CCs provide freedom to spend prefer to buy using CCs (percentage of respondents with purchase intention – 68%), while that is not so in the decisions to buy more (percentage of respondents with purchase intention – 46%) and to upgrade to better quality (percentage of respondents with purchase intention – 48%) scenarios.

Accustomed to Using Credit Cards: Respondent perceptions that they are accustomed to using CCs is related to their purchase preference in all three conditions when they use CCs for purchase (control condition: $\chi^2 (4, 288) = 40.02, p<0.001$; buy more condition: $\chi^2 (4, 286) = 34.46, p<0.001$; upgrade to better quality: $\chi^2 (4, 282) = 35.32, p<0.001$). Respondents who strongly agree to being accustomed to using CCs show a higher likelihood of purchase in all the three conditions with their CCs (percentage of respondents with purchase intention when they strongly agree that they are accustomed to using CCs: control condition – 93%, buy more condition – 71%, upgrade to better quality – 80%). However, the intention to purchase drops as they are less accustomed to credit cards.
Consumer Characteristics with Distinct Not to Purchase Intentions due to DC Usage

DC use influences consumer purchase intentions differently across genders, age groups, the number of CCs owned, and consumer perception that CCs help build credit profile.

Gender: Use of CC does not influence purchase intentions differently for males versus females in any of the purchase conditions. However gender does have an effect on purchase intentions when respondents pull out a DC in the “buy more” condition ($\chi^2 = (1, 289), p < 0.02$). Females tend to be more conservative in this situation, showing a higher preference to not buy than males (79% versus 67%).

Age: Respondent age affects purchase intentions when consumers use DCs in the control ($\chi^2 (3, 289) = 7.93, p<0.04$) and buy more conditions ($\chi^2 (3, 289) = 9.23, p<0.02$). The greater the respondent’s age, the higher is their intention to not buy with their DCs.

Number of credit cards owned: The greater the number of CCs owned by our respondents, the greater the intention to not buy when using a DC for purchase in the control and buy more conditions (control condition: $\chi^2 (5, 291) = 12.07, p<0.034$; buy more condition: $\chi^2 (5, 288) = 18.004, p<0.003$). The intention to not purchase in the DC condition is highest for those owning greater than five CCs (intention to not purchase with number of CCs owned (a) in the control condition: none – 31%, one – 57%, two – 64%, three to four – 71%, > five – 71%; (b) in the buy more condition: none – 38%, one – 68%, two – 84%, three to four – 79%, > five – 79%).

Credit Cards Build Credit Profile: Respondent perception of whether CCs help them build their credit profile is predictive of their purchase preferences in the control and upgrade to better quality scenarios when using DCs (control condition: $\chi^2 (1, 284) = 4.25, p<0.03$; upgrade to better quality: $\chi^2 (1, 284) = 4.08, p<0.04$). Respondents intend to not buy with their DCs both in the control and upgrade to better quality conditions.

**DISCUSSION**

This research focused on assessing the effect of payment type (CC versus DC) on consumer purchase preferences. We find that the use of CCs for making purchases stimulates consumers’ intention to purchase while the use of DC inhibits their purchase intention, holding them back from making a purchase. Moreover, with CCs consumers are not only likely to buy more, they are also likely to upgrade to better quality.

We find that when respondents use CCs for payment, the following variables influence their intentions to purchase differently across the three conditions: household income, ethnicity, family size, number of CCs owned, ownership of CCs with rewards, experience with using CCs online, consumer perception that CCs provide freedom to spend, and that consumers get accustomed to using CCs.

Different variables sway consumer intentions across the three conditions when respondents pay with their DCs. These include gender, age, the number of CCs owned, and consumer perception as to whether CCs build a credit profile. Notice the absence of DC characteristics from this list. The overwhelming influence of CC characteristics on differences in consumer purchase intentions across the three conditions when paying with a DC brings into focus the formative influence of CCs on consumer purchase behavior. This holds at least for large value transactions as was the case in this research. CCs are the third largest payment form used in the US (21.6% share of total consumer payments) closely following DCs (29.9%) and cash (26.8%) (Schuh and Stavins 2013b). However, the adoption rates for DCs and CCs are very similar (80% and 78%) (Koulayev et al. 2012). CCs however, have a higher share by value as the average CC transaction ($94) was more than double that of DC ($39) (Reserve 2013). CCs play a significant role in consumer payment type portfolios (US consumer holds on an average three out of the four payment
types - CC, DC, check, and bank account) and thus their compelling influence on a majority of market transactions (Schuh and Stavins 2013a).

These findings are innovative since they emphasize the need to include the choice of payment type as one of the influencers in the purchase decision adding to the extrinsic influencers (importance of purchase, culture, social class, personality trait, social and organizational setting, time pressure, and financial status) and intrinsic influencers (attitudes and motives) in the conception of the model of buyer behavior (Howard and Sheth 1969). This research is unique as it provides a differential meaning to the two forms of money (debit and credit cards) that are instrumental for the majority of consumer transactions today. The consumer’s choice of debit or credit cards for payments is reflective of the importance of the exchange task as it influences their purchase intentions differently. Just like the extrinsic and intrinsic influencers for purchase in Howard and Sheth’s (1969) “Model of Buyer Behavior,” the choice of payment type by consumers drives their motivation and attitudes towards the acquisition of the good/service. Consumers thus exercise their strategies to use their wealth appropriately through the choice of different payment types. Thus, payment types play an important role in shaping consumer preferences that go beyond the simple exchange task.

This has important implications for managers who can now assess purchases in light of this new factor (payment type: debit or credit card) that influences consumer purchase intentions differently across unique purchase occasions. Managers are focused on influencing consumers to select their product and brand. They can now consider the influence of the payment type in consumer purchase intentions. Managers can develop more effective programs such as loyalty development, relationship marketing, building consumer perceived value, and consumer construction of choice strategies through monitoring/ influencing the payment type used by consumers. Managers can now prioritize consumers that are more likely to get convinced to contribute higher revenues by looking at the payment type used. Those consumers who use CCs may be convinced to purchase more and upgrade to better quality brands. However, managers are better off leaving the consumers using DCs alone as they are less likely to purchase and could target them with focused “savings” oriented consumer promotions.

LIMITATIONS AND FUTURE RESEARCH

This research has assumed a descriptive role assessing the relationship of individual variables with the consumer intention to purchase. The variables selected have been a mix of behavioral (attitudes, predispositions, and opinions) and behavioristic (objects of choice such as the number of cards) nature. Future research can look at the integrative effect of these variables on consumer purchase intention when consumers pay with DC or CC. Future research could also assess the impact of subjective variables such as motivations, emotions, and past experiences. This research could further examine at what stage of the consumer decision making process does the choice of payment type influence consumer intentions. This research is limited by the profile of the consumer sample drawn from the credit union members at Lincoln, NE. As can be noticed from Table 1, the profile is skewed towards a wealthier class of consumers, as is to be expected with a university credit union. A more balanced sample could be drawn through a more probabilistic stratified sample. This research assumes equal opportunity to each consumer to own DC or CC with no environmental constraints limiting their goal-directed pursuance.

Payment types (debit and credit cards) influence consumer intentions to purchase as this research highlights. Payment types have been found to influence consumer purchase intentions across multiple characteristics including demographic, perceptual, experiential, and environmental. Payment types could be symbolic of consumer attitudes and motivations and thus, play a more enduring influence on consumer purchase intentions rather than just being the exchange fuel in a transaction. This finding opens up the extensive literature on consumer exchange where we can now include access to consumer payment type as one of the antecedents to purchase intention.
REFERENCES


APPENDIX 1
Scenarios Offered to Respondents

Control Scenario
You are shopping for a new TV for your house. Your old TV set is behaving erratically and you don't want to miss watching another episode of your favorite show on the big screen. You have done your research online and now want to make sure that the TV model you shortlisted is up to expectations. You are determined to walk out of the showroom with the TV set without having to go through all the TV sets on display. So you walk into an electronics store and ask specifically for the 55 inches Samsung ultra HD TV. The salesperson takes you to the model on display and runs through all the features. You like it and ask the salesperson to prepare the invoice. The salesperson takes you to the billing counter and prepares the invoice adding taxes, installation, and delivery charges. She/he announces the bill totals $1200. You take out your wallet and notice that you only have your credit card with you.

Would you buy or not?

(Please assume you have a credit card (or debit card for the other group) even though currently you may not have one)

☑ Yes, I will buy (1)
☑ No, I will not buy (2)

Buy-More Scenario
As the salesperson presents you the bill, you inquire whether you can add the surround sound and home theater system to the TV. You had played video games at your friend's house and the home theater system added so much more to the thrill of the game. The salesperson shares the various options in surround sound and home theater system that go with the Samsung TV you had selected. You choose one of the systems and ask the salesperson to include that in the invoice. The salesperson brings you back to the billing counter and bills you for the Samsung TV together with the surround sound and home theater system. She/he announces that the bill totals $1500. You take out your wallet and notice that you only have your credit card with you.

Would you buy or not?

(Please assume you have a credit card (or debit card for the other group) even though in reality you may not have one)

☑ Yes, I will buy (1)
☑ No, I will not buy (2)

Upgrade to the Better Quality Scenario
As the salesperson presents the bill, you wonder if you should have gone for a brand like Sony. Your friend never tires showing off her/his Sony TV. You also remember fondly the good time you had with your old TV, which was a Sony. You had also noticed during the research on-line that Sony was rated higher by a prominent technology website. You inquire from the salesperson and she/he too confirms that Sony is rated higher and is more advanced. She/he takes you to the 55 inch Sony ultra HD TV on display which is priced at $1500 including taxes, delivery, and installation. The Sony TV looks sleeker and more stylish to you. You think this over and then decide that this will be worth the investment. You ask the
salesperson to bill you for the Sony TV. The salesperson once again takes you to the billing counter and prepares a fresh bill that this time is for the Sony TV. She/he announces that the bill totals $1500. You take out your wallet and notice that you only have your credit card with you.

Would you buy or not?

(Please assume you have a credit card (or debit card for the other group) even though in reality you may not have one)

☐ Yes, I will buy (1)
☐ No, I will not buy (2)
FIGURE 1
The Role of Payment Device at the Point of Exchange Influencing Consumer Purchase Intentions
### TABLE 1
Demographic Characteristics of the Respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td>38%</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td>62%</td>
</tr>
<tr>
<td>Average age (years)</td>
<td>49.17</td>
<td>14.92</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Caucasians</td>
<td></td>
<td></td>
<td>84.5%</td>
</tr>
<tr>
<td>Hispanic or Latinos</td>
<td></td>
<td></td>
<td>3.4%</td>
</tr>
<tr>
<td>Asian / Pacific Islanders</td>
<td></td>
<td></td>
<td>3.4%</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td></td>
<td>55.4%</td>
</tr>
<tr>
<td>Single</td>
<td></td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Divorced</td>
<td></td>
<td></td>
<td>12.3%</td>
</tr>
<tr>
<td>Education</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate education</td>
<td></td>
<td></td>
<td>45.5%</td>
</tr>
<tr>
<td>College graduates</td>
<td></td>
<td></td>
<td>31.9%</td>
</tr>
<tr>
<td>Some college education</td>
<td></td>
<td></td>
<td>16.5%</td>
</tr>
<tr>
<td>High school graduates</td>
<td></td>
<td></td>
<td>4.4%</td>
</tr>
<tr>
<td>Annual Income</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>&lt; 25,000</td>
<td></td>
<td></td>
<td>8%</td>
</tr>
<tr>
<td>25,000 to &lt; 50,000</td>
<td></td>
<td></td>
<td>24%</td>
</tr>
<tr>
<td>50,000 to &lt; 100,000</td>
<td></td>
<td></td>
<td>49.1%</td>
</tr>
<tr>
<td>&gt;= 100,000</td>
<td></td>
<td></td>
<td>29%</td>
</tr>
</tbody>
</table>

### TABLE 2
\( \chi^2 \) values

<table>
<thead>
<tr>
<th></th>
<th>Control Condition</th>
<th>Buy More Condition</th>
<th>Upgrade to Better Quality Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>( \chi^2 (1, 585) = 87.67, p &lt; .01 )</td>
<td>( \chi^2 (1, 581) = 45.71, p &lt; .01 )</td>
<td>( \chi^2 (1, 577) = 63.88, p &lt; .01 )</td>
</tr>
<tr>
<td>Odds: Buy / Not Buy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Card</td>
<td>3.01</td>
<td>1.10</td>
<td>1.51</td>
</tr>
<tr>
<td>Debit card</td>
<td>0.58</td>
<td>0.33</td>
<td>0.37</td>
</tr>
<tr>
<td>H1a supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1b supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1c supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3a supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3b supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3c supported</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Credit Card

<table>
<thead>
<tr>
<th>Buy More versus Upgrade to Better Quality</th>
</tr>
</thead>
</table>

| Odds comparison                          | 1.10 versus 1.51; 95% CI = (0.52, 1.02) |
| H2 is marginally supported               |
THE EFFECTS OF POLITICAL IDEOLOGY ON CONSUMER CREATIVITY

Claire Heeryung Kim, Adam Duhachek, H. Shanker Krishnan, and Kelly B. Herd, Indiana University

Previous literature has shown that conservatives are not creative (Csikszentmihalyi 1996; Dollinger 2007; McCann 2011; Rubinstein 2003), arguing that conservatives (vs. liberals) are less open and more intolerant of ambiguity (Jost et al. 2003 b,c; Rokeach 1960; Tomkins 1963), even though creativity is positively associated with openness and tolerance of ambiguity. For instance, drawings by college students supporting conservative (vs. liberal) causes were judged to be less creative than those by liberal students (Dollinger 2007). Existing studies examining the effect of conservatism on creativity, however, have mainly focused on one type of creativity, namely novelty, whereas there are multiple forms of creativity. Thus, the current research theorizes key interaction between political ideology and type of creativity. Furthermore, we test our theory within persuasion context to bolster our arguments.

Divergent thinking and convergent thinking have been suggested as the most important cognitive processes involved in creative acts (Guilford 1967). According to Guilford, divergent thinking requires the ability to generate multiple ideas (i.e., fluency), to give unconventional solutions (i.e., originality), and to produce multiple different categories (i.e., flexibility), whereas convergent thinking requires a logical inference in order to attain one right answer. Recent research has revealed the importance of appropriateness (Burroughs and Mick 2004; Smith et al. 2007) that requires convergent thinking (Cropley 2006), contending that novelty that is driven by divergent thinking does not promise creativity. It is because novelty can be generated by doing things in a different way from the usual not considering accuracy, significance, or meaning (Amabile 1983; Burroughs and Mick 2004; Lubart 1994) and outcomes without appropriateness cause risks in a practical sense (Cropley 2006). Previous research, however, has examined the relationship between political ideology and creativity using tasks that stressed novelty (e.g., clothes design, photo essays, preference for abstract art), while ignoring appropriateness. To fill this gap, the present research attempts to capture both divergent thinking and convergent thinking, using creativity tasks that emphasize either/both novelty or/and appropriateness.

Specifically, we posit that liberals (conservatives) will show better performance in creativity tasks that emphasize novelty (appropriateness) via divergent (convergent) thinking. This prediction is based on two premises. First, liberalism (conservatism) is positively related to divergent (convergent) thinking (Jost et al. 2003b, c; Tetlock 1983). Openness has been known to foster divergent thinking because it encourages individuals to have curiosity, imagination, and originality (Chamorro-Premuzic and Reichenbacher 2008), and a meta-analysis study (Jost et al. 2003 b, c) found that openness was positively related to liberalism. Another evidence for the relationship between liberalism and divergent thinking can be found in studies which have reported negative associations between authoritarianism (or dogmatism) and divergent thinking (Bayard-de-Volo and Fiebert 1977; Peterson and Pang 2006; Rubinstein 2003). For instance, Rubinstein found negative correlations (ranging from -.46 to -.76) among Altemeyer’s right-wing authoritarianism scale and measures of divergent thinking. A link between conservatism and convergent thinking also has been found. Conservatives prefer conventional solutions because they are comfortable with what is familiar and proven (Jost et al. 2003a; Jost et al. 2008; McCrae 1996; Thorsdottir, Jost, Liviatan, and Shrout 2007). Thus, conservatives are rational with a degree of precision that is a dominant aspect of convergent thinking. Furthermore, researchers have revealed positive associations between conservatism and convergent cognitive operations (Bierhoff-Alfermann 1976; Jacobson and Rettig 1959; Luck and Gruner 1970; Tetlock 1983), demonstrating that there are significant correlations between conservatism and perceptual rigidity, stereotyping, and intolerance of ambiguity. For example, Tetlock found that senators who support conservative causes made more simple statements than their liberal or moderate colleagues. Second premise
is that divergent thinking is primary process to generate novel outcomes whereas appropriate outcomes requires convergent thinking (Cropley 2006; Guilford 1967). According to Cropley, divergent thinking always produces variability and such variability by means of fluency, originality, and flexibility leads to novel outcomes, generating multiple or alternative answers. By contrast, convergent thinking leads to appropriate outcomes, by applying logical search, recognition, and decision-making strategies.

Across four studies, we demonstrate that liberals show higher creativity when the tasks stress novelty whereas conservatives show higher creativity when the tasks emphasize appropriateness. In addition, we reveal that this effect is mediated by one’s focal cognitive processes. Lastly, these findings are validated using marketing communications that solicit innovative products.

This research has several important theoretical implications. First, we theoretically link political ideology with two types of creativity (novelty and appropriateness), thereby providing a boundary condition for the creativity literature’s predominant finding linking conservatism with reduced creativity (Csikszentmihalyi 1996; Dollinger 2007; McCann 2011; Rubinstein 2001). Second, we identify a novel process of the link between political ideology and creativity, focal cognitive process. These findings are significant in that they are among the first to demonstrate the role of political ideology in driving creativity via focal cognitive process. Third, we contribute to recent work on cognitive processes (Chermahini and Hommel 2010; Cropley 2006) by demonstrating that matching between creativity tasks and cognitive process increases task performance. We are hoping that this research, in conjunction with other recent work, will open the door for future research examining how ideological factors such as political ideology influence specific consumer’s cognitive functions.
REFERENCES


ILLUMINATING CONSUMERS’ PROACTIVE PURS类 OF THE SENSE OF BELONGING

Robert Alfonso Arias and Dr. Cele Otnes, University of Illinois at Urbana-Champaign

ABSTRACT

This research investigates how individuals proactively leverage consumption activities to pursue a sense of belonging. Theoretical constructs emerge from 83 written narratives to illuminate the processual nature of belonging. We delineate these emergent constructs and offer preliminary theorization regarding how they relate to each other. Implications for future research are discussed.

Humans possess individual minds, individual bodies, individual perceptions of the past, and individual goals for the future. But often, being human is not about being an individual, but about how we belong to groups of individuals. The notion that humans possess an inherent need to belong is not novel. Maslow’s (1943) hierarchy of needs positions belongingness immediately after physiological and safety needs. Evolutionary psychology research suggests several reasons why belonging is a fundamental human motivation (Barchas 1986).

People’s desire to belong exerts a strong influence over their consumption choices. For example Mead et al. (2011) note that merely walking onto a college campus affirms the prevalence of affiliative, college-licensed merchandise. Besides explaining consumers’ choices that reinforce affiliations, examining behaviors pertaining to belongingness may improve understanding of consumption behavior relating to identity, social influence, and brand communities. Belonging attracts scholars’ attention from many disciplines, including psychology, social psychology, and sociology. Despite the broad attention belonging-related phenomena garner and the centrality of social connections and consumption to life, researchers acknowledge “little empirical attention [is] devoted to understanding how belongingness threats affect consumer behavior” (Mead et al. 2011, 902).

Most belonging consumer research examines belonging threats, or how people fulfill needs to belong after being excluded. Yet this does not account for how people actively leverage consumption practices to construct, maintain, or enhance a sense of belonging. This extension is especially salient, as some scholars argue belonging is a process rather than a state-based construct (Yuval-Davis 2006). Consequently, the overarching research question motivating this study, and that our emergent research questions will further refine, is “How do people use consumption to enhance their sense of belonging?” Exploring this question advances our discipline in several ways. It emphasizes an unexplored dimension in consumer research –how consumers’ proactive behaviors inform belonging pursuits. Second, our use of the term “sense of belonging” is deliberate. The NTB construct is state-based, and thus cannot accommodate the processual nature of belonging. As we explain below, we aim to develop our understanding of the “sense of belonging” theoretical perspective to guide future research in this nascent area.

The Need to Belong Construct

Baumeister and Leary (1995) are the first to compile empirical evidence to support the existence of the NTB. They propose the NTB possesses two distinct features: 1) frequent personal contacts or (non-negative, ideally pleasant) interactions with others, and 2) perceptions of “an interpersonal bond or relationship marked by stability, affective concern, and continuation into the foreseeable future” (500). These features distinguish the NTB from other social needs; e.g., the need for attachment or social connection. For example, one’s need for attachment can be met by maintaining a stable relationship filled with negative interactions, falling short of the NTB’s requirement of pleasant personal contact. Or one may fulfill the need for social connection via brief stranger encounters, but never form a stable relationship, thus eschewing the second feature.
The NTB is popular across disciplines (e.g., over 3,500 Web of Science citations; 2016). Recently, Leary et al. (2013) developed a ten-item scale to measure an individual’s pervasive NTB versus one’s sense of belonging toward a specific social entity. Items include Likert statements such as “I want other people to accept me” and “I have a strong need to belong.” But despite its pervasiveness, scholars have yet to closely investigate how the belonging influences consumer experiences.

**Consumer Behavior and Belonging**

Few consumer behavior studies directly explore belonging, although related topics such as motivations for materialism (Burroughs and Rindfleisch 2002) brand community participation (Schouten and McAlexander 1995) and consumer acculturation (Peñaloza 1989) suggest the desire to belong may motivate purchases of goods, services and experiences. We assert that much extant consumer research relates to belonging, although belongingness-related theoretical constructs are often left unarticulated or undeveloped.

**Social Exclusion.** Consumer research often approaches belonging experimentally, treating social exclusion as an implicit proxy for a heightened NTB. Research finds consumers spend strategically after being excluded, demonstrating increased desires for goods and experiences that aspirational social groups valorize (Dommer et al. 2013). Extant findings suggest people are willing to sacrifice “personal and financial well-being for the sake of social well-being” (Mead et al. 2011, 902). The authors find such sacrifices include tailoring spending preferences to an interaction partner’s preferences, spending money on unappealing food favored by peers, and even an increased willingness to try cocaine, when doing so increases chances of social connections.

**Brand Communities.** One of the most relevant contexts linking belonging with consumption is the brand community, defined as a “specialized, non-geographically bound [and] based on a structured set of social relations among admirers of a brand” (Muniz and O’Guinn 2001, 412). This research acknowledges the importance of belonging – at least indirectly. McAlexander and colleagues (2002) suggest that one potential barrier to brand community participation is the fear of not belonging. Importantly, newer members’ fears are partially alleviated when experienced members initiate interactions with newcomers. The authors note one new member of a Jeep brand community “viewed ‘Jeep,’ a corporate entity, as a caring institution, a family, that provided her a sense of belonging” and that “she feels like she belongs to a benevolent family of Jeep that includes both owners and marketers” (McAlexander et al. 2002, 46-7).

**From NTB to Sense of Belonging**

We first explicate why we employ the term “sense of belonging” (hereafter, SB). As noted, unlike the NTB, we aver that the SB reflects a fluid, processual construct rather than a state-based one. Moreover, we do not use the term “feelings” of belonging (Easterbrook and Vignoles 2013) because our empirical findings and extant research reveal the SB involves more than emotions for consumers (Hagerty et al. 1993).

Meeuwisse et al. (2010) contend that the SB “as a theoretical construct has not been well studied and is inconsistently defined” though other researchers attempt to clarify the construct. Hagerty et al. (1993) define the SB as the extent to which an individual experiences that they are an integral part of, and have a valued role in an environment. Following this argument, SB is determined by the extent to which individuals perceive they fit within, and are in harmony with the environment. Moreover, thinking one is part of a wider social entity is typically matched by a more practical belonging; that is, derived from feelings of being valued or accepted by others. Though research is inconsistent with respect to the SB’s definition, core commonalities exist (Mahar et al. 2014). Our definition offered here integrates key facets of extant SB definitions to develop one conducive to consumer research.
Our review of the SB literature motivates us to offer the following definition to guide this and further study: the SB is a subjective, context-mediated experience deriving from a personal relationship with an external referent, evolving in response to the degree to which an individual (1) believes the relationship is reciprocal (e.g., he/she values the referent and vice versa) (2) feels accepted by the referent, (3) perceives the referent shares his/her characteristics and values, and (4) believes the relationship with the referent to be secure and temporally stable.

CONTEXT

Belonging is frequently studied in education-based contexts. In university contexts, research finds students’ identities may change, depending on the specific groups, times, and places in which they interact, demonstrating the enacted nature of belonging (Bhopal 2008). Such relocation implies students’ social relationships are disrupted, especially for freshmen, transfer students, and international students. Consequently, we follow precedents from social psychology and sociology and consider the university campus a conducive context for examining belonging. Research demonstrates students often address the social disruption occurring during this vulnerable, liminal time in their life cycle by joining organizations that demand commitment, contributing to students’ overall sense of belonging to their university (Hurtado and Carter 1997). Moreover, students who perceive an increased sense of belonging in this context demonstrate greater academic motivation (Gibson et al. 2004).

Our context is a large Midwestern university serving over 45,000 students (30,000 undergraduates). Tuition averages approximately $27,000/year in-state and $41,000/year out-of-state. Though 73% of undergraduates are in-state, about half come from a large city over 120 miles away.

METHODOLOGY

We conducted a qualitative study to understand how consumption enhances students’ SB. Qualitative methods are especially fitting when studying constructs inherently interrelated with other constructs, as the SB is to identity, affiliation, and exclusion (Viswanathan 2005). Moreover, qualitative methodologies are considered useful in uncovering complex social processes (Van de Ven 2007). Two researchers acquired a dataset composed of written narratives by undergraduate business students. Narratives can convey stories pertaining to a certain topic (Sandelowski 1991). When informants create narratives, they re-familiarize themselves with the past in the context of the present (Otnes et al. 2007). Narratives require participants to organize experiences in temporally meaningful episodes, framing experiences as “part” of a whole…and that something is a ‘cause’ of something else” (Polkinghorne 1988, 6). This method is particularly appropriate for our study, since participants have time to interpret the meaning of the questions and reflect upon their responses.

We recruited students from two classes; instructors offered extra credit to those completing the narratives. Participation was voluntary, and students incurred no negative outcomes if they chose not to participate. The researchers took measures to ensure participant anonymity. Eighty-three students granted consent to use their narratives. We instructed informants to write about a time they deliberately acquired a product, service, or experience to enhance their sense of belonging. They were prompted to describe who/what they wanted to belong to, what it meant to them to belong in that context, and how the purchase impacted their sense of belonging, among other inquiries. Narratives were approximately three and one-half pages long (double-spaced).

Analysis/Refined Research Questions

Each author first read the narratives separately. The first author conducted the first coding cycle and created an extensive summary table. This cycle revealed the emergence of various key constructs, including the “belonging target” (the entity one “aimed” to belong to; hereafter, BT), the item/service/experience purchased (what we term the “belonging conduit”), the emotions experienced post-
purchase, the signals others offer that informants used to assess their progress toward belonging (hereafter referred to as “belonging cues”), and demographic information.

We began asking, How do people use consumption to enhance their sense of belonging? Our coding and analysis led to two refined research questions: 1) What aspects of belonging conduits do students leverage when attempting to link with belonging targets? and 2) What belonging cues do consumers detect to measure progress toward their belonging goal?

**FINDINGS**

**Belonging Targets (BTs)**

Before addressing these questions, we summarize the emergent BTs. Consistent with prior research, these emerge on three distinct structural levels (Christenson 2009). Interestingly, the data suggest informants consider macro-level BTs in terms of different temporal levels as well. Specifically, these macro-level groups can tap into their past (through heritage-laden, ethnic subcultures), into present-based subcultures pertaining to entertainment or lifestyles, and into subcultures rooted in the future – e.g., “fashion-forward” consumers. Future research should study if such temporal references link to informants’ own “timestyles” (Cotte et al. 2004). Again, not surprisingly given the fact that a university can be described as its own self-contained social entity (Freeman et al. 2007), the most salient BT for our informants was what we describe as a “cohort,” or a loosely-defined group of people who share characteristics beyond an informant’s immediate social group, but that are nevertheless highly influential in the environment. For example, informants mention cohorts such as “college students at large public universities,” or “business school students” at their own universities and beyond. Also, they mention cohorts immediately identifiable by shared characteristics, such as “gamers” or “girls on campus.” In terms of frequency, these abstract cohorts are mentioned twice as often as BTs in which informants are more immediate members; e.g., specific social organizations – acknowledging the strong influence that broad social groups may hold over individuals, especially at this life stage.

In the meso-social groups, desires to belong to brand communities – almost solely revolving around Apple, and reflecting its ability in creating affiliative-laden goods – also emerge. Reflecting the fact that informants may feel relatively less secure in their friendship groups than in their families, on the micro level, the BT that dominates is clearly the one containing friends. The following table provides further description of the BTs:
Table 1: BT Characteristics and Frequency

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MACRO</strong></td>
<td></td>
</tr>
<tr>
<td>“Heritage Subculture (tied to family lineage/past)”</td>
<td>2</td>
</tr>
<tr>
<td>Subcultures (tied to present, named; e.g., Hip Hop)</td>
<td>7</td>
</tr>
<tr>
<td>Aspirational Subcultures (tied to future)</td>
<td>11</td>
</tr>
<tr>
<td><strong>MESO</strong></td>
<td></td>
</tr>
<tr>
<td>Cohort</td>
<td>32</td>
</tr>
<tr>
<td>Social Organization</td>
<td>14</td>
</tr>
<tr>
<td>Brand Community</td>
<td>6</td>
</tr>
<tr>
<td><strong>MICRO</strong></td>
<td></td>
</tr>
<tr>
<td>Friends/Peers</td>
<td>15</td>
</tr>
<tr>
<td>Family</td>
<td>3</td>
</tr>
</tbody>
</table>

*note: some informants mention more than one group*

**Belonging Conduits (BCons)**

Our first (refined) research question asks, “What aspects of BCons do students leverage when attempting to form linkages with BTs?” Reflecting the vulnerability of their identities during this liminal time (Noble and Walker 1997), students discuss popular, and often luxury, branded goods. Two categories – apparel and technology – contain almost three-fourths of all conduits – with apparel accounting for almost half of all mentions. Yet that category reflects distinct patterns with respect to brand-name salience. Namely, when students describe desires to belong to broader cohorts (e.g., “students on campus”), branded goods are crucial, especially if worn frequently (e.g., rain boots, jackets). This assertion also holds true for accessories, where discussions how brands (especially of designer purses) help foster informants’ sense of belonging. One notes about his Sperry Topsiders: “I felt like I belonged to a group, community, and culture. The group was my fraternity…the community was all of Greek life on campus, and the culture was…Greek culture [as a whole].” The plethora of consistent research noting linkages between branded clothing and the sense of self, and affiliation supports the salience of this finding (e.g., Chaplin and John 2004; Fernandez 2009).

However, for “organizational apparel” bearing logos of students’ clubs, university, or pro sports teams, brands were less important than an item that satisfies the norm of owning the *exact* item as other members, and/or of displaying quality markers (e.g., the “right” fabric). In fact, students often did not know
the brands they acquired, often purchasing them through bulk orders placed by the organization. In these cases, organization logos seem to convey the same symbolic power as a revered brand name. Although the remaining apparel categories did not reflect the importance of brands, informants discussed relying on retail stores recommended by peers who often were embedded in aspirational social groups serving as belonging targets.

Not surprisingly given its dominance as a “cool” product, especially for millennials (Kahney 2003), Apple products (especially iPhones) dominate the technology category. One informant captured the motivations of those mentioning Apple products, stating “I longed to be part of the Apple community.” Significantly, we observe that tech products like smartphones and gaming gear can act as both functional and symbolic conduits in people’s lives, while apparel, accessories and jewelry are primarily symbolic conduits. One gamer noted he needed an XBox “to interact with my friends the way I wanted to…[it] helped me become even closer to [them] and eliminated our distance barrier.” As such, belonging conduits can transcend time and space barriers that can otherwise contribute to weaker social ties (Otnes et al. 2014).

It is not surprising that our data set reflects the salience of brands as competitive and communicative symbols. What is more surprising, however, is that that informants sometimes perceive these BCons to enhance their perceived skill levels when they engage in activities within their belonging targets. One informant notes acquiring a branded baseball bat means, “if I had [it], I would be…like the other members. I was also convinced [it] made everyone hit better.” Informants also mention how BCons secured for use in one cohort can be shared with other cohorts — specifically through social media.

### Table 2: Belonging Conduits

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of mentions</th>
<th># Salient Brands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparel:</td>
<td>41 (total)</td>
<td></td>
</tr>
<tr>
<td>Branded</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Organizational</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Apparel, Other</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Business</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Technology</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Accessories</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Jewelry</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Membership Dues</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Categories with 1-2 mentions: alcohol (1), experiences (2), hair treatments (2); home Furnishings (2); Music (1); personal transportation (2); sporting equipment (2)

### Belonging Cues (BCs)

We employ the term “belonging cues” to refer to the various signals our informants mention as helping them track their belonging progress. The data suggest these cues may be classified as two types: external and internal (see Table 3). External BCs derive from consumers’ observation of others’ behaviors. Alternatively, internal cues are consumers’ self-realizations of their increasing perception of belongingness. Importantly, we do not claim these emergent cues are comprehensive; it is likely that future research will identify others used by consumers.

*External Belonging Cues.* Consumers identify several cues from others’ behaviors regarding their purchases, reaffirming their genuine belonging in their target group. These cues manifest as through the
others’ behavior as follows: expressing interest, seeking relevant advice, exhibiting favorable facial/body expressions, and providing compliments. They reflect distinct facets from the SB definition; for example, compliments imply shared traits, consumers acting as sources of advice suggest the individual is valued, and positive facial expressions may signal acceptance. Our data suggest external signals may be categorized into verbal and nonverbal cues.

**Internal Belonging Cues.** In addition to external signals, consumers reveal they may detect belonging cues emerging from their own emotions (or interestingly, their lack of emotions). For example, consumers recognize they possess an increased desire to display their membership. Conversely, some people express that acknowledging their own decreased concern of their appearance acts as an internal cue. Our data also suggest thoughts may serve as signals to consumers’ SB. For example, if one is reminded of solidified membership within a BT, a consumer may experience an enhancement in belonging. Consequently, we theorize two subcategories of internal belonging cues: emotional and cognitive.
<table>
<thead>
<tr>
<th>Cue Typology</th>
<th>Excerpt</th>
<th>Cue’s Linkage to SB Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXTERNAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1) Verbal Cues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliments</td>
<td>“...many compliments on my new purchase and comments like ‘you are one of us now.’ These types of occurrences established even more of a sense of belonging.”</td>
<td><em>Shared Traits</em> – positive evaluations of what a consumer owns immediately reveals favorability for the purchase, indicative of a shared characteristic or trait among the informant and members of the BT</td>
</tr>
<tr>
<td></td>
<td>“The reassurance that this type of product has increased my sense of belonging comes from compliments that I get from friends that I look professional and put together when I have it on me.”</td>
<td></td>
</tr>
<tr>
<td>Consulting</td>
<td>“One cue I received that made me think Robinhood helped increase my sense of belonging was a Facebook message from a friend asking me for advice on a stock. Previously, friends in the group went to the leader for advice but now they were coming to me, too.”</td>
<td><em>Reciprocity (feeling valued)</em> – when people consult informants for opinions, they are recognizing the informant possesses some knowledge they deem valuable.</td>
</tr>
<tr>
<td></td>
<td>“I have received a few cues from others that insinuate my belonging in the running community has increased. A few girls in my sorority house were asking about what kinds of shoes I wear for training and getting my opinion on what training programs to use. Experiences like that one verify my belonging in the running community.”</td>
<td></td>
</tr>
<tr>
<td><strong>2) Nonverbal Cues</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Facial Expressions**

“…the service of a professional hairdo brings…facial expressions that reaffirm my sense of belonging.”

“…after my salon appointment I started getting…unexpected [positive] attention from group members in my classes.”

**Acceptance** – positive expressions reaffirm that the informant has engaged in a consumption behavior that the BT sanctions

### INTERNAL

#### 1) Emotional Cues

**Desire for Homogeneity**

“increased desire to take fun pictures wearing matching outfits in our acroyoga poses”

“…wearing the simple piece of jewelry and seeing it on others will always give me a sense of belonging and a sense of home…My feelings towards the ring always heighten when I see others, even people that I do now know, wearing one. It shows that we are all part of the same history.”

**Shared Traits** – increases in yearning for homogeneity indicate that the consumer recognizes more commonalities between him/herself and the BT

**Reduction in Anxiety**

“…makes me feel more at ease and on the same level as other people in the business professional community, so I feel that I belong. The bag has allowed me to worry less about appearances when people perceive me in a first impression because I look the part.”

"However, I did feel that I deliberated on what to wear a lot less because I knew I had something that would work no matter what...I no longer worried about it."

**Acceptance** – decreases in negative emotions reaffirm that the informant has engaged in a consumption behavior that the consumer perceives the BT sanctions

#### 2) Cognitive Cues

**Knowledge of Elite Membership Status**

[Informant describes an exclusive purchase only available to sorority leaders.]

**Secure & Temporal Stability** – merely knowing consumption options are always available due to elite membership status reinforces consumers’ relationships with BTs
“I think that in general just knowing that I was given the opportunity to buy the sweatshirt with the group heightened my sense of belonging. Even if I hadn’t purchased the sweatshirt [,] it is always nice just to have the chance to be included.”
DISCUSSION

Our findings demarcate key theoretical constructs to help illuminate the process of consumers’ efforts to belong. Through our research, our general research question evolved into two focused questions: 1) What aspects of belonging conduits do students seek to leverage when attempting to form linkages with belonging targets? and 2) What belonging cues do consumers detect to measure the progress toward their belonging goal? We show that consumers utilize belonging conduits’ *symbolic* and *functional* properties to enhance their belonging within a particular BT. In regards to our second question, we demonstrate that consumers require signals to be assured that they indeed belong in their BT. Consequently, we introduce the construct of belonging cues and highlight their importance to developing a sense of belonging. Moreover, we delineate the various types of belonging cues consumers identify to gauge belonging progress.

We also explicate clear links between the cues and the sense of belonging construct. Though we infer that one cue may contribute to multiple facets of the SB, we only highlight the strongest linkages. For example, pertaining to reciprocal value, we contend that being sought for advice signals to the consumer that he/she is valued. Likewise, our data exhibit how becoming conscious of similar desires are indicative of an increase in perceiving shared traits. Our data also suggest consumers’ feelings of acceptance may be strengthened simply by recognizing a reduction in negative emotions (during interactions with BTs). Regarding the last element of the SB construct, we find consumers may believe their relationships to be more secure and stable when their high-ranking statuses (within a consumption/brand community context) are made salient.

Importantly, however, the emergent cues are solely positive, meaning they signal *increases* in a SB. We acknowledge that the data mostly describe consumers’ successful pursuits of a SB, and therefore, we cannot speak to negative cues consumers detect that signal *decreases* in their belonging progress. In other words, the belonging cues we unveil do not describe setbacks in consumers’ belonging efforts. Our data set is also limited since it is not positioned to make bold theoretical claims regarding the emergent constructs’ interrelationships. Further research should delve into these linkages and work to explicate how they operate. Nonetheless, we offer preliminary theorization to facilitate future research endeavors.

**Preliminary Theorization on the Sense of Belonging**

We offer the fundamental assumption that in order for consumers to even seek belonging in a BT, they must be exposed and attracted to it. After an initial positive exposure, we believe the consumer’s desire and commitment to pursue a SB toward a particular entity may be described as setting a *goal to belong*. This goal drives individuals to seek resources to bolster their belongingness, including the important category of belonging conduits. These may manifest as products that act as functional/symbolic conduits toward belonging. The conduits ultimately work toward establishing contact with desired BTs. Upon interaction, consumers will detect internal and external belonging cues, and importantly, use these to determine if they are truly enhancing their SB in a BT. Finally, we posit another fundamental assumption - - that this entire process occurs within contexts influenced by sociological and broader cultural factors. We offer a visual representation of this model, which we believe can guide future research, in Figure 1.
Figure 1: Preliminary Theorization of the Sense of Belonging Pursuit

Sociological Forces
(cohort, ethnicity, community)

Cultural Factors
This preliminary theorization allows us to formulate valuable research questions to advance this nascent research stream. A table of these inquiries is provided below:

**TABLE 4: Potential Research Questions of Value for Belonging and Consumer Behavior**

<table>
<thead>
<tr>
<th>QUESTIONS: Sense of Belonging</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How does the sense of belonging unfold for consumers?</td>
</tr>
<tr>
<td>• What are the roles of BTs, belonging conduits, and belonging cues in that process?</td>
</tr>
<tr>
<td>• What outcomes emerge for consumers who have engaged in pursuits to belong?</td>
</tr>
<tr>
<td>• What pertinent sociological/cultural factors impact the SB?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUESTIONS: Belonging Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How do consumers resolve the mixed emotions that often emerge when they engage with belonging targets?</td>
</tr>
<tr>
<td>• How does a BT’s properties influence consumers’ choice of belonging conduits to employ?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUESTIONS: Belonging Conduits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What information do consumers utilize to decide which conduits to employ?</td>
</tr>
<tr>
<td>• How do consumers conceptualize the difference in symbolic vs. functional belonging conduits?</td>
</tr>
<tr>
<td>• How do consumers communicate to BTs that they possess appropriate (according to the consumer’s perception) belonging conduits? Are there important differences between promoting these conduits online and in person?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUESTION: Belonging Cues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How do external belonging cues’ impact differ when the cue stems from within the BT as opposed to outside of the BT?</td>
</tr>
<tr>
<td>• What are some personality/cultural traits that explain differential influences between cognitive and emotional cues?</td>
</tr>
<tr>
<td>• What are some negative cues consumers detect that signal a decline in SB?</td>
</tr>
</tbody>
</table>

In sum, we find support for several emergent constructs and classifications that pertain to the sense of belonging (SB). Specifically, the data provide supportive evidence for the macro, meso, and micro belonging targets, consistent with Christenson (2009). We find these targets may traverse temporal dimensions, and anchor in the past, present, or future. Our data also unveil belonging conduits and belonging cues as novel constructs essential to consumers’ pursuit of a SB. We develop a theoretical typology of consumption belonging cues, and offer a preliminary theorization of how these emergent constructs relate to each other. We contribute to literature on identity, belonging, and brand communities by clarifying pertinent, emergent constructs, and advancing consumer research on the processual nature of consumers’ proactive pursuit of belonging, a pervasive phenomenon heretofore unexamined in consumer behavior.
REFERENCES


OWNING COMMUNITY

Meredith R. Thomas and Thomas C. O’Guinn, University of Wisconsin-Madison

One early marker of status in the United States was a home in the country. In Post-WWII America, for most Americans, that meant a house in the suburbs. More land and bigger homes imperfectly indicated greater suburban social status. While still more true than not, preferences for where and how to live, at least for some more fortunate Americans, have changed. For one, there is a growing trend of re-urbanization (Bardhi and Eckhardt 2012; Gallagher 2013) in which consumers are opting to buy in higher density neighborhoods closer to city centers. A key benefit of these neighborhoods is supposedly the greater proximity to neighbors and thereby higher likelihood of meaningful relationships with neighbors. In fact, some neighborhoods and cities are purposefully designed to create and foster social relationships that result from residential proximity (Zukin 2009; Dreier, Mollenkopf, and Swanstrom 2013). These projects are often touted as examples of the New Urbanism, a citizen-consumer movement that seeks to reclaim the cherished American ideal of traditional community through thoughtful residential planning and urban design, construction or redevelopment of neighborhoods (Talen 1999; Katz, Scully, and Bressi 1994). The consumer behavior of purchasing, owning, and reproducing on-going community impinges upon several significant sociological dynamics. New Urban residential developments offer community as the defining consumer benefit, along with sustainability and living with likeminded others. In neighborhoods like Pleasant Valley, the site of our research, community is explicitly marketed, purchased, and consumed. This paper reports partial and preliminary findings of 14 months of ethnography centered on the nature of that consumer behavior.

Specifically, this paper addresses the extent and nature of consumer satisfaction/dissatisfaction with the delivery of promised community in Pleasant Valley. This provides some insight into the evolving concept of and desire for geographically located community, a treatment of traditional community as a consumer product, and hopefully contributes to evolving community theory. Our data also reveal aspects of the role of conspicuous consumption (Veblen 1899), in a neighborhood in which it is said to be actively discouraged. Finally, we examine the roles of social stratification, status and class-consciousness within the New Urban setting. It is our hope that this research may lead to a greater understanding of the impact of New Urban design on community development, consumer behavior, satisfaction, quality of life, and heretofore declining participatory citizenship (Putnam 2000). Perhaps this research could better inform public policy makers, such as urban planners, in their efforts to create quality, mid to high-density developments that attract and serve consumers at all economic levels.

LITERATURE

Community

Community, specifically its breakdown and decline, has been discussed since the transition from a predominantly agrarian society to urban modernity in the late-19th century. Simmel’s (1900) Philosophy of Money explained that a growing emphasis on economic exchange was replacing earlier, more qualitative and informal methods of barter involving greater reliance on social relationships. He posited that in modern society, money would become the prevalent connection between people, replacing many important personal ties. This is a common theme in canonic works of early sociology (Marx and Engels 1848; Durkheim 1893). The world presumably became less personal and trustworthy, and more calculating and regulated, as in Ferdinand Tonnies’ (1887) discussion of the transition from Gemeinschaft to Gesellschaft (community to society). According to this founding sociological dynamic (and lament) was that a more authentic, legitimate and morally superior way of life succumbed to a more mechanistic, inauthentic and uncaring modernity, and market capitalism was the engine that drove it all. Consumption was thus forever problematized, and thrust into opposition to authentic community.
Consumer research on communities has largely overlooked or sidestepped the consumption of, and market interaction with traditional notions of community, in favor of community centered around brands, products, tribes, pastimes (Muniz and Schau 2005; Cova and Cova 2001; Muniz and O’Guinn 2001) and more imagined (Anderson 1991) or technologically mediated forms of community (Jayanti and Singh 2010; Kozinets, De Vaell, Wojnicki, and Wilner, 2010; Cayla and Eckhardt 2008; Mathwick, Wiertz and de Ruyter 2008; Thompson and Coskuner-Balli 2007). While entirely understandable given the currency of mediated and imagined community, the consumer behavior literature is noticeably quiet when it comes to more traditional forms of community, the face-to-face and civic-oriented, the community of place, and the one whose supposed disappearance has been long lamented by scholars from Weber (1922) to Putnam (2000), Bauman (2001) and Sennett (2011). A notable exception is a recent study by Saatcioglu and Ozanne (2013). While not taking the community issue head-on, they do assert the need to understand moral habitus and status hierarchies in resource-constrained environments. Our study addresses their call for future research by exploring issues related to moral capital and habitus in a resource-rich neighborhood.

Into this relativity paucity of published work, we offer the present study through the lens of traditional community studies. In Pleasant Valley, face-to-face traditional community, and all that implies, constitutes the brand platform and consumer promise. Pleasant Valley is also a place where a way of life, including how one consumes, is marketed, sold and, in turn, consumed. This study is in debt to Bourdieu (1986) in that we are studying cultural capital and status in a consumption community rich with economic and cultural resources and guided by a dominant (New Urban) ideology. The fact that the ideology is actually marketed in the form of a place extends this study’s contribution to the consumer literature.

**Neighborhood Community**

Traditionally, community was specified by place. In American modernity, it could be a neighborhood. *Middletown* (Lynd and Lynd 1929) provided deep description of American small-town community, but its greater significance was revealing the ways traditional community was being threatened by modernity, including increasing reliance on isolating technologies, emphasis on material possessions as expression of wealth and status, and a market-driven focus on innovations of material goods rather than improvements to social institutions. Putnam (2000) famously carried on this tradition by marshaling a wide variety of data on civic participation rates, from bowling leagues to voting. His assertion was that retreat from face-to-face community was even greater in the late-twentieth century and now significantly threatened meaningful citizenship and participatory democracy. Increased individualism, diminished social institutions and a more *laissez a fare* and neo-libertarian ethos are all implicated. Bauman (2001) argues something very similar throughout his works on community’s decline, and directly implicates market capitalism and its product, consumerism. Throughout more than a century of literature lamenting traditional community’s decline, commercial forces have been cast as the main offender.

Since the end of the Second World War, the United States has experienced mass suburbanization, at least until very recently. After 1945, government housing policies incentivized citizens (mostly whites) to move out of the inner cities into the suburbs, where they could use federal housing loans to purchase a single family house near the country, a dream that previously was out of reach for most Americans. Retail followed consumers to the largely white suburbs (Cohen 2000) in the form of shopping malls. The Interstate and other advanced highway systems built in the 1950’s and 60’s further facilitated automobile transportation to and from downtown work, and it encouraged continued suburban sprawl (Dreier, Mollenkopf, and Swanstrom 2013).

While offering the promise of the American dream in the suburbs, there were also costs. Suburban homes are typically not located within walking distance from where residents worked, shopped, or sought entertainment. More cars on the road results in more greenhouse gas emissions, and longer commute times have contributed to more sedentary lifestyles. Even the promise of knowing one’s neighbors, and having meaningful community in the suburbs began to reveal its vulnerability as the twentieth century drew to a
close. The isolation and the hyper-individuality of contemporary American society seemed to overpower the idea of community in the suburbs.

In her 1961 book, *The Death and Life of Great American Cities*, Jane Jacobs bemoaned the destruction of community and social life from the suburban explosion and urban decline of the 20th century. Casual interaction among neighbors declined in the suburbs (Putnam 2000), despite what occurred on television’s idealized social reality. Significantly, Putnam attributes the American population shift from small town to suburban neighborhoods as a cause of decline in real social capital over the past several decades. In *A Consumer’s Republic* (2003), Cohen sees things similarly in the replacement of the town square with the suburban mall as the center of an impoverished U.S. civic life. Recent work in sociology has discussed the effects of density, various forms of diversity, and segregation on the development of social capital and community.

**New Urbanism**

New Urbanism emerged in the early 1980’s, and the movement has grown ever since. Through the Council for New Urbanism, a group of passionate architects, city planners, commercial developers, and social scientists, the movement seeks to advance not only traditional neighborhood community across the country and around the globe, but also greater environmentally and socially conscious living, sustainability, and a diminished role for conspicuous consumption. New Urbanism claims to utilize physical design to enable communities to regain their authenticity and legitimate community (Zukin 2009). New Urbanism is driven by the accepted assessment of community’s severe decline, and a desire to replace what is seen as missing: social ties among neighbors, which foster a culture of reciprocity, and social bonds in which community will flourish. Peter Katz’s 1994 book *The New Urbanism, Toward an Architecture of Community*, discusses the New Urban movement and emphasizes the benefits sought of traditional communities: safety, accessibility to resources, and connection to neighbors.

The New Urban ideal promotes the creation and restoration of diverse, walk-able, compact, vibrant, mixed-use communities composed of the same components as conventional development, but assembled in a more integrated, livable fashion. These neighborhoods contain housing, work places, shops, entertainment, schools, parks, and civic facilities essential to the daily lives of the residents, all within easy walking distance. The neighborhood designs include common green spaces with a focus on children’s play and shared alley-driveways as places of communion, where most homeowners enter and leave through adjacent garages. Home sites invite, or demand, greater interaction with neighbors, through the prominence of large front porches, short front lawns, and small yards. Most New Urban neighborhoods, Pleasant Valley included, enforce a rigid architectural code ostensibly to encourage aesthetic harmony, a distinctive neighborhood identity, and discourage significant individualization of homes.

Research linking a sense of community (MacMillan and Chavis 1986) and similar ideas preceding New Urbanism have been studied. However, according to Talen (1999), there has not been any successful empirical work studying the impact of neighborhood design on traditional community. A study by Lund (2008) sought to study the impacts of New Urban design on neighborly interaction, but was limited in its quantitative analysis of pedestrian travel and social interaction. The present work seeks to produce a more thorough analysis of social and cultural implications of the New Urban product. Rosenblatt, Cheshire and Lawrence (2009), conducted a two-year study among Australian master planned communities (MPCs), focusing on involvement in formal social organizations within the MPCs, based upon Putnam’s (2000) emphasis on organizational memberships as a measure of community. Gans’ 1967 study of Levittown, New Jersey, provides an early and highly relevant analysis of one of the earliest American planned suburban communities. Our study, more than half a century later, focuses on many of the same things: the presence and form of community in a planned neighborhood, formal and informal social interaction with neighbors, and though not yet formally conceived, the acquisition of social capital (Bourdieu 1986). The present study
expands upon this by examining the effects of using New Urban planning and design to affect social behavior, as well as the resulting impacts on consumption.

**METHOD**

To date, we have conducted semi-structured, depth interviews with 37 current residents of the Pleasant Valley neighborhood. Interviews took place in residents’ homes or in locations where we could openly discuss the social and cultural aspects of living in the neighborhood. “Grand-tour” questions (McCracken 1988) were used, as well as specific probes to fully access consumers’ unique experiences of living in Pleasant Valley. Interviews were recorded and transcribed, and then analyzed using a hermeneutical process, iterating between individual interviews and emerging themes from the entire collection of textual data (Thompson 1997), until theoretical saturation was reached (Given 2008). Informants were recruited via snowball sampling or through flyers posted near the community mailboxes and in neighborhood coffee shops. In addition to the interviews, we have spent time in outdoor public areas such as parks, sidewalks, walking paths, and neighborhood commercial spaces (local cafés and frozen yogurt shop) where we collected observational data by taking detailed notes and photographs.

We have also collected data from an online social network site composed uniquely of Pleasant Valley residents, which they use to communicate, buy, trade, and share things. These geographically-based, online social networks are a relatively new phenomenon and provide rich textual evidence of bringing the use of technology to impact hyper-local networks of people. We have just begun analysis of this data, and are seeing very interesting trends.

Pleasant Valley includes approximately 400 residences including single-family homes, apartments, condominiums and townhomes. The neighborhood houses nearly 1400 inhabitants, 48% of whom are male, 28% are under age 18, and 92% are Caucasian (US Census 2010). Median annual household income in Pleasant Valley is $144,574 (US Census 2010) and average house value is $476,476 (Trulia.com).

**PRELIMINARY FINDINGS**

From an analysis of our depth interviews with nineteen informants, several consistent findings have emerged. To accommodate guidelines for paper length, we will focus on three.

**Feels Like Community (Sort of)**

Of primary concern was whether or not those who paid to live in Pleasant Valley felt that it has delivered on the central brand promise of community. Generally, the answer is yes.

*Calvin:* Here there are sidewalks, virtually no front yards, and, I mean, you'd see your neighbors...you'd see people. You'd see them again and again. Sometimes you'd sit and talk for a little bit. Sometimes you'd see someone you knew, and you'd talk a little longer. And, but there just was a sense of belonging that I never felt in any of the other places we lived.

Even though Craig was the informant who most openly indicated his general preference for less interaction with others, he still reflected very positively on the existence of strong ties with his neighbors, and the sense of community they “bought into” when they chose Pleasant Valley.

*Craig:* But people watch out for one another, which is a nice thing, you know. We've had one or two people pass away, and the outreach was genuine, you know, and the loss felt was also genuine. Not like a close family member, but everybody knew Ike two doors down who finally died a year later...And everyone knew how his wife had struggled to give him home care, and this was a sad thing for people. And stuff like that happens...
Beyond these affirmations, informants noted that while Pleasant Valley is “set up” for community, it takes a little effort and the “right kind” of people to make community really deliver. Caroline She described a certain type of person who lives in the neighborhood as making a difference. She also credited the Pleasant Valley “folks” for making community “happen.”

**Caroline:** This place created the environment for that type of thing to happen, and the whole sitting on the front porch...people’s stories and who they are just came to the forefront, especially in the beginning. People didn’t just scurry into their garages and go in their house, and you never knew who they were, which is what everyday life typically is.

Here, Caroline mentioned neighbors who interact while on their porches. She was not alone; this was one of the most common aspects of the design noted by informants. Yet, she was one of the only informants to confirm actually observing the behavior. Every house in Pleasant Valley has a front porch, ostensibly to serve as the main loci of neighborly communion. But almost no one uses them for that purpose. Instead, it is the less iconic and less nostalgically remembered alleyways where social interaction occurs. Some were aware of the contradiction, others not.

The shared alley/drive ways seem to serve as a contemporary socio-cultural adjustment to the nostalgic physical design. Luke referred to the “alley culture,” where the garage doors were signifiers that neighbors were emerging and opened up the alley for socialization. Most respondents discussed taking part in alley parties, like Kevin’s accounts of the “Rally in the Alley” where there were “bounce houses for the kids and half barrels (of beer) for the dads.” An emphasis on children’s play is central to the discussion, which indicates an interesting turn from the focus on the pristine, unused front porches facing the streets, to the private alleys, where only those connected to the alley are privy to the social activity. Some, like Rich, discussed community as an external activity; produced by “them” (the governing association, “other neighbors”) rather than something he actively took part in.

**Rich:** They do make efforts to have community here. They’ll have events and whatever. They try to get, you know, alley parties going. And it seems to follow a ripple. If you’re in the first phase, you’ll get it. Then it fades out as community. Then it follows, as you get into the newer and newer areas. And you’ll get some neighborhood relationships going.

Among those who felt this way, there was sometimes a sense of unreality and a lack of authenticity. These informants were puzzled that artifice seemed to only bother some in the neighborhood.

**Luke:** If you just drive around you think like a neutron bomb went off, which, you know, only takes out people and not structures.

**Andrea:** No one uses the porches, it’s creepy.

**Caroline:** At first, I felt like I was in a movie.

**Kevin:** (in the streets)...this is so hard to say, but sometimes there's a Desperate Housewives/Truman Show feel to the neighborhood.

**Rich:** You feel that around here on the porches they should have robot figures that wave at people...Sometimes I think I’ve (walked onto a) stage set.
For a few, the neighborhood has under-delivered on the brand promise of community.

Andrea: ...when we first moved there, I thought it would be a little more, you know...shiny happy people neighborhood, and...it's not really like that.

Allyson: I think, to me, just living close to someone doesn't necessarily mean you're going to meet your neighbors...I think a lot of it has to do with the amount of time you spent home and outside...So I know a lot of people by, “hi”, you know, whatever. But do I really know people??

Yet, those who believe that Pleasant Valley delivers on its community promise are acutely aware that not everyone feels that way. Their modal explanation is one that places the shortcomings on neighbors who may not understand the involvement required to produce community.

Luke: You get out of it what you put into it...I think you still have to sort of, you know, show up and be friendly...all that fun stuff doesn’t just automatically happen because of proximity.

Kevin posits that the New Urban ideal may be challenged by cultural emphasis placed on the American value of property ownership.

Kevin: I think they (neighbors) buy into the concept, but I really think American notions of property ownership, how that's been culturally constructed, is that it's very hard to imagine sublimating your own interests to some sort of collective good.

A central theme that has emerged from our interviews was that nearly all informants indicated a decent awareness of how traditional community exists in Pleasant Valley, and that it was something they knowingly bought as a part of their home purchase. This indicates a strong desire from some consumers to buy a home and a lifestyle in a neighborhood with hopes for personal connection and valuable relationships.

Getting Down with the Joneses

One common observation when discussing the identity of Pleasant Valley residents is the emphasis on an “anti-consumerist,” community ethic, and informants saw the neighborhood as a community of people who deliberately do not consume expensive items. The culture of the community is perceived as more socially and environmentally conscious, less materialistic.

Although each home in Pleasant Valley is architecturally distinct, homes must be in the late 19th or very early 20th century Arts and Crafts style, which physically points to the period immediately preceding modern consumer culture. The homes have smaller footprints on smaller lots and the neighborhood itself has formal restrictions on commerce. New Urbanism is marketed, in part, as a rejection of rampant consumerism. So, it is no surprise that the degree to which this promise is realized, or not, is apparent in the neighborhood.

Just as with the first finding, there is disagreement on this. For many, less conspicuous consumption or “under-consuming” should be conspicuous and communally celebrated. Others question the underlying motivations of these consumption norms. Luke discussed the type of people who live in Pleasant Valley.

Luke: And it sort of has this upper-end practicality feel to it that people can afford maybe a little bit more expensive car than they actually end up buying. I think it attracts an interesting hybrid-type person, because at these price points people could get a much larger house and much more land.
Caroline fully embraces this aspect of the neighborhood, but like others, has to confront some of its inconsistencies. Although they own three other cars, including a Porsche, when talking about their Ford Escape, Caroline says she feels ostentatious driving around in “such a big car,” and her husband would be embarrassed if she was seen “in a Lexus or something.”

Caroline and Bob are conflicted, and feel a little guilty. They try not to drive their less eco-friendly and more “showy” cars in the neighborhood too often, or even drive around the edges, or out the “back way.” Caroline thinks that instead of keeping up with the Joneses’, in Pleasant Valley it is “getting pressurized by the Joneses” or “being schooled and influenced positively with the Joneses.”

**Caroline:** If anything, it’s the opposite to downsize, to de-consume, to un-consume, to consume better. And that almost becomes like reversed pressure, the guilt. That’s what you feel. And the whole car thing, we are completely impervious, even though my husband loves nice cars. But we are practical in that regard. So I don’t feel it. I don’t feel it.

Caroline also told us about getting involved with a neighborhood social group that was focused on living greener. She says that “goodness” and “citizenship” are the “currencies” in Pleasant Valley. This is a clear example of the field-dependent cultural capital (Bourdieu 1986) that can be derived from consuming more “responsibly” or modestly in Pleasant Valley.

Craig deliberately goes to a coffee shop a few miles away from the neighborhood for it’s “decent” cup of coffee and doughnut selection. He seems proud of the simplicity of his coffee shop in contrast to the “higher-end” coffee shops in Pleasant Valley, including Starbucks.

**Craig:** “That (his favorite shop) feels much more like us than sitting in a Wi-Fi Starbucks where Taylor Swift is piped in over the speakers and everybody is coming through in their spandex running outfits and $300 running shoes.”

Others detect insincerity and classism in other residents who consume more environmentally conscious products or buy less than they can afford. Kevin discussed what he calls the “Prius effect.” Since he moved to Pleasant Valley, he has tried to resist the common consumption habits that fit the image of the neighborhood. In Pleasant Valley, he feels his “good” behavior is a bit coerced, and insincere.

**Kevin:** It's not enough to drive a hybrid. You have to drive the hybrid that screams out to everybody, ‘Look at me, I'm driving a hybrid. Look at me, I'm a member of a CSA.’...And it's, what I worry about is if you live in Pleasant Valley like I do, and you drive a hybrid like I do, and you join a CSA like I do, you can very easily convince yourself that I'm basically a good person and I'm doing a world of good and I'm saving the earth...It's a huge danger. And, you know, and certainly my family outside of (city) just laughs at that. Finds that to be the most ridiculous sort of nonsense.

Some informants believe that the apparent concern for sustainability and frugality is really another form of conspicuous self-expression, and empty social posturing. Jake and Allyson question the motives of fellow Pleasant Valley residents, and Jake expressed his desire to “burn whale oil,” in opposition to the focus on energy sources that are viewed as environmentally conscious, and debate with people around the neighborhood, challenging their true understanding about solar power and energy issues.

**Jake:** I think there are a lot of people who really (are sincere) in general, but I feel like in this neighborhood, (those) who are really into conserving energy and doing what they think is, you know, best for the environment, I'm not so sure. I mean, I suppose some of them maybe do it for like, the fuel efficiency. Like savings of their money. But I get a sense (it’s)...
Allyson: A statement. I think it’s a statement.

The Houses on the Ridge: Class Consciousness and Income Inequality

Although not explicitly promised by the developer/marketer, our Pleasant Valley informants expected a fairly flat consumer democracy. Part of the New Urban ideology was to create a neighborhood of people with a wide range of incomes, living in similarly sized homes. It was supposed to have diversity in terms of income and wealth, but not in visible display. The idea of affordability, reasonably sized, responsible and “non-showy” use of money is a recurrent Pleasant Valley theme, especially when it is believed to be violated. Violating the image of class sensibility and modesty is seen as threatening to the identity of the neighborhood. This was discussed by nearly all of our informants when they talked about the most recently constructed homes, as the houses “on the Ridge.”

As Pleasant Valley developed, all lots appreciated, but not wildly. Homes were required to have a minimum square footage, and the small lot size dictated a practical maximum. All plans had to have Pleasant Valley (developer) approval. As a result, there was very little variation in home size and appearance. As of 2012, six lots had been left off the market. They were slightly larger than average, and occupied a prominent ridge that afforded very nice views of the city and lake below. When they came on the market, the lots sold rapidly, at a price that was more than double the average lot sale price, some over $300,000. The six houses that were built were considerably larger, averaging close to 5,000 sq. feet, and all sold at a price between $1-1.5 million. The neighborhood average had previously been less than $500,000.

This has caused a rift in the community. We spoke to no informant who approved of the new homes. They believe that it calls the authenticity of the neighborhood devoted to sustainable community, into question. Our informants believed that the “reasonable” size of homes is symbolic of Pleasant Valley (resident’s) commitment to their goals of reclaimed neighborhood community. Beth refers to their neighbor’s house, which is significantly larger than other houses on the street, as the “community center.”

Beth: You know, there’s this giant house…And I thought they were more environmentally conscious than they are. Nice people, but…(eye roll).

When asked, Theresa and Rich reflected on conspicuous consumption, and have decided that it only has a real impact on the Ridge.

Theresa: That’s the most egregious example, I suppose. But when you start getting in three-car garages, then you get a little bit more than you really need. I mean, how many do you need?...And usually, it’s a couple with a kid and a dog that live there, and I go,’why?,’ you know? It turns me off.

Rich: It is such a waste, a waste in resources of various kinds, whether it’s to heat the house, whether it’s materials, whether it’s money that could be used more effectively elsewhere. We use our spare money to support the Humane Society. So you know, again, some people might, they can use their money any way they want...But again, personal choice, again, that’s one advantage of living, of course, should I say, in America, where you’re not straight jacketed as far as how big a house.

This is an example of conflicting ideologies within residents, one that has been long in conflict in America: libertarian free market and communitarian (Putnam 2000), and its social expression as taste. Rich tries to hold on to his libertarian ideology by saying residents have their personal choice of what kind of house to live in, but it is bounded by his stated sensibilities and
cultural moral values related to house size and how discretionary money should be spent when community should be the goal.

Craig is another informant who says he wants people to mind their own business and live as they wish, but he too does not look favorably on the larger homes in the neighborhood. He indicates that it impacts the way he sees the neighborhood and that it affects the collective image by bringing in ostentatious displays of wealth.

**Craig:** I never was planning to live in a $2 million house neighborhood, you know. I would avoid one if I had any choice just because I, that's not what I aspire to... I don't know who they are. There's one couple that I assume like must own the Ferrari dealership...there's a red and a black Ferrari now that come zipping in and out of there.

**INTERVIEWER:** So would you rather they would have been more in keeping with the rest of the neighborhood?

**Craig:** You know, I think I would, yeah...It feels like the range of the community is different. ...there were cottage lots which were intended to be affordable homes...If you had four or five smaller lots where, you know, a young family or a couple without kids could buy a nice house...but not feel obligated to build a McMansion on it.

Kevin brings up the social comparison that goes on when considering the largest homes in the neighborhood. He says they should not even be classified as New Urban.

**Kevin:** So that's what we, you know, assuage our own guilt in that we're not as bad as those people. I say that ironically, but it's, you know ... I just shudder every time I drive by those.”

**DISCUSSION**

In this early analysis, we have identified three findings that offer some insight into how consumers are pursing a greater sense of community by buying into a neighborhood where it is marketed as a prime brand benefit. In contemporary society, transient lifestyles and mass suburbanization have inhibited traditional community from developing organically in residential settings (Bardhi, Eckhardt, and Arnould 2012). However, traditional community is apparently something that is still desired. New Urban neighborhoods allow consumers (who can afford it) to buy a piece of this somewhat romantic and utopian vision. This is an interesting turn in studying resource-rich consumers who are seeking out these neighborly social relationships, which are traditionally based upon norms of reciprocity and interdependence. Previous work has indicated that those who have greater economic capital rely less on social relationships (Marcoux 2009).

Informants in our study reveal a strong awareness of the brand promise of community in their neighborhood. Most feel that some level of community has been achieved. Their ideas diverge more when it comes to how the community is produced and the extent of its authenticity. Some respondents refer to community with neighbors as something that is produced by others (the developer, other neighbors) for resident consumption. Others indicate that any weakness of community within the neighborhood is due to a misunderstanding by residents, of how to actively engage in the production. To these residents, the Pleasant Valley brand is a collective co-creation.

In terms of conscious consumption, Pleasant Valley residents seem to be quite aware of neighbors’ consumption behaviors. However, rather than a one-upsmanship in terms of expenditure, one-downsmanship is closer to the expected norm. Residents seem to be in agreement that the consumer culture of Pleasant Valley centers not on being materialistic or ostentatious, but rather more socially and
environmentally conscious. Some embrace this as a sincere movement towards their utopian social ideal. Others consider the ways in which Pleasant Valley residents choose to spend their money as merely alternative forms of conspicuous consumption. Some informants reported always having their current tastes, (Caroline, Rich and Theresa), while others developed them after living there for a while (Kevin, Craig, Al and Betty). Thus, there is evidence of a consumption habitus and field-specific cultural capital (Bourdieu 1986) guiding consumption norms in Pleasant Valley.

Perceptions of social stratification have become an issue in Pleasant Valley. Informants were acutely aware of the homes on the Ridge that deviate from the standard size of homes in the rest of the neighborhood. They see the larger homes as contradicting the ideology of New Urbanism and threatening the collective identity of Pleasant Valley. A collective identity of pragmatism, and relative modesty indicate a desire for a level of social solidarity.

CONCLUSION

New Urban neighborhoods are products offered through the marketplace that offer the promise of a ready-built, traditional community. The current consumer literature has not yet explored traditional, neighborhood-based, face-to-face forms of community. Nor have there been any studies of face-to-face community as a brand, as something to be purchased and consumed. This research seeks to address both of these gaps. This study demonstrates the way consumers in New Urban neighborhoods pursue and interact with traditional forms of community. It also reveals how the features of the New Urban neighborhood allow residents to experience the ideal of community, and perhaps ways by which they may feel constrained.

American neighborhoods portrayed in popular culture from the first half of the 20th century showed a simpler way of life in which people knew and trusted their neighbors. This often idealized past can be a driver of consumption, stemming from “a longing for the past” or a “fondness for possessions and activities associated with days of yore” (Holbrook 1993). Therefore, a marketed notion of community may be a form of commercial mythmaking, in which “consumers are active co-creators of meaning, who themselves selectively use and variously interpret commercialized representations of the past” (Thompson and Tian 2008). However, New Urban lifestyles may also be based on marketed cultural reproductions (Maclaran and Brown 2005; Penaloza 2000; O’Guinn and Belk 1989). Decisions on where and how to consume a domestic lifestyle are clearly missing from the consumer literature. Furthermore, the idea of community has been at the core of social thought for well over a century, but the tension between community and consumer society has been at times shallowly dogmatic, and has in consumer behavior lately leapt over traditional face-to-face forms of community to instead study its imagined and mediated forms. There is certainly room to examine this long-standing tension in the context in which it was originally theorized, in the face-to-face, neighbor-to-neighbor, close proximal sense. We strive to do that here.
REFERENCES


ABSTRACT

Understanding consumer preference for bundles is a key element of effective new product design. In addition to widely used conjoint analysis, researchers and practitioners are considering the application of “build-your-own-bundle” or configuration approach. In a configuration study, subjects are asked to create an ideal bundle from a given menu of various products. The resulting choice data poses two challenges for researchers. First, as the size of the menu grows, the number of possible bundles grows geometrically. This results in computation difficulties. Second, because each consumer only configures one ideal product bundle, researchers have only one choice observation per consumer. Thus researchers are limited to aggregate level analysis.

In this paper, the authors develop a modeling framework for a configuration dataset which was collected by a power tool company. In the data collection procedure, subjects were recruited if they had a higher valuation with respect to the power tool product category. The valuation of the product category in choice modeling can be represented as inclusive value, the expected maximum utility for the choice of alternatives within this product category. Thus, the preference distribution for the sample is proportional to the population preference distribution as well as the inclusive value distribution.

Based on the set up, the authors show analytically that the aggregate choice model consistent with configuration data has a closed form representation which takes the form of a multivariate logistic (MVL) model. The parameters of the MVL model reflect the overall preference for products in the category and preference heterogeneity. Thus the model not only deals with the challenges of configuration data but also provides clear insights into consumer preference segmentation. This research highlights both the challenges and the benefits of using configuration data to analyze bundle preference.

INTRODUCTION

Bundling is the practice of selling two or more separate products in a single package (Basu and Vitharana 2009; Ghosh and Balachander 2007; Stremersch and Tellis 2002). Researchers have shown that both the buyers and the sellers gain from bundling. Buyers benefit from the reduced search and transaction costs (Harris and Blair 2006; Yadav and Monroe 1993), while sellers benefit from demand expansion. Studies also show that bundle promotions can be an effective marketing tool (Balachander, Chosh and Stock 2010; Foubert and Gijsbrechts 2007). Several researchers examine the conditions of which a pure component (consumers can buy products separately), pure bundling (consumers can only buy products as a bundle) or mixed bundling (consumers can choose to buy the products separately or as a bundle) strategy can be optimal (Basu and Vitharana 2009; Ghosh and Balachander 2007; Venkatesh and Kamakura 2003).

For companies that adopt mixed bundling strategy, understanding consumer preference for bundles is a key element of effective new product design. Conjoint analysis, while it is well established and widely used by practitioners, has a major drawback: it imposes significant cognitive strains on participants, resulting in decision fatigue that negatively impacts the study. Thus practitioners are studying the application of “build-your-own-bundle” or bundle configuration. In a configuration study, consumers are asked to create an ideal bundle from a given menu of various products. This procedure mimics the real bundle decision making process, is straightforward and easy for participants to understand and doesn’t fatigue participants. The resulting choice data, however, poses two challenges for researchers. First, as the size of the menu grows, the number of possible bundles grows geometrically.
Second, because each consumer only configures one ideal product bundle, researchers have only one choice observation per consumer.

In this research, we develop a modeling framework that deals with the challenges of configuration data, but which also provides clear insights into consumer preference segmentation. The rest of the paper is organized as follows. Following the literature review, we show analytically that the population choice model consistent with configuration data takes the form of a multivariate logistic (MVL) model with parameters reflecting consumer preference heterogeneity. We apply the methodology to configuration data on bundles of power tools. Finally, we conclude with a discussion of the methodology and its managerial implications.

**LITERATURE REVIEW**

Bundling has long been an interesting topic to academic researchers. In the marketing literature, bundle choice models can be classified into two categories based on the type of units for utility analysis: attribute-based and component-based approaches (Rao 2004). The attribute-based approach models the utility in terms of the attributes of all the items on the bundle. For example, Chung and Rao (2003) model the utility based on item attributes that are further classified into three comparability types: attributes that are common to all items, are partially shared by items and are unique to items. As items share less attributes, the model complexity increases even though the number of items on the menu doesn’t change. On the other hand, the component-based approach treats individual items of a bundle as the ultimate unit of utility analysis. This approach doesn’t require further utility decomposition of items and is straightforward. Because our empirical study deals with bundles of highly heterogeneous items, we adopt a component-based approach, viewing items in a bundle as the base unit of bundle utility.

Viewing items in a bundle as the base unit of utility analysis, marketing practitioners have proposed several modeling methods. One approach for analyzing configuration data is multinomial logit model (MNL) (Ben-Akiva and Gershenfeld 1998; Johnson, Orme, and Pinnell 2006, Orme 2010). To apply MNL, the configuration task is converted into a single choice task in which individuals are making decisions from \(2^J\) bundles, where \(J\) is the number of items. The number of bundles in a configuration task, however, can be so large that no standard MNL software can handle model calibration. To avoid the estimation problem, practitioners assume independence among items. Thus, the simultaneous decisions for items are viewed as a set of separate choice tasks (Johnson, et al 2006), and standard binary logit approach is applied. The choice probability of a bundle is the product of the choice probabilities of items on the menu. Johnson et al. (2006) further show that the results obtained from the binary logit approach are highly correlated with the estimates obtained from MNL model. Additionally the average partworths are identical to the full MNL model to at least three decimal places. While binary logit approach is easy to handle and can be analyzed by a standard statistic program, the underlying assumption of independence of items is questionable. Moreover, we can show that MNL and binary Logit models are the same as multivariate logistic model (discussed in the subsequent paragraphs) with independence assumption. The derivation is provided in Appendix.

There are two main approaches proposed in the marketing literature to deal with the interdependencies among items or categories: multivariate probit (MVP) model (Manchanda, Ansari and Gupta 1999; Liechty, Ramaswamy and Cohen 2001) and multivariate logistic (MVL) model (Russell and Petersen 2000; Kamakura and Kwak 2012). In the MVP framework, an individual’s latent utility for various items or categories is assumed to have a joint normal distribution. Then the interdependencies of items are captured by the correlation structure in the multivariate distribution. In addition, the correlation structure of MVP model implicitly assumes that the choice decision of one item is influenced by other items even if they are not in the bundle.
With the root in spatial statistics, MVL approach develops marginal conditional distribution by taking influences from adjacent areas into consideration (Cressie 1993). In this set up, the MVL model explicitly incorporates interaction parameters to capture the pairwise interactions among items. Put in a marketing context, the MVL model assumes that consumers choose an item based on the presence of other items in the bundle. With appropriate assumption, it has been shown by spatial statisticians that a joint distribution, based on the set of conditional distributions, can be derived, and has the form of the multivariate logistic distribution (Cox 1972). Due to its explicit specification on interdependencies, MVL model has been applied to other area as well, such as social influence upon choice decisions (Moon and Russell 2008; Yang et al 2010).

In addition to the interdependence assumptions between MVP and MVL, they differ further when bundle-level attributes are present. One example of bundle-level attributes is quantity discount, which depends on the size of a bundle regardless of what items are in the bundle. Thus the value of a bundle-level attribute can only become known after the bundle is configured. Because the choice probability of a bundle in MVP utility process is defined as making simultaneous decisions for items on the menu, MVP model cannot know the bundle features in advance and thus cannot incorporate bundle-level attributes into its utility process. On the contrary, MVL model has a specific utility expression for bundle utilities, it can directly incorporate bundle-level attributes. With the presence of bundle-level attributes in our data, we choose to use MVL approach.

Table 1 summarizes and compares the binary logit, MVL and MVP approaches. The rest of the chapter is organized as follows. We first describe the study design, which is central to the model development. We then develop a modeling framework that is consistent with the data collection procedure. After applying the model to the dataset, we discuss the estimation results and the managerial implications.

**STUDY DESIGN**

A company that wishes to know the ideal tool bundle of size three for particular customer segments conducts a study to gather consumer preferences. Two screening criteria are implemented when recruiting participants: (a) if the participant uses the tools and make purchase decisions at work; or (b) if the participant owns the tools for personal use. We named the participants who are qualified for criteria (a) “Professionals” and participants who are qualified for criteria (b) “Amateurs”. After answering several other survey questions, the participants enter configuration task. Participants are told to create their ideal bundle from a menu consisting of nine tools, subject to the restriction that the bundle has to contain at least two tools. The individual price of each tool is different. Participants in the same group face the same pricing structure. To enhance the incentive of constructing a bundle, each group is offered three different bundle discount levels - at bundle of size two, three, and four and above. The discount goes deeper when the bundle size increases. After configuring a tool bundle, the discounted total price is shown, and participants were given the opportunity to revise their bundle. The process continued until they were satisfied with the bundle and the total price.

**MODEL DEVELOPMENT**

**Individual Model**

Suppose the menu consists \( J \) tools (in our dataset \( J = 9 \)). This results in a total of \( 2^J \) bundles, including the bundle consists of nothing. Let \( b = 0, \ldots, B \) denote the bundle, where 0 represents the empty bundle and \( B = 2^J - 1 \) is the bundle consisting of all tools. For participant \( i \) we define the direct utility function for the bundle category at time \( t \) as follows:

\[
u(x) = \sum_b \psi_{ib} x_b\]
where \( x_b \) is the quantity for bundle \( b \). Define \( P_j \) as the price for tool \( j \) and \( z_{jb} = 1 \) if tool \( j \) is in bundle \( b \) and 0 otherwise. The total price for bundle \( b \), \( TP_b \), is \( TP_b = \sum_j P_j z_{jb} \). Let \( d_b \) be the quantity discount for bundle \( b \).

### Table 1: Summary of Modeling Approaches

<table>
<thead>
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<th>Approach</th>
<th>Binary Logit</th>
<th>MVL</th>
<th>MVP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis setup</td>
<td>View the configuration task as a process of making multiple independent choices with regard to items.</td>
<td>Individuals make multiple simultaneous choices of items.</td>
<td>Individuals make multiple simultaneous choices of items.</td>
</tr>
<tr>
<td>Interdependency</td>
<td>Do not allow interdependence among items.</td>
<td>Capture the interdependencies by explicitly incorporating an interaction variable in the model.</td>
<td>Capture the interdependencies among items through a correlation matrix.</td>
</tr>
<tr>
<td>Utility formulation</td>
<td>An item will be will chosen if the utility for that item is above threshold.</td>
<td>An item will be included in the bundle if the utility for that item, after considering the impact from other items in the bundle, exceeds threshold.</td>
<td>An item will be included in the bundle if the utility for that item, after considering the impacts from all other items, exceeds threshold.</td>
</tr>
<tr>
<td>Consideration set assumption</td>
<td>All possible bundles are considered by subjects.</td>
<td>Choice can be restricted to a subset of bundles.</td>
<td>Choice can be restricted to a subset of bundles.</td>
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<tr>
<td>Model design</td>
<td>After constructing the chosen probability of each item given their characteristics, the probability of a bundle being chosen is the multiplication of the probability of each item.</td>
<td>Given characteristics of items, the model simultaneously predicts the chosen probability of a collection of items.</td>
<td>Given characteristics of items, the model simultaneously predicts the chosen probability of a collection of items.</td>
</tr>
</tbody>
</table>
Denote $BP_b = TP_b(1 - d_b)$ as the bundle price for bundle $b$ after quantity discount. If $E$ is the total expenditure on the bundles, the utility maximization decision is

$$\max_{\mathbf{x}} u(\mathbf{x}) \text{ subject to } \sum_b BP_b x_b \leq E$$

Define the marginal utility for bundle $b$ as $\psi_b = \psi_b^{\mathfrak{f}} e^{\varepsilon_b}$. $\psi_b^{\mathfrak{f}}$ is the deterministic component of the marginal utility, and $\varepsilon_b$ is a random element which represents factors that influence the consumer’s choice but are unobserved to researchers. Applying the Kuhn-Tucker first-order condition, the choice probability for bundle $b$ is

$$Pr(b) = Pr \left( \frac{\psi_b^{\mathfrak{f}}}{BP_b} > \frac{\psi_{b'}^{\mathfrak{f}}}{BP_{b'}} \right) = Pr \left( \ln \psi_b - \ln BP_b + \varepsilon_b > \ln \psi_{b'} - \ln BP_{b'} + \varepsilon_{b'} \text{ for any } b' \neq b \right)$$

We assume that $\varepsilon_{b'}$ follows a Gumbel $(0, \delta)$ distribution, and integrate over $\varepsilon_{b'}$, the choice probability for bundle $b$ thus is

$$Pr(b | \psi, \delta) = \frac{\exp \left\{ \frac{1}{\delta} \ln \psi_b - \frac{1}{\delta} \ln BP_b \right\}}{\sum_{b'} \exp \left\{ \frac{1}{\delta} \ln \psi_{b'} - \frac{1}{\delta} \ln BP_{b'} \right\}} = \frac{\exp \left\{ \frac{1}{\delta} \ln \psi_b - \frac{1}{\delta} \ln BP_b \right\}}{\sum_{b'} \exp \left\{ \frac{1}{\delta} \ln \psi_b - \frac{1}{\delta} \ln BP_{b'} \right\}}$$

Without loss of generality, we set $\sum_b \ln \psi_b = 0$.

The deterministic marginal utility has to be positive and diminishing in return. Thus we assume that the deterministic marginal utility for bundle $b$ is the exponential of the sum of the utilities of tools in the bundle. That is, $\psi_b = \exp \left\{ \sum_j \alpha_j z_{jb} \right\} = \exp \left\{ \alpha^T z_b \right\}$, where $\alpha_j$ is participant $i$’s preference for tool $j$.

Then equation (2) can be rewritten as

$$Pr(b | \alpha) = \frac{\exp \left\{ \frac{1}{\delta} \ln \psi_b - \frac{1}{\delta} \ln BP_b \right\}}{\sum_{b'} \exp \left\{ \frac{1}{\delta} \ln \psi_{b'} - \frac{1}{\delta} \ln BP_{b'} \right\}} = \frac{\exp \left\{ \frac{1}{\delta} \alpha^T z_b - \frac{1}{\delta} \ln BP_b \right\}}{\sum_{b'} \exp \left\{ \frac{1}{\delta} \alpha^T z_{b'} - \frac{1}{\delta} \ln BP_{b'} \right\}}$$

As mentioned earlier, we set $\sum_b \ln \psi_b = 0$. This is equivalent to $\sum_b \alpha^T z_b = 0$. Rewrite this equation:

$$\sum_b \alpha^T z_b = \sum_j \sum_b \alpha_j z_{jb} = \sum_j \sum_b \alpha_j z_{jb} = \sum_j \alpha_j \sum_b z_{jb} = 0$$

Notice that $z_{jb}$ is the number of times that tool $j$ appears in all the $2^J$ bundles. Since configuration task implies a complete factorial design of $J$ tools, all tools appear in half of all bundles. Hence we obtain the following property from equation (4):

$$\sum_b \sum_j \alpha_j z_{jb} = \sum_j \alpha_j \sum_b z_{jb} = \sum_j \alpha_j 2^{J-1} = 2^{J-1} \sum_j \alpha_j = 0 \Rightarrow \sum_j \alpha_j = 0$$
Aggregate Model

Individuals have different preferences for the tools on the menu. The preference heterogeneity can be captured by assuming $\alpha$ as a random variable. Suppose the preference distribution for the sample dataset is $g(\alpha)$. The aggregate choice probability of bundle $b$ is a Mixed Logit model:

$$P_r(b) = \int P_r(b | \alpha)g(\alpha) d\alpha$$

Let $f(\alpha)$ be the population preference distribution from which the sample is drawn. We assume the population preference distribution follows a normal distribution $MVN(\mu, \Sigma)$. If we have a representative sample, $g(\alpha)$ and $f(\alpha)$ will be the same. In this study, however, a screening process is employed. Thus we define the relationship between the sample and population preference distributions as

$$\frac{g(\alpha)}{f(\alpha)} = w(\alpha)$$

where $w(\alpha)$ reflects the screening process.

We need to derive proper $w(\alpha)$ that reflects the true relationship between the two preference distributions. First, since both $g(\alpha)$ and $f(\alpha)$ are nonnegative, $w(\alpha)$ has to be nonnegative. Second, the screening questions in this study - (a) if a participant uses the tools and make purchase decisions at work and (b) if participant owns the tools for personal use - result in the final sample that only retains consumers who put relatively high values on the tools. This suggests that the screening process can be represented by participant $i$’s inclusive value of the bundle category, which is the expected maximum utility the participant obtain from the category. Thus $w(\alpha)$ should be monotonically related to the inclusive value. Let $IV(\alpha)$ be the inclusive value of participant $i$:

$$IV(\alpha) = \log \sum_{\beta} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\beta} - \frac{1}{\delta} \ln BP_{\beta} \right\}$$

Because inclusive value ranges from $-\infty$ to $\infty$, we thus define $w(\alpha)$ as:

$$w(\alpha) = k \exp \{ IV(\alpha) \}$$

From equations (7) and (8) we can obtain $g(\alpha)$:

$$g(\alpha) = w(\alpha) f(\alpha) = k \exp \{ IV(\alpha) \} f(\alpha)$$

We derive the normalizing constant $k$ below so that $g(\alpha)$ is a valid distribution:

$$k^{-1} = \int \exp \{ IV(\alpha) \} f(\alpha) d\alpha$$

$$= \int \left( \sum_{\beta} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\beta} - \frac{1}{\delta} \ln BP_{\beta} \right\} \right) f(\alpha) d\alpha$$

$$= \sum_{\beta} \int \exp \left\{ \frac{1}{\delta} \alpha^T z_{\beta} - \frac{1}{\delta} \ln BP_{\beta} \right\} f(\alpha) d\alpha$$

$$= \sum_{\beta} \exp \left\{ - \frac{1}{\delta} \ln BP_{\beta} \right\} \int \exp \left\{ \frac{1}{\delta} \alpha^T z_{\beta} \right\} f(\alpha) d\alpha$$

The integrand in equation (10) in fact is the moment generating function of multivariate normal distribution:

$$\int \exp \left\{ \frac{1}{\delta} \alpha^T z_{\beta} \right\} f(\alpha) d\alpha = E \left( e^{\frac{1}{\delta} \alpha^T z_{\beta}} \right) = M_{\alpha} \left( \frac{1}{\delta} z_{\beta} \right)$$
Notice that \( M_a \left( \frac{1}{\delta} z_{\nu} \right) = \exp \left\{ \frac{1}{\delta} \mu^T z_{\nu} + \frac{1}{2\delta} z_{\nu}^T \Sigma z_{\nu} \right\} \) doesn’t depend on \( \alpha \). Thus equation (10) becomes
\[
k^{-1} = \sum_{\nu'} \exp \left\{ -\frac{1}{\delta} \ln BP_{\nu'} \right\} M_{\nu'} \left( \frac{1}{\delta} z_{\nu'} \right)
\]
and equation (8) can be rewritten
\[
w(\alpha) = \frac{\exp \{IV(\alpha)\}}{\sum_{\nu'} \exp \left\{ -\frac{1}{\delta} \ln BP_{\nu'} \right\} M_{\nu'} \left( \frac{1}{\delta} z_{\nu'} \right)}
= \frac{\sum_{\nu'} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\nu'} - \frac{1}{\delta} \ln BP_{\nu'} \right\}}{\sum_{\nu'} \exp \left\{ \frac{1}{\delta} \mu^T z_{\nu'} + \frac{1}{2\delta} z_{\nu'}^T \Sigma z_{\nu'} \right\}}
= \frac{\sum_{\nu'} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\nu'} - \frac{1}{\delta} \ln BP_{\nu'} \right\}}{\sum_{\nu'} \exp \left\{ \frac{1}{\delta} \mu^T z_{\nu'} + \frac{1}{2\delta} z_{\nu'}^T \Sigma z_{\nu'} - \frac{1}{\delta} \ln BP_{\nu'} \right\}}
\]
Equation (12) shows that the sample preference distribution \( g(\alpha) \) depends on the screening process and the design of choice experiment. Moreover, when there is no preference heterogeneity, \( \Sigma = 0 \) and \( \alpha = \mu \). Thus \( w(\alpha) = 1 \) and the sample preference distribution and the population preference distribution are the same, \( g(\alpha) = f(\alpha) \). If preference heterogeneity exists and \( w(\alpha) > 1 \), participants who have a higher expected maximum utility are overweighted in the sample preference distribution. Similarly, \( w(\alpha) < 1 \) means that participants who have a lower expected maximum utility are underweighted. Notice that if we write out \( \exp \{IV(\alpha)\} \):
\[
\exp \{IV(\alpha)\} = \exp \left( \log \sum_{\nu'} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\nu'} - \frac{1}{\delta} \ln BP_{\nu'} \right\} \right)
= \sum_{\nu'} \exp \left\{ \frac{1}{\delta} \alpha^T z_{\nu'} - \frac{1}{\delta} \ln BP_{\nu'} \right\}
\]
That is, if a participant will enter the configuration task depends on one’s total exponential of the indirect utility across all bundles.

We simulate a dataset to compare the weighted sample and the population preference distributions. We assume a total of \( J = 3 \) products and do not consider price and bundle discount. To be consistent with the restriction, the true parameters in the simulation dataset also sum to 0. Lastly, we assume \( \delta = 1 \). The true parameters are
\[
\alpha = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \end{bmatrix} \sim MVN \left( \mu = \begin{bmatrix} 3 \\ 2 \\ -5 \end{bmatrix}, \Sigma = \begin{bmatrix} 4.0 & 0.3 & -4.3 \\ 0.3 & 1.0 & -1.3 \\ -4.3 & -1.3 & 5.6 \end{bmatrix} \right)
\]
The sample preference distributions are obtained via equation (12). The summary statistics of the distributions are shown in Table 2. Figures 1 to 3 show the population and sample preference distributions for \( \alpha_1, \alpha_2 \) and \( \alpha_3 \).
Table 2: Summary Statistics of Simulated Preference Distributions

<table>
<thead>
<tr>
<th>Parm.</th>
<th>Distribution</th>
<th>Min.</th>
<th>Median</th>
<th>Mean</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusive Value</td>
<td>$f(\alpha)$</td>
<td>2.09</td>
<td>5.22</td>
<td>5.39</td>
<td>12.57</td>
</tr>
<tr>
<td></td>
<td>$g(\alpha)$</td>
<td>2.57</td>
<td>6.71</td>
<td>6.82</td>
<td>12.57</td>
</tr>
<tr>
<td>$\alpha_1$</td>
<td>$f(\alpha_1)$</td>
<td>-3.71</td>
<td>2.95</td>
<td>2.98</td>
<td>10.35</td>
</tr>
<tr>
<td></td>
<td>$g(\alpha_1)$</td>
<td>-1.65</td>
<td>4.28</td>
<td>4.28</td>
<td>10.35</td>
</tr>
<tr>
<td>$\alpha_2$</td>
<td>$f(\alpha_2)$</td>
<td>-1.65</td>
<td>1.98</td>
<td>1.98</td>
<td>5.09</td>
</tr>
<tr>
<td></td>
<td>$g(\alpha_2)$</td>
<td>-0.70</td>
<td>2.37</td>
<td>2.36</td>
<td>5.09</td>
</tr>
<tr>
<td>$\alpha_3$</td>
<td>$f(\alpha_3)$</td>
<td>-12.51</td>
<td>-6.58</td>
<td>-4.97</td>
<td>2.42</td>
</tr>
<tr>
<td></td>
<td>$g(\alpha_3)$</td>
<td>-12.51</td>
<td>-6.55</td>
<td>-6.64</td>
<td>-0.44</td>
</tr>
</tbody>
</table>

![Histogram](f(\alpha_1), n=2000)

![Histogram](g(\alpha_1), n=1000)
Figure 1: Weighted Sample and Population Preference Distributions - $\alpha_1$

$f(\alpha_2)$, $n=2000$

Figure 2: Weighted Sample and Population Preference Distributions - $\alpha_2$

g($\alpha_2$), $n=1000$

Figure 2: Weighted Sample and Population Preference Distributions - $\alpha_3$

$f(\alpha_3)$, $n=2000$

g($\alpha_3$), $n=1000$
As stated earlier, the screening process retains participants who place a higher value on tools. The proposed function $v_i(\alpha)$ indeed reflects the screening process. The means of $g(\alpha_{1})$ and $g(\alpha_{2})$ are higher than $f(\alpha_{1})$ and $f(\alpha_{2})$, respectively. The mean of $g(\alpha_{i})$ is also more extreme than $f(\alpha_{i})$ due to the sum to zero constraint on preference, as we expect.

Putting equation (12) back to equation (6) and replace $Pr(b|\alpha)$ as in equation (3), we obtain the aggregate choice probability

\[
Pr(b) = \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
\sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\} f(\alpha) d\alpha
= \exp\left\{\frac{1}{2} \mu^T z_b - \frac{1}{2} \ln B_{P_b}\right\} \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\} f(\alpha) d\alpha
= \sum_{b'} \exp\left\{-\frac{1}{2} \ln B_{P_{b'}}\right\} M_{\alpha}\left(\frac{1}{2} z_{b'}\right) \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\} f(\alpha) d\alpha
\]

Let $\alpha = \begin{bmatrix} \alpha_1 \quad \cdots \quad \alpha_i \end{bmatrix}$ and $\Sigma_{\alpha_{i}} = \text{diag}(\sigma)$. Since $z_{jb} = 0$ or 1, $z_{jb}^2 = z_{jb}$. $z_{jb} z_b = z_{ib}$. We can rearrange the terms in equation (13)

\[
Pr(b) = \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \left(\Sigma - \Sigma D + \Sigma\right) z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
\sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \left(\Sigma D + \Sigma\right) z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
= \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma_1 z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
\sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
= \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma_1 z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
= \sum_{b'} \exp\left\{\frac{1}{2} \mu^T z_{b'} + \frac{1}{2} z_{b'}^T \Sigma_1 z_{b'} - \frac{1}{2} \ln B_{P_{b'}}\right\}
\]

This resulting aggregate choice probability has a closed form expression and it takes on the form of Multivariate Logistic model (Russell and Petersen, 2000; Kwak, Duvvuri, and Russell, 2015).
We make three remarks regarding equation (14). First, when there is no preference heterogeneity, \( \Sigma = 0 \) and \( \alpha = \mu = \mu^* \). In this case equation (14) degenerates to equation (3). In addition, the numerator in equation (14) shows that the choice probability of a bundle depends not only on the overall preferences of the tools in the bundle, but the interactions among those tools as well. Moreover, the model specification allows us to recover population parameters \( \mu \) and \( \Sigma \), even though we don’t have a representative sample in the study.

Model Calibration

The aggregate model as shown in equation (14) has some restrictions and challenges. The restriction, \( \sum_j \alpha_j = 0 \), as shown in equation (5) put restrictions on the parameters. Moreover, it is clear to see from equation (14) that the variances are confounded with the means. We also need to address the major challenge that the configuration dataset presents - the curse of dimensionality. The dimensionality problem is twofold here: the number of parameters to be estimated and the size of the choice set in the denominator. We discuss those issues subsequently.

Parameter restrictions

Because \( \sum_j \alpha_j = 0 \), without loss of generality we set

\[
\alpha_j = - \sum_{j=1}^{J-1} \alpha_j = -1^T_{J-1} \alpha^*
\]

where \( \alpha^* = \left[ \alpha_1, \ldots, \alpha_{J-1} \right]^T \) and \( 1^T_l \) is a vector of length \( l \) with 1 as every element. Define

\[
T = \begin{bmatrix} 1^T_{J-1} & -1^T_{J-1} \end{bmatrix}^T. \quad \text{Thus we have} \quad \alpha = \begin{bmatrix} \alpha^* \alpha_j \end{bmatrix}^T = T \alpha^*. \quad \text{Define} \quad \mu^* = \begin{bmatrix} \mu_1 \cdots \mu_{J-1} \end{bmatrix}^T \text{and} \quad \Sigma^* = \begin{bmatrix} \Sigma_{ij} \end{bmatrix}.
\]

As the first \( J-1 \) rows and columns of \( \Sigma \). The distribution for \( \alpha \) can be rewritten as

\[
(15) \quad \alpha = T \alpha^* \sim MVN \left( \mu = T \mu^* = \begin{bmatrix} \mu_j^* \end{bmatrix}, \Sigma = T \Sigma^* T^T = \begin{bmatrix} \Sigma_{ii}^* & \Sigma_{ij} \\ \Sigma_{ij} & \sigma_{jj}^* \end{bmatrix} \right)
\]

where \( \mu_j = -1_{J-1} \mu^* \), \( \Omega = \begin{bmatrix} \sigma_{11} \cdots \sigma_{iJ} \end{bmatrix} \). Thus equation (13) can be rewritten as

\[
(16) \quad P_r(b) = \frac{\text{exp} \left\{ \frac{1}{2} \mu^T z_{b} + \frac{1}{2 \sigma_{jj}^*} z_{b}^T \Sigma z_{b} - \frac{1}{2} \ln B P_b \right\}}{\sum_{b'} \text{exp} \left\{ \frac{1}{2} \mu^T z_{b'} + \frac{1}{2 \sigma_{jj}^*} z_{b'}^T \Sigma z_{b'} - \frac{1}{2} \ln B P_{b'} \right\}}
\]

where \( \tilde{\zeta}_{b} = T z_{b} = \begin{bmatrix} \tilde{\zeta}_{1,b} \cdots \tilde{\zeta}_{J-1,b} \end{bmatrix} \) and \( \tilde{\zeta}_{j,b} = \zeta_{j,b} - \zeta_{1,b} \).
Assumptions for scaling parameters

There are two scaling parameters in equation (16): the scaling parameter $\delta$ from the individual logit model and the variance matrix $\Sigma_i$ from the heterogeneity distribution. As shown in equation (14) the variances are confounded with means, we are unable to distinguish the means and the variances. Thus for the equation to be identifiable, we assume the variances for all tools are constants $\sigma_1^2 = \cdots = \sigma_{i-1}^2 = \sigma^2$ and rewrite equation (16):

$$
Pr(b) = \frac{\exp \left\{ \frac{1}{\delta} \mu^* b^* + \frac{1}{2 \sigma^2} b^* \Sigma^* b^* - \frac{1}{\delta} \ln BP \right\}}{\sum_y \exp \left\{ \frac{1}{\delta} \mu^* b^* + \frac{1}{2 \sigma^2} b^* \Sigma^* b^* - \frac{1}{\delta} \ln BP \right\}}
$$

$$
= \frac{\exp \left\{ \frac{1}{\delta} \mu^* b^* + \frac{1}{2 \sigma^2} b^* \Theta^* b^* - \frac{1}{\delta} \ln BP \right\}}{\sum_y \exp \left\{ \frac{1}{\delta} \mu^* b^* + \frac{1}{2 \sigma^2} b^* \Theta^* b^* - \frac{1}{\delta} \ln BP \right\}}
$$

where $\mu^* = \frac{1}{\delta} \mu$, $\kappa = \frac{\sigma}{\delta} > 0$, $\Theta^*$ is a $J-1 \times J-1$ correlation matrix, and $\beta = \frac{1}{\delta} > 0$.

Number of parameters to be estimated

Applying equation (17) to dataset with $J$ tools we need to estimate $J$ means, $\frac{J(J-1)}{2}$ correlations and one price coefficient. This results in $\frac{J(J+1)}{2} + 1$ parameters. This clearly imposes estimation difficulty. To reduce the number of parameters, we project the correlation matrix $\Theta^*$ onto a two-dimensional space. Let

$$
V^* = \begin{bmatrix}
\tilde{u}_1 \\
\tilde{u}_2 \\
\vdots \\
\tilde{u}_{J-1}
\end{bmatrix}
= \begin{bmatrix}
v_{11} & v_{12} \\
v_{21} & v_{22} \\
\vdots & \vdots \\
v_{J-1,1} & v_{J-1,2}
\end{bmatrix}
$$

Define $\Theta^* = V^* V'^T$, where $\tilde{u}_i \tilde{u}_j^T = 1$ and $|\tilde{u}_j^T \tilde{u}_k| \leq 1$ for $j \neq k$. Because of the restrictions on $\tilde{u}_j$, we define $v_{jk} = \cos \left( \frac{\pi}{\exp(a_j)} \right)$, $v_{j2} = \sin \left( \frac{\pi}{\exp(a_j)} \right)$, and $a_j$ is the parameter to estimate on the real line. To fix the scale and the direction of the system, and prevent the axes to be flipped, we set $v_{11} = 1$, $v_{12} = 0$ and $v_{21} = \cos \left( \frac{\pi}{\exp(a_j)} \right)$. Replace $\Theta^*$ with $V^* V'^T$, equation (17) becomes
Size of choice set

In the configuration task, the number of the possible bundles is $2^J$. That is, as the size of the menu grows, the number of possible bundles grows geometrically. In our dataset we have 9 items and the total number possible bundles is $2^9 = 512$. Even though the subjects are restrained to construct bundles of size greater or equal to 2, we still have 502 bundles in total. The large size of choice set impose huge computation burden. We adopt the sampling of alternatives approach proposed by McFadden (1978). This approach allows us to get consistent estimates by replacing the full choice set with a subset of all alternatives.

Let $u_b$ be the deterministic utility for alternative $b$, and $\mathcal{B}$ is the set containing all the alternatives. Based on random utility theory, the probability of choosing alternative $b$ is defined as

$$\Pr(Y_b = 1) = \frac{\exp(u_b)}{\sum_{b \in \mathcal{B}} \exp(u_b)}$$

A procedure for sampling of alternatives assigns to a participant $i$ a subset of the alternatives, denoted by $\mathcal{B}'$ which includes the chosen alternative. Let $\pi_i(\mathcal{B}'|b)$ be the conditional probability of constructing the set for participant $i$, given the chosen alternative $b$. For ease of readability, we suppress the subject script in the following discussion. The joint probability of a chosen alternative and a subset of alternatives, $\mathcal{B}'$, is

$$\pi(b, \mathcal{B}') = \pi(\mathcal{B}'|b) \Pr(Y_b = 1)$$

By Bayes theorem, the conditional probability of alternative being chosen given a subset of alternatives, $\mathcal{B}'$, is

$$\pi(b|\mathcal{B}') = \frac{\pi(\mathcal{B}'|b) \Pr(Y_b = 1))}{\sum_{b' \in \mathcal{B}'} \pi(\mathcal{B}'|b') \Pr(Y_{b'} = 1}}$$

Substituting the choice probability $\Pr(Y_b = 1)$ in equation (20) with equation (19), we have

$$\pi(b|\mathcal{B}') = \frac{\exp\{u_b + \ln \pi(\mathcal{B}'|b)\}}{\sum_{b' \in \mathcal{B}'} \exp\{u_{b'} + \ln \pi(\mathcal{B}'|b')\}}$$

McFadden (1978) proves the maximization of the conditional log likelihood function of equation (21) yields consistent estimates of the unknown parameters under normal regularity conditions. Notice that
equation (21) includes an additive alternative-specific correction for the bias introduced by the sampling of alternatives.

As Kwak et al. (2015) point out, equation (18) can be viewed as a simple logit model defined in terms of bundles and has the IIA (independence of irrelevant alternatives) property. Thus we can adopt sampling of alternatives approach.

Two different sampling strategies have been proposed for alternative sampling: simple random sampling and importance sampling. We apply importance sampling due to the consideration of efficiency. The sampling with replacement procedure suggested by Ben-Akiva and Lerman (1985) is as follows: Draw a sample of size $k$ from the set $B$ with probability $w_b$ for each bundle $b$ at each draw. Delete the duplicate alternatives and add the chosen alternative if it was not sampled. Then the probability to obtain the set $B'$ is

$$
\pi(B'|b) = \prod_{b \in B' \& b' \neq b} q_b' \left( \sum_{b' \in B'} q_{b'} \right)^{k+1-k'} = \frac{1}{q_b} \prod_{b' \in B'} q_{b'} \left( \sum_{b' \in B'} q_{b'} \right)^{k+1-k'} = \frac{1}{q_b} Q(B')
$$

where $Q(B') = \prod_{b \in B'} q_b \left( \sum_{b' \in B'} q_{b'} \right)^{k+1-k'}$. Combining equation (22) and equation (21), we have

$$
\pi(b|B') = \frac{\exp(u_b + \log \frac{1}{q_b} Q(B'))}{\sum_{b' \in B'} \exp(u_{b'} + \log \frac{1}{q_{b'}} Q(B'))} = \frac{\exp(u_b - \log q_b)}{\sum_{b' \in B'} \exp(u_{b'} - \log q_{b'})}
$$

Thus equation (18) becomes

$$
Pr_{B}(b) = \frac{\exp \left\{ \hat{\mu}^T \hat{z}_b + \frac{k^2}{2} \sum_{j=1}^{J-1} \hat{z}_{j,b}^2 + k^2 \sum_{j=1}^{J-2} \sum_{k>j} \hat{z}_{j,b} \hat{z}_{k,b} \hat{z}_{i,j} \hat{z}_{i,k} - \beta \ln BP_b - \ln w_b \right\}}{\sum_{b' \in B} \exp \left\{ \hat{\mu}^T \hat{z}_{b'} + \frac{k^2}{2} \sum_{j=1}^{J-1} \hat{z}_{j,b'}^2 + k^2 \sum_{j=1}^{J-2} \sum_{k>j} \hat{z}_{j,b'} \hat{z}_{k,b'} \hat{z}_{i,j} \hat{z}_{i,k} - \beta \ln BP_{b'} - \ln w_{b'} \right\}}
$$

where $w_b$ is the weight of bundle $b$.

We implement sampling of alternative procedure for model estimation. The procedure is as follows:

1. Exclude the baskets with size 0 and size 1 from the total set of the bundles. Denote the new set that contains 502 bundles as $B$.
2. Count the frequency of each bundle being chosen by the participants.
3. Adjust the frequency of each bundle being chosen as follows:

$$
freq_b = freq_b^* + \frac{1}{2}
$$

where $freq_b^*$ represents number of times the bundle being chosen by the participants in the dataset.
4. Calculate the probability of each bundle being chosen based on the data:

$$
Prob_b = \frac{freq_b}{\sum_{b' \in B} freq_{b'}}
$$

5. For each participant $i$, we apply sampling of alternatives as follows:
   a. Using sampling with replacement, we get 90 bundles from the set $B$ based on the probability $Prob_b$.
   b. Eliminate the duplicate bundles. Denote the set of alternatives as $B_i$.
   c. Check if the chosen bundle of participant $i$ is in $B_i$. If not, add the chosen bundle to the set $B_i$. 

66
We use maximum likelihood estimation procedure for parameter estimation. The log likelihood is obtained from equation (23):

\[
LL = \log \left( \prod_{i} Pr_{B_i}(b) \right) = \sum_{i} \log Pr_{B_i}(b)
\]

\[
= \sum_{i} \left\{ \mu^{bT} \tilde{z}_{i}^{*} + \frac{k^2}{2} \sum_{j} \tilde{z}_{j}^{2} + k^2 \sum_{j} \sum_{k>j} \tilde{z}_{j} \tilde{z}_{k} \tilde{v}_{j}^{T} \tilde{v}_{k}^{T} - \beta \ln BP_{b} - \ln w_{b} \right\}
\]

\[-\sum_{i} \log \left\{ \sum_{\nu \in B_i} \exp \left\{ \mu^{\nu T} \tilde{z}_{\nu}^{*} + \frac{k^2}{2} \sum_{j} \tilde{z}_{j}^{2}_{\nu} + k^2 \sum_{j} \sum_{k>j} \tilde{z}_{j} \tilde{z}_{k} \tilde{v}_{j}^{T} \tilde{v}_{k}^{T} - \beta \ln BP_{\nu} - \ln w_{\nu} \right\} \right\} \]

**EMPIRICAL APPLICATION**

**Data Description**

301 participants, of which 150 are Professionals and 151 are Amateurs, passed the screening rules and entered the configuration task. A summary statistics of the bundles is given in Table 3.

For confidentiality, the tools are presented in disguised form. We classified the tools into three categories based the purposes those tools serve. The first three are used for drilling or driving, and are labeled as D1, D2 and D3. The following four tools are used for cutting, and labeled as C1, C2, C3 and C4. The rest two tools serve different purposes, but both can be viewed as accessories. We label them as A1 and A2. Note that tools in the same category are not perfect substitutes. Even the main serving purposes are the same, there are situations that require, for example, a specific drilling or cutting tool. A total of 512 bundles can be obtained from the nine tools, out of which 152 bundles were chosen at least once by the participants - 83 for Professionals and 96 for Amateurs.

**Table 3: Data Summary - Bundles**

<table>
<thead>
<tr>
<th>Bundle Size</th>
<th>Number of Bundles</th>
<th>Number of Bundles Chosen</th>
<th>Number of Times being Chosen</th>
<th>Average Chosen Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
<td>6</td>
<td>7</td>
<td>1.17</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
<td>14</td>
<td>16</td>
<td>1.14</td>
</tr>
<tr>
<td>4</td>
<td>126</td>
<td>32</td>
<td>43</td>
<td>1.34</td>
</tr>
<tr>
<td>5</td>
<td>126</td>
<td>19</td>
<td>22</td>
<td>1.16</td>
</tr>
<tr>
<td>6</td>
<td>84</td>
<td>8</td>
<td>9</td>
<td>1.13</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>1.33</td>
</tr>
<tr>
<td>8</td>
<td>36</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
<td>49</td>
<td>49.00</td>
</tr>
</tbody>
</table>

**Total** 512 83 150

(b) Amateurs
Table 4: Number of Bundles Chosen

<table>
<thead>
<tr>
<th>Bundle Size</th>
<th>Number of Bundles</th>
<th>Number of Bundles Chosen</th>
<th>Number of Times being Chosen</th>
<th>Average Chosen Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
<td>5</td>
<td>5</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
<td>24</td>
<td>34</td>
<td>1.42</td>
</tr>
<tr>
<td>4</td>
<td>126</td>
<td>33</td>
<td>50</td>
<td>1.52</td>
</tr>
<tr>
<td>5</td>
<td>126</td>
<td>21</td>
<td>21</td>
<td>1.00</td>
</tr>
<tr>
<td>6</td>
<td>84</td>
<td>9</td>
<td>9</td>
<td>1.00</td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>1.00</td>
</tr>
<tr>
<td>8</td>
<td>36</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
<td>29</td>
<td>29.00</td>
</tr>
<tr>
<td>Total</td>
<td>512</td>
<td>96</td>
<td>151</td>
<td>29.00</td>
</tr>
</tbody>
</table>

Figure 4: Frequencies of Tools Being Chosen

Notice that nearly one third of Professionals and one fifth of Amateurs choose the full size bundle. As shown in Table 3 the full size bundle is picked up in a relatively high frequency comparing to other bundles. We suspect that consumers who choose all the tools have a different mindset from the rest of the samples. We divide the samples into two groups - subjects who choose all the tools and those who do that - for both Professionals and Amateurs. We analyze the two groups’ answer to the survey question - how likely are you to purchase each tool at the given retail price, which uses a 7-point Likert scale. Using t-test and two-way ANOVA, we find that those who choose all the tools are less price sensitive. Hence we exclude those participants. The frequencies of the tools being chosen by participants are shown in Figure 4. The preferences for tools are slightly different between Professionals and Amateurs. The top three tools are D1, D2 and C3 for Professionals and D1, C4 and D2 for Amateurs. The Amateurs also show a stronger preference for D1.
Parameter Estimates

Table 4 provides the log likelihood of the models, as well as the Pearson’s $\chi^2$ test results. For both Professionals and Amateurs we can see some lack of fit for bundles of size four, but overall the expected counts of different bundle sizes have similar patterns as the data. The parameter estimates are shown in Table 5. The signs of $\beta$ and $k$ are positive, as we expect. Because the inverse of $\beta$ is the scale parameter of the individual utility process, we are able to recover the preference heterogeneity distribution parameters by setting $\mu_j = \tilde{u}_j \times \delta = \frac{\tilde{u}_j}{\beta}$ for $j = 1, \ldots, J - 1$ and $\sigma = k \times \delta = \frac{k}{\beta}$.

The population parameters are shown in Table 6.

The modeling framework developed here takes into account two sources of variations: the preference differences between choice decisions for an individual (within-individual variation), and the preference differences between individuals at each choice decision (between-individual variation).

Table 4: Model Fit

<table>
<thead>
<tr>
<th>Bundle Size</th>
<th>Model (LL=-490.958)</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prob.</td>
<td>Exp. Ct.</td>
</tr>
<tr>
<td>2</td>
<td>0.085</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>0.196</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>0.292</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>0.254</td>
<td>26</td>
</tr>
<tr>
<td>6</td>
<td>0.129</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>0.038</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>0.006</td>
<td>0</td>
</tr>
<tr>
<td>Avg. Bundle Size</td>
<td>4.28</td>
<td>4.22</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>9.85</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

(a) Professionals

<table>
<thead>
<tr>
<th>Bundle Size</th>
<th>Model (LL=-587.947)</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prob.</td>
<td>Exp. Ct.</td>
</tr>
<tr>
<td>2</td>
<td>0.110</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>0.232</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>0.304</td>
<td>37</td>
</tr>
<tr>
<td>5</td>
<td>0.226</td>
<td>28</td>
</tr>
<tr>
<td>6</td>
<td>0.099</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>0.025</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>0.004</td>
<td>1</td>
</tr>
<tr>
<td>Avg. Bundle Size</td>
<td>4.06</td>
<td>4.03</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>13.16</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>
Within-individual variation can be represented by the variance of the individual’s utility distribution: 
\[ \text{Var}_w = \frac{\pi^2}{6} \delta^2. \] Between-individual variation is captured by the variance of the preference heterogeneity distribution \( \text{Var}_B = \sigma^2 \). The ratio of the two variations is:
\[
R_v = \frac{\text{Var}_B}{\text{Var}_W} = \frac{\sigma^2}{\frac{\pi^2}{6} \delta^2} = \frac{\sigma^2}{\delta^2} \frac{6}{\pi^2} = k^2 \frac{6}{\pi^2} \approx 0.61k^2
\]
Thus the relative magnitude of the two variations is proportional to \( \kappa^2 \). For Professionals and Amateurs \( R_v = 0.29 \) and \( 0.35 \), respectively. That is, the between-individual variation is smaller than the within-individual variation for both Professionals and Amateurs. In addition, from Table 6 we can see that the preference heterogeneity is greater for Professionals than for Amateurs.

**Table 5: Estimation Result**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Professionals</th>
<th>Amateurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \hat{\beta} )</td>
<td>0.823 *</td>
<td>1.187 *</td>
</tr>
<tr>
<td>( \hat{a}_{01} )</td>
<td>0.633 *</td>
<td>0.595 *</td>
</tr>
<tr>
<td>( \hat{a}_{22} )</td>
<td>0.810 *</td>
<td>-0.099</td>
</tr>
<tr>
<td>( \hat{a}_{03} )</td>
<td>-0.376</td>
<td>-0.447 *</td>
</tr>
<tr>
<td>( \hat{a}_{11} )</td>
<td>-0.313</td>
<td>-0.314</td>
</tr>
<tr>
<td>( \hat{\mu} )</td>
<td>0.203</td>
<td>0.142</td>
</tr>
<tr>
<td>( \beta )</td>
<td>0.319</td>
<td>0.358</td>
</tr>
<tr>
<td>( \alpha_{11} )</td>
<td>0.204</td>
<td>-0.357</td>
</tr>
<tr>
<td>( \alpha_{22} )</td>
<td>-0.058</td>
<td>-1.142 *</td>
</tr>
<tr>
<td>( \alpha_{02} )</td>
<td>-0.722</td>
<td>0.173</td>
</tr>
<tr>
<td>( \alpha_{03} )</td>
<td>0.300</td>
<td>-0.625 *</td>
</tr>
<tr>
<td>( \alpha_{23} )</td>
<td>1.481 *</td>
<td>1.151 *</td>
</tr>
<tr>
<td>( \alpha_{13} )</td>
<td>2.436</td>
<td>1.392 *</td>
</tr>
<tr>
<td>( \alpha_{14} )</td>
<td>0.130</td>
<td>-2.079 *</td>
</tr>
<tr>
<td>( \alpha_{04} )</td>
<td>-1.341</td>
<td>-1.284 *</td>
</tr>
<tr>
<td>( \beta )</td>
<td>0.686 *</td>
<td>1.199 *</td>
</tr>
<tr>
<td>( \kappa )</td>
<td>0.695 *</td>
<td>0.757 *</td>
</tr>
</tbody>
</table>

*Significant at \( p=0.05 \)

The correlations between tools can be obtained from the coordinate estimates. The resulting correlation matrices, however, are not positive definite. To obtain positive definite correlation matrices, we make the following adjustment: we add 0.002 and 0.004 to the diagonal of the correlation matrices for Professionals and Amateurs, respectively and then normalize those matrices to correlation matrices. The consequence of this adjustment is the slight decrease in the absolute value of correlation coefficients. All the adjusted correlation coefficients are the same as the unadjusted correlation coefficients to the first decimal place for Professionals, and 31 out of 36 adjusted correlation coefficients are so for Amateurs.
Table 6: Preference Heterogeneity Distribution Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Professionals</th>
<th>Amateurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\tilde{\eta}_{\beta 1}$</td>
<td>1.200</td>
<td>0.990</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\beta 2}$</td>
<td>0.923</td>
<td>0.496</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\beta 3}$</td>
<td>-1.181</td>
<td>-0.083</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\tau 1}$</td>
<td>-0.548</td>
<td>-0.373</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\tau 2}$</td>
<td>-0.456</td>
<td>-0.262</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\tau 3}$</td>
<td>0.296</td>
<td>0.465</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\tau 4}$</td>
<td>0.465</td>
<td>0.299</td>
</tr>
<tr>
<td>$\tilde{\eta}_{\tau 5}$</td>
<td>0.297</td>
<td>-0.298</td>
</tr>
<tr>
<td>$\sigma$</td>
<td>1.013</td>
<td>0.631</td>
</tr>
<tr>
<td>$\delta$</td>
<td>1.458</td>
<td>0.834</td>
</tr>
</tbody>
</table>

We then project the adjusted correlation matrices onto a two-dimensional space and get the coordinates of the tools. The plot of the tools is shown in Figure 5. Professionals and Amateurs share some similar behaviors when constructing a bundle. For example, accessories are likely to be put together. For cutting tools C2 and C3 are likely to be put together, while C1 and C4 are more likely to be chosen together. The major difference between Professionals and Amateurs lies in the drilling/driving tools. For Professionals D2 and D3 are less likely to be put together. In addition, D1 and D2 are close to independent. For Amateurs D2 and D3 are less likely to be chosen if D1 is in the bundle. In terms of cutting tools, for example, C1 and C2 or C1 and C3 are close to be uncorrelated for Professionals, while C1 are more negatively correlated with C2 or C3 for Amateurs.

Managerial Implication

The company conducting the study wishes to know which bundle they should offer to the market. We simulate the market share by taking the following steps. First, we take 10,000 draws from the preference distribution based on the recovered parameters in Table 6. We then calculate the choice probability of each bundle based on equation (3) and the weight for each draw based on equation (11). We obtain the weighted choice probability for each bundle by multiplying the choice probability by the weight. Finally, we renormalize the weighted choice probability of all bundles of size three. The top three bundles and their choice possibility are shown in Table 7.

Table 7: Top Three Bundle Recommendation

<table>
<thead>
<tr>
<th>Bundles</th>
<th>Professionals Probability</th>
<th>Amateurs Bundles Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>(D1, D2, C3)</td>
<td>0.077</td>
<td>(D1, C4, A1) 0.094</td>
</tr>
<tr>
<td>(D1, C3, A1)</td>
<td>0.053</td>
<td>(D1, C3, C4) 0.066</td>
</tr>
<tr>
<td>(D1, D2, C2)</td>
<td>0.044</td>
<td>(D1, D2, C3) 0.055</td>
</tr>
</tbody>
</table>

As mentioned earlier, the top three tools based on independence assumption for Professionals and Amateurs are (D1, D2, C3) and (D1, D2, C4), respectively. Incidentally for Professionals the recommended bundle based on independence assumption is also the first recommendation by the model. This is reasonable since D1 and D2 are viewed as uncorrelated and highly preferred by Professionals, and C3 is highly correlated with D1, as can be seen from Figure 5. However, (D1, D2, C4) is never recommended for Amateurs by the model. From Figure 5 we can see that Amateurs are less likely to put D2 and C4 in the same bundle.
SUMMARY

In this paper we present a modeling framework that predicts bundle preferences based on configuration data. Bundle configuration process is easy to implement, close to real world setting, and straightforward for participants. The resulting data, however, poses two challenges: the computation difficulty due to the number of possible bundles which grows geometrically as the number of items on the menu increases, and one observation per participant. Due to the appealing features of the configuration process, practitioners are investigating possible approaches to analyze the data. One proposed approach is analyzing the data based on the independence assumption. If the assumption is valid, however, is questionable. Our model not only doesn’t require the independence assumption but offers insights of the interaction patterns among items on the menu. We show that ignoring the interactions among items will lead to recommending bundles that consumers are unlikely to purchase. Moreover, we are able to identify the preference heterogeneity even though we only have one observation per participant.

(a) Professionals
APPENDIX

The goal of this appendix is to show the relationship between MVL, MNL and binary logit under the assumption that all the items are independent of each other, MVL is equivalent to MNL and binary logit.

Let $j$ denote an item, and $k$ denote a bundle. Without loss of generality, consider a situation where a bundle can be constructed from two items, i.e., $j = 2$, which result in four possible bundles: both items are chosen ($k_1 = \{1,1\}$), either one of them is chosen ($k_2 = \{1,0\}$ or $k_3 = \{0,1\}$), or none of them are chosen ($k_4 = \{0,0\}$). Let $V_j$ be the utility for item $j$ and $U_k$ be the utility for bundle $k$. We further assume that the utility for a bundle entirely depends on the items that are included in the bundle:

$$U_k = \sum_{j=1}^{2} I_{jk} V_j$$

where $I_{jk} = 1$ if item $j$ is in bundle $k$.

This is a legitimate assumption since the bundle is constructed entirely based on the items. Moreover, we can always set the utility of having nothing as the baseline utility and set it to zero, i.e., $U_{k_4} = 0$ without loss of generality.

The MNL model then can be expressed as

$$\text{Pr}(k_i = 1) = \frac{\exp[u_{k_1}]}{\sum_{i'=1}^{4} \exp[u_{k_{i'}}]} = \frac{\exp[u_{k_1}]}{\exp[u_{k_1}] + \exp[u_{k_2}] + \exp[u_{k_3}] + \exp[u_{k_4}]}$$

and the probability of choosing a bundle modeled by the binary logit model is

$$\text{Pr}(k_i = 1) = \prod_{j=1}^{2} P(I_{jk_i} = 1)^{I_{jk_i}} \left(1 - P(I_{jk_i} = 1)\right)^{1-I_{jk_i}} = \prod_{j=1}^{2} \left(\frac{\exp[I_{jk_i} V_j]}{1 + \exp[V_j]}\right)$$
To show that MNL and MVL are equivalent under the assumption of independence between items, we start from writing out the MVL model:

\[
\Pr(k_i = 1) = \frac{\exp\left(\sum_{j=1}^{J_i} (V_j + \sum_{j' > j} I_{jk_i} \theta_{jj'})\right)}{\sum_{j'=1}^{J} \exp\left(\sum_{j=1}^{J_i} (V_j + \sum_{j' > j} I_{jk_i} \theta_{jj'})\right)}
\]

\[
= \frac{\exp\left(\sum_{j=1}^{J_i} I_{jk_i} V_j\right)}{\sum_{j'=1}^{J} \exp\left(\sum_{j=1}^{J_i} I_{jk_i} V_j\right)} \quad (\theta_{jj'} = 0 \text{ due to the independence assumption})
\]

\[
= \frac{\exp\left(\sum_{j=1}^{J_i} I_{jk_i} V_j\right)}{\exp[1_{1k_i} V_1 + 1_{2k_i} V_2] + \exp[1_{1k_i} V_1 + 1_{2k_i} V_2] + \exp[1_{1k_i} V_1 + 1_{2k_i} V_2] + \exp[1_{1k_i} V_1 + 1_{2k_i} V_2]}
\]

\[
\ldots(*)
\]

Based on (1),

\[
(*) = \frac{\exp\left(U_{k_i}\right)}{\exp[U_{k_1}] + \exp[U_{k_2}] + \exp[U_{k_3}] + \exp[U_{k_4}]} = (2), \text{ the MNL model}
\]

We can also rewrite (*) in another way, then

\[
(*) = \frac{\exp\left[1_{1k_i} V_1 + 1_{1k_i} V_2\right]}{\exp(V_1 + V_2) + \exp(V_1) + \exp(V_2) + 1} = \frac{\exp\left[1_{1k_i} V_1\right]}{\exp(V_1) + \exp(V_1) + \exp(V_2) + 1} = (3), \text{ the product of a set of binary logit.}
\]
REFERENCES


ABSTRACT

Today, consumers multitask more than ever, with their attention constantly shifting between multiple stimuli. This tendency toward multitasking often relegates marketing messages (i.e., advertisements) to the role of background stimuli while consumers focus on other tasks. In this research, we explore how consumers are impacted by background advertisements while they multitask. We propose that when listening to an ad is a non-focal task and consumers find themselves more distracted by it than expected, they draw on an underlying lay theory that distraction implies interest to make the metacognitive inference that they are interested in the advertised product. While the dominant lay theory is that distraction signals interest, a competing lay theory, that distraction signals annoyance, can instead produce opposite conclusions. In line with this, we also demonstrate that sometimes being more distracted than expected can instead lead consumers’ to infer decreased interest in an advertised product, depending on which lay theory is accessible at the time of judgment. This research uncovers a new metacognitive cue that consumers use to form evaluations of products, advances the scarce literature on the effects of consumer multitasking, and provides practical insight into how consumers are influenced by background advertisements during multitasking episodes.

INTRODUCTION

Today, consumers multitask more than ever, with their attention constantly shifting between multiple stimuli. For instance, a 2010 Nielsen report indicated that 84% of Americans use a second device while watching television at least occasionally (Nielsen 2010), a percentage that has likely grown as consumers increasingly own smart phones and tablets (Pew Research 2015). Across all second device users, a second screen is used during 77% of total television viewing time (Google 2012). That means that, on average, second device users spend 109 minutes per day concurrently consuming media through television and another digital device (Millward Brown 2014). This tendency toward multitasking often relegates marketing messages to the role of background stimuli while consumers focus on other tasks. In this research, we explore how consumers are impacted by background advertisements while they multitask.

Consumers often multitask with the expectation that they will be able to attend to a primary task while a secondary stimulus remains in the background (e.g., cooking dinner while the television is on in the background). However, consumers’ expectations of their multitasking abilities are often poorly calibrated, as past research has shown that consumers who multitask most frequently have the lowest actual multitasking ability (Sanbonmatsu et al. 2013; Ophir, Nass, and Wagner 2009), becoming distracted by a secondary task as they try to focus on the primary one. Since advertisements are often background rather than focal stimuli during consumers’ multitasking episodes (with the exception of rare events in which advertising is focal, like the Super Bowl), they may distract consumers’ attention away from primary tasks more than expected.

In this research, we explore whether consumers draw metacognitive inferences based on how distracting a stimulus is, and what they conclude from the perception that something was unexpectedly distracting. We focus on background ads, which we define as ads that individuals are exposed to while primarily focused on another concurrent task. Specifically, we theorize that consumers’ evaluations of products presented in background ads are driven by these individuals’ metacognitive experiences regarding how distracted they are by these ads, such that consumers infer they are more interested in a product when
they find themselves more distracted than expected by a background advertisement for the product. While we demonstrate that the lay theory that distraction signals interest appears to be the dominant lay theory, a competing lay theory, that distraction signals annoyance, can also drive opposing metacognitive inferences. In line with this, we also demonstrate that greater distraction can sometimes instead lead consumers’ to infer decreased interest in an advertised product depending on which lay theory is accessible at the time of judgment.

This research therefore makes several theoretical and practical contributions. Theoretically, we introduce perceived level of distraction as a new metacognitive experience from which a consumer draws inferences, in line with previously established metacognitive cues such as ease-of-recall and fluency of processing information (Schwarz 2004). Our research is also among the first, to our knowledge, to explore a unique consequence of multitasking beyond its impact on performance or memory-related measures (Monsell 2003; Shapiro and Krishnan 2001). This work also looks at consumers’ metacognitive inferences about the distracting secondary task in a multitasking setting, whereas previous research has focused on how consumers’ perceived level of attention towards a focal task influences opinions of that focal task (Critcher and Gilovich 2010; Damrad-Frye and Laird 1989; Eastwood et al. 2012, Fisher 1998). Interestingly, we demonstrate that distraction can either have a positive or negative effect on consumers’ opinions about a product advertised in a background ad, compared to past work pointing to strictly negative implications of distraction (in relation to the focal task; Jacoby et al. 1988). We also contribute to the literature documenting the influence of lay theories on a variety of consumer behaviors (Broniarczyk and Alba 1993; Deval et al. 2013; Luchs et al. 2010; Posavac et al. 2010; Raghunathan, Hoyer, and Naylor 2006). Finally, our findings provide insight into the consequences of everyday multitasking episodes and show how background advertisements can shape consumers’ opinions of products, a finding with important practical implications as marketers search for ways to influence consumers who are increasingly likely to relegate ads to the background while focusing instead on other tasks.

METACOGNITIVE INFERENC-MAKING

In simple terms, metacognition refers to individuals’ “thoughts about their thoughts or thought processes” (Briñol, Petty, and Tormala 2004; Jost, Kruglanski, and Nelson 1998). The broader topic of metacognition includes an investigation of what people infer about the world around them from their cognitive processes (“I’m thinking X about an object. What can I infer about an object since I’m thinking X in regards to that object?” Schwarz 2015). The inferred meaning of one’s thoughts (i.e., what “thinking X” signals) is referred to as a metacognitive inference. For example, consumers infer greater enjoyment of tasks when they perceive time to pass quickly while performing those tasks (i.e., consumers sometimes note that time is passing unexpectedly fast, and from this cognition infer that they must be having fun; Sackett et al. 2010). The metacognitive inferences that consumers form stem from underlying lay theories that are accessible at the time (Schwarz 2004; Schwarz 2015). For example, the metacognitive inference about enjoyment of tasks based on the perceived speed of time passage is rooted in the common lay theory that “time flies when you’re having fun” (Sackett et al. 2010). In other words, consumers mentally acknowledge that time seems to pass quickly while they complete certain tasks and attach meaning to this cognition by accessing a lay theory about the relationship between time and enjoyment.

Consumers often infer their attitudes towards objects from metacognitive experiences with those objects instead of based solely on relevant accessible knowledge about the objects. In the above example, consumers infer their enjoyment of tasks based on the perceived passage of time while performing tasks as opposed to forming judgments of the task based on the directly observable qualities of those tasks. Consumers are increasingly likely to form metacognitive inferences as their thoughts about a given object deviate more from expectations. Most notably, consumers’ judgments of objects are often influenced by how easy or difficult it is to retrieve information about that object from memory relative to their expectations (Schwarz et al. 1991; Wänke, Bohner, and Jurkowitsch 1997) and how easy or difficult it is to process new information about that object relative to their expectations (Lee and Labroo 2004; Winkielman
et al. 2003). In this research, we propose that when listening to an ad is a non-focal task and consumers find themselves more distracted by it than expected, they draw on an underlying lay theory that distraction implies interest to make the metacognitive inference that they are interested in the advertised product.

MULTITASKING AND ATTENTION

Multitasking has been defined as both simultaneously performing more than one task (e.g., listening to music while browsing the Internet; Brasel and Gips 2011) as well as switching back and forth between more than one task (e.g., browsing the Internet, drafting a text message, and then returning to browsing the Internet; Monsell 2003). While consumers engage in both processes, we adopt the former definition throughout this paper and operationalize consumer multitasking in this way throughout our studies. We do so for two reasons. First, in order for an advertisement to be a background stimulus, a consumer must be simultaneously engaged with a focal task while being exposed to the ad. Second, consumers are more likely to be exposed to advertisements during simultaneous multitasking settings (e.g., watching TV while cooking dinner, listening to Internet radio while working on the computer, watching TV while posting on social media with their smart phone, etc.) versus sequential task-switching episodes.

Very little consumer psychology research has looked at multitasking in general. Some work has used a “secondary task technique,” in which an ad was presented simultaneously while study participants performed a reaction time task (e.g., hit a keyboard button when a number flashed on the screen), as an operationalization of differing levels of involvement among television viewers (Lord and Burnkrant 1988; Lord, Burnkrant, and Owen 1989). Other work has used a similar task to explore attentional capacity allocated to processing audio commercials (Moore, Hausknecht, and Thamodaran 1986). In terms of studying multitasking at a more conceptual level, some previous work across various fields has begun to shed light on the descriptive characteristics of multitasking behavior by examining factors such as how often consumers’ gaze switches between screens when using multiple devices at once (Brasel and Gips 2011). Additionally, it has repeatedly been demonstrated that multitasking leads to several negative consequences, such as reduced memory recall (Shapiro and Krishnan 2001) and decreased performance on both tasks (Gopher, Armony, and Greenshpan 2000; Kiesel et al. 2010).

Beyond these negative cognitive-based consequences, a sparse amount of literature addresses more attitudinal consequences of multitasking. Jeong and Hwang (2012) propose that a background advertisement in a multitasking setting is less persuasive because consumers are distracted from processing the information in the article and process the information via peripheral cues (Petty and Cacioppo 1986), if at all. Some work also suggests that multitasking can lead consumers to feel that time is passing more quickly, which can ultimately lead them to evaluate a multitasking episode as more enjoyable. If consumers are exposed to advertisements during such an episode, their overall positive evaluation may spillover onto ad evaluations (Chinchanachokchai, Duff, and Sar 2015).

Past work in the advertising domain has established that multitasking episodes (as we define them) indeed consist of a primary task and a secondary task (Pilotta and Shultz 2005). As this is the case, consumers tend to believe that they are able to effectively perform both tasks simultaneously (Sanbonmatsu et al. 2013; Ophir et al. 2009). In reality, however, they are prone to being distracted away from the primary task at hand by a secondary distracter (Finley, Benjamin, and McCarley 2014). Perceived distraction towards the secondary task arises because performing multiple tasks simultaneously forces a consumer to allocate limited attentional resources across the multiple tasks (Kahneman 1973; Lynch and Srull 1982), and in many cases it is likely impossible to simultaneously allocate attention across more than one task (Pashler 1994). Thus, when consumers find their attention moving away from a primary task towards a secondary task, they experience distraction; this distraction is often unexpected given consumers’ beliefs that they can successfully focus on both tasks at once. We propose that consumers’ perceived level of distraction (and how this differs from their expectations) has diagnostic qualities and ultimately serves as a metacognitive experience from which individuals infer their interest in the contents of the distracter.
THE MEANING OF ATTENTION AND DISTRACTION

While our work is the first, to our knowledge, to examine whether distraction towards (i.e., attention directed away from a primary task and towards) a secondary stimulus in a multitasking setting leads consumers to draw metacognitive inferences about the distracter itself, some past work has explored how distractions can alter consumers’ perceived level of attention towards a focal task, which in turn influences judgments of that focal task (Critcher and Gilovich 2010; Damrad-Frye and Laird 1989; Fisher 1998). For example, people seem to believe that boring tasks produce mind-wandering, and accordingly infer from mind-wandering that the current focal task seems boring (Critcher and Gilovich 2010). However, this work focuses on an internal distraction. It also finds that consumers’ enjoyment of the content of mind-wandering (i.e., the distracter) does not change depending on the nature of that content. In the current research, we show that judgments of a product in a distracting background advertisement do vary based on consumers’ metacognitive inferences about how distracted they are.

In the research by Critcher and Gilovich (2010) and Damrad-Frye and Laird (1989), participants also only infer themselves to be bored with the focal task when an involuntary and unexpected distraction occurs in a nonobvious way (e.g., consumers do not actively realize they are mind-wandering or do not actively conclude that a loud, unexpected television program is the source of distraction). When consumers are made aware of the distraction, they no longer perceive themselves to be bored with the focal task. Contrastingly, in this work, we focus on true multitasking scenarios in which consumers are aware of the distraction of a background stimulus. As such, we find no effects of interest in the focal tasks, but instead find that consumers make metacognitive inferences about their interest in the contents of the secondary stimulus.

Importantly, past research has shown that consumers will only make a particular metacognitive inference when the underlying lay theory is both available and seemingly diagnostic (Feldman and Lynch 1988; Menon, Raghubir, and Schwarz 1995). If the diagnosticity is called in question, or another lay theory is more available, inferences will change (Sanna and Schwarz 2003). Therefore, if consumers come to believe that distraction is not diagnostic of interest in the contents of the distracter (i.e., if the diagnosticity of the “distraction = interest” lay theory is challenged), they will be unlikely to form and incorporate metacognitive inferences about distraction into their evaluations of the advertised product.

Lay theories are also extremely malleable, and consumers often carry multiple lay theories that could be brought to bear on the same metacognitive experience (Deval et al. 2014; Schwarz 2004; Smith and Schwarz 2012; Winkielman and Schwarz 2001). As lay theories are the tools that consumers use to interpret their metacognitive experiences (i.e., to form metacognitive inferences), two consumers might make competing metacognitive inferences about an object if opposite lay theories are accessible to these two individuals. Therefore, the experience of being highly distracted by a background ad will not always lead a consumer to infer that he or she is more interested in the advertised product. Annoying stimuli are often very distracting as well and sometimes consumers might instead infer that they are annoyed with a highly distracting ad. In such cases, we propose that consumers bring to bear an opposing lay theory (i.e., distraction signals annoyance) and arrive at an opposite conclusion about their interest in the advertised product. In other words, they infer that they have a negative attitude toward the advertised product because they found the ad distracting.

OVERVIEW OF STUDIES

We explore these questions in three studies. Because we are explicitly interested in what consumers infer based on perceived distraction, and because actual distraction is inherently confounded with other variables such as the extent to which the ad is elaboratively processed (Petty and Cacioppo 1986), we employ manipulations of perceived distraction of a background advertisement based on expectations throughout. In study 1, we demonstrate that consumers do indeed draw inferences about their interest in a
product based on how distracting a background ad for the product seems. Specifically, they demonstrate the presence of a “distraction = interest” lay theory by reporting that they are more interested in a product after being unexpectedly distracted by a background ad for the product. This does not occur when the diagnosticity of the lay theory is called into question. In study 2, we build on this finding by demonstrating that participants naturally expect ads to be minimally distracting, which means inferences based on being unexpectedly distracted can occur even when these expectations are not experimentally induced. In study 3, we demonstrate that other lay theories for distraction can also be cued, and that participants can actually infer a lack of interest based on distraction if a “distraction = annoyance” lay theory is instead accessible. This provides support that the effects reported here are indeed driven by metacognitive inferences about the meaning of distraction.

STUDY 1

In order to test our basic hypothesis in study 1, we vary whether consumers believe they are distracted more than expected by a background audio advertisement (i.e., the type of ad a consumer would typically hear on the radio) while also completing a focal task. Some participants are told that audio ads are generally distracting when completing a different focal task, while others are told that audio ads are generally not very distracting when completing a focal task. This second condition is arguably the expectation that most consumers have when entering a multitasking situation, given the tendency to believe that one is good at multitasking and thus unlikely to be distracted. It is also in this condition where we expect to see inferences about distraction driving judgments of the advertised product, as consumers are more likely to integrate metacognitive experiences into their judgments when such experiences deviate more from expectations (i.e., as their level of distraction deviates more from their expectations; Schwarz 2004).

Following previous work on metacognitive inferences (Sanna and Schwarz 2003; Schwarz et al. 1991), we also highlight the key role of inferences based on lay theories of the meaning of distraction through moderation. We support this process model by manipulating whether the relationship between amount of perceived distraction towards a stimulus and level of interest in the contents of that stimulus appears diagnostic. If the diagnosticity of the underlying lay theory is challenged, consumers should be less likely to rely on the theory to draw inferences about their level of interest (Feldman and Lynch 1988).

Method

A total of 212 undergraduates (40.10% female; M_{age} = 20.84) participated in this study in exchange for partial course credit. This study used a 2 (Perceived Distraction: high or low) X 2 (Diagnosticity of Distraction: high or low) between-subjects factorial design.

As part of a cover story, all participants were informed that the study involved how secondary tasks affect color preferences. All participants spent five minutes coloring a picture of a small “main street” district in a quaint town while simultaneously listening to a background audio advertisement about the 2016 Mercedes-AMG GT S sports coupe. We chose this audio advertisement because it included many aspects that would repeatedly attract participants’ attention away from the focal coloring task (e.g., roaring engines, exciting music, suspenseful pauses in narration, etc.). Using an audio ad in conjunction with a visual coloring task was likely a conservative test of our hypothesis because auditory interference (i.e., an audio advertisement) is generally not as strong when the focal task involves visual processes (vs. a focal task involving phonological processes; Tavassoli and Han 2001). The picture that participants colored did not include any vehicles, which may have resulted in potential demand effects. After the five minutes passed, participants answered several measures about their experience.
**Perceived Distraction Manipulation**

Prior to beginning the aforementioned tasks, participants in the high perceived distraction condition read that previous research has shown that students are good at tuning out advertisements while focusing on creative tasks and therefore that the audio advertisement should not be very distracting as they focus on coloring. Based on these instructions, any actual experienced distraction by the ad while coloring (which should occur, since the advertisement included distracting elements) should lead these participants to believe that they were more distracted by the ad relative to their own expectations. Participants in the low perceived distraction condition instead read the opposite, that is, that previous research has shown that students are *not* good at tuning out advertisements while focusing on creative tasks and that the audio advertisement should thus be quite distracting as they focus on coloring. In this condition, any actual experienced distraction by the ad while coloring should align with participants’ expectations.

**Diagnosticity of Distraction Manipulation**

To manipulate the diagnosticity of participants’ perceived level of distraction, those in the low diagnosticity of distraction condition also read that past research shows that one’s level of distraction towards an ad does not signal anything about one’s interest in the advertised product, whereas those in the high diagnosticity of distraction condition read nothing about the diagnosticity of distraction. Once this additional information becomes accessible within the minds of participants in the low diagnosticity of distraction condition, they should no longer draw metacognitive inferences based on the lay theory (Schwarz 2004).

**Measures**

When the five-minute ad ended, participants heard a message in their headphones prompting them to stop coloring and to look back at the computer screen in front of them to continue the computer survey. Participants then indicated their agreement with the following statements about the brand from the audio ad (7-point scales; 1 = Strongly disagree, 7 = Strongly agree): “I am interested in the brand,” “The brand is exciting,” “The brand is unique” and “I would like to learn more about the brand.” These four items were averaged into a composite (α = .85), which served as our main dependent variable. Participants also rated their enjoyment of the coloring task on 7-point scales (1= Hated it, 7 = Loved it). Finally, participants provided demographic information and were then informed that the study was over and were instructed to remove their headphones before proceeding to an unrelated task. As it was imperative that students paid close attention to directions while progressing through each study, a research assistant made note of any participants who did not follow instructions to remove their headphones when prompted, which served as an indication that they did not closely follow directions during the given study. No participants failed this attention check in the first study, but some subjects’ data are removed in future studies for this reason.

**Results**

Data from five participants were removed because a research assistant witnessed them doing activities other than coloring while listening to the background audio ad. The same pattern of results hold (though only directionally) if these individuals are included in analyses.

We conducted an ANOVA with Perceived Level of Distraction, Diagnosticity of Distraction, and their interaction as independent variables, and the interest in the brand composite as the dependent measure. As expected, an interaction between the two factors emerged ($F(1, 203) = 3.64, p = .057$). Follow-up analyses revealed that there was no significant conditional effect of Perceived Level of Distraction on brand interest among participants in the low Diagnosticity of Distraction condition ($M_{\text{high perceived distraction}} = 5.01$ vs. $M_{\text{low perceived distraction}} = 5.17$; $F(1, 203) = 0.48$, ns). However, a significant conditional effect of Perceived Level of Distraction on brand interest did emerge among participants in the High Diagnosticity of Distraction condition. Specifically, among individuals in the high diagnosticity of distraction condition, those with high perceived distraction towards the ad reported significantly greater interest in the advertised
brand, on average, compared to those with low perceived distraction towards the ad ($M_{\text{high perceived distraction}} = 5.35$ vs. $M_{\text{low perceived distraction}} = 4.90$; $F(1, 203) = 3.99, p = .05$). Figure 1 illustrates these results.

**Study 1: High distraction signals greater interest in brand, but only when distraction is diagnostic**

![Figure 1](image)

**Note** – Bars in graphs for each study represent 95% confidence intervals.

As previously mentioned, past work has shown that when consumers’ attention is pulled away from a focal task by an unexpected and non-obvious distraction, perceived interest in (or feelings of boredom towards) this focal task can be affected (Critcher and Gilovich 2010; Damrad-Frye and Laird 1989). We also looked at whether our manipulated factors affected interest in the coloring task. However, we did not expect any effect on interest in the coloring task, since in true multitasking settings consumers recognize that their attention will shift between the two tasks. In other words, the distraction of a background ad is expected at least to some degree. In line with this, no significant interaction between Perceived Level of Distraction and Diagnosticity of Distraction emerged for interest in the coloring task ($F(1, 199) = 1.93, ns$). A significant main effect of Diagnosticity of Distraction emerged, such that participants in the low diagnosticity of distraction condition reported greater interest in the coloring task than those in the high diagnosticity of distraction condition ($F(1, 199) = 7.17, p = .01$), but this finding is uninterpretable and not relevant to our investigation. The non-significant interactive effect on interest in the focal task is consistent across all studies and will not be discussed further.

**Discussion**

Study 1 establishes initial evidence that consumers infer their level of interest in an advertised product from their perceived level of distraction towards a background ad. When participants’ perceived level of distraction towards a background ad exceeded their own expectations (i.e., in the high perceived distraction condition), they then concluded from this high relative level of distraction that they had greater
interest in the advertised product. In contrast, when participants’ level of distraction towards a background ad did not exceed their own expectations (i.e., in the low perceived distraction condition), they inferred a lesser amount of interest in the advertised product. Such inferences seem to stem from a lay theory that consumers hold regarding the relationship between level of distraction towards a stimulus and amount of interest in the contents of that distracting stimulus. In line with this, we also show that if the diagnosticity of this relationship is challenged, then consumers will not make such inferences.

**STUDY 2**

In study 2, we replicate the basic effect within the high diagnosticity of distraction condition from study 1. Additionally, we add a control condition in which we do not manipulate participants’ expectations at all prior to the multitasking episode. This condition allows us to examine what the natural lay theory is that consumers use about the relationship between distraction and interest in the contents of the distracter. We expect participants in this condition to infer a similar level of interest in the advertised product compared to the condition in which we manipulate participants to perceive themselves to be more distracted than expected by the background ad. Because consumers generally believe they are able to effectively multitask (i.e., that they will not be heavily distracted away from a primary task by a secondary task; Sanbonmatsu et al. 2013; Ophir et al. 2009), any experienced distraction by participants in the control condition should seem unexpected. Thus, they should be prone to form metacognitive inferences in order to make sense of the unexpected cognitive experience of being distracted.

**Method**

A total of 110 undergraduates (46.36% female; M_{age} = 21.07) participated in this study for partial course credit. This study used a 3-cell (Perceived Level of Distraction: high or low + Control) between-subjects design.

As in study 1, participants colored the same picture and listened to the audio advertisement for the Mercedes coupe as part of an ostensible study on color preferences and multitasking. Prior to beginning this multitasking episode, participants in the two treatment conditions underwent the same manipulation as in study 1 to either make their distraction towards the ad seem unexpected (high perceived distraction condition) or to align with their expectations (low perceived distraction condition). Those in the control condition did not undergo any experimental manipulation (i.e., did not read anything about what past research says about distraction) before beginning the simultaneous tasks.

**Measures**

When the five-minute ad ended, participants heard a message in their headphones prompting them to stop coloring and to look back at the computer screen in front of them to continue the computer survey. Participants then indicated their agreement with the same statements about the brand from the audio ad as in study 1 (7-point scales; 1 = Strongly disagree, 7 = Strongly agree): “I am interested in the brand,” “The brand is exciting,” “The brand is unique” and “I would like to learn more about the brand.” These four items were averaged into a composite (α = .81), which served as the main dependent variable. Participants then also indicated how distracted they were by the advertisement while coloring (1 = Not at all, 7 = Very much). Finally, participants provided demographic information and were then informed that the study was over and were instructed to remove their headphones before proceeding to an unrelated task.

**Results**

We conducted an ANOVA with the single 3-cell factor as the independent variable and the interest in the brand composite as the dependent measure. The overall ANOVA revealed that significant differences in interest existed among the three groups (F(2, 107) = 5.09, p = .01). Planned comparisons revealed the expected results. Participants in the high perceived distraction condition reported significantly greater interest in the advertised brand, on average, compared to those with low perceived distraction towards the
ad ($M_{\text{high perceived distraction}} = 5.11$ vs. $M_{\text{low perceived distraction}} = 4.64$; $t(107) = 2.01$, $p = .05$). More notably, participants in the control condition ($M = 5.37$) also reported significantly greater interest in the advertised brand, on average, compared to those with low perceived distraction towards the ad ($t(107) = 3.15$, $p = .002$). Interest in the brand did not differ among those in the high perceived distraction condition and the control condition ($t(107) = -1.07$, $ns$). Figure 2 illustrates these results.

**Figure 2**

**Study 2: Consumers naturally rely on "distraction = interest" lay theory to draw metacognitive inferences about interest in the brand**

![Figure 2](image.png)

Note –Means with different letters are significantly different ($p < .05$).

Next, we also looked at whether participants’ self-reported level of distraction within the control condition significantly predicted their interest in the advertised brand. Within the control condition, we regressed interest in the brand onto the self-reported perceived distraction measure and found that increased distraction indeed was a marginally significant predictor of higher levels of interest in the brand ($\beta = 0.16$; $F(1,36) = 3.47$, $p = .07$).

**Discussion**

Study 2 replicates the basic finding of study 1 that consumers infer their level of interest in an advertised product from their perceived level of distraction towards a background ad. Again, when participants’ perceived level of distraction to a background ad exceeded their own expectations, they then inferred that they had greater interest in the advertised product. More notably, participants in the control condition in this study reported equal levels of interest compared to those who were manipulated to perceive the background ad to be more distracting than expected. These findings support the notion that consumers who multitask expect to be able to successfully perform a primary task without being overly distracted by a secondary task. Therefore, when they are indeed heavily distracted by a secondary task, they find this distraction to be unexpected and as a result determine that such distraction must have informational value.
Consumers then draw upon the lay theory that their level of distraction towards a background advertisement is related to their level of interest in the advertised product to conclude how interested they actually are. In other words, consumers’ dominant lay theory regarding distracting stimuli is that greater distraction signals greater interest in the contents of that distracter. In further support of this, as self-reported distraction towards the ad increased among participants in the control condition, interest in the advertised product also increased.

**STUDY 3**

While the findings in study 2 suggest that consumers’ dominant lay theory is that distraction towards a stimulus signals greater interest in the contents of that stimulus, a distracting stimulus can also be very annoying at times. If consumers conclude that they are distracted by an ad simply because it is an annoying stimulus, they might instead infer that they are less interested in the advertised product. In other words, consumers can have competing lay theories about what distraction means and the metacognitive inferences they draw about an object will depend on which lay theory is brought to bear (Deval et al. 2014; Schwarz 2004; Winkielman and Schwarz 2001). The main purpose of study 3 is to explore whether consumers draw opposing metacognitive inferences about their level of interest in a product from a background advertisement (i.e., infer either greater interest or less interest), depending on which lay theory is accessible within their minds. This provides further insight into the underlying process of our effect. As metacognitive inferences depend on the lay theory that consumers bring to bear in a given situation, priming consumers to access competing lay theories should result in opposing (i.e., positive versus negative) metacognitive inferences about their interest in the advertised product. In this study, we also explore the impact of consumers’ metacognitive inferences about interest in the product on purchase intentions. Finally, this study uses a new audio advertisement to increase the external validity of this research.

**Method**

A total of 236 undergraduates (53.39% female; M age = 20.75) participated in this study for partial course credit. This study used a 2 (Perceived Level of Distraction: high or low) x 2 (Lay Theory Prime: Distraction = interest or distraction = annoyance) between-subjects design.

Following past research (Cho and Schwarz 2008; Deval et al. 2013), participants were told that they would be completing two separate tasks. The first task involved reading an advertising news article and answering some filler questions about it. This task served as the manipulation of consumers’ lay theories. In the subsequent task, much like in study 1, participants colored a picture and listened to an audio advertisement as part of an ostensible study on color preferences and multitasking. During this part, participants colored the same picture as in study 1, but now listened to a different audio advertisement for a Carnival cruise ship.

*Perceived Level of Distraction Manipulation*

This manipulation is identical to that used in study 1.

*Lay Theory Prime Manipulation*

To manipulate which lay theory about level of distraction was accessible in participants’ mind, participants read one of two versions of a mock news article from Advertising Age (See Appendix for full articles). Some participants read an article explaining how advertisers are becoming increasingly focused on making ads that consumers find interesting because the marketers understand that this attracts attention. This article was intended to prime participants with the lay theory that high distraction towards an ad signals interest in the contents of that ad. Other participants read an article explaining how advertisers are becoming increasingly focused on making ads that consumers find somewhat annoying because the marketers understand that this attracts attention. This article was intended to prime the opposite lay theory, that is, that distraction towards an ad signals annoyance with that ad and its contents.
Measures

When the five-minute ad ended, participants heard a message in their headphones prompting them to stop coloring and to look back at the computer screen in front of them to continue the computer survey. Participants then indicated their agreement with the same four statements as in study 1 about the brand from the audio ad: “I am interested in the brand,” “The brand is exciting,” “The brand is unique” and “I would like to learn more about the brand.” These items were averaged into a composite ($\alpha = .87$), which served as our main dependent variable.

After answering these questions, participants also reported how likely they would be to consider a Carnival cruise for a spring break vacation (1 = Very unlikely, 7 = Very likely), which served as a measure of participants’ behavioral intentions towards the advertised brand.

Next, participants indicated the extent to which they agreed with the following statement: “If something is really distracting, that’s a sign that I probably like it” (1 = Strongly Disagree and 7 = Strongly Agree), which served as a manipulation check for our lay theory prime manipulation. Finally, participants provided demographic information.

Results

Data from nine participants were removed because they failed the aforementioned attention check (see study 1 methods section for details). A research assistant also witnessed six additional participants doing activities other than coloring while listening to the background audio ad and their data were removed as well. The significant interactions reported below hold if these individuals are included in the analyses and the same pattern of simple effects also holds (though only directionally in some cases).

Manipulation check

As a manipulation check, we tested for a main effect of the Lay Theory Prime Manipulation factor on the extent to which participants’ hold the lay theory that distraction signals liking. A marginally significant effect emerged, such that those who read the article about attention-grabbing ads being interesting reported holding this lay theory to a greater degree than participants who read the article about attention-grabbing ads being annoying ($M_{\text{interesting}} = 4.51$ vs. $M_{\text{annoying}} = 4.15$; $F(1, 217) = 2.79, p = .10$).

Interest in brand

First, an ANOVA was conducted with Perceived Level of Distraction, Lay Theory Prime, and their interaction as independent variables, and interest in the brand as the dependent measure. As expected, the interaction between the two factors was significant ($F(1, 217) = 5.67, p = .02$). Statistically probing this interaction revealed that, among participants who read the article about distracting ads being interesting, those in the high perceived distraction condition were more interested in the brand than those in the low perceived attention condition ($M_{\text{high perceived distraction}} = 4.84$ vs. $M_{\text{low perceived distraction}} = 4.42$; $F(1, 217) = 2.77, p = .10$). Among participants who read the opposite article about distracting ads being annoying, those in the high perceived distraction condition were less interested in the brand than those in the low perceived distraction condition ($M_{\text{high perceived distraction}} = 4.37$ vs. $M_{\text{low perceived distraction}} = 4.78$; $F(1, 217) = 2.91, p = .09$).

Purchase intentions

Finally, we conducted an ANOVA with Perceived Level of Distraction, Lay Theory Prime, and their interaction as independent variables, and participants’ likelihood of considering a Carnival cruise for spring break as the dependent variable. A significant interaction between the two factors emerged ($F(1, 217) = 6.17; p = .01$). Further analysis showed that among participants who read the article about distracting ads being interesting, those in the high perceived distraction condition were more likely to consider a Carnival cruise than those in the low perceived distraction condition, though this was only directional ($M_{\text{high perceived distraction}} = 4.53$ vs. $M_{\text{low perceived distraction}} = 4.00$; $F(1, 217) = 2.55, p = .11$). In contrast, among participants
who read the opposite article about distracting ads being annoying, those in the high perceived distraction condition were less likely to consider a Carnival cruise those in the low perceived distraction condition ($M_{\text{high perceived distraction}} = 4.21$ vs. $M_{\text{low perceived distraction}} = 4.86$; $F(1, 217) = 3.67, p = .057$). Figure 3 shows these results.

### Figure 3

**Study 3: Consumers draw opposing inferences when competing lay theories accessible**

<table>
<thead>
<tr>
<th></th>
<th>Likelihood of Considering Cruise</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Distraction = Interest&quot; Theory</td>
<td>4.00 (4.53)</td>
</tr>
<tr>
<td>&quot;Distraction = Annoyance&quot; Theory</td>
<td>4.21 (4.86)</td>
</tr>
</tbody>
</table>

Discussion

The results of study 3 establish process by moderation by showing that consumers’ interest in products advertised in background ads is indeed driven by consumers’ metacognitive inferences. These metacognitive inferences function via consumers lay theories about distraction. When opposing lay theories are accessible within consumers’ minds, the resulting metacognitive inferences lead to opposite (i.e., more positive versus more negative) evaluations of the advertised product. It also shows the behavioral implications of consumers’ use of such lay theories to determine their level of interest towards an advertised product.

**GENERAL DISCUSSION**

In this research, we explore how consumers are affected by background advertisements in multitasking settings. When consumers work on a focal task while an advertisement simultaneously plays in the background, they form metacognitive inferences about their interest in the product being advertised based on how distracted they are by the advertisement. When consumers perceive themselves to be distracted towards a background advertisement more than initially expected, they commonly infer greater interest in the advertised product. Consumers draw from a lay theory that being distracted by a stimulus signals one’s interest in the contents of that stimulus to make such inferences. However, if a competing lay
theory becomes accessible first, a consumer might reach an opposite conclusion. Indeed, we demonstrate that consumers sometimes instead draw from a lay theory that distracting stimuli are only distracting because they are annoying. If this lay theory is most accessible and consumers find themselves heavily distracted by an ad, they will instead infer that they are not interested in the advertised product.

Contributions and Avenues for Future Research

This research makes several theoretical contributions. Our findings illustrate that consumers’ perceived level of distraction serves as a metacognitive cue from which these individuals form inferences about their evaluations of advertised products. Therefore, we advance a new metacognitive experience alongside previously established ones, such as ease-of-recall of information stored in memory (Schwarz et al. 1991), fluency of processing newly encountered information (Winkielman et al. 2003), and perceived passage of time (Sackett et al. 2010), that influence consumers judgments of the world around them.

This research also expands a very sparse literature regarding multitasking in the consumer behavior domain. It is among the first to explore consequences of multitasking beyond cognitive processes such as reduced performance on the tasks (Monsell 2003). We show that multitasking can lead consumers to use certain metacognitive inferential processes in order to determine their attitudes towards ads presented in multitasking scenarios. Furthermore, we specifically uncover how distracting background stimuli affect consumers, whereas previous work has only explored how distraction affects consumers’ judgments of the focal task they are distracted away from (Critcher and Gilovich 2010; Damrad-Frye and Laird 1989; Eastwood et al. 2012; Fisher 1998). The current work illustrates that being distracted can lead a consumer to either become more interested or less interested in the contents of the distracting stimulus depending on which lay theory is accessible at the time. This expands upon past literature, which has only shown distraction to have strictly negative effects on consumers in relation to the focal task (Jacoby et al. 1988). We also contribute to the literature on consumer lay theories by showing that consumers hold beliefs about the relationship between distracting stimuli and one’s interest in the contents of such distracters and that such beliefs drive consumers’ metacognitive inferences in multitasking setting (Broniarczyk and Alba 1993; Deval et al. 2013; Luchs et al. 2010; Posavac et al. 2010; Raghunathan et al. 2006).

This research also has many practical implications. In today’s society, consumers frequently multitask. Advertisements are often consumed as background media while individuals complete other focal tasks (e.g., cook dinner, do household chores, browse the Internet, etc.). Understanding how consumers are affected by their metacognitive experiences with background advertisements should provide marketers with valuable insight to use when designing future advertisements. That is, ads should be distracting, but probably not so blatantly distracting that consumers would attribute their distraction to annoyance.

As this work is ongoing, in future studies we aim to explore how characteristics of the focal task can determine which lay theory consumers bring to bear when forming metacognitive inferences about distracting background ads. For example, if the focal task has a strong goal attached to it (e.g., an employee needs to get a memo to his boss in an hour), then consumers might conclude that any background advertisements that distract them away from this focal task is annoying as opposed to interesting.
REFERENCES


APPENDIX: STUDY 3 LAY THEORY PRIME MANIPULATIONS
“Distraction = Interest” Lay Theory Prime

ADVERTISERS UNDERSTAND THE POWER OF INTEREST

By Jessica Wohl. Published on June 20, 2015

According to a recent survey by Advertising Age, advertisers are becoming increasingly focused on making ads that consumers find at least somewhat interesting and relevant.

“We no longer exist in a world where you can throw a totally boring ad at people and expect them to pay attention,” said Jeremy Marcum, one of 76 advertising practitioners who took part in the study. “It’s increasingly difficult to hold someone’s attention, and one way that my colleagues and I achieve this goal is to make advertisements that are as interesting and relevant as possible to our target market.”

Indeed, research shows that it’s difficult to tune out something that is actually relevant to you, and advertisers are making full use of this knowledge.

Consumers seem to have noticed this trend. The same study also measured 96 consumer responses to advertisements and found that most consumers rate the ads they’re exposed to as increasingly interesting.

It seems that part of the reason consumers find today’s ads more interesting is because marketers have determined that ads that people find interesting or relevant are great at repeatedly capturing people’s attention.

Advertising Age®
According to a recent survey by Advertising Age, advertisers are becoming increasingly focused on making ads that consumers find at least somewhat annoying.

“We no longer exist in a world where you can throw a totally boring ad at people and expect them to pay attention,” said Jeremy Marum, one of 76 advertising practitioners who took part in the study. “It’s increasingly difficult to hold someone’s attention, and one way that my colleagues and I achieve this goal is to make advertisements that capture people’s attention by annoying them.”

Simply put, research shows that it’s difficult to tune out something that is annoying to you, and advertisers are making full use of this knowledge.

Consumers seem to have noticed this trend. The same study also measured 96 consumer responses to advertisements and found that most consumers rate the ads they’re exposed to as increasingly obnoxious.

It seems that part of the reason consumers find today’s ads more annoying is because marketers have determined that ads that people find annoying are great at repeatedly capturing people’s attention.
SALESPEPERSON DECISION AUTHORITY AND PRODUCTIVITY: THE MODERATING ROLE OF SALESPEPERSON CHARACTERISTICS

Desmond Lo, Santa Clara University, Zhen (Richard) Tang, Arti Gandhi, and Mrinal Ghosh, University of Arizona

ABSTRACT

To secure sales in complex environments requires a salesperson to not only undertake a variety of critical tasks (e.g., choosing the most promising prospects; allocating limited time across prospects; offering solutions that fit customer needs, etc.) but also use the obtained information to close the sale through appropriate pricing decisions. Whereas theory has suggested when salespeople should be delegated the authority to make these decisions, empirical evidence on whether delegating authority is useful (or not) is scarce. In particular, is delegating authority actually related to sales? And, which kind of salesperson is most likely to secure the gains from receiving such authority? We study these key questions using proprietary data on salespeople selling industrial equipment. We find that firms do delegate more pricing as well as task decisions to salespeople in more complex, uncertain, and competitive environments and that both price and task delegation are positively related to that salesperson’s productivity (annual sales growth). More importantly, we find that the effect of price delegation on productivity is enhanced when the salesperson is also delegated the authority to manage/choose her tasks suggesting complementarity between these two roles. Furthermore, we find that it is the more able and the more experienced salespeople who are able to leverage this pricing and task-related authority to secure higher sales growth. Our results provide managerial guidance on when, how, and to what kinds of salespeople should the firm delegate sales-related activities and decisions.

INTRODUCTION

There is a long tradition in marketing of studying the delegation of pricing responsibility to sales force, both analytically (Lal 1986; Mishra and Prasad 2005; Weinberg 1975) and empirically (Joseph 2001; Stephenson et al. 1979; Homburg 2012). Local salespeople always have private and valuable information and knowledge on the local market and customers; that information and knowledge may be tacit in nature, making it hard to be revealed and verified to sales manager even if the incentives of sale manager (i.e. the principal) and salespeople (i.e. the agent) are properly aligned (Dessein 2002). From an agent theory perspective, the rationale for price delegation is that the sales manager can make use of the salespeople’s private and tacit information and knowledge on local market and customers by delegation, especially when the information asymmetry between principal and agent is considerable (Lal 1986) and the incentive conflict between them is not too large (Dessein 2002). However, high levels of price delegation may induce salespeople to substitute undue price discounts for effort in negotiation with customers to defend the benefits of principal, and thus, a moderate level of price delegation is suggested (Stephenson et al. 1979; Joseph 2001; Homburg 2012).

On the other hand, scholars have long noticed that sales are accomplished through a process that consists of different activities, such as locating and prospecting for customers, probing customers’ demand and requirements, presenting solutions and value propositions, handling objections, closing sales and following up (Dubinsky 1980; Moncrief and Marshall 2005); these activities are also known as sales funnel (Mantrala et al. 2010).

Previous research on delegation to salespeople mainly focuses on pricing. However, from this zooming out perspective of sales funnel, we can tell that price delegation, by granting salespeople the authority to provide price discount to close a sale, only comes into play at the end of the funnel. What is missed in research and happening in reality is delegation of other activities in the funnel prior to closing the sales (e.g. pre-sales activities). For example, W. L. Gore, the maker of Gore-Tex weatherproof fabric, lets
its salespeople build their own territories in terms of deciding which customers or even how many customers to focus on.

In this study, we investigate how delegation of other sales-related activities before closing a sale, termed as task delegation, and delegation of pricing responsibility jointly influence the sales performance. Specifically, we argue that complementarity (Brynjolfsson and Milgrom 2012) can be realized through using task delegation and price delegation simultaneously. More specifically, task delegation can enhance the quality of the private information derived from pre-sales activities and that information further helps salespeople exert their pricing delegation more effectively. On the other hand, price delegation gives salespeople more flexibility in reacting to local market and customers demand uncertainty and thus, their knowledge and information on local market and customers accumulated from pre-sales activities can be better exploited.

Moreover, we propose that the complementarity between price delegation and task delegation is moderated by salespeople’s characteristics (i.e. their ability and experience); that is, more competent and experienced salespeople can fulfill the delegated activities and pricing responsibility more effectively, promoting the complementarity.

The hypothesized complementarity between price delegation and task delegation and moderating effects of salespeople’s ability and experience are supported by data from industrial equipment sales context in which personal selling, price delegation, and task delegation are ubiquitous. Our paper makes three main contributions to the literature on sales force management. Firstly, we find empirical evidence for the effectiveness of both price delegation and task delegation on improving salespeople’s productivity. Secondly, we establish a complementarity relationship between price and task delegations by showing that a salesperson’s productivity is significantly enhanced when the authority to give price discounts is jointly given with the authority to make decisions regarding one’s customer focus, call plan, and solution development. Thirdly, we investigate the boundary conditions of this complementarity relationship by finding moderating effects of salespeople’s ability and experience.

Next, we review existing literature on delegation and define task delegation. It is followed by a discussion on the complementarity of price delegation and task delegation. We, then, present our model, explain the data and method of analysis. Subsequently, we present the findings and discuss the results. We make a conclusion and discuss a few managerial implications of this paper.

**LITERATURE REVIEW**

The problem of information asymmetry between a principal and agent is often thought as the primary reason for delegation (Dessein 2002; Lal 1986). A major trade-off between delegation and centralization is that of ‘loss in control’ versus ‘loss in information’ respectively (Dessein 2002; Wu 2011). Information asymmetry arises when an agent is better informed than the principal about “consumer needs, competitive pressures, specialized technologies or market opportunities” (Dessein 2002). The main issue with this asymmetry arises when: first, the information held by the agent is soft in nature, making it neither easily verifiable nor communicable as hard facts (Alonso, Dessein and Matouschek 2008; Rantakiri 2008). Second, even if the information held by the agent is communicable, it is possible that the agent withholds certain parts due to the difference in objectives between the principal and agent. The principal might prefer a certain course of action that requires high effort from the agent to maximize returns but the agent might prefer another course of action that maximizes his utility by minimizing his effort. To ensure that the principal chooses the course of action preferred by the agent, the agent might opt for strategic communication. Thus, it may not be feasible for the principal to accurately acquire the necessary information to make good decisions.
Provided that the transformation of private knowledge is costly and subjects to agent’s strategic manipulation, to resolve this problem of information asymmetry problem, the principal delegates decision rights to a better informed agent and benefits from the agent’s local knowledge. To ensure that the agent’s objective gets aligned with the principal’s, delegation is often combined with performance-linked incentives for the agent (Berger 1972; Dessein 2002; Foss and Laursen 2005; Lal 1986; Prendergast 2002). An incentive plan linked to outcomes ensures that the agent chooses a course of action which results in an outcome that is preferred by the principal even at the expense of high effort of himself. The overall utility of the salesperson is maximized through monetary payoffs from incentives.

The theoretical relationship between information asymmetry and delegation is evidenced in various empirical studies. Empirically, Frenzen et al. (2010) found support for the relationship between price delegation and information asymmetry in their survey data from industrial machinery and electrical engineering market. Frenzen et al. (2010) and Lo et al. (2015) show that high customer heterogeneity in the market results in the agent possessing more granular knowledge of his local market, widening the information asymmetry between the salesperson and the manager and thus motivating the practice of price delegation.

Another factor that promotes information asymmetry is uncertainty. Uncertain environments require delegation of responsibilities as managers are less certain about the relationship between effort and output and agents are better informed about local conditions (Frenzen et al. 2010) resulting in a pronounced information asymmetry effect. Investigation on the relationship of uncertainty in the market and price delegation has also resulted in mixed evidence. Using data from 1000 manufacturing and service firms across Denmark, Foss and Laursen (2005), empirically show that pricing delegation increases with increase in uncertainty when measured by extent of innovation, perceived increase in competition and variance in profitability within the industry. Prendergast (2002) suggests that contrary to agency theory’s prediction of risk-averse agents disliking incentives in uncertain environments, uncertainty may be positively correlated with provision of incentives because uncertain environment necessitates delegation which further gives rise to the using of incentives. Another important aspect of environmental uncertainty that influences delegation decision is the competitive intensity, because salespeople may possess bits of information on competitive actions in their territory that could be used to make decisions on certain courses of action during the selling process. Like Foss and Laursen (2005), Hansen, Joseph and Krafft (2008) also propose that at moderate levels of competitive intensity, pricing authority should be preferred although limited in extent. In this paper, we also look at how uncertainty in the environment (measured through Rapid Technological Pace and Competitive Intensity) impacts delegation of pre-sales closing tasks that involve gathering information about the customer and customizing an appropriate solution. We also control for uncertainty in the environment in order to understand the performance implications of authorizing the salesperson to conduct all tasks across the sales funnel.

Incentives help align the salesperson’s objectives to the sales manager’s objectives such that the sales person can be held accountable even though the manager has lost some control over the process by delegating. DeVaro and Kurtulus (2010) find evidence of a positive relationship between incentive pay and price delegation in data obtained through British Workplace Employee Relations Survey (WERS98). In support of the theory that suggests incentive structure is often paired with delegation, Joseph Kissan’s (2001) theoretical model also suggests that limited pricing authority with high rate of commission is better than full authority, when prospecting of high valuation customers is desired. Limited authority curtails the salesperson’s ability to close the sale through discount and high commission rates reemphasize the importance of focusing on high valuation customers. Since commission rates and price delegation go hand in hand, we control for commission rate in our comprehensive model, however, it is not the focus of our paper. We assume that commission rates are exogenous as it is decided at the sales-force level while delegation decisions are made for individual salespeople.
Delegation has been shown to influence various performance measures. Specifically, the consequence of varying extents of delegation is of great academic interest. Mantrala (2010) and Albers, and Mantrala (2008) highlights the mixed evidence in the literature and emphasize the importance of resolving the debate of whether high pricing authority actually improves firm profitability. Stephenson, Cron and Frazier (1979) show that low levels of pricing delegation perform better than high pricing delegation in the medical supplies and equipment wholesaler market by achieving superior performance which was measured in terms of higher sales, sales growth as well as gross margin. Interestingly, Dong, Yao and Cui (2011) examine the impact of delegating customer acquisition to a salesperson who is performs retention of existing customers. When the two tasks are not independent, a spoiling effect of customer acquisition is observed i.e. a salesperson allocates and utilizes more effort to customer retention as lesser effort is required in retaining an existing customer than the effort required in acquiring a new customer. Hence, when customer acquisition is delegated, customer retention efforts by a salesperson may increase if the two tasks are not independent. However, very few studies such as Foss and Laursen (2005), Frenzen et al. (2010), Hansen, Joseph and Krafft (2008), Lo et al (2014) and Stephenson, Cron and Frazier (1979) have investigated the impact of delegation on various performance measures empirically, although examination of delegation was limited to only price delegation. In this paper, we not only examine the effect of delegating pricing authority on salesperson’s productivity but also study the result of delegating pre-sales decisions on salesperson’s productivity. Furthermore, we also investigate the impact of implementing the two delegation decisions jointly.

Delegation decisions are not made by the sales manager at the sales-force level; they are made at the individual salesperson level. Salespeople differ on many characteristics but the importance of possessing appropriate customer knowledge cannot be emphasized enough in today’s marketing environment (Jones et al. 2005). Salesperson characteristics such as ability and experience govern the information coping capabilities of the salesperson. Effect of one’s ability and experience on performance is well established in the literature. Sujan, Sujan and Bettman (1988) experimentally show that salespeople who are better able to describe different customer types in terms of their characteristics, interests and potential actions are more effective in performing sales tasks. Morgeson, Delaney-Klinger and Hemingway (2005) suggest that increased cognitive ability and job related skill helps the individual to perform their daily tasks successfully and are thus more willing to broaden their role by including other tasks in their role. As the individual takes on more tasks and responsibility, the supervisor values individual’s work more and provides superior performance ratings. They find support for a positive relationship between cognitive ability and job performance as well as between job related skill and job performance through role breadth as mediator.

Giniger, Dispensieri and Eisenberg (1983) find that experience improves performance significantly in both speed jobs as well as skilled jobs among workers in a ladies garment factory. They suppose that this result may be due to accumulation of skill and competence among more experienced workers. Schmidt, Hunter and Outerbridge (1986) conducted a meta-analysis of past literature to find that both job experience and ability are associated with superior performance as well as superior supervisor ratings. They propose that an increase in job experience and ability facilitates acquisition of job knowledge and job knowledge drives superior performance. Job knowledge was defined as knowledge of facts and principles required to perform the job. Franke and Park (2006) suggest that high sales experience helps the salesperson to adapt to changing situations during various interactions with the customer through a meta-analysis. This is primarily attributed to increased knowledge, of selling situations, customer types, and selling strategies, gained by highly experience salespeople during their tenure. Kohli, Shervani and Challagalla (1998) present an argument in favor of more experienced people being more motivated to perform various selling activities to maintain their standing and prestige in the firm. They also propose that highly experienced salespeople are better able to identify certain cause-effect relationships due to their accumulated knowledge. Thompson (1990) finds that relevant experience is an important factor in acquiring superior bargaining outcomes because more experienced subjects were more likely to make accurate judgments of the issues important
for the opponent in negotiating task. This judgment accuracy was found to be highly correlated with superior performance. However, it is unclear how different agent characteristics, such as ability and experience, enhance empowerment or delegation of authority to achieve improved sales productivity. Lo et al. (2014) suggest that delegation decisions are made at the salesperson level and not at the sales-force level based on individual salesperson characteristics such as tenure and capability. In this paper, we examine effect of salesperson’s ability and tenure on enhancing the productivity of multiple delegation decisions in more detail.

HYPOTHESES DEVELOPMENT

The model of information asymmetry calls for delegation of various tasks to agents, allowing them to choose appropriate course of action based on local information they have. Prendergast (2002) provides a broad overview of the delegation process adopted by a manager to an employee. Typically, a manager assigns various tasks needed to be carried out by an employee in a specific period of time. The manager then chooses to delegate the “how and when” of the task. Thus, the employee can choose the order in which he fulfills the tasks and also decide the frequency with which he will perform particular tasks. The employee can prioritize among multiple tasks to get the desired output within a specified time limit (Devaro and Kurtulus, 2010).

In this paper, we investigate two types of delegation decisions that are made by sales managers across the sales process. A typical sales process involves, Lead Generation, Lead Qualification, Customer Probing, Solution Development, Sales Closing and Follow up (Lamb Hair and McDaniel 2013, 7th edition). For simplicity, we group lead generation and qualification in one stage called Prospecting wherein the salesperson identifies the right customers. Probing and uncovering customer needs helps cultivate and build strong relationships with the customers in the second stage. The positioning stage entails developing solutions based on customer requirements, working with the customer to come up with an innovative solution and demonstrating the value. Once the sale is closed in the fourth stage, follow-up is required for customer retention and relationship maintenance. Our paper focuses on these first four stages as shown in Figure 1. The industry widely accepts and practices some variant of this sales funnel (refer Figure 1) as a standard selling process and is almost always included in sales training manuals. Although the sales funnel is a collection of steps a salesperson goes through to close a sale, the emphasis on each stage and the set of activities specific to a stage may change depending on product features, customer types and internal processes of the firm (Lamb, Hair and McDaniel 2013; Johnston and Marshall 2003).
Sales managers may delegate varying levels of authority to carry out the different stages of a sales funnel. We define ‘Task delegation’ as providing the salesperson with the authority over various customer-oriented tasks undertaken prior to sales closing during Prospecting, Cultivating, and Positioning. The tasks in these first three stages entail collecting valuable information about the customer type, customer needs, solution desirability, and product value to the customer. Specifically, firms may permit their salespeople (1) to choose which customers to focus on by collecting valuable information on who is likely to make a purchase soon and identifying different types of customers (2) to prepare their own call plan in terms of route and visit frequency that enables them to collect superior information from high valuation customers and (3) tailor solutions to meet customer requirements by probing for their needs and gauging their valuation. On the other hand, price delegation entails authorizing the salesperson to negotiate and modify the final price during the Sales Closing stage of the selling process (Frenzen et al. 2010). In industrial sales, salespeople may be accorded with the authority to offer some discounts off the list price to his customers without conferring with the sales manager. The decision to delegate afore mentioned developmental tasks and pricing authority is taken by the sales manager before the salesperson begins the sales process.

In the next section, we develop our hypotheses regarding the consequence of jointly implementing both price delegation and task delegation.

**Complementarity of Price Delegation and Task Delegation**

We argue in favor of the complementary view of price and task delegation – i.e. the joint use of both types of delegation provides more efficient outcomes than the use of any one type of delegation alone (Milgrom and Roberts 1990; 1995).

On being authorized to implement the first three stages of the sales funnel at their discretion, salespeople will increasingly collect quality information on the customer type and needs. In case, it is a new
customer on the list, the salespeople can choose to increase his visit frequency to collect more information or even choose to reduce the frequency if the customer’s sales cycle has just been completed and focus on other customers dynamically. Based on the interactions with the customer, probing and assessing customer involvement in developing solutions together, the salesperson can gauge customer’s willingness to pay (WTP) much more effectively than if he had low or no Task Delegation. This knowledge of customer’s WTP can be leveraged at the time of sales closing if the salesperson has been authorized to negotiate price (Lal 1986). Empowering a salesperson gives him the flexibility to tailor the sales presentation, adapt sales behaviors and respond quickly to customer requirements (Rapp et al. 2006; Weitz, Sujan and Sujan 1986). The salesperson would then be able to offer the ‘right’ price discount to the customer such that it maximizes the total revenue earned. Thus, the most effective use of pricing discretion is contingent on the information that the salesperson collects through the authority over pre-sales tasks. If only Task Delegation is given, the information collected on WTP cannot be leveraged and the resulted sale might be lost if customer WTP is lower than list price or sub-optimal if customer WTP is higher than list price. The salesperson might even lack the motivation to generate the intelligence as he is uncertain on whether this information will be valued or not by the sales manager. Similarly, if only Price Delegation is given, the price discount offered might be more than what would be sufficient to acquire the sale. Having been given most of the information by the sales manager or Customer Relationship Management (CRM) software, the salesperson might lack conviction in selling a particular value proposition as he is uncertain on the applicability/obsolescence of information. Thus, granting a higher level of Task Delegation increases the returns of Price Delegation.

H1: Price Delegation and Task Delegation function as complements in explaining sales performance.

Moderating effect of Agent Characteristics on the Complementarity between Price Delegation and Task Delegation

We explore the boundary conditions when the complementarity effect between Price Delegation and Task Delegation will be diluted. Individual agent characteristics such as Salesperson’s Ability and Salesperson’s Tenure can influence the execution of sales funnel.

We know from various studies in marketing, psychology and management that ability plays a significant role in improving one’s performance regardless of whether it is cognitive ability or a skill specific to a particular job, as described in the literature review. Increase in ability is associated with increase in job-related knowledge acquisition (Schmidt, Hunter and Outerbridge 1986). Highly skilled salespeople who are better able to collect information and develop rich categories of customer types in terms of describing their specific traits, motives, and behaviors, are more effective in performing various sales tasks (Sujan, Sujan and Bettman 1988). Thus, as the ability of a salesperson decreases, he may not be capable of extracting relevant information regarding a customer’s WTP through appropriate research on each customer (Weitz, Sujan and Sujan 1986). A low ability salesperson with limited knowledge may also not be able to work with the customer and sell adaptively (Weitz, Sujan and Sujan 1986) to develop innovative solutions and convince the customer of the value propositions. In other words he is unable to utilize the collected information and formulate a specific sales strategy for different customer types to affect the overall performance (Sujan, Sujan and Bettman 1988). Even if he were to extract the relevant information, he might not be skilled at negotiating and persuading the customer to close the sale i.e. make rapid adjustments to sell adaptively (Weitz, Sujan and Sujan 1986). Furthermore, a low ability person is typically associated with narrower role and may not be able to successfully integrate tasks without supervisory guidance (Morgeson, Delaney-Klinger and Hemingway 2005). The low ability salesperson would not benefit from being simultaneously authorized to collect information and to offer discounts and modify list price. Thus the lack in competence affects the quality of information generated and price negotiation at the time of closing impacting the sales generated.
**H2:** The complementarity effect between Price Delegation and Task Delegation is weakened for low-ability salespeople.

A salesperson with low tenure in the firm may not be as familiar with the firm’s product and services to be able to tailor a solution based on customer requirements as an individual with lower experience has less job knowledge that can influence performance (Schmidt, Hunter and Outerbridge 1986). Thus, the salesperson with low tenure in the firm may not be able to gauge different requirements of different customer types of that firm’s market and which information is relevant or even how and where to seek the relevant information. As suggested by Kohli, Shervani and Challagalla (1998), a more experienced salesperson could figure out what is causing certain effects and act accordingly, due to better developed knowledge structures. Moreover, a new salesperson could acquiesce to customer demands that are unreasonable or infeasible for the firm as they are unable to adapt to the selling situation (Franke and Park 2006) and negotiate effectively. Thompson (1990) finds that pertinent experience is highly correlated with superior judgment accuracy of compatibility with negotiating partner. Since, higher experience aids acquisition of job-related facts and principles that are essential to perform the job (Schmidt, Hunter and Outerbridge, 1986), a lack of experience in the firm’s products, services and customers can compromise the efficacy of generating and utilizing the information through Task Delegation and subsequently offering a suitable price discount to generate increased sales revenue.

**H3:** The complementarity effect between Price Delegation and Task Delegation is weakened for low-tenure salespeople.
DATA & MEASUREMENT

Data Collection

To capture the extent of price delegation and task delegation granted to salespeople, a mail survey of sales managers was conducted from firms operating in the sector of durable industrial equipment. This sector is characterized by heterogeneous customers, complex selling, and pervasive use of incentives, making it ideal for studying efficacy of various delegation decisions in improving salesperson’s performance.

We conducted on-site pilot interviews with sales managers across 16 firms to gather insights into what is entailed in managing their direct sales-force. We pre-tested a preliminary questionnaire during some of these interviews. Based on the feedback received, the questionnaire was further refined to produce the final survey instrument.

Our sample of firms included four industrial-equipment manufacturing sectors: non-electrical machinery including computer equipment (SIC 35), electrical and electronic machinery (SIC 36), transportation equipment (SIC 37), and instruments (SIC 38). We used the American List Council and Dunn and Bradstreet to obtain a list of sales managers of manufacturing firms with sales exceeding $100 million in our chosen SICs. Qualification criteria required each key informant to be primarily associated with the sales-force for their division/firm in a well-defined customer, product, or geographic market; and their firm had to be using a direct sales-force rather than contract dealers in those markets. This qualifying procedure generated a list of 869 sales managers from the list of 1470 managers identified from two list brokers. We mailed our survey questionnaire to each of these 869 managers. To ensure high response rates, each manager was offered a customized report summarizing the findings from our survey and comparing their profile to the average patterns in the data. After two reminders, we obtained 264 responses. Three of these were discarded for missing data, resulting in a final sample of 261 responses (a response rate of 30%).
**Variables and Measures**

Based on our extensive pilot interviews with the sales managers, we developed items for our variables of interest. A confirmatory factor analysis (CFA) was conducted on the final set of items using SPSS AMOS 21 to establish convergent validity. The goodness of fit statistics and chi square significance values were used to further refine the measures. Reliability was measured using Cronbach’s alpha. The detailed survey questions along with the respective variable names are listed in Table 1. Table 1 also reports reliability of the scale for variables measured on Likert Scale. Summary statistics and the correlation table are shown in Tables 2 and 3 respectively.

We now discuss the measures for our key variables: salesperson’s performance, price delegation and task delegation along with a brief description of the explanatory variables and controls which includes the predetermined commission rate (treated exogenous).

**Annual Growth**

We measure the performance of the identified sales person in terms of annual unit growth of his sales region/territory. The sales manager was asked to estimate the year-to-year change in the unit demand for the company’s products/services in this sales person’s region/territory.

**Price Delegation**

We use a cardinal measure of price delegation in which each manager reported the percentage of price discount off the list price that the sales person is allowed to offer customers without discussing with his manager. Higher percentages mean that the sales person has more discretion when making price offers to customers.

**Task Delegation**

Each sales manager was asked to report the discretion awarded to the salesperson to develop their own call plans, and make product and pricing decisions on a 7-point Likert Scale where higher number indicates more discretionary power to fulfill the listed task. (Cronbach’s Alpha: .92)

**Customer Heterogeneity**

Agents are better informed about the differences in customer types and requirements of their customers than sales managers who have a larger database to take care of. We used 7-point Likert scales to measure the heterogeneity of customer usage of their products. This captures the informational advantage of the sales person over the firm, which should positively affect delegation as per the information asymmetry model. (Cronbach’s Alpha: .87)

**Monitoring Difficulty**

As the difficulty in monitoring salesperson efforts rise, principal has lower levels of knowledge (Frenzen et al. 2010) resulting in an increase in information asymmetry that influences the decision to delegate both price delegation and task delegation. (Cronbach’s Alpha: .89)

**Firm Reputation**

Sales managers reported the standing of the firm’s products and services quality among their customers via a 7-point Likert scale. As the perception of firm’s quality increases, the firm is likely to discourage use of price discounts to close a sale affecting the price delegation negatively. However, to maintain the high quality perception, sales managers are likely to delegate collection of customer specific information and offer tailored solutions, thus affecting task delegation positively. (Cronbach’s Alpha: .92)

**Commission Rate:**

Each sales manager reported measures of the salesperson’s salary and total compensation in the year prior to the survey, as well as the sales generated by the sales person during that year. Base Salary is
the dollar amount of fixed compensation received by the sales person in the previous fiscal year. *Total Compensation* refers to the sum of the base salary and performance-based compensation (e.g., bonus and commissions) received in the same fiscal year. *Sales Revenue* is the amount of sales generated by the sales person in the same fiscal year, also in US dollars.

*Commission Rate* is calculated as $= (Total Compensation – Base Salary)/Sales Revenue$

**Rapid Technological Change**

Prendergast’s (2002) model, suggests that firms will want to delegate more when there is more uncertainty in the environment. With increase in uncertainty, customer/market related information possessed by the agent becomes considerably more important and this result in making information asymmetry more pronounced (Frenzen et al. 2010). Thus, we include a 7-point Likert scale measuring uncertainty arising from the pace of product/equipment obsolescence. (Cronbach’s Alpha: .94)

**Product Complexity**

The products or services sold across firms may differ in terms of complexity and intricacy of its subsystems resulting in requiring varying levels of knowledge and expertise from the salesperson. This could influence the extent of delegation given to the salesperson by the sales manager as well as the unit growth in the salesperson’s territory. Product Complexity is measured using a 7-point Likert scale that ask sales managers to evaluate the complexity of their product over 4 items shown in Table 1. (Cronbach’s Alpha: .95)

**Firm Size**

McElheran (2010) find that purchasing authority is negatively correlated with absolute firm size. We include *Firm Size* as a control, measured by sales revenues in the previous year, due to the vast evidence on its association with delegation decision (Aghion, Bloom and Van Reenen 2013) although the direction of the evidence is not assured.

**Competition**

Hansen, Joseph and Krafft (2008) and Aghion, Bloom and Van Reenen (2013) identify competitive intensity as an important factor in determining delegation strategy as it indicates uncertainty in the market. Hence, we asked the respondents to also tell us how many direct competitors they faced in the relevant product category.

**Agent Characteristic 1: Salesperson’s Ability**

Aghion, Bloom and Van Reenen (2013) review the demonstrated positive association of human capital or skill with delegation decisions. The salesperson’s ability is assessed by the sales person’s manager at the firm on a 7-point Likert scale across 6 items that list key selling skills. We posit high ability agents are more able to extract information from their sales territory and customers and hence close a sale. (Cronbach’s Alpha: .92)

**Agent Characteristic 2: Salesperson’s Tenure**

The Sales manager is asked to report the number of years that the particular sales person has worked with the company. Experienced salespeople maybe more better aware what/how to seek out relevant information, which in turn helps to convert customers and close a sale.
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MEASURES</th>
<th>RELIABILITY (Cronbach’s Alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Growth</strong></td>
<td>What would be your estimate on the year-to-year change in the unit demand for your company’s products/services in this sales person’s region/territory?</td>
<td></td>
</tr>
<tr>
<td><strong>Price Delegation</strong></td>
<td>Log transform - Salespeople might be provided discretion in offering price discounts to their customers. What percentage discount off the list price can this salesperson unilaterally offer his/her customers without conferring with the sales manager, i.e. you?</td>
<td></td>
</tr>
</tbody>
</table>
| **Task Delegation †**  | 1. This salesperson has complete control over deciding on which customers he/she should focus on.  
2. Our company permits this salesperson to develop his/her own call-plan.  
3. To the extent possible, we let this salesperson make product and pricing decisions that suit customer-side circumstances. | .92                           |
| **Total Compensation** | What was the total compensation (base salary plus performance based compensation – e.g., commissions, quotas etc.) received by this salesperson in the last fiscal year?                                             |                               |
| **Base Salary**        | What was the total fixed compensation (i.e. base salary) that was received by this salesperson in the last fiscal year?                                                                                  |                               |
| **Sales Revenue**      | What was the total revenue, in dollars, generated by this salesperson in the last fiscal year?                                                                                                            |                               |
| **Commission Rate**    | \((\text{Total Compensation} – \text{Base Salary})/ \text{Sales Revenue}\)                                                                                                                              |                               |
| **Salesperson’s Risk Aversion †** | 1. In my opinion, this salesperson prefers predictable outcomes to unpredictable ones.  
2. In my opinion, this salesperson does not prefer variation in her/his compensation from one month to the next.  
3. In my opinion, this salesperson would be willing to sacrifice some “top-end” variable pay to assure himself/herself of a steady compensation (i.e. base salary).  
4. In my opinion, this salesperson likes to “play it safe” while dealing with his/her customers. | .71                           |
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MEASURES</th>
<th>RELIABILITY (Cronbach’s Alpha)</th>
</tr>
</thead>
</table>
| Salesperson’s Ability†         | 1. This salesperson has a high degree of competence in tailoring his/her sales approach to the specific situation on hand.  
2. This salesperson has been very creative in designing relevant solutions to customers’ problems.  
3. This salesperson is a skilled and persuasive negotiator.  
4. This salesperson is capable of closing a deal in a tough selling situation.  
5. This salesperson is able to learn from past experiences and adapt them to current circumstances.  
6. This salesperson is skilled in extracting the unique problems faced by and the requirements of his/her customers. | .92                            |
| Log transform - Salesperson’s Tenure | Please provide your estimate on the number of years this salesperson has been working in your company.                                                                                                           |                                |
| Firm Reputation †              | 1. Our organization has a good standing in the business world for providing quality products and services.  
2. Customers are willing to pay a high premium for our products and services.  
3. Our company is held in high esteem for being able to provide products that mirror customer needs and specifications.  
4. Customers value our products and services more than that of our competitors. | .92                            |
| Customer Heterogeneity†        | 1. Our product can be used in manufacturing/administrative/operational activities that vary widely from customer to customer.  
2. Customers of this product themselves operate in a wide variety of industry sectors.  
3. Our product is most useful for a narrow range of operational tasks. | .87                            |
| Monitoring Difficulty†         | 1. It is not possible to supervise the salesperson’s activities closely.  
2. It is difficult for us to evaluate how much effort this salesperson really puts into her/his job.  
3. It is relatively easy for this salesperson to turn in falsified sales call reports.  
4. Our evaluation of this salesperson cannot be based on his/her activity and sales call reports. | .89                            |
| Rapid Technological Change†    | 1. Significant technological advances in this product category are very unpredictable and fast.  
2. The machine/equipment in this product category becomes obsolete very fast.  
3. There are frequent and significant changes in the technical features of machines in this product category.  
4. In this product category new technologies follow each other very quickly. | .94                            |
| Product Complexity†            | 1. The inter-linkages between different components and sub-systems in our product are very sophisticated.  
2. Our product is primarily composed of state-of-the-art engineering content.  
3. Deriving quality output from our machines requires precise understanding of engineering technologies.  
4. The configuration of our product necessitates frequent adjustments in accordance with the specific task requirements. | .95                            |
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MEASURES</th>
<th>RELIABILITY (Cronbach’s Alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5. Customers need to have appropriate technical and engineering skills and experience to derive quality output from our machines.</td>
<td></td>
</tr>
<tr>
<td><strong>Competition</strong></td>
<td><em>Log transform</em> - What is the number of potential competitors for this family of product-lines/equipment?</td>
<td></td>
</tr>
<tr>
<td><strong>Firm Size</strong></td>
<td><em>Log transform</em> - During the last fiscal year (2004/05), what was your business unit’s sales revenue across all product lines?</td>
<td></td>
</tr>
</tbody>
</table>

†Measured using 7-point Likert scales (1= totally disagree; 7= totally agree)
Table 2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th># of items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Price Delegation</em></td>
<td>14.0</td>
<td>6.0</td>
<td>5</td>
<td>30</td>
<td>1</td>
<td>N.A.</td>
</tr>
<tr>
<td><em>Task Delegation</em></td>
<td>4.1</td>
<td>1.4</td>
<td>1.3</td>
<td>6.7</td>
<td>4</td>
<td>.92</td>
</tr>
<tr>
<td><em>Annual Growth</em></td>
<td>3.0</td>
<td>3.0</td>
<td>-4.0</td>
<td>9.0</td>
<td>1</td>
<td>N.A.</td>
</tr>
<tr>
<td><em>Commission Rate</em></td>
<td>2.4</td>
<td>1.0</td>
<td>0</td>
<td>5.2</td>
<td>1</td>
<td>N.A.</td>
</tr>
<tr>
<td><em>Salesperson’s Ability</em></td>
<td>4.8</td>
<td>1.2</td>
<td>2.0</td>
<td>6.8</td>
<td>6</td>
<td>.92</td>
</tr>
<tr>
<td><em>Salesperson’s Tenure</em></td>
<td>4.1</td>
<td>2.7</td>
<td>1</td>
<td>15</td>
<td>1</td>
<td>N.A.</td>
</tr>
<tr>
<td><em>Firm Reputation</em></td>
<td>4.3</td>
<td>1.3</td>
<td>1.5</td>
<td>7.0</td>
<td>4</td>
<td>.92</td>
</tr>
<tr>
<td><em>Customer Heterogeneity</em></td>
<td>3.7</td>
<td>1.4</td>
<td>1.0</td>
<td>6.7</td>
<td>3</td>
<td>.87</td>
</tr>
<tr>
<td><em>Monitoring Difficulty</em></td>
<td>3.7</td>
<td>1.2</td>
<td>1.0</td>
<td>6.3</td>
<td>4</td>
<td>.89</td>
</tr>
<tr>
<td><em>Rapid Technological Change</em></td>
<td>3.9</td>
<td>1.5</td>
<td>1.0</td>
<td>7.0</td>
<td>4</td>
<td>.94</td>
</tr>
<tr>
<td><em>Product Complexity</em></td>
<td>4.2</td>
<td>1.5</td>
<td>1.0</td>
<td>6.8</td>
<td>5</td>
<td>.95</td>
</tr>
<tr>
<td><em>Competition</em></td>
<td>9.0</td>
<td>4.8</td>
<td>2</td>
<td>40</td>
<td>1</td>
<td>N.A.</td>
</tr>
<tr>
<td><em>Firm Size</em></td>
<td>1.6</td>
<td>5.9</td>
<td>.1</td>
<td>83</td>
<td>1</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

# Summary statistics are in levels. In our econometric models, these variables are in natural log.
* In billions of dollars.
Number of observations = 261. Each firm represents one sales person in our data.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Price Delegation</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Task Delegation</td>
<td>.52*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Annual Growth</td>
<td>.11</td>
<td>.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Commission Rate</td>
<td>.39*</td>
<td>.14</td>
<td>.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Salesperson’s Ability</td>
<td>.16*</td>
<td>.09</td>
<td>.14</td>
<td>.27*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Salesperson’s Tenure</td>
<td>.15</td>
<td>.04</td>
<td>.13</td>
<td>.00</td>
<td>.04</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Firm Reputation</td>
<td>-.17*</td>
<td>-.12</td>
<td>.04</td>
<td>-.15</td>
<td>.27*</td>
<td>-.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Customer Heterogeneity</td>
<td>.18*</td>
<td>.09</td>
<td>-.22</td>
<td>.12</td>
<td>.16*</td>
<td>.10</td>
<td>-.05</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Monitoring Difficulty</td>
<td>.22*</td>
<td>.41*</td>
<td>.00</td>
<td>.07</td>
<td>.19*</td>
<td>-.02</td>
<td>-.31*</td>
<td>.17*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Rapid Technological Change</td>
<td>-.04</td>
<td>.33*</td>
<td>.17*</td>
<td>.05</td>
<td>.03</td>
<td>.24*</td>
<td>-.21*</td>
<td>-.09</td>
<td>.23*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Product Complexity</td>
<td>.02</td>
<td>.19*</td>
<td>-.04</td>
<td>-.02</td>
<td>.29*</td>
<td>.02</td>
<td>-.11</td>
<td>.05</td>
<td>.35*</td>
<td>.20*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Competition</td>
<td>.24*</td>
<td>.34*</td>
<td>.00</td>
<td>.15</td>
<td>-.27*</td>
<td>.07</td>
<td>-.23*</td>
<td>-.06</td>
<td>.02</td>
<td>-.08</td>
<td>-.03</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>13 Firm Size</td>
<td>.19*</td>
<td>.06</td>
<td>.07</td>
<td>.19*</td>
<td>.11</td>
<td>-.04</td>
<td>.02</td>
<td>-.13</td>
<td>-.02</td>
<td>.13</td>
<td>.14</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Significant at 1%
EMPIRICAL SPECIFICATION

Our objective here is twofold: (1) To test the complementarity relationship of price delegation and task delegation along with (2) Testing the boundary conditions that weaken the complementarity effect.

Complementarity between Price Delegation and Task Delegation

To test the complementarity between price delegation and task delegation, we follow Milgrom and Roberts (1990; 1995) who define a pair of activities as complements if doing more of one activity enhances the returns from doing more of the other activity. In our context, we would like to find evidence of whether having more discretion over customer-oriented tasks prior to sales closing will enhance the annual sales growth in a salesperson’s territory obtained through utilization of high pricing authority. Specifically, we test complementarity using the following regression:

\[ \text{AnnualGrowth}_i = \alpha_1 \text{PriceDelegation}_i + \alpha_2 \text{TaskDelegation}_i + \alpha_3 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i) + \alpha_4 X_i + \epsilon_i \]  

\[(1)\]

where \( i \) denotes the particular sales person of firm \( i \), and \( X_i \) is a vector of control variables for firm \( i \), including Commission Rate, Customer heterogeneity, Rapid Technological Change, Product Complexity, Log (Competition), Log (Firm size), and a constant term. We test the complementarity effect formally by interpreting the sign of the interaction term between the two types of delegation (Athey and Stern 1998; Brynjolfsson and Milgrom 2012). We transform the selected variables above to natural log to reduce the effect of outliers and hence ensure normally distributed residuals.

Determinants of Price Delegation and Task Delegation

Since firms choose how much pricing authority and task delegation accorded to their salespeople, we will first investigate the effect of task and firm characteristics that determine the level of both Price Delegation and Task Delegation. Afterward, we use the predicted values of price delegation and task delegation instead of their raw values in (1) to recover the effects of these delegations on annual growth in agent’s territory.

Our first-stage regressions are shown as follows:

\[ \text{Log}(\text{PriceDelegation}_i) = b_{11} \text{CustomerHeterogeneity}_i + b_{12} \text{Competition}_i + b_{13} \text{FirmSize}_i + b_{14} \text{CommissionRate}_i + b_{15} \text{MonitoringDifficulty}_i + b_{16} \text{FirmReputation}_i + Z_i b_{17} + u_{1i}, \]  

\[(2)\]

\[ \text{TaskDelegation}_i = b_{21} \text{CustomerHeterogeneity}_i + b_{22} \text{Competition}_i + b_{23} \text{FirmSize}_i + b_{24} \text{CommissionRate}_i + b_{25} \text{MonitoringDifficulty}_i + b_{26} \text{FirmReputation}_i + Z_i b_{27} + u_{2i}, \]  

\[(3)\]

where \( i \) denotes the sales person of firm \( i \), and \( Z_i \) is a vector of control variables, including Rapid Technological Change and Product Complexity. Since both Price Delegation and Task Delegation are types of delegation decisions that help resolve information asymmetry, we expect their errors to be correlated. Thus, we use seemingly unrelated regressions (SURs) to increase the efficiency of our regressions.

As discussed earlier, the literature on sales-force management has found several important task and firm characteristics based on which firms decide on their delegation decisions. In particular, firms tend to delegate more authorities when the agent has local information advantage (e.g., Lal 1986; Lo et al. 2014; Mishra and Prasad 2004). Agent’s local information advantage is often measured by customer heterogeneity or intensive competition that mandates fast response. Moreover, as shown in theory (e.g., Lo et al. 2014; Prendergast 2002) and empirical analysis (e.g., DeVaro and Kurtulus 2010; Foss and Laursen 2005; Lo et al 2014), incentive pay often positively correlates with the degree of delegations. Importantly, industrial sales executives indicated that sales commissions as a form of incentive pay are often made at the sales-
force level prior to allocation of decision rights at the individual level. Indeed, in industrial equipment sales, Lo et al. (2014) find commission rates affect the level of price delegation but not vice versa. As such, we also include Commission Rate as an explanatory variable. We control for, Firm Size (measured by revenue), Rapid Technological Change, and Product Complexity. Finally, we use Monitoring Difficulty and Firm Reputation as instrumental variables for, respectively, Price Delegation and Task Delegation. Monitoring Difficulty, as another measure of local information, affects the degree of price delegation, but does not have an effect on growth in annual sales volume. Firm Reputation may affect sales levels, but it does not correlate with Annual Growth. Indeed, our data show these two variables exhibit high correlations with delegation but not with annual sales growth (see Table 3).

**Moderation Analysis of Agent Characteristics on the Complementarity between Price Delegation and Task Delegation**

As hypothesized earlier, we expect Salesperson Ability and Salesperson Tenure to positively moderate the complementarity between Price Delegation and Task Delegation. We investigate their moderation effect formally by interpreting the sign of \( \alpha \) and \( \beta \), the coefficients of the three-way interaction terms (Hayes 2013) in the following models:

\[
\begin{align*}
\text{AnnualGrowth}_i & = \beta_1 \text{PriceDelegation}_i + \beta_2 \text{TaskDelegation}_i + \beta_3 \text{Salesperson'sAbility}_i + \\
& \beta_4 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i) + \beta_5 (\text{PriceDelegation}_i \times \text{Salesperson'sAbility}_i) + \beta_6 \\
& (\text{TaskDelegation}_i \times \text{Salesperson'sAbility}_i) + \beta_7 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i \times \\
& \text{Salesperson'sAbility}_i) + X_i \beta_8 + u_i
\end{align*}
\]

\[
\begin{align*}
\text{AnnualGrowth}_i & = \gamma_1 \text{PriceDelegation}_i + \gamma_2 \text{TaskDelegation}_i + \gamma_3 \text{Salesperson'sAbility}_i + \\
& \gamma_4 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i) + \gamma_5 (\text{PriceDelegation}_i \times \text{Salesperson'sTenure}_i) + \gamma_6 \\
& (\text{TaskDelegation}_i \times \text{Salesperson'sTenure}_i) + \gamma_7 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i \times \\
& \text{Salesperson'sTenure}_i) + X_i \gamma_8 + e_i
\end{align*}
\]

where \( i \) denotes the sales person, and \( X_i \) is a vector that includes Commission Rate, control variables (Customer heterogeneity, Rapid Technological Change, Product Complexity, Log (Competition), Log (Firm size)), and the constant term. Recall that we use predicted values of Price Delegation and Task Delegation from (2) and (3) in (4) and (5) to eliminate potential endogeneity of these two variables.

A complete model where both moderators are tested at the same time was also examined as given below in eq (6). The results of the same can be found in Table 4 and 5 of Web Appendix.

\[
\begin{align*}
\text{AnnualGrowth}_i & = \delta_1 \text{PriceDelegation}_i + \delta_2 \text{TaskDelegation}_i + \delta_3 \text{Salesperson'sTenure}_i + \\
& \alpha \text{Salesperson'sAbility}_i + \delta_4 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i) + \delta_5 (\text{PriceDelegation}_i \times \\
& \text{Salesperson'sTenure}_i) + \delta_6 (\text{TaskDelegation}_i \times \text{Salesperson'sTenure}_i) + \delta_7 (\text{PriceDelegation}_i \times \\
& \text{TaskDelegation}_i \times \text{Salesperson'sTenure}_i) + \delta_8 (\text{TaskDelegation}_i \times \text{Salesperson'sAbility}_i) + \delta_9 (\text{PriceDelegation}_i \times \\
& \text{TaskDelegation}_i \times \text{Salesperson'sAbility}_i) + \delta_10 (\text{PriceDelegation}_i \times \text{TaskDelegation}_i \times \\
& \text{Salesperson'sAbility}_i) + X_i \delta_11 + e_i
\end{align*}
\]

**RESULTS**

**Firms with varying levels of Price Delegation and Task Delegation**

While academics and practitioners may acknowledge the usefulness of the sales funnel model to understand delegation decisions, it is unclear how much firms treat price delegation and task delegation as distinct decisions. Before we began our econometric analysis, we first verified whether firms in our dataset delegate varying levels of the two types of delegations. Table 4a and 4b show cross tabulations of high/low levels of Price Delegation versus high/low levels of Task Delegation, with data split at the median and the mean respectively. We observe that at least 21% of the firms opt for high (or low) Price Delegation along with low (or high) Task Delegation. As one would predict, most cases in the two tables show that the levels of price and task delegations go hand in hand; that is, high (low, respectively) Price Delegation correlates
with high (low) Task Delegation. Nevertheless, a significant portion – about 20% – of our sample show “mis-aligned” levels of price delegation and task delegation: high (low) Price Delegation correlates low (high) Task Delegation. This implies that firms can make their delegation decisions in some nuanced manner that is worthwhile of more rigorous investigations.

Table 1a: Median Split of Task Delegation and Price Delegation

Median of Price Delegation = 15
Median of Task Delegation = 4

<table>
<thead>
<tr>
<th># of FIRMS</th>
<th>Low Task Delegation</th>
<th>High Task Delegation</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Price Delegation</td>
<td>104</td>
<td>26</td>
<td>130</td>
</tr>
<tr>
<td>High Price Delegation</td>
<td>28</td>
<td>103</td>
<td>131</td>
</tr>
<tr>
<td>TOTAL</td>
<td>132</td>
<td>129</td>
<td>261</td>
</tr>
</tbody>
</table>

Table 4b: Mean Split of Task Delegation and Price Delegation

Mean of Price Delegation = 14
Mean of Task Delegation = 4.1

<table>
<thead>
<tr>
<th># of FIRMS</th>
<th>Low Task Delegation</th>
<th>High Task Delegation</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Price Delegation</td>
<td>110</td>
<td>20</td>
<td>130</td>
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<tr>
<td>High Price Delegation</td>
<td>31</td>
<td>100</td>
<td>131</td>
</tr>
<tr>
<td>TOTAL</td>
<td>141</td>
<td>120</td>
<td>261</td>
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</table>
Stage 1 SUR Regression of Price Delegation and Task Delegation

The results on the determinants of Price Delegation and Task Delegation (equation 2) are shown in Table 5. We first examine the effect of various firm and task characteristics in column 1. We then add our measure of incentive pay, Commission Rate, in the second column. We use SURs, with the pairs of regressions on Log (Price Delegation) and Task Delegation being columns 1 and 3 and columns 2 and 4.
Table 2: Determinants of Price Delegation and Task Delegation;
(SUR regressions – Stage 1)

<table>
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<tr>
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<th>Log (Price Delegation)</th>
<th>Task Delegation</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>(2)</td>
</tr>
<tr>
<td>ASYMMETRIC INFORMATION</td>
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<td></td>
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<tr>
<td>Monitoring Difficulty*</td>
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<td>.09***</td>
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<tr>
<td></td>
<td>(.03)</td>
<td>(.02)</td>
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<tr>
<td>Customer Heterogeneity</td>
<td>.05**</td>
<td>.04*</td>
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<tr>
<td></td>
<td>(.02)</td>
<td>(.02)</td>
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<td>Firm Reputation*</td>
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<td>-.01</td>
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<tr>
<td></td>
<td>(.02)</td>
<td>(.02)</td>
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<tr>
<td>Log (Firm Size)</td>
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<td>.06**</td>
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<tr>
<td></td>
<td>(.03)</td>
<td>(.02)</td>
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<td>Commission Rate</td>
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<td></td>
<td>(.03)</td>
<td></td>
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<td>CONTROL VARIABLES</td>
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<td>Rapid Technological Change</td>
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<td>-.03</td>
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<tr>
<td></td>
<td>(.02)</td>
<td>(.02)</td>
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<tr>
<td>Log (Competition)</td>
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<td>.14***</td>
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<td>(.05)</td>
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<td>-.02</td>
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<td>(.02)</td>
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<td>Constant</td>
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<td>.46</td>
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<td>(.56)</td>
<td>(.53)</td>
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<td>Degrees of Freedom</td>
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<td>R-square</td>
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<td>.26</td>
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<tr>
<td>Chi-square</td>
<td>54.05***</td>
<td>90.87***</td>
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</tbody>
</table>

* significant at 10%; ** significant at 5%; *** significant at 1%.
Robust standard errors of coefficient estimates in parentheses.
* indicates instruments used

As per our discussions, firms are more likely to delegate authorities to salespeople when the latter has information advantage on local markets and customers. Results from Table 5 support this hypothesis. Firms empower their agents to tailor their selling approach when customers are heterogeneous in their needs. Similarly, when an agent’s activities are difficult to monitor, one would expect firms to delegate
more. This is also what we find. Furthermore, competitive intensity also positively influences the decision to delegate. This may be due to the fact that, with increase in competition, salespeople need to respond more expedite with customized solutions and prices. It is worthwhile to note that the sign and significance levels of the effect of these three variables measuring asymmetric information are qualitatively similar.

On other independent variables, we find that more reputable firms and those who operate in environment of rapid technological change are correlated with more Task Delegation but have no correlation with the pricing authority accorded to their salespeople. Reputable firms may be less willing to offer price discretions so as to safeguard their premium positioning. The lack of effect of Rapid Technological Change on Price Delegation can be explained by the common phenomenon of rapid innovation in technology requiring a price skimming strategy, thereby avoiding discounts. However, the need to collect local and customer information is very important under high level of either condition. Product complexity, nonetheless, has little effect on both price and task delegations. Finally, we note that Commission Rate positively related to the extent of Price Delegation granted to the salesperson whereas it is not significant for delegation decisions pertaining to tasks related to information collection. It may be explained by the fact that salespeople would be more cautious about discounting the price under high sales commission rate since that hurts their income at the margin (Prendergast 2002). Accordingly, more authority on tasks also increases in commission rate, but the effect is not statistically significant.

**Complementarity between Price Delegation and Task Delegation**

Table 6 shows the regression equations wherein we compare different models to test complementarity effect of Price Delegation and Task Delegation on salesperson’s sales growth in his territory. Recall that, we use the predicted value of the two variables in equation (1) from Table 5’s SURs. Column 1 only looks at the main effects of Price Delegation and Task Delegation, with the full set of control variables included. Column 2 includes only Price Delegation and Task Delegation, with their interaction term. We then add more control variables in Columns 3 and 4.

<table>
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<th>(4)</th>
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<td></td>
<td></td>
</tr>
<tr>
<td>Price Delegation‡</td>
<td>-3.36</td>
<td>-12.85***</td>
<td>-9.48**</td>
<td>-13.84***</td>
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<tr>
<td>(3.26)</td>
<td>(4.42)</td>
<td>(4.27)</td>
<td>(4.91)</td>
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</tr>
<tr>
<td>Task Delegation‡</td>
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<td>-7.91***</td>
<td>-7.84***</td>
<td>-6.69**</td>
</tr>
<tr>
<td>(.68)</td>
<td>(2.76)</td>
<td>(2.69)</td>
<td>(2.84)</td>
<td></td>
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<tr>
<td>Price Delegation‡ × Task Delegation‡</td>
<td>3.19***</td>
<td>2.99***</td>
<td>2.86***</td>
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<tr>
<td>(1.07)</td>
<td>(1.02)</td>
<td>(1.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIRM &amp; TASK CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Heterogeneity</td>
<td>-.45***</td>
<td>-.54***</td>
<td>-.42***</td>
<td></td>
</tr>
<tr>
<td>(.16)</td>
<td>(.14)</td>
<td>(.16)</td>
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<tr>
<td><strong>Rapid Technological Change</strong></td>
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<td>.43**</td>
<td>.1</td>
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<td></td>
<td>(.29)</td>
<td>(.2)</td>
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<td><strong>Log (Competition)</strong></td>
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<td>-.42</td>
<td>-.45</td>
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<td></td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
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</tr>
<tr>
<td><strong>Product Complexity</strong></td>
<td>-.22</td>
<td>-.1</td>
<td>-.17</td>
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<td></td>
<td>(.14)</td>
<td>(.13)</td>
<td>(.14)</td>
<td></td>
</tr>
<tr>
<td><strong>Log (Firm Size)</strong></td>
<td>.34*</td>
<td>.06</td>
<td>.26</td>
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</tr>
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<td></td>
<td>(.2)</td>
<td>(.16)</td>
<td>(.19)</td>
<td></td>
</tr>
<tr>
<td><strong>Commission Rate</strong></td>
<td>.95*</td>
<td>.83*</td>
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<tr>
<td></td>
<td>(.51)</td>
<td>(.49)</td>
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<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>2.33</td>
<td>34.56***</td>
<td>28.22**</td>
<td>31.10***</td>
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<tr>
<td></td>
<td>(4.47)</td>
<td>(11.09)</td>
<td>(10.94)</td>
<td>(11.16)</td>
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</table>

<table>
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<td>9</td>
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<tr>
<td><em>R-square</em></td>
<td>.11</td>
<td>.05</td>
<td>.13</td>
<td>.14</td>
</tr>
<tr>
<td>Adj. R-square</td>
<td>.08</td>
<td>.04</td>
<td>.11</td>
<td>.11</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>4.97***</td>
<td>3.29**</td>
<td>5.21***</td>
<td>5.29***</td>
</tr>
</tbody>
</table>

‡predicted from SUR model #2 from Table 5
* significant at 10%;   ** significant at 5%;   *** significant at 1%.
Robust standard errors of coefficient estimates in parentheses.

First and foremost, we consistently find strong support for our complementarity hypothesis across all the models with a significant and positive interaction term with and without controlling for firm/task characteristics and commission rate. It is interesting to note that the main, “independent” effects of neither Price Delegation nor Task Delegation is significant (as seen column 1) but the “joint” effect of Price and Task Delegation is highly significant in improving salesperson’s productivity (columns 2, 3, and 4 of Table 6). We further calculate the marginal effect of Price Delegation, taken at the mean of Task Delegation as: 4.1. Similarly, marginal effect of Task Delegation is also calculated at mean of Price Delegation from eq (1) as follows.

\[
\alpha_{pd} = \alpha_1 + \alpha_3 \times \text{Mean(TaskDelegation)} \quad (7a)
\]

\[
\alpha_{td} = \alpha_2 + \alpha_3 \times \text{Mean(PriceDelegation)} \quad (7b)
\]

The marginal effects of at the means of Price Delegation and Task Delegation are very similar to those in the first column of Table 6 and are not significant. Marginal effect of Price Delegation appears significant (\(\alpha_{pd}=2.80 \ & \ p=.03\)) only after controlling for firm and task characteristics excluding...
commission in Model#3. The details are presented in Table 1 of Web Appendix for interested readers. Our hypothesis 1 is strongly supported.

These results show that when the “isolated” effect of price or task delegation has virtually no effect on salesperson’s productivity, the two types of empowerment by firms nonetheless enhances each other to generate sales growth. Our result directly implies the importance of their complementary, joint role in sales-force management.

**Moderating Effect of Salesperson Characteristics on the Complementarity Effect**

Next, we investigate how salesperson’s characteristics, in particular, Ability and Tenure, change the complementary effect between Price Delegation and Task Delegation. We first informally examined the complementarity effect by comparing two subsamples split at the median of Salesperson’s Ability=4 in Table 7. Preliminary examination supports our hypothesis that the complementarity effect of Price Delegation and Task Delegation is more pronounced in salespeople with higher ability.

We also formally test our hypothesis 2 by running Equation (4) and interpreting the coefficient of the three-way interaction among Price Delegation Task Delegation, and Salesperson’s Ability in Table 8. We again find consistent and robust support for the hypothesis, across columns 2, 3, and 4. Marginal effects of Price Delegation, Task Delegation and Salesperson’s Ability are calculated at the means of Price Delegation (2.54), Task Delegation (4.11) and Salesperson’s Ability (4.75) from eq (4) as given below:

\[
\beta_{pd} = \beta_1 + \beta_4 \times \text{Mean}(\text{TaskDelegation}) + \beta_5 \times \text{Mean}(\text{Salesperson’s Ability}) + \beta_7 \times \text{Mean}(\text{Salesperson’s Ability}) \times \text{Mean}(\text{TaskDelegation}) \\
\beta_{td} = \beta_2 + \beta_4 \times \text{Mean}(\text{PriceDelegation}) + \beta_6 \times \text{Mean}(\text{Salesperson’s Ability}) + \beta_7 \times \text{Mean}(\text{Salesperson’s Ability}) \times \text{Mean}(\text{PriceDelegation}) \\
\beta_{ab} = \beta_3 + \beta_5 \times \text{Mean}(\text{PriceDelegation}) + \beta_6 \times \text{Mean}(\text{TaskDelegation}) + \beta_7 \times \text{Mean}(\text{PriceDelegation}) \times \text{Mean}(\text{TaskDelegation})
\]

Across all models, the marginal effects of Price Delegation, Task Delegation and Salesperson’s Ability turn out to be insignificant (Please refer Table 2 of Web Appendix for detailed results). Hypothesis 2 is strongly supported.
Table 4: Comparison of the complementarity effect in LOW Salesperson’s Ability and HIGH Salesperson’s Ability SUBSAMPLES
(Dependent Variable – Annual Growth)

<table>
<thead>
<tr>
<th>Model #</th>
<th>LOW Salesperson’s Ability</th>
<th>HIGH Salesperson’s Ability</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td><strong>MAIN VARIABLES</strong></td>
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</tr>
<tr>
<td>Price Delegation‡</td>
<td>9.74</td>
<td>-14.06**</td>
</tr>
<tr>
<td>(8.67)</td>
<td>(6.7)</td>
<td></td>
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<tr>
<td>Task Delegation‡</td>
<td>2.02</td>
<td>-4.87</td>
</tr>
<tr>
<td>(5.23)</td>
<td>(3.58)</td>
<td></td>
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<tr>
<td>Price Delegation‡ × Task Delegation‡</td>
<td>-1.25</td>
<td>2.54**</td>
</tr>
<tr>
<td>(1.94)</td>
<td>(1.27)</td>
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<tr>
<td><strong>FIRM &amp; TASK CHARACTERISTICS</strong></td>
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<td></td>
</tr>
<tr>
<td>Customer Heterogeneity</td>
<td>-.36*</td>
<td>-.85***</td>
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<tr>
<td>(.22)</td>
<td>(.25)</td>
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</tr>
<tr>
<td>Rapid Technological Change</td>
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<td>(.45)</td>
<td>(.43)</td>
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<tr>
<td>Log (Competition)</td>
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<td>(.82)</td>
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<td>Firm Complexity</td>
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<td>(.18)</td>
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<td>Log (Firm Size)</td>
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<td>.46</td>
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<td>R-square</td>
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<td>Adj. R-square</td>
<td>.07</td>
<td>.19</td>
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<tr>
<td>F</td>
<td>2.63***</td>
<td>4.54***</td>
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</table>

‡predicted from SUR model #2 from Table 5
* significant at 10%; ** significant at 5%; *** significant at 1%.
Robust standard errors of coefficient estimates in parentheses.
Table 5: Moderating Effect of Salesperson’s Ability
(Independent Variable – Annual Growth)

<table>
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<td>-16.12**</td>
<td>65.45**</td>
<td>50.25*</td>
<td>50.91*</td>
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<td>(6.26)</td>
<td>(27.63)</td>
<td>(29.6)</td>
<td>(29.83)</td>
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</tr>
<tr>
<td>Task Delegation‡</td>
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<td>48.47***</td>
<td>36.36*</td>
<td>37.55*</td>
</tr>
<tr>
<td>(2.85)</td>
<td>(17.79)</td>
<td>(19.06)</td>
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<td><strong>MODERATOR – AGENT CHAR</strong></td>
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<tr>
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<td>27.36**</td>
<td>28.33**</td>
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<tr>
<td>(1.82)</td>
<td>(12.69)</td>
<td>(13.48)</td>
<td>(13.79)</td>
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</tr>
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<td>Price Delegation‡ × Task Delegation‡</td>
<td>2.62**</td>
<td>-18.99***</td>
<td>-14.25*</td>
<td>-14.65*</td>
</tr>
<tr>
<td>(1.05)</td>
<td>(6.97)</td>
<td>(7.46)</td>
<td>(7.59)</td>
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<td>-13.86***</td>
<td>-10.61**</td>
<td>-11.07**</td>
</tr>
<tr>
<td>(0.86)</td>
<td>(5.03)</td>
<td>(5.38)</td>
<td>(5.53)</td>
<td></td>
</tr>
<tr>
<td>Task Delegation‡ × Salesperson’s Ability</td>
<td>-.02</td>
<td>-10.12***</td>
<td>-7.92**</td>
<td>-8.05**</td>
</tr>
<tr>
<td>(.25)</td>
<td>(3.24)</td>
<td>(3.47)</td>
<td>(3.52)</td>
<td></td>
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<tr>
<td>Price Delegation‡ × Task Delegation‡ × Salesperson’s Ability</td>
<td>3.97***</td>
<td>3.08**</td>
<td>3.15**</td>
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<tr>
<td>(1.27)</td>
<td>(1.36)</td>
<td>(1.38)</td>
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<tr>
<td><strong>FIRM &amp; TASK CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Heterogeneity</td>
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<td>-.45***</td>
<td>-.40**</td>
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<tr>
<td>(.16)</td>
<td>(.14)</td>
<td>(.16)</td>
<td></td>
<td></td>
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<tr>
<td>Rapid Technological Change</td>
<td>.33</td>
<td>.39*</td>
<td>.25</td>
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</tr>
<tr>
<td>(.33)</td>
<td>(.22)</td>
<td>(.34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log (Competition)</td>
<td>-.12</td>
<td>-.34</td>
<td>-.42</td>
<td></td>
</tr>
<tr>
<td>(.62)</td>
<td>(.62)</td>
<td>(.65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Complexity</td>
<td>-.17</td>
<td>-.15</td>
<td>-.18</td>
<td></td>
</tr>
<tr>
<td>(.14)</td>
<td>(.13)</td>
<td>(.14)</td>
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<td></td>
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<td>Log (Firm Size)</td>
<td>.06</td>
<td>-.03</td>
<td>.06</td>
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<tr>
<td>(.21)</td>
<td>(.16)</td>
<td>(.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commission Rate</td>
<td>.23</td>
<td></td>
<td>.34</td>
<td></td>
</tr>
<tr>
<td>(.57)</td>
<td></td>
<td>(.57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>41.52***</td>
<td>-164.21**</td>
<td>-123.82*</td>
<td>-127.90*</td>
</tr>
<tr>
<td>(13.82)</td>
<td>(69.56)</td>
<td>(73.62)</td>
<td>(74.71)</td>
<td></td>
</tr>
</tbody>
</table>
We now informally examine the complementarity effect by comparing two subsamples split at the median of Salesperson’s Tenure (ME=5) in Table 9. Again, this preliminary examination supports the fact that salespeople having more experience with the firm’s products, services, and markets are able to generate more sales growth on joint implementation of Price Delegation and Task Delegation. Our formal analysis of Equation (5) by interpreting the coefficient of the corresponding three-way interaction in Table 10, we again find consistent support for Hypothesis 3 across all models at the 90% confidence level. Marginal effects of Price Delegation, Task Delegation and Salesperson’s Ability are calculated at the means of Price Delegation (2.54), Task Delegation (4.11) and Log(Salesperson’s Tenure) (1.21) from eq (5) as given below:

\[
\gamma_{pd} = \gamma_1 + \gamma_4 \times \text{Mean(TaskDelegation)} + \gamma_5 \times \text{Mean(Salesperson’sTenure)} + \gamma_7 \times \text{Mean(TaskDelegation)} \\
\gamma_{td} = \gamma_2 + \gamma_4 \times \text{Mean(PriceDelegation)} + \gamma_6 \times \text{Mean(Salesperson’sTenure)} + \gamma_7 \times \text{Mean(PriceDelegation)} \\
\gamma_{ten} = \gamma_3 + \gamma_5 \times \text{Mean(PriceDelegation)} + \gamma_6 \times \text{Mean(TaskDelegation)} + \gamma_7 \times \text{Mean(TaskDelegation)}
\]

Across all models, the marginal effects of Price Delegation, Task Delegation and Salesperson’s Tenure turn out to be insignificant (Please refer Table 3 of Web Appendix for detailed results). Hypothesis 3 is strongly supported.

Table 6: Comparison of the complementarity effect in LOW Salesperson’s Tenure and HIGH Salesperson’s Tenure SUBSAMPLES

<table>
<thead>
<tr>
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<th>LOW Salesperson’s Tenure</th>
<th>HIGH Salesperson’s Tenure</th>
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<tr>
<td>MAIN VARIABLES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Delegation‡</td>
<td>-9.85 (7.57)</td>
<td>-17.45** (6.81)</td>
</tr>
<tr>
<td>Task Delegation‡</td>
<td>.37 (4.81)</td>
<td>-8.92** (4.14)</td>
</tr>
<tr>
<td>Price Delegation‡ × Task Delegation‡</td>
<td>.34 (1.77)</td>
<td>3.77*** (1.41)</td>
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</tbody>
</table>
### FIRM & TASK CHARACTERISTICS

<table>
<thead>
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Heterogeneity</strong></td>
<td>-.21</td>
<td>-.36</td>
<td>(-.24)</td>
<td>(.29)</td>
</tr>
<tr>
<td><strong>Rapid Technological Change</strong></td>
<td>-.23</td>
<td>.19</td>
<td>(.39)</td>
<td>(.49)</td>
</tr>
<tr>
<td><strong>Log (Competition)</strong></td>
<td>-.07</td>
<td>-.28</td>
<td>(.65)</td>
<td>(.98)</td>
</tr>
<tr>
<td><strong>Firm Complexity</strong></td>
<td>.08</td>
<td>-.55**</td>
<td>(.19)</td>
<td>(.29)</td>
</tr>
<tr>
<td><strong>Log (Firm Size)</strong></td>
<td>.17</td>
<td>.48</td>
<td>(.3)</td>
<td>(.29)</td>
</tr>
<tr>
<td><strong>Commission Rate</strong></td>
<td>1.65*</td>
<td>.98</td>
<td>(.86)</td>
<td>(.69)</td>
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<tr>
<td><strong>Constant</strong></td>
<td>16.69</td>
<td>35.74**</td>
<td>(17.3)</td>
<td>(15.92)</td>
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<td>N</td>
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<td>131</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Degrees of Freedom</td>
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<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td><strong>R-square</strong></td>
<td>.14</td>
<td>.23</td>
<td>.14</td>
<td>.23</td>
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<tr>
<td><strong>Adj. R-square</strong></td>
<td>.08</td>
<td>.17</td>
<td>.08</td>
<td>.17</td>
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<tr>
<td>F</td>
<td>2.53**</td>
<td>4.39***</td>
<td>2.53**</td>
<td>4.39***</td>
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</tbody>
</table>

* predicted from SUR model #2 from Table 5
* significant at 10%; ** significant at 5%; *** significant at 1%
Robust standard errors of coefficient estimates in parentheses.

### Table 7: Moderating Effect of SALESPERSON’S TENURE
(Dependent Variable – Annual Growth)

<table>
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<th>(4)</th>
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<td><strong>MAIN VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Price Delegation‡</strong></td>
<td>-15.92***</td>
<td>3.58</td>
<td>4.34</td>
<td>-.23</td>
</tr>
<tr>
<td></td>
<td>(5.09)</td>
<td>(10.6)</td>
<td>(10.18)</td>
<td>(10.56)</td>
</tr>
<tr>
<td><strong>Task Delegation‡</strong></td>
<td>-6.05*</td>
<td>6.74</td>
<td>4.88</td>
<td>5.96</td>
</tr>
<tr>
<td></td>
<td>(3.16)</td>
<td>(7.58)</td>
<td>(7.36)</td>
<td>(7.56)</td>
</tr>
<tr>
<td><strong>MODERATOR – AGENT CHAR</strong></td>
<td>-6.94*</td>
<td>30.94</td>
<td>27.06</td>
<td>26.29</td>
</tr>
<tr>
<td>Log (Salesperson’s Tenure)</td>
<td>(4.19)</td>
<td>(20.37)</td>
<td>(19.73)</td>
<td>(20.18)</td>
</tr>
<tr>
<td><strong>Price Delegation‡ × Task Delegation‡</strong></td>
<td>2.49**</td>
<td>-2.38</td>
<td>-1.89</td>
<td>-1.99</td>
</tr>
<tr>
<td></td>
<td>(1.1)</td>
<td>(2.84)</td>
<td>(2.76)</td>
<td>(2.81)</td>
</tr>
</tbody>
</table>
\[
\begin{array}{cccc}
\text{Price Delegation} \times \log (\text{Salesperson's Tenure}) & 2.48 & -11.48 & -10.3 & -9.96 \\
& (1.79) & (7.8) & (7.56) & (7.75) \\
\text{Task Delegation} \times \log (\text{Salesperson's Tenure}) & 0.26 & -10.37* & -9.01* & -8.93* \\
& (0.41) & (5.35) & (5.23) & (5.33) \\
\text{Price Delegation} \times \text{Task Delegation} \times \log (\text{Salesperson's Tenure}) & 3.93* & 3.49* & 3.44* & \\
& (2.02) & (1.98) & (2.02) & \\
\end{array}
\]

FIRM & TASK CHARACTERISTICS

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<td>(0.17)</td>
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Customer Heterogeneity

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<th>0.08</th>
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<td>(0.21)</td>
<td>(0.29)</td>
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Rapid Technological Change

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<th>-0.24</th>
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<td>(0.53)</td>
<td>(0.52)</td>
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Log (Competition)

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<th>-0.18</th>
<th>-0.24*</th>
</tr>
</thead>
<tbody>
<tr>
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<td>(0.14)</td>
<td>(0.13)</td>
<td>(0.13)</td>
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Product Complexity

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<th>0.32</th>
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<td>(0.2)</td>
<td>(0.16)</td>
<td>(0.2)</td>
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</tbody>
</table>

Log (Firm Size)

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<th>0.82</th>
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<td></td>
<td>(0.5)</td>
<td>(0.5)</td>
</tr>
</tbody>
</table>

Commission Rate

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<th>-9.47</th>
<th>-9.84</th>
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<tbody>
<tr>
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<td>(11.83)</td>
<td>(28.01)</td>
<td>(27.17)</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>4.48***</th>
<th>3.35***</th>
<th>4.47***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees of Freedom</td>
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<td>12</td>
<td>13</td>
</tr>
<tr>
<td>R-square</td>
<td>0.16</td>
<td>0.08</td>
<td>0.16</td>
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<tr>
<td>Adj. R-square</td>
<td>0.12</td>
<td>0.06</td>
<td>0.12</td>
</tr>
<tr>
<td>F</td>
<td>4.46***</td>
<td>4.46***</td>
<td>4.46***</td>
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</tbody>
</table>

\(\dagger\): predicted from SUR model #2 from Table 5

* significant at 10%; ** significant at 5%; *** significant at 1%.

Robust standard errors of coefficient estimates in parentheses.

**Method Validation**

Since data collected through surveys are prone to Common Method Variance (CMV), we conducted a validation check recommended by Lindell and Whitney (2001) and Podsakoff et al (2003). We picked a conservative marker variable, Monitoring Difficulty, which does not have a theoretical relationship with our dependent variable, Annual Growth \((r_s = -.0007\) as per Table 3). Using this \(r_s\), we adjusted the
estimated correlations between the dependent variable, *Annual Growth* in Unit Sales, and all other independent variables for CMV as recommended by Lindell and Whitney (2001). The complementarity results as well as the moderation results were found to be robust to this validation check.

**CONCLUSION**

Despite considerable interest in allocation of decision rights, marketing literature has mainly collected evidence on pricing delegation wherein the salesperson modifies and negotiates the final sale price within an allocated range. Our paper address the need to delve deeper and study delegation of other decisions in the sales funnel by not restricting delegation to only pricing delegation. We study delegation of these other tasks in a sales funnel under the term *Task Delegation*, in conjunction with *Price Delegation*.

Using a unique data set at the level of individual sales person’s compensation and delegation in the context of industrial equipment sales, we investigate effects of both price and task delegations on salesperson’s productivity in terms of annual growth. We find that, as predicted by theory, both types of delegations are determined by the extent of asymmetric information, in terms of customer heterogeneity and technological pace. We also find that the intensity of sales commissions primarily influences the decision to delegate pricing authority.

We then investigate whether the price and tasks delegations are complementary in improving salesperson’s productivity. Our data strongly supports the view that price and task delegations are complements in boosting sales growth. We also find that agent characteristics such as salesperson’s ability and tenure moderate the complementarity relationship of price and task delegations. The complementarity effect is more pronounced in more able and high tenured salespeople.

**MANAGERIAL IMPLICATIONS**

The findings from this paper would help sales managers make efficient delegation decisions by understanding the significance of implementing task delegation along with price delegation to a particular type of salesperson. We have observed that *Price Delegation* and *Task Delegation* complement each other in enhancing sales growth. Hence managers should consider both aspects of delegation to effectively grow sales.

Moreover, we have found that the value of complementarity is further reinforced by more able and experienced salespeople. Managers need to offer delegation cautiously and discriminatorily by jointly assigning high task and price authorities to the more able and experienced sales people.
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Rantakari, Heikki (2008), "Uncertainty, delegation and incentives." Unpublished manuscript, USC.


WEB APPENDIX

Web Table 1: Marginal Effects of the Complementarity Effect

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<tbody>
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<td>.27</td>
<td>2.80**</td>
<td>-2.08</td>
</tr>
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<td></td>
<td>(1.05)</td>
<td>(1.26)</td>
<td>(3.16)</td>
</tr>
<tr>
<td>Task Delegation</td>
<td>.18</td>
<td>-.27</td>
<td>.55</td>
</tr>
<tr>
<td></td>
<td>(.29)</td>
<td>(.51)</td>
<td>(.69)</td>
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</table>

* significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors of coefficient estimates in parentheses.

Web Table 2: Marginal Effects of Moderator Salesperson’s Ability

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</thead>
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<td>-.88</td>
<td>1.52</td>
<td>-.36</td>
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<td></td>
<td>(3.33)</td>
<td>(1.01)</td>
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<td>(3.30)</td>
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<tr>
<td>Task Delegation</td>
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<td>.12</td>
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<td></td>
<td>(.77)</td>
<td>(.28)</td>
<td>(.51)</td>
<td>(.76)</td>
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<tr>
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<td>.06</td>
<td>.01</td>
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<td></td>
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<td>(.24)</td>
<td>(.27)</td>
</tr>
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<td>-.10</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.23)</td>
<td>(.24)</td>
<td>(.25)</td>
<td></td>
</tr>
<tr>
<td>Salesperson’s Ability × Price Delegation</td>
<td>2.48***</td>
<td>2.08***</td>
<td>1.89**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.86)</td>
<td>(.84)</td>
<td>(.86)</td>
<td></td>
</tr>
<tr>
<td>Price Delegation × Task Delegation</td>
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<td>.41</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.35)</td>
<td>(1.37)</td>
<td>(1.39)</td>
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* significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors of coefficient estimates in parentheses.
### Web Table 3: Marginal Effects of Moderator Salesperson’s Tenure

<table>
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<td>1.46</td>
<td>-3.33</td>
</tr>
<tr>
<td>Task Delegation</td>
<td>.58</td>
<td>.22</td>
<td>-.11</td>
<td>.67</td>
</tr>
<tr>
<td>Log (Salesperson’s Tenure)</td>
<td>.41</td>
<td>.20</td>
<td>.23</td>
<td>.21</td>
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<td>Log (Salesperson’s Tenure) × Task Delegation</td>
<td>-.40</td>
<td>-.17</td>
<td>-.20</td>
<td></td>
</tr>
<tr>
<td>Log (Salesperson’s Tenure) × Price Delegation</td>
<td>4.70***</td>
<td>4.03**</td>
<td>4.19**</td>
<td></td>
</tr>
<tr>
<td>Price Delegation × Task Delegation</td>
<td>2.39**</td>
<td>2.34**</td>
<td>2.19**</td>
<td></td>
</tr>
</tbody>
</table>

* significant at 10%;   ** significant at 5%;   *** significant at 1%.
Robust standard errors of coefficient estimates in parentheses.

### Web Table 4: All Moderating Effects in Same Model

(Independent Variable – Annual Growth)

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<td>-19.58***</td>
<td>52.85*</td>
<td>54.02*</td>
</tr>
<tr>
<td>Task Delegation</td>
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<td>-4.16</td>
<td>42.58**</td>
<td>43.75**</td>
</tr>
<tr>
<td>Price delegation × Task Delegation</td>
<td>1.98*</td>
<td>1.98*</td>
<td>-16.41**</td>
<td>-16.84**</td>
</tr>
<tr>
<td>Salesperson’s Ability × Price delegation × Task Delegation</td>
<td>2.67**</td>
<td>2.74**</td>
<td>(1.35)</td>
<td>(1.38)</td>
</tr>
<tr>
<td>Salesperson’s Tenure × Price delegation × Task Delegation</td>
<td>3.04</td>
<td>3.09</td>
<td>(2.03)</td>
<td>(2.04)</td>
</tr>
<tr>
<td>Salesperson’s Ability × Price Delegation</td>
<td>1.57*</td>
<td>1.57*</td>
<td>-9.02*</td>
<td>-9.45*</td>
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<tr>
<td>Salesperson’s Ability × Task Delegation</td>
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<td>-.25</td>
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<td>-7.09**</td>
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<td>Log (Salesperson’s Tenure) × Price Delegation</td>
<td>3.89**</td>
<td>3.86*</td>
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<td>-8.11</td>
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131
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<tr>
<td>Customer Heterogeneity</td>
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<td>-0.40***</td>
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<td></td>
<td>(.14)</td>
<td>(.17)</td>
<td>(.15)</td>
<td>(.17)</td>
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<tr>
<td>Rapid Technological Change</td>
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<td>0.44*</td>
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<td>Product Complexity</td>
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<td>-0.24*</td>
<td>-0.25*</td>
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<tr>
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<td>(.13)</td>
<td>(.14)</td>
</tr>
<tr>
<td>Log (Firm Size)</td>
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<td>0.06</td>
<td>0.12</td>
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<td>(.16)</td>
<td>(.21)</td>
<td>(.16)</td>
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<tr>
<td>Salesperson’s Ability</td>
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<td>(.58)</td>
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</tr>
<tr>
<td>Constant</td>
<td>44.61***</td>
<td>44.53***</td>
<td>-136.62*</td>
<td>-141.12*</td>
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<tr>
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<td>(14.08)</td>
<td>(14.11)</td>
<td>(75.77)</td>
<td>(77.08)</td>
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</table>

N = 261
Degrees of Freedom = 14
R-square = .19
Adj. R-square = .14
F = 4.32

*predicted from SUR model #2 from Table 5
* significant at 10%; ** significant at 5%; *** significant at 1%
Robust standard errors of coefficient estimates in parentheses.
Web Table 5 – Marginal Effects of All Moderating Effects in Same Model

<table>
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<td>(3.382)</td>
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<td>-.24</td>
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<td>(.52)</td>
<td>(.79)</td>
<td>(.53)</td>
<td>(.81)</td>
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<tr>
<td>Salesperson’s Ability</td>
<td>.45**</td>
<td>.44**</td>
<td>.16</td>
<td>.12</td>
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<td></td>
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<td>(.24)</td>
<td>(.27)</td>
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<tr>
<td>Log (Salesperson’s Tenure)</td>
<td>.42</td>
<td>.41</td>
<td>.16</td>
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<td>(.32)</td>
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<td>Price Delegation × Task Delegation</td>
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<tr>
<td>Price Delegation × Salesperson’s Ability</td>
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<td></td>
<td>(.26)</td>
<td>(.27)</td>
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<td></td>
</tr>
<tr>
<td>Price Delegation × Log (Salesperson’s Tenure)</td>
<td>4.69**</td>
<td>4.60**</td>
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<td></td>
<td>(1.97)</td>
<td>(2.00)</td>
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<td></td>
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<tr>
<td>Task Delegation × Log (Salesperson’s Tenure)</td>
<td>-0.28</td>
<td>-0.26</td>
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</tr>
<tr>
<td></td>
<td>(.46)</td>
<td>(.46)</td>
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</table>

* significant at 10%; ** significant at 5%; *** significant at 1%.
Robust standard errors of coefficient estimates in parentheses.
Does Priming A Sense of Powerfulness Encourage Consumers to Buy Healthy Foods?

Xin (Cindy) Wang, University of Oregon

INTRODUCTION

In recent years, there has been a growing demand for research investigating consumer well-being and pro-social behaviors, which Mick et al. (2012) broadly define as transformative consumer research (TCR). Growing concerns about obesity and the associated health conditions including type 2 diabetes behoove researchers to study how consumers make food-related decisions. The United States, as the world economic leader with the highest GDP, paradoxically has the highest obesity rate in the world, with 35.7% of citizens obese and growing by .5% each year (Ogden, Carroll, Kit, & Flegal, 2012). Additionally, it is estimated that $73.1 billion is spent on obesity-related employee health care costs each year (Finkelstein, DiBonaventura, Burgess, & Hale, 2010) and rising obesity rates are predicted to add an additional $200 billion a year in health care costs by 2018 (Thorpe, 2009). These numbers urge marketers and public policy makers to align efforts and encourage consumers to make healthier eating choices.

This research aims to further explore what factors influence individuals’ perception and choices when they make decisions on what types of food to purchase and consume. To address consumers’ increasing concerns regarding healthy food consumption, a substantial amount of marketing efforts are dedicated to projecting a healthy and attractive image of their products. A growing body of research has investigated these efforts, such as labeling, categorization, packaging, pricing, etc., and the degree to which they can enhance or mislead consumer’s perception of the healthiness of food products. For example, Wansink and Chandon (2006) showed that placing a “low fat” label next to a bowl of M&M’s led to significantly greater consumption than when no label was present. However, no previous research has investigated how individuals’ sense of power influence consumers’ preferences for healthy food. We study how sense of power and message framing jointly influence individuals’ willingness to engage in healthy eating and healthy food consumption.

The purpose of this paper is to provide some insight on how different types of consumers (high power versus low power) evaluate marketing efforts, such as advertising and product slogans, and consequently make the purchase decisions on the food products being promoted. By conducting this research, we expect to further explore marketing persuasion theories in a healthy food consumption context, and discover more appealing and effective methods for developing messages for consumers in an effort to have an impact on the growing obesity epidemic.

Conceptual Development

Healthy food, such as salads, whole wheat bread, and fat-free milk, is often considered flavorless and boring, while most indulgent and tasty food, such as bacon, chocolate, and ice cream, can be addictive and hard to resist for people. We are aware that some food can be tasty and healthy at the same time, but it often requires special recipe and cooking efforts and the perceived tastiness varies by the individual. Such foods are not very commonly seen in supermarket or attract much marketing attention, so we do not focus on them in our research. Most of time, people will have to make a trade off of eating healthy or eating indulgently. Thus, we categorize food into healthy food versus tasty food in this research.

In general, high power increases the processing fluency, directing consumers’ attention to an option’s positive features (Mourali & Nagpal, 2013), is associated with a readiness to act (Jiang, Zhan, & Rucker, 2014), and leads to a higher level of construal and a tendency to see “big picture. On the other hand, low power concentrates on the lower level of construal and shorter psychological distance (Rucker, Galinsky, & Dubois, 2012; Magee Milliken, & Lurie, 2010). Healthy eating focuses on the long-term
benefits of the food consumption and demands greater self-control, while indulgent eating focuses on the immediate or short-term benefits of food consumption and can work as a compensation for lack of control. As a result, we can infer that high power individuals are more likely to consume healthy food than indulgent food, while low power individuals are more likely to consume indulgent food than healthy food. Therefore,

H1: High power individuals will exhibit higher purchase intention toward healthy food; low power individuals will exhibit higher purchase intention toward tasty food.

Besides product labeling, categorization, pricing, and packaging, messages featured in advertisements and product slogans also influence product perceptions and information processing (e.g., Buda & Zhang, 2000). Some of food products have assertive and imperative slogans such as, “Made like no other” (Haagen-Dazs), “Obey your thirst” (Sprite), and “Have it your way” (Burger King), while others are soft, non-assertive ones such as “I am loving it” (McDonald), “The best part of wakin’ up” (Folgers), and “A big delight in every bite” (Twinkies). It is reasonable to argue that individuals will be more or less willing to take what others order them to do varies at different occasions. Sometimes, people dislike it when others tell them what to do and are forced to do what they were told. While at other times, people might be more accepting to what they are told. Therefore, sense of power, referred to as asymmetric control over valued resources in social relations (Keltner, Gruenfeld, & Anderson, 2003), could potentially be influenced by the assertiveness of the message.

Recent research on message framing finds that an assertive message is more effective than a non-assertive message in communications involving hedonic products, while a non-assertive message leads to greater compliance than an assertive message with messages promoting utilitarian products (Kronrod, Grinstein, & Wathieu, 2012). Previous research also indicates that imperative and forceful messages tend to be perceived as a threat to personal freedom and foster reactance toward the message (Quick & Considine, 2008).

Healthy food consumption, which requires effort to comply, is normally easier for high power individuals than for low power individuals. Tasty food consumption, which could bring instant enjoyment, is more preferred by low power people. This is because of the matched construal level between food types and power levels as we stated earlier. We suggest that when the food is promoted with an assertive tone, the message can backfire because it raises reactance for people. Their internal desire for the corresponding food is disturbed by the external force. When the reactance is activated, the consumption pattern will be reversed. As a result, high (low) power individuals would be less likely to buy healthy (tasty) if the message is assertive than when the message adopt a baseline, non-assertive tone. However, when construal level of the product type and the individual’s power states are inconsistent, i.e. high power and tasty food, assertive messages could be more motivating than baseline non-assertive messages. The external forces compensate for the lack of internal desire. As a result, high (low) power individuals become more likely to consume tasty (healthy) food when the message is framed more assertively than non-assertively. Thus, we propose:

H2A: High power individuals will exhibit higher purchase intention toward healthy (tasty) food when the message is non-assertive (assertive); low power individuals will exhibit higher purchase intention toward healthy (tasty) food when the message is assertive (non-assertive).

H2B: The reactance/motivation elicited by the assertiveness of the message is the underlying mechanism.
Studies Overview

We run four studies to test our hypotheses. Study 1 shows that the assertiveness moderates the effect of power on food consumption in a tasty food context. Study 2 demonstrates this moderating effect in a healthy food context. Study 3 examines healthy food versus tasty food in the same experimental design. Study 4 manipulates different positioning of the same product pertaining to signal tastiness and healthiness aspects of the food to increase the generalizability of our studies.

STUDY 1

Study 1 tests whether sense of power moderate the effect of assertive message on food consumption in a hedonic/tasty food – chocolate truffles context.

Participants and Design

A random sample of American undergraduate (N = 91, M_age = 20.6, 53.1% Male) at a large northwestern university participated in the survey and were compensated with partial course credit. Participants were randomly assigned to a condition in a one way (Framing: Assertive vs. Non-assertive) between subject design.

Procedure

At the beginning of the lab session, we measured participants’ chronic sense of power using an 8-item scale (Anderson, John, and Keltner, 2012; see appendix). After several unrelated lab studies, participants were asked to help evaluate an ad about a food item. We used a classic hedonic food from literature—chocolate. Participants were presented with a print ad about chocolate. We manipulated the assertiveness of the message at the bottom of the ad by saying “You must try our chocolate” [assertive] or “It’s worth trying our chocolate” [non-assertive] (adapted from Kronrod et al., 2012).

On the next page, we asked participants to rate whether they would consider buying the chocolate on a 7-point Likert scale with four questions: a) “Would you buy a box of Teuscher’s signature truffles?” (1 = “definitely would not buy,” and 7 = “definitely would buy”) [Adapted from Rucker et al., 2009]; b) “How likely is it that you would purchase this product?” (1 = “highly unlikely,” and 7 = “highly likely”); c) “How certain are you that you would purchase this product?” (1 = “very uncertain,” and 7 = “very certain”); d) “How definite is it that you would purchase this product?” (1 = “definitely not,” and 7 = “definitely will”) [Adapted from Kronrod et al., 2012]. After that, we collected participants’ demographic information. Then they were thanked and dismissed from the lab session.

RESULTS

Purchase Intention

The four intention question formed an intention composite (α = .92). The spotlight analysis results show that there is significant interaction effect of chronical power and message assertiveness on purchase intention (F (1, 87) = 4.97, p <.05). For one standard deviation above the mean on chronical power, (high power), participants are more likely to purchase the chocolate truffle product when the message is assertive than non-assertive (t = -2.08, p <.05). For one standard deviation above the mean (low power), participants indicated a higher purchase intention when the message is non-assertive than when it is assertive (t = 1.08, p = .28).
**Discussion**

Study 1 provides initial evidence that the assertive message moderates the effect of power in tasty food consumption. When presented with an assertive message, consumers’ preferences for and willingness to purchase tasty food get reversed compared to when presented with a non-assertive message. High power individuals are more likely to consume tasty food when the message is framed assertively than non-assertively; low power individuals prefer non-assertive messages to assertive messages when considering tasty food. In the next study, we will investigate how assertive messages moderates the influence of power in healthy food consumption.

**STUDY 2**

Study 1 reveals that assertiveness of the message moderates the effect of power in tasty food consumption. The goal of study 2 is to examine whether sense of power moderates the effect of assertive message on food consumption in a utilitarian/healthy food – whole wheat cereal context. Previous literature shows that assertive messages has limited influence in utilitarian products (Kronrod et al., 2012). Instead of using chronical sense of power as in study 1, study 2 will use a power manipulation incorporated in a print ad.

**Participants and Design**

We proposed 3 (Power: Powerful vs. Powerless vs. Control) × 2 (Framing: Assertive vs. Non-assertive) between subject design. 250 American undergraduate participants (M_{age} = 21.1, 56.3% Male) at a large northwestern university participated in the survey and were compensated with partial course credit.

**Procedure**

Participants were invited to take a survey and help evaluate an ad on cereal. They were then presented with a print ad shows a picture of shredded wheat cereal from a fake brand Family Cereal (see Appendix). To enhance the perceived healthiness of the product, we added an extra line saying “Shredded Wheat from Family Cereal, The Healthiest Cereal!” We manipulated sense of power by using headlines of “we all feel powerful in the morning” [powerful condition] or “we all feel powerless in the morning” [powerlessness condition] (Adapted from Dubois et al., 2012). In the control condition, we had no such headline. In the middle of the print ad was a picture of the cereal. Below the picture, we manipulate the

![Figure 1. Purchase Intention](image-url)

**Figure 1. Purchase Intention**

<table>
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<th>+1 SD</th>
<th>-1 SD</th>
</tr>
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<table>
<thead>
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</table>
assertiveness of the message by saying “You must try our cereal” [assertive condition], ‘it’s worth trying our cereal’ [non-assertive condition].

After showing them the picture, we asked participants to rate whether they would consider buying the cereal on a 7-point Likert scale with two questions a) “Would you buy a box of Family Cereal’s shredded wheat cereal?”; b) “How likely is it that you would purchase this product?” (α = .93). We also measured the motivation/reactance from the brand with three questions (“Right now, I am ___ to buy products from Family Cereal”. [1 = “unmotivated” and 7 = “motivated”; 1 = “not inspired” and 7 = “inspired”; 1 = “not encouraged” and 7 = “encouraged”]) (α = .97) (Adapted from Quick & Stephenson, 2007). Last, we collected participants’ demographic information.

**RESULTS**

**Purchase Intention**

The 2 (power) × 2 (message assertiveness) ANOVA on purchase intention revealed the predicted interaction ($F (2, 244) = 4.39, p < .05$). For participants primed with powerfulness, the non-assertive message is preferred for healthy food consumption ($M_{assertive} = 3.21, M_{non-assertive} = 4.22, F (1, 94) = 10.02, p < .01$). For participants primed with powerlessness, the assertive message is more preferred for healthy food consumption ($M_{assertive} = 3.74, M_{non-assertive} = 3.13, F (1, 94) = 2.03, p = .11$). For control condition, participants’ willingness to purchase were in the middle ($M_{assertive} = 3.33, M_{non-assertive} = 3.53, F (1, 94) = .28, p = .60$). The overall pattern reveal that as the power increase, participant’s willingness to purchase increases with assertive message but decrease with non-assertive message.

![Figure 2. Purchase Intention - Study 2](image)

**Motivation/Reactance to brand**

The three motivation/reactance questions formed a motivation composite ($α = .97$). The two-way ANOVA results indicated a significant interaction effect of assertive message and power on cereal purchase intention ($F (2, 244) = 4.87, p < .05$). When primed with powerfulness, participants indicate a stronger motivation to a non-assertive message ($M_{assertive} = 2.11, M_{non-assertive} = 3.67, F (1, 94) = 7.04, p < .01$). When primed with powerlessness, participants indicate a stronger motivation to an assertive message ($M_{assertive} = 3.13$).
3.17, M_{non-assertive} = 2.94, F(1, 94) = 0.28, p = .61. In control condition, participants showed a slight stronger motivation for non-assertive message (M_{assertive} = 2.98, M_{non-assertive} = 3.15, F(1, 94) = 0.21, p = .78). Overall, as the power level increases, participants are more motivated to buy products from the brand if the message is framed non-assertively, and less motivated to buy if the message is framed assertively.

**Figure 3. Motivation/Reactance - Study 2**

*Mediation*

We used biased-corrected bootstrapping (n = 20,000) to test whether the motivation/reactance to brand mediates the interaction effect of power and assertive message on purchase intention. Supporting our theory, the overall indirect effect for the interaction was significant (b = -.43, 95% CI = [-1.5501, -.1347]). This finding confirms that the motivation to buy an advertised brand significantly mediates the moderation effect of message assertiveness on food consumption.

**Discussion**

Adding on to study 1, study 2 provides initial evidence that the assertive message moderates the effect of power in healthy food consumption. Study 2 also employs a power manipulation instead of chronical measured sense of power and identifies a significant mediator for the interaction effect. When primed with high power, individuals are more likely to consume healthy food when the message is framed non-assertively than assertively. When primed with low power, individuals prefer assertive messages to non-assertive messages when considering healthy food. In the next study, we will examine how assertive messages moderate the influence of power in both a healthy and tasty food context and further examine the underlying mechanism.

**STUDY 3**

Study 1 and study 2 provide empirical supports that sense of power moderates the effect of assertiveness on both tasty and healthy food consumption. The goal of study 3 is to examine whether moderating role of power in food consumption persists if we manipulate the food product as healthy food and tasty food holding the price constant.
Participants and Design
A 2 (Power: Powerfulness vs. Powerlessness) × 2 (Framing: Assertive vs. Non-assertive) × 2 (Food type: chocolate vs. salad) between subject design was adopted. We recruited 229 North American adult participants (Mage= 28.3, 60.5% Male) from Amazon Mechanical Turk and financially compensated them $.60 for their participation.

Procedure
Participants were invited to take a survey and help evaluate an ad on some food products. They were then presented with a print ad on which we manipulate food types, power, and the assertiveness of the message (see appendix for ad stimuli). We primed sense of power by using the headlines of “we all feel powerful sometimes” [powerful condition] or “we all feel powerless sometimes” [powerlessness condition] (Adapted from Dubois et al., 2012). In the middle of the print ad was a picture of either a box of Teuscher’s signature truffles or a box of Earth Green’s premium salad, both priced at $12.99. Below the picture, we manipulated the assertiveness of the message by saying “You must try our chocolate” [assertive condition] or “It’s worth trying our chocolate” [non-assertive condition] (adapted from Kronrod et al., 2012).

On the next page, we ask participants to rate their purchase intention on a 7-point Likert scale using the items “Would you buy a box of Teuscher’s signature truffles/Earth Green’s premium salad?” and “Would you buy a box of Teuscher’s signature truffles/Earth Green’s premium salad within the next few weeks?” (1= “definitely would not buy,” and 7 = “definitely would buy”). After that, we measure their motivation/reaction to the food with three questions (“Right now, I am ___ to eat chocolate/salad”. [1 = “unmotivated” and 7 = “motivated”; 1 = “not inspired” and 7 = “inspired”; 1 = “not encouraged” and 7 = “encouraged”]), and their motivation/reaction to the brand with three questions (“Right now, I am ___ to buy products from Teuscher’s chocolate/Earth Green.” [1 = “unmotivated” and 7 = “motivated”; 1 = “not inspired” and 7 = “inspired”; 1 = “not encouraged” and 7 = “encouraged”]). We also include several potential process measures from previous literature and alternative explanations including information process fluency measures, message compatibility, ad perception, and ad evaluation (See Appendix). Then we collected participants’ demographic information and thanked them for their participation.

RESULTS
Purchase Intention
The two-intention question formed an intention composite (α = .89). A 2 (power) × 2 (assertiveness) × 2 (positioning) ANOVA on purchase intention showed a significant interaction (F(1,221) = 7.55, p < .01). There is marginally significant main effect of food type. Participants indicated higher purchase intention for chocolate than salad regardless of the assertiveness of the message and power level (Mchocolate = 3.83, Msalad = 3.34, F(1, 221) = .376, p = .054). This supports our assumption that healthy food consumption requires more effort.

When manipulated with powerfulness feeling, participants were more likely to purchase the chocolate than salad when the ad presented with assertive message (Mchocolate = 3.72, Msalad = 2.79, F(1, 221) = 3.72, p = .055), and were more likely to purchase salad than chocolate when presented with non-assertive message (Mchocolate = 3.56, Msalad = 3.86, F(1, 221) = .379, p = .54). When manipulated with powerlessness feeling, participants indicated higher purchase intention in chocolate than in salad when the message is non-assertive (Mchocolate = 4.50, Msalad = 3.10, F(1, 221)=8.02, p <.01), while this effect disappear when the message is framed assertively (Mchocolate = 3.53, Msalad = 3.63, F(1, 221)=.03, p = .853).

For tasty food like chocolate, powerful participants indicated higher purchase intention when the message in the ad is framed assertively than non-assertively (Massertive = 3.72, Mnon-assertive = 3.56, F(1,221) = .11, p = .74); while powerless participants indicated higher purchase intention when the message is framed non-assertively than assertively (Massertive = 3.54, Mnon-assertive = 4.50, F (1,221) = 3.76, p = .054). For healthy
food like salad, powerful participants preferred non-assertive message ($M_{\text{assertive}} = 2.79$, $M_{\text{non-assertive}} = 3.86$, $F (1, 221) = 4.79$, $p < .05$), while powerless participants preferred assertive message ($M_{\text{assertive}} = 3.63$, $M_{\text{non-assertive}} = 3.10$, $F (1, 221) = 1.11$, $p = .29$).

**Purchase Intention**

<table>
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<tr>
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<th>Powerful</th>
<th>Powerless</th>
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<tr>
<td>Chocolate Assertive</td>
<td>3.72</td>
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<tr>
<td>Chocolate Non-assertive</td>
<td>3.54</td>
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<tr>
<td>Salad Assertive</td>
<td>2.79</td>
<td>3.86</td>
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<td>Salad Non-assertive</td>
<td>3.63</td>
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Three-way interaction $F (1, 221) = 7.55$, $p < .01$

*Mediation.* For motivation to buy product from the brand, we found significant three-way interaction among independent variables ($F_{\text{motivation-to-buy}} (1, 221) = 9.30$, $p < .01$). For the motivation to eat chocolate/salad, we did not find significant interactions ($F_{\text{motivation-to-eat}} (1, 221) = 2.00$, $p = .109$). We did not find any significant interactions with message compatibility, ad perception, or ad evaluation (All $Fs < 1.8$, n.s.).

**Motivation**

<table>
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<tr>
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<th>Assertive</th>
<th>Non-assertive</th>
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<tr>
<td>Chocolate Powerful</td>
<td>4.04</td>
<td>3.01</td>
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<tr>
<td>Chocolate Powerless</td>
<td>3.69</td>
<td>4.18</td>
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<tr>
<td>Salad Assertive</td>
<td>2.76</td>
<td>3.37</td>
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<tr>
<td>Salad Non-assertive</td>
<td>4.02</td>
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Three-way interaction $F (1, 221) = 9.30$, $p < .01$
We used the same analysis in study 2 to test for mediation. Results support the proposed relationship, revealing a significant overall indirect effect ($b = -2.45, SE = .812, 95\% CI = [-4.0932, -0.9278]$). Motivation/reactance to buy from advertised brand significantly mediates the moderating effect of message assertiveness on food consumption.

**DISCUSSION**

Study 3 demonstrated that the assertive message moderated the effect of power and food types in food consumption. With assertive message, consumers’ preference and willingness to purchase healthy versus tasty food get reversed based on their original power level. When primed with powerful feeling, consumers are more likely to purchase tasty food instead of healthy food when presented with assertive message. When primed with powerless feelings, consumers are more likely to purchase healthy food instead of tasty food when presented with assertive message. We successfully replicated what we have in study 1 and study 2 in one study with a different healthy food. We also identify the motivation/reactance toward the brand as a significant mediate account for this moderating effect.

To increase the generalizability of our study, our next study will use a single food item that could be positioned either healthy or tasty, as well as explore more on the underlying mechanism that explains the simple effect within the same power group and the same food group.

**STUDY 4**

Study 3 has shown that different types of foods (healthy versus tasty) influence the interaction effect of power and assertive message on individual’s willingness to consume the food product. In study 4, we would like to adopt a cleaner manipulation of the food types. Different from the first three studies, which we use different food items to represent healthy and tasty food, study 4 would use different positioning of the same food item to signal the tasty aspect and the healthy aspects of the food.

**Food Pretest**

A pretest was conducted to select a food product that could be positioned as either tasty or healthy. Our goal is to pick a food item that is perceived both healthy and tasty in our daily life and its perceived tastiness and healthiness do not significantly differ. We selected several food items, such as protein bars, chocolate, yogurt, salad, wine, and veggie chips, some of which had been used in the literature for food stimuli in studies (e.g. Finkelstein & Fishbach, 2010). We presented a picture of each food item to participants and asked them to rate the perceived tastiness and healthiness of the food. For example, Joyous Garden’s veggie chips above look 1 – not healthy (tasty) at all to 7 – very healthy (tasty).

76 undergraduate majored in business from a large U.S. university participated in the pretest. They were presented to all the food item pictures in randomized order with questions followed. The results show that yogurt was perceived high both in healthiness and in tastiness ($M_{\text{healthy}} = 5.32$, $SD = 1.29$, $M_{\text{tasty}} = 5.34$, $SD = 1.54$, $t (1, 75) = -.133, p = .894$). As a result, we will use yogurt as our food product and positioned it as either tasty or healthy.

**Power Manipulation Pretest**

A pretest was conducted ascertain whether the power manipulation task would successfully induce participants sense of power. Given that our participants were all college students, we manipulated participants’ feeling of power using a role-imaging task in an educational context from Garbinsky et al., 2014. Those in the high power condition imagined the following scenario:

Imagine that you are a college student taking a class that is required for your major. Your professor has assigned a group project that is worth 75% of your final grade and has specifically selected you as the group leader. The professor told you that they decided to
put you in charge of the group because they believe you are most capable. You have ten other group members that will listen to your instructions and look to you for guidance in order to complete the group project on time. At the end of the semester, you will evaluate each group member’s performance and your evaluation will be incorporated into their project grade. They will not have the opportunity to evaluate you.

Those in the low power condition imagined the following scenario:

Imagine that you are a college student taking a class that is required for your major. Your professor has assigned a group project that is worth 75% of your final grade and has specifically selected another student as the group leader. The professor told the group leader that they decided to put him in charge of the group because they believe he is most capable. You are one of ten other group members that will listen to the group leader’s instructions and look to the group leader for guidance in order to complete the group project on time. At the end of the semester, the group leader will evaluate your performance and his evaluation will be incorporated into your project grade. You will not have the opportunity to evaluate the group leader.

Following the reading, they were asked to write a paragraph to describe how it would be like in the role that they were assigned to. After that, they were asked report “to what extend do you feel powerful now?” and “to what extend do you feel that you are in control?” (Two-item Cronbach’s Alpha = .914) on a 7-point Likert scale from “Not at all” to “Extremely”. After that, we measured participants’ mood using an adapted 12-item Positive and Negative Affect Schedule (PANAS) scale (Watson, Clark, & Tellegen, 1988; Smith & Bargh, 2008). We also measured their chronic sense of power using Sense of Power scale (Anderson, John, & Keltner, 2010) and their self-efficacy with the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995) after a filler task. Then participants were thanked and dismissed from the lab session.

38 undergraduate majored in business from a large northwestern university participated in the pretest. They were randomly assigned to one of the two power conditions. The results show that those in high power condition experience significantly higher sense of power and control than those assigned to low power condition ($M_{high} = 5.45$, $M_{low} = 4.39$, $F (1, 36) = 5.32$, $p <.05$). As stated in previous studies from literature, we did not find any impact of power manipulation on mood, chronic sense of power, or the self-efficacy (all $F$s <2). The power manipulation task successfully induced people’s sense of power.

**Participants and Design**

We propose a 2 (Power: High vs. Low) x 2 (Framing: Assertive vs. Non-Assertive) x 2 (Positioning: Tasty vs. Healthy) between-subject design. A random sample of 244 American undergraduate participants ($M_{age} = 21.9$, 58.2% Male) was recruited from the subject pool at a large northwestern university. Participants were compensated with partial course credit.

**Procedure**

First, we use a pretested role-imaging task in an educational context (Garbinsky, Klesse, &Aaker, 2014) to manipulate participants’ sense of power. Following the power manipulation, participants were asked to read and help evaluate a print ad about Sander’s mixed berries yogurt. We pretested several food items and have selected yogurt which scored high in both tastiness and healthiness. Half of the participants were presented with the tasty version where we added a headline saying “Sander’s Mixed Berries Yogurt, The Tastiest Yogurt!” The other half were presented with the healthy version where the headline says “Sander’s Mixed Berries Yogurt, The Healthiest Yogurt!” The framing of the message at the bottom in the print ad were either assertive as “You must try our yogurt” or non-assertive as “it’s worth trying our yogurt”.
Then, we asked participants rated their intention to purchase and their motivation/reaction to eat yogurt (“Right now, I am ___ to eat chocolate/salad”. [1 = “unmotivated” and 7 = “motivated”; 1 = “not inspired” and 7 = “inspired”; 1 = “not encouraged” and 7 = “encouraged”]) (α=.97), and their motivation/reaction to this brand using items from previous studies. We included several potential process measures from previous literature and alternative explanations including information process fluency measures, message compatibility, ad perception, and ad evaluation. After that, we asked manipulation check questions on perceived tastiness (Sander’s mixed berries yogurt looks 1= “not tasty at all”, 7 = “very tasty”) and healthiness (Sander’s mixed berries yogurt looks 1= “not healthy at all”, 7 = “very healthy”) of the product and the assertiveness of the message framing. Following the manipulation check questions, participants responded on their consumption and likeness of yogurt in their daily life as well as how hungry they are at that moment. Last, participants’ demographic information was collected.

**RESULTS**

*Manipulation Checks*

Results on perceived healthiness and tastiness of the yogurt showed that when the product was positioned as tasty, participants viewed it as more tasty (M_tasty = 4.39, M_healthy = 4.80, F(1, 242) = 4.42, p < .05); when the product was positioned as healthy, participants viewed it as more healthy (M_tasty = 4.70, M_healthy = 5.18, F(1, 242) = 5.71, p < .05). The perceived assertiveness of the message was significantly more assertive using the assertive framing than the non-assertive framing (M_assertive = 4.30, M_non-assertive = 3.88, F(1, 242) = 4.60, p < .05).

*Purchase Intention*

A three-way ANOVA showed a significant interaction among power, message assertiveness, and product positioning (F(1,236)=10.98, p = .01).

When the product was positioned as tasty, participants induced with high power state were more likely to purchase the yogurt if the ad were assertive message than non-assertive message (M_assertive = 3.92, M_non-assertive = 3.62, F(1, 236) =.52, p = .47); participants induced with low power state showed the opposite pattern – more likely to purchase the yogurt if the ad were non-assertive than assertive (M_assertive=2.99, M_non-assertive=4.13, F(1, 236) =7.65, p < .01). When the product was positioned as healthy, the pattern reversed. Participants induced with high power state were more likely to purchase the yogurt if the message were presented non-assertively than assertively (M_assertive = 2.97, M_non-assertive = 3.81, F(1, 236) = 4.47, p < .05); participants induced with low power state indicated higher purchase intention of the yogurt if the message were non-assertive than assertive (M_assertive=3.81, M_non-assertive=3.04, F(1, 236) =3.69, p = .056).

In low power manipulation condition, when presented with assertive message, participants were more willing to purchase the yogurt that was positioned as healthy than that was positioned as tasty (M_tasty = 2.99, M_healthy = 3.81, F (1, 236) = 4.85, p < .05); when presented with non-assertive message, participants were more likely to purchase the tasty yogurt than healthy yogurt (M_tasty = 4.13, M_healthy = 3.04, F (1, 236) = 6.28, p < .05). In high power manipulation condition, when presented with assertive message, participants reported higher likelihood to purchase the yogurt that emphasized tastiness rather than healthiness (M_tasty=3.91, M_healthy=2.97, F(1, 236)=4.86, p <.05); when presented with non-assertive message, participants were more likely to purchase the healthy yogurt than tasty yogurt (M_tasty = 3.62, M_healthy = 3.81, F (1, 236) = .26, p = .61).
**Mediator**

For the motivation to eat yogurt, motivation to buy product from the brand, and process fluency, we found significant three-way interactions among independent variables ($F_{fluency} (1, 236)=6.25, p < .05$; $F_{motivation-to-eat} (1, 236)=7.42, p < .05$; $F_{motivation-to-buy} (1, 236)=11.01, p < .01$). We also find that the perceived tastiness and perceived healthiness of the yogurt had a significant three-way interaction ($F_{tastiness} (1, 236)=5.48, p < .05$; $F_{healthiness} (1, 236)=5.42, p < .05$). We did not find any significant interactions with message compatibility, as perception, or ad evaluation (All $Fs<2.5$, n.s.).
Mediation. Information process fluency ($b = -0.16$, $SE = 0.113$, $95\% CI = [-0.4737, -0.0027]$) does not mediate the moderation effect of power on food consumption. The mediation analysis revealed that, motivation to eat ($b = -0.43$, $SE = 0.253$, $95\% CI = [-1.1321, -0.0752]$), as well as motivation to buy ($b = -1.26$, $SE = 0.476$, $95\% CI = [-2.3561, -0.4822]$), are accounted for the highest order interactions. The perceived tastiness ($b = 0.19$, $SE = 0.097$, $95\% CI = [0.0452, 0.4427]$) mediates the simple effect of assertiveness versus non-assertiveness on purchase intention in tasty positioning when the low power state was induced. The perceived healthiness ($b = -0.09$, $SE = 0.068$, $95\% CI = [-0.2803, -0.0001]$) mediate the simple effect of assertiveness versus non-assertiveness on purchase intention in healthy positioning when the low power state was induced.

DISCUSSION

The results of study 4 were consistent with what we have in the previous three studies. With baseline non-assertive message, people in high power are more willing to consume healthy food, while people in low power are more likely to buy tasty food. With assertive message, due to the elicited motivation/ reactance, people in high (low) power state are more likely to buy tasty (healthy) food. We also provide empirical evidence to show the motivation/ reactance in different power groups, operationalized by motivation to eat and motivation to buy, mediates this effect.
DO SALESPERSONS ADD VALUE IN AN ONLINE WORLD? FINANCIAL IMPLICATIONS OF MULTICHANNEL BUSINESS CUSTOMERS

Justin M. Lawrence, Andrew T. Crecelius, Dr. Lisa K. Scheer, and Dr. Ashutosh Patil, University of Missouri-Columbia

ABSTRACT

B2B e-commerce represents a majority of worldwide e-commerce activity, but has received relatively little academic attention relative to B2C e-commerce. We contribute to this nascent literature by investigating how differential online-offline channel use by industrial buyers is associated with customer-level financial outcomes. Specifically, we offer a model concerning the importance of the traditional salesperson channel in an increasingly digital business environment. We partner with a major U.S.-based industrial wholesaler to conduct an empirical study using longitudinal transactional data, activity-based costing (ABC) data, and customer relationship management (CRM) data. We incorporate information on customer-level online channel use, customer-salesperson interactions, customer-specific price discounts, and firm financial outcomes over time. We theorize that synergy exists between the high-tech benefits of e-commerce and the high-touch benefits of customer-salesperson interactions.

INTRODUCTION

Business-to-business (B2B) e-commerce is of ever-increasing economic importance. Online transactions in manufacturing and wholesale trade have grown to represent nearly half of all U.S. shipments in these sectors (Statista.com; U.S. Census Bureau). Since 2003, B2B e-commerce activity has more than doubled in almost every segment of the economy, with total B2B e-commerce revenues climbing to $5.3 trillion in 2013 (U.S. Census Bureau). And with major U.S. e-commerce firms such as Amazon and eBay having limited penetration in the B2B marketplace, there is abundant potential for continued growth (Griffith 2014). The proliferation of B2B e-commerce comes largely as a result of channel-shifting by B2B buyers in search of reduced costs-to-serve their customers (Hoar et al. 2015). Buyers are using the online marketplace to drive increased efficiencies in both search and purchase activities. Increased access to information allows buyers an independent means to research a supplier’s claims and costs using search engines, comparison sites, and online reviews (Urban 2005). This information can then be used to negotiate custom solutions at favorable prices. Once a solution and supplier have been chosen, the online marketplace then provides a means for buyers to submit orders through online storefront portals, or alternatively, to automate purchase transactions via electronic data interchange (EDI). In nearly every step of the buying process, the online marketplace offers B2B buyers opportunities to cut costs and increase efficiencies.

Not surprisingly, such a dramatic shift in buyer behavior has raised a plethora of questions for B2B marketers. Like most major changes brought about by technological advancement, challenges and opportunities are presented. The primary question at hand for suppliers is not whether to offer customers an online alternative. It has become clear that accommodating customers in this way is necessary to maintain a competitive position in the marketplace, and that refusing to embrace e-commerce is unwise in the long run (Rohm et al. 2004; Porterfield, Bailey, and Evers 2010; Clarke and Flaherty 2003). The primary challenge (and opportunity) faced by B2B marketers is the eventual role of the online channel vis-à-vis long-standing offline channels. Specifically, it remains unclear whether the online channel is best positioned as a complement to, or a substitute for, traditional offline channels. While this question has not been explicitly addressed by academics, anecdotal evidence suggests that the online channel serves as a substitute for traditional channels. For instance, a 2015 study by Forrester Research found that nearly 75% of B2B buyers would rather purchase from a website than a salesperson, and this number increases even further to 93% when the decision about what to purchase has been decided (Hoar 2015). Perhaps even more striking is Forrester’s projection that “1 million U.S. B2B salespeople will lose their jobs to self-service e-commerce by the year 2020.” In light of this projection, it’s no surprise that the shift to online in
B2B markets has been viewed as threatening by salespeople and sales managers (Pfeil, Posselt, & Maschke 2008; Web 2002). These claims also pique the interest of marketing managers. As suppliers seek ways to cut costs in response to increased pricing pressure and other demands from newly empowered B2B buyers (Palmatier 2008; Urban 2004), they question whether trimming the salesforce and other related expenses is a reasonable solution. For many executives, the notion that such a sizeable expense reduction could simultaneously improve the customer experience is tantalizing.

On the other hand, there are reasons to suspect that the optimal solution is more nuanced. For instance, many B2B marketers are concerned that, in the absence of personal interaction, the migration of customer search and purchase activity to online interfaces threatens to weaken customer-seller bonds, leading to greater customer attrition (Geyskens, Gielens, & Dekimpe 2002; Vinhas et al. 2010). In many cases, strong relationships exist between buyers and salespeople, and reductions to the salesforce could result in lost business (Palmatier, Scheer, and Steenkamp 2007). Further, concern is growing regarding increased returns and customer complaints resulting from online purchasing without guidance from salespeople or other frontline employees (Banjo 2013; Kim 2013). At the heart of the matter, the shift to online is forcing marketers to critically examine how they devote resources to serving customers via both high-tech and low-tech channels (Sheth and Sharma 2008). B2B sellers struggle to integrate the newer, growing online channel with the traditional salesperson channel while also managing expenses, retaining customers, and attracting new business (Neslin et al. 2006; Avery, Steenburgh, Deighton, and Caravella 2012; Emrich, Paul, and Rudolph 2015; Gallino and Moreno 2014; Mahar, Wright, Bretthauer, and Hill 2014).

In spite of these complexities, B2B e-commerce has received relatively little academic attention, leaving B2B marketing practitioners relatively ill-equipped to respond. A few pioneers have investigated how market structures in B2B e-commerce have relational and financial consequences for market participants (Grewal, Chakravarty, and Saini 2010; Jap 2007). Davis-Sramek, Germain, and Iyer (2010) and Saini and Johnson (2005) studied the firm-level financial impact of selling firms’ e-commerce capabilities and performance. Building on Kumar and Venkatesan’s (2005) investigation of customers’ adoption vs. non-adoption of multiple purchasing channels, Käuferle and Reinartz (2015) and Wiesel, Pauwels, and Arts (2011) examined the implications of customers’ online channel use for the seller’s firm-level outcomes. However, no study in the B2B space that we are aware of has directly addressed how traditional offline channels interact with the newer online channel, and how to appropriately position the online channel in order to maximize net profit after allocating the expense of the salesforce to the customer level. This bottom-line focus is especially critical because net profit is the outcome of primary interest to the firm’s dominant stakeholders: its owners. This study addresses this important gap by exploring the following research questions:

1) How does a specific B2B customer’s online channel use financially impact the selling firm in terms of sales, gross margin, and net profit?
2) Is the customer’s online channel use a substitute or complement for customer-salesperson interaction in driving the financial outcomes above?
3) Does the customer’s online and salesperson channel activity impact the seller’s pricing tactics and, if so, to what extent do those tactics also impact sales, margin, and profit derived from that customer?

We address our research questions using a dataset compiled from the database archives of a collaborating selling firm. Customer-specific longitudinal data were drawn from the seller’s customer relationship management (CRM) system, from the transactional database, from the activity-based costing (ABC) database, and from customer history records.
Our study strives to make several important contributions. First, in contrast to much of the prior research focused on outcomes of customer online channel usage, we work not at the selling firm level, but at the level of **selling firm-customer firm dyad**. We examine the impact of a B2B customer’s use of an online channel and its concurrent interaction with salespeople, focusing on customer-specific financial outcomes of sales, gross margin, and net profit. We theorize that, similar to synergies between “bricks-and-clicks” in B2C markets (e.g., Herhausen, Binder, Schoegel, and Herrmann 2015), customer use of both online and salesperson channels is complementary from the seller’s perspective. This finding runs counter to the accepted, anecdotal wisdom among practitioners described previously.

Second, we examine how a customer’s use of online and salesperson channels impacts the firm’s customer-specific pricing tactics, as well as how those pricing tactics moderate the financial impact of online channel use. Customer-specific price discounts are a frequently-used tactic in many B2B industries. These non-published, non-advertised discounts are negotiated and granted to a customer on a case-by-case basis. We examine whether providing customer-specific discounts can enhance the positive financial impact of a customer’s online channel use. The impact of the selling firm’s pricing tactics vis-à-vis individual customers gives us unique insight into one mechanism through which online and salesperson channels impact customer-specific financial outcomes.

Third, we take a more nuanced view of these financial outcomes than past research by leveraging activity-based costing data to allocate selling and administrative expenses to customer firms. This allows us to consider divergent implications for customer-level sales, gross margin, and net profit, offering a rich perspective for B2B marketing practitioners. In particular, customer-level net profit data permits us to take a bottom-line perspective that is seldom possible in marketing research. Fourth, we examine B2B customers’ online channel use for both search and purchase, permitting us to examine potentially differential effects across the two types of online channel use behavior. Finally, our use of operational variables that are readily available in extant databases of many B2B firms implies that our findings provide actionable insights that could be managerially tested and implemented with their customers.

**THEORY**

**Focal Constructs**

Our focal constructs and conceptual model are depicted in Figure 1. In this research, we study how the selling firm’s (seller’s) financial outcomes are impacted by the customer firm’s (customer’s) use of online and salesperson channels. Consistent with prior research investigating customer channel activity (Gensler, Leeflang, and Skiera 2012; Wiesel et al. 2011), we examine sales and gross margin, but do so at the customer level. We go a step further and also consider customer-specific net profit. This is a customer’s gross margin less any selling and administrative expenses incurred as a result of serving that customer. Sales, gross margin, and net profit comprise the selling firm’s **customer-specific financial outcomes**. B2B research that explores customer-level outcomes or customer-seller dyads has focused primarily on the salesperson channel. To explore use of the salesperson channel we focus on the extent of **customer-salesperson interactions**, defined as any contact between the customer firm’s representative(s) and the selling firm’s salesperson, whether simultaneous (e.g., meeting, phone conversation) or sequential (e.g., email, messaging), and whether initiated by the customer or the salesperson. To examine use of the online channel, we include both online search behavior and online purchase behavior, as research in B2C contexts demonstrates that search can happen in one channel, while purchase occurs in another (Gallino and Moreno 2014; Konus, Verhoef, and Neslin 2008; Schlosser et al. 2006). Finally, we investigate the role of the selling firm’s **customer-specific discounts**: unpublished, non-advertised special price discounts negotiated and enacted on a case-by-case basis for a specific customer.

*Figure 1 about here*
Conceptual Model and Hypotheses

There is no shortage of existing evidence linking greater activity in the online channel at the firm level to positive financial outcomes (Cheng et al. 2007; Davis-Sramek et al. 2010; Saini and Johnson 2005; Xue et al., 2011 2007). We dive deeper to examine why we expect the same to occur at the customer level. Customer channel selection is largely determined by the value received by the customer from various available channel alternatives (Neslin et al. 2014). Online channels generate customer utility by making search and purchase more convenient, efficient, and accessible (e.g., Brynjolfsson, Hu, and Smith 2003; Gensler, Leeflang, and Skiera 2012; Verhoef, Neslin, and Vroomen 2007). Ease of use also decreases the customer’s perceived cost of interacting with the firm via the online channel (Campbell and Frei 2010). As the customer’s use of the online channel increases, it experiences greater utility from the product-service bundle delivered by the firm, leading to increased demand for the firm’s products and services. In addition, although the initial installation of an online channel is very costly for the selling firm, the variable costs of servicing an existing customer through the online channel are low (Campbell and Frei 2010; Gensler et al. 2012).

When a B2B seller offers both an online and a salesperson channel, the customer always has the option of using the online channel. Therefore, a customer that makes greater use of the salesperson channel perceives greater utility from the more personal and customized services gleaned from the salesperson channel (Montoya-Weiss, Voss, and Grewal 2003) or from the ability to directly negotiate with, provide information to, and gain feedback from a representative of the seller (Neslin et al. 2006; Verhoef et al. 2007). Personal interaction between customers and salespeople builds customer trust and loyalty (De Wulf, Odekerken-Schröder, and Iacobucci 2001; Palmatier, Scheer and Steenkamp 2007), which ultimately can generate increased sales and profits for the selling firm (Gupta and Zeithaml 2006; Palmatier, Scheer and Steenkamp 2007).

Customers that perceive greater utility from a channel (or combination of channels) are willing to pay more for the product-service bundle purchased through that channel. All else being equal, the seller will obtain greater financial outcomes from channels that deliver greater utility to the customer. Therefore, we hypothesize:

**H1(a)** A customer’s greater online channel use is positively associated with more favorable selling firm financial outcomes.

**H1(b)** Greater customer-salesperson interaction is positively associated with more favorable selling firm financial outcomes.

Beyond these main effects, we theorize that there will be a synergistic interaction between a customer’s use of the online and salesperson channels due to several factors. First, customers that use both online and salesperson channels obtain more diverse information than those using either channel exclusively. Online and offline channels provide different types of information (Alba et al. 1997; Brynjolfsson et al. 2003; Cao and Li 2015; Montoya-Weiss et al. 2003), granting the multichannel buyer a more complete picture of the selling firm’s offerings and purchasing environment. For example, while the supplier’s web portal offers instant access to pricing and availability information and rapid comparisons of selected products, a salesperson offers more detailed information about the suitability of a product for a specific customer and insider information such as plans for future product development or line extensions. The two sources of information complement one another.

Second, the combination of online and salesperson channels provides the customer with more reasons, opportunities, and avenues to purchase (Stone, Hobbs, and Khaleeli 2002). Customers can glean complementary services from online and salesperson channels. Research in consumer markets has
documented research shoppers that gather information online and then buy in a store (Gallino and Moreno 2014; Verhoef et al. 2007) and showroomsing customers that browse in-store but purchase online (Rapp, Baker, Bachrach, Ogilvie, and BeitelSpaeger 2015). Similar activities can occur in the B2B context, suggesting that customers can utilize the selling firm’s online and salesperson channels for different reasons, resulting in synergistic effects.

Third, we posit that customer confidence in the “high tech” online channel can be complemented and enhanced by “high touch” personalized attention from a salesperson (Malone 2013; Reiman 2002; Ritter and Walter 2006). Trust is crucially important in B2B relationships (Morgan and Hunt 1994; Watson, Worm, Palmatier, and Ganesan 2015), especially in online channels (Saini and Johnson 2005). In consumer markets, personal interaction with a representative of the selling firm has been found to increase customer trust in the seller’s online channel, reducing perceived risk (Alba et al. 1997; Cao and Li 2015; Badrinarayanan, Becerra, Kim, and Madhavaram 2012; Stewart 2003; Stokes and Jensen 2011). Analogous to how retail stores function as “billboards for the brand” (Avery et al. 2012), we anticipate that customer interactions with the salesperson promote greater familiarity and connectedness with the supplier. Greater trust in the salesperson and connectedness with the seller promote greater confidence in the selling firm, including its online channel. This reduces the perceived risk of doing business over the internet, raising the customer’s utility derived from the online channel.

Finally, when the salesperson and customer interact, the selling firm can collect rich data that complements insights gained by analyzing the customer’s online channel activities (Cao and Li 2015; Stone et al. 2002). The seller can use this deeper knowledge to better understand and meet the customer’s needs, thereby generating greater utility for the customer (Slatner and Narver 2000). For example, although the selling firm can create algorithms to recommend additional products based solely on the customer’s online purchasing history, a salesperson is better equipped to uncover unmet customer needs. Drawing insights from both the online and salesperson channel enables the seller to better serve the customer. Therefore, we hypothesize:

\[ H_2 \]
Greater customer-salesperson interaction enhances the positive effect of customer online channel use on selling firm financial outcomes.

To gain a complete picture of the effects of B2B customers’ online and salesperson channel use on seller financial outcomes, it is necessary to examine the role of customer-specific pricing (Wiesel et al. 2011). We anticipate that a customer’s greater use of the online channel will be associated with more customer-specific discounts. Customers favor channels that offer the ability to negotiate price (Neslin et al. 2006; Verhoef et al. 2007), particularly in B2B markets. Effective negotiation, however, requires accurate information. We posit that a customer that extensively uses the seller’s online channel will similarly make extensive use of online information provided by competitors and other sources. These customers will have a clearer understanding of the utility provided by the product-service offerings of competitors (Kumar and Venkatesan 2005). Consequently, they will be more likely to seek discounts from the seller to match or exceed that utility. In addition, customers who interact with the firm predominantly via the online channel may perceive that the responsibility for delivering service has shifted from the selling firm to the customer (Hilton, Hughes, Little, and Marandi 2013). As the customer takes on functions previously provided by the seller, the customer’s utility falls and thus the customer expects to be compensated for this by obtaining a lower price. Therefore, greater customer use of the online channel will result in more customer-specific discounts enacted by the selling firm.

However, this effect is likely to be muted as customer interactions via the salesperson channel increase. Regular interaction with a salesperson makes salient the value added by the salesperson and selling firm’s role in creating value for the customer, thus reducing the dangers associated with “high tech without high touch” (Reiman 2002). In other words, interactions with the salesperson mitigate perceptions of a shift
in responsibility for service provision that could otherwise arise from use of the online channel. More generally, a customer that gleans value from both the high tech online channel and the high touch salesperson channel is less likely to demand price discounts to compensate for any perceived shortcomings of the seller. Therefore, the positive impact of online channel use on discounts will be attenuated as the customer’s interaction with the salesperson increases. We hypothesize:

**H3**: Greater customer online channel use is positively associated with customer-specific price discounts enacted by the selling firm.

**H4**: Greater customer-salesperson interaction mitigates the positive effect of customer online channel use on customer-specific price discounts.

The direct impact of customer-salesperson interaction on customer-specific price discounts is unclear. On the one hand, the knowledge acquired by the salesperson enables the firm to better serve the particular needs of the customer. The value added by the high touch interpersonal interaction, the greater trust in the salesperson, and the associated greater confidence in the selling firm all increase customer utility from the salesperson channel, reducing requests for discounts. However, on the other hand, customers may only become aware of the potential to acquire special discounts via interaction with the salesperson. With some selling firms, the possibility of a negotiated price discount occurs only in the salesperson channel. In addition, it can be in the salesperson’s own best interest to promote customer-specific discounts to increase purchasing and salesperson commissions (Simester and Zhang 2014). The salesperson also may seek a special price discount to curry favor with the customer and strengthen that customer’s salesperson-owned loyalty, thereby enhancing the salesperson’s own standing with the seller (Palmatier, Scheer and Steenkamp 2007). Given these conflicting predictions, we offer no hypothesis regarding the direct effect of customer-salesperson interactions on customer-specific discounts.

The effect of customer-specific discounts on the selling firm’s customer-specific financial outcomes is also uncertain. Evidence from research on discounts and other customer financial benefits is mixed. Some studies report positive effects of financial rewards, such as customer benefits from loyalty programs (e.g., Verhoef 2003). On the other hand, a number of studies find that financial relationship marketing strategies and price allowances have neutral or even negative effects on the selling firm’s financial outcomes, although these studies do not consider net profit (Palmatier, Gopalakrishna, and Houston 2006; Palmatier, Scheer, Houston, Evans, and Gopalakrishna 2007; Reinartz and Kumar 2000). Thus, we offer no hypothesis regarding the direct effect of customer-specific discounts on selling firm financial outcomes.

However, regardless of the nature of any direct effect of discounts on financial outcomes, we theorize that customer-specific discounts will positively moderate the positive effect of online channel use on financial outcomes. The well-informed online channel users will be more aggressive in seeking their desired price from the seller (Kumar and Venkatesan 2005). Failing to enact desired discounts will reduce these customers’ perceived utility. The cost in terms of lost business of not providing discounts to these customers will be greater than for other, less-informed customers. Therefore, we hypothesize:

**H5**: Customer-specific price discounts enhance the positive effect of customer online channel use on selling firm financial outcomes.
METHOD

Data Source
To test our hypotheses, we compiled a research database for analysis from archived CRM, transactional, activity-based costing, and customer history databases of a collaborating partner firm, a large global industrial wholesaler headquartered in the United States. This selling firm serves a large, diverse portfolio of industrial customers that operate in numerous industries. This provides an ideal research context in which to test our model, as customers vary widely in online channel usage, contact with a salesperson, and financial outcomes. It also increases the generalizability of our findings across buyers in various industries. The final data set includes data for 3,539 customer-selling firm dyads and consists of both temporally-varying and temporally-invariant variables across a 15-month span from January 2014 through March 2015. Customers that had purchases in two or more months were included in our data set.

Measures
Our measures are summarized in Table 1. Customer online channel use was captured using proxies for both search and purchase. Our proxy for customer online search behavior (OnlineSearch) is the number of times a customer downloaded updates to the selling firm’s computer-based desktop catalog during the 15-month observation window. The desktop catalog contains extensive information and prices on the seller’s frequently-changing product portfolio. Customers can use the desktop catalog to research products, compare prices, and check product availability. We assume that a customer that more frequently updates the desktop catalog will frequently engage in other online search activities in general. This variable is time-invariant; all other focal variables in our model are time-varying.

Customer online purchase behavior (OnlinePurch%) reflects the share of the customer’s transactions from the selling firm that are made online rather than via personal contact with a representative of the seller. This variable is calculated as the number of online orders placed by a customer in a month divided by the customer’s total number of orders in that month. Customer-salesperson interactions (CustSPContact) are our proxy for customer activity in the salesperson channel; this variable is the number of interactions between the customer and the selling firm’s salesperson in a month, as logged in the selling firm’s CRM database. Customer-specific discounts (CustDisc%) reflect the prevalence of specially-negotiated discounts received by the customer. This variable is computed as the proportion of the number of unique stock keeping units (SKUs) ordered by a customer in a month that were purchased at a customer-specific discounted price, divided by the total number of unique SKUs purchased by the customer in that month. Consistent with previous studies that have examined financial consequences of customers’ use of multiple channels (Avery et al. 2012; Gallino and Moreno 2014; Herhausen et al. 2015; Oh, Teo, and Sambamurthy 2012; Pauwels and Neslin 2015; cf. Kumar and Venkatesan 2005), we examine both sales and gross margin dollars at the customer level. Sales is measured with the natural logarithm of monthly dollar sales to a customer (logSales) and gross margin is assessed using the natural logarithm of monthly dollar gross margin (logGM) earned from the customer.

It is important to note that gross margin does not include all expenses that may be associated with a customer. Therefore, we take our operationalization of customer-specific financial outcomes a step further by also capturing customer-specific net profit. The selling firm employs an activity-based costing (ABC) system whereby specific selling and administrative expenses, such as those incurred by the salesperson and customer support staff, are allocated to each customer in proportion to the extent to which each customer uses these resources. For example, customers who log many hours on the phone with customer service representatives will have a greater portion of the selling firm’s wages paid to customer service representatives allocated to them. We measure net profit as customer-specific gross margin less any selling and administrative expenses allocated to the customer, and take the natural logarithm of this difference (logNP).
Control variables were included to preclude potential confounds and reduce the risk of omitted variables bias. In addition to the time-varying controls *Trend*, which indicated the month within the observation window, and *Quarter*, which incorporates seasonality, we also included time-invariant *CustTenure*, the customer-selling firm relationship length in days at the beginning of the observation window; *CreditLim*, the customer’s credit limit (in dollars) with the selling firm; and *BuyGroup*, a dummy variable indicating the customer’s membership in a buying group. As the time-varying component of customer tenure during the observation window is already captured in the linear *Trend*, *CustTenure* is treated as time-invariant. Credit limit and buying group membership were included as indicators of customer size and negotiating power, which we expect to impact customer-specific discounts enacted and selling firm financial outcomes.

*Table 1 about here*

The remainder of the method section and results will be included in the presentation.
REFERENCES


Reiman, Steve (2002), “E-stuff: In the rush for high tech, have we forgotten the high touch?,” *Interactive Marketing*, 3 (3), 218–29.


# TABLE 1

**Summary of Constructs and Variables**

*Subscript ‘ct’ in the variable label indicates a time-varying operationalization*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Variable Label</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer-specific discounts</td>
<td>Extent to which customer receives unpublished, non-advertised price discounts negotiated on a case-by-case basis</td>
<td>CustDisc%&lt;sub&gt;ct&lt;/sub&gt;</td>
<td>Proportion of the total number of SKUs ordered that were price deviated (i.e., discounted) by the focal supplier firm for customer (c) in the month (t). <em>Source: Customer transaction data.</em></td>
</tr>
<tr>
<td>Customer-specific sales</td>
<td>Sales the firm receives from the customer</td>
<td>logSales&lt;sub&gt;ct&lt;/sub&gt;</td>
<td>Natural logarithm of the total sales revenues (in dollars) earned through all transactions with customer (c) in the month (t). <em>Source: Customer transaction data.</em></td>
</tr>
</tbody>
</table>
| Customer-specific gross margin   | Gross margin the firm receives from the customer                          | logGM<sub>ct</sub>      | Natural logarithm of the total gross margin (in dollars) earned through all transactions with customer \(c\) in month \(t\). *Source: Customer transaction data.*
|                                  |                                                                           |                         | Note that gross margin = Dollar sales – Costs of goods sold. |
| Customer-specific net profit     | Net profit the firm receives from the customer                            | logNP<sub>ct</sub>      | Natural logarithm of the total net profit (in dollars) earned through all transactions with customer \(c\) in month \(t\). *Source: Customer transaction data.*
<p>|                                  |                                                                           |                         | Note that net profit = Gross margin – Selling &amp; Administrative expenses allocated to the customer |
| Customer-salesperson interactions| Extent of contact between the customer firm’s representative(s) and the selling firm’s salesperson | CustSPContact&lt;sub&gt;ct&lt;/sub&gt; | Mean-centered and standardized number of interactions between a salesperson from the supplier firm and customer (c) in the month (t). <em>Source: CRM database.</em> |
| Customer’s online purchase behavior | Extent of customer’s use of the selling firm’s online channel to complete purchases | OnlinePurch%&lt;sub&gt;ct&lt;/sub&gt; | The proportion of total orders submitted by customer (c) in the month (t) that were submitted over the internet. <em>Source: Customer transaction data.</em> |</p>
<table>
<thead>
<tr>
<th>Customer’s online search behavior</th>
<th>Extent of customer’s use of the selling firm’s online channel to search for price and product information</th>
<th>( OnlineSearch_c )</th>
<th>Mean-centered and standardized number of desktop price catalog (DPC) updates that the customer ( c ) undertakes with this supplier in the month ( t ). The DPC system contains extensive information on product pricing, specifications, and availability. An update refreshes this information. <em>Source: Customer transaction data.</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Control variable)</td>
<td>Quarter (i.e., seasonality) ( Quarter_{ct}^j ), where ( j = 1 ) to 3</td>
<td>( \text{Quarter}_{ct}^j )</td>
<td>Indicator control variables indicating which quarter in the year the month ( t ) belongs to.</td>
</tr>
<tr>
<td>(Control variable)</td>
<td>Time trend ( Trend_{ct} )</td>
<td>( Trend_{ct} )</td>
<td>Control variable taking values ( t = 1 ) through 15 for the particular month.</td>
</tr>
<tr>
<td>(Control variable)</td>
<td>Customer’s tenure with the selling firm ( CustTenure_c )</td>
<td>( CustTenure_c )</td>
<td>Mean-centered and standardized number of days a customer ( c ) has had an account with the focal supplier firm.</td>
</tr>
<tr>
<td>(Control variable)</td>
<td>Customer’s credit limit with the selling firm ( CreditLim_c )</td>
<td>( CreditLim_c )</td>
<td>Mean-centered and standardized credit limit in dollars that the focal supplier firm allows the customer ( c ). Larger customer firms have higher credit limits.</td>
</tr>
<tr>
<td>(Control variable)</td>
<td>Customer’s buying group membership (yes/no) ( BuyGroup_c )</td>
<td>( BuyGroup_c )</td>
<td>This is an indicator variable which with a value of 1 indicates that the customer ( c ) is a part of a buying group. Buying group members have more power relative to the supplier firm than customers that are not, <em>ceteris paribus</em>.</td>
</tr>
</tbody>
</table>
ESSAYS ON THE ROLE OF PRODUCT CHARACTERISTICS ON INFORMATION SOURCE IMPORTANCE

Saeed Tajdini, Dr. Edward Ramirez, Dr. Gary Frankwick, and Dr. Feixue (Faith) Xie, The University of Texas at El Paso

ABSTRACT

The goal of this dissertation is to contribute to our understanding of relative importance of different information sources that consumers use to guide their purchasing behaviors. Specifically, this work aims to model the product-related factors affecting the importance of each information source to consumers as they seek to purchase a given product. Although the extant literature has examined this topic, the efforts have not been cohesive and a comprehensive model of the phenomenon has yet to be developed, limiting our understanding of the topic. Gaining insight into the effects of product characteristics on the importance of different sources of information is significant since such insights may extend our understanding of consumer information search behavior and also guide managers’ decisions regarding their allocation of resources to promotional efforts. For this reason, examining how product characteristics affect consumers’ perceptions of the importance of different information sources is the focus of this work.

Essay 1 is an attempt to identify and list all of the factors that affect importance of each source of information in the consumer information search process. Throughout this document, we refer to information source and information source importance as IS and ISI, respectively. We do a comprehensive review of the extant literature to identify the most significant of these factors. The resulting model extends the one proposed by Newman and Staelin (1973), by incorporating product characteristics.

Essay 2 extends the investigation in essay 1 by exploring product characteristics that affect ISI, using an exploratory, qualitative approach. To do so, x students enrolled in marketing classes at a large mid-western university and also x participants from Amazon MTurk were recruited. Participants were asked to rate the relative importance of each IS when gathering information prior to purchasing a named product type. Then, the participants were asked to list product characteristics that made them rate each ISI the way that they did. A list of product characteristics was then extracted from the respondents’ responses.

In essay 3, we explore how the product characteristics identified in the previous essay explain ISI across different product types. To achieve this goal, x respondents’ are recruited from Amazon MTurk. Respondents assess the impact of each of the product characteristics, as independent variables. Then, the respondents rate the ISI on a 0-10 scale for a given product, as the dependent variable (DV). Measuring the DV on a scale ranging from 0 to 10 permits using statistical analyses such as regression, analysis of variance, and the generalized linear model (GLM), since these techniques require the use of a continuous measure. While controlling for any non-product-related factors identified in the first study, the multivariate multiple regression technique is used to develop an equation that can estimate the ISI given any product with specific characteristics. This specific technique was selected because results suggest that the ISs are inter-correlated, thus estimating the model with each acting as a DV can lead to spurious results.
INTRODUCTION

Consumer information search\(^1\) is one of the most enduring research areas in the field of consumer behavior (Beatty and Smith 1987). Marketing scholars’ interest in consumer information search behavior can be traced back at least to 1917 (e.g., Copeland 1917) and the importance of understanding consumers' information search behavior for scholars, managers, and public policy makers has been acknowledged (e.g., Bennett and Mandell 1969; Moorthy, Ratchford, and Talukdar 1997; Murray 1991; Srinivasan 1990; Westbrook and Fornell 1979). Consequently, the literature on consumer information search behavior is voluminous and possesses a long and rich history (Peterson and Merino 2003). Perhaps, one main reason for the importance placed on consumer information search behavior is that a major part of consumer purchase process comes after, and thus is influenced by, consumer information search. Indeed, search activities lead to a variety of important outcomes, such as better choice decisions, increased product and market expertise, and heightened satisfaction with a purchasing decision (Punj and Staelin 1983).

Despite the valuable insights offered by research on consumer search behavior, fundamental questions remain unanswered (Moorthy, Ratchford and Talukdar 1997). There exist two gaps in the literature. First, one area that has not been sufficiently examined is how product characteristics influence information search behavior. Most studies partially or completely ignore the role of product characteristics on consumer information search behavior. For instance, Beatty and Smith (1987) list seven categories containing approximately 60 variables that are proposed to affect information search behavior, but none directly relates to the product. Even in the few cases in which product characteristics have been examined among factors affecting information source importance, these studies have been limited in scope. For example, Schmidt and Spreng (1996) propose 15 antecedents to external information search, with only one that is directly related to the product. In the same fashion, Newman and Staelin (1973) identify only one product characteristic that serves to influence information search behavior. Still more, Cox (1967, p. 604) argues that the “amount and nature of perceived risk will define consumers' information needs, and that consumers will seek out sources, types, and amounts of information that seem most likely to satisfy their particular information needs.”

Major shortcomings, however, exist even in studies that focus on the role of product characteristics. For instance, Zhu and Zhang (2010) examine how product and consumer characteristics moderate the influence of online consumer reviews on product sales using data from the video game industry. This study’s weakness lies in that it only considers others’ input and it features a limited product set. Huang, Lurie, and Mitra (2009) examine consumers’ information search behavior across search and experience goods, finding that the time spent online is the same for both product types, but the behavior (e.g. web browsing pace) differs between the two. The weakness of this paper is that managerial implications regarding the allocation of resources to promotional budgets is not clear. Also, only one information source is discussed in this paper. In addition, a meta-analysis investigates the moderating effect of product characteristics on effectiveness of others' input (Babic et al. 2015). What is missing here is that only one information source is examined, while the authors provide no reasonable justification for the five product characteristics that they use.

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\(^1\) Consumer information search in this essay refers to the effort that a consumer expends in order to acquire information from the environment (e.g. Srinivasan and Ratchford 1991). Schmidt and Spreng (1996) define information search as the stage of the decision-making process wherein the consumers collect and integrate information from different internal and external sources before they make a choice. In internal search, consumers retrieve information from memory, whereas external search considers sources outside of consumers’ memories are accessed.
Moon, Bergey, and Iacobucci (2010) build on the concept of influence mix or internal and external sources of information to examine how information from one’s own and others’ input affects the performance of movies, controlling for movie characteristics. In fact, they state (p. 112) that “in the movie industry, the uniqueness of each movie makes movie choice challenging.” In our pilot study, we see that in harmony with this statement, the importance of all information sources is very high for movies, but not for all other products. It seems that the assumed zero-sum nature of the effects of information sources is absent for a product such as movies. However, this study is limited to movies and does not take marketers’ input into account.

Aside from insufficient examination of product-related factors in the literature, a second gap exists as well. Almost all of the studies examining the antecedents of information search, only focus on external search. However, the question of what determines the level of emphasis consumers put on internal source of information deserves attention, as marketing managers may benefit from managing internal sources of information as much as they may benefit from managing external sources. Although managing internal sources of information may not look as straightforward as managing external sources, attempting the former may still be worthwhile if internal sources of information prove to be a main driver of purchase decisions in some circumstances. How far car manufacturers go after a recall to minimize the damage to their image in consumers’ minds is an example of companies’ attempts to manage internal sources of information.

In sum, there is still no systematic examination for how product characteristics drive consumers to rely more heavily on one or another information source, either internal or external. One reason for this limitation is that a large number of previous studies consider only one product. In such a situation, an examination of the effects of product characteristics on search behavior may appear irrelevant. However, it is particularly important to answer this question as businesses debate how best to allocate billions of advertising dollars across different communications media (Dreazen 1999).

In these three essays, this dissertation tries to achieve four main goals. First, it integrates the current findings on consumers’ usage of information sources, providing a comprehensive model reflecting the determinants of each information source’s importance. Second, focusing on product characteristics, one of the determinants found in the model, the dissertation utilizes a qualitative approach to identify a list of product characteristics. Third, it provides managers with a practical method for predicting the importance of each information source, given a specific product offering.

INFORMATION SEARCH, INFORMATION SOURCES, AND FACTORS AFFECTING THEIR IMPORTANCE

According to Srinivasan (1990), the consumer information search literature is dominated by three major theoretical perspectives. The first is the psychological/motivational approach, which incorporates the individual, the product class, and task-related variables into the study of consumer information search. The second is the economics approach, which uses a cost-benefit framework to study information search. The third is the consumer information processing approach, which focuses on humans’ memory and cognitive information processing limitations. The current study is most closely associated with the first category, since it examines the effects of product characteristics on consumer information search. Additionally, Bloch, Sherrill, and Ridgway (1986) consider a distinction between pre-purchase search and ongoing search. According to these authors, pre-purchase search (information search pertaining to a specific purchase) is influenced by involvement in the purchase, while ongoing search (search independent of specific purchase needs or decisions) is influenced by involvement with the specific product. In this essay, we conform to the conventional pre-purchase search and, accordingly, consider involvement as a situational—rather than product-related—factor (See table 1).
Theoretical Framework

Sources of information

Consumers use two broad categories of information: internal and external (Murray 1991). When making a purchase decision, consumers scan the information in memory about past purchase experiences, experiences, and beliefs. Experience creates knowledge, which in turn leads to internal search in subsequent decision situations (Jacoby, Chestnut, and Silberman 1977; van Raaij 1977). A variety of typologies encompassing a wider range of information sources has been proposed for external information. This study, however, follows Engel, Blackwell, and Miniard’s (1986) classification of external information, which suggests that it is composed of information derived from marketers and from personal or impersonal communications. Below, the dissertation describes each type of information in more detail.

Consumers’ prior preferences, beliefs, and experiences (referred to as consumer predisposition, for brevity)

Consumers usually have a predisposition toward a brand or product. As such, consumers’ predispositions play a significant role in their purchase decisions, especially in the case of habitual decision making (Simonson and Rosen 2014). For example, one’s predisposition towards a brand of cereal will significantly affect which brand of cereal that the consumer will purchase in the future.

Marketers’ input

Marketers’ input represents another source of information that affects purchasing decisions. One of the roles that marketing activities play is to supply information to customers. These inputs may be in different forms such as print ads, TV or radio commercials, personal selling, information on product packaging, product brochures, and online marketing campaigns. These efforts are typically controllable by the organization, making them an important part of the promotional mix.

Others’ input

Consumers receive information from others. This type of information may come from personal sources such as friends or family, impersonal sources such as online customer reviews or offline reviews in consumer magazines, and direct inspection of others (for example, through observation and inferencing). According to a global Nielsen (2009) survey of 26,486 Internet users in 47 markets, other customers’ recommendations are the most credible form of advertising according to 78% of the study’s respondents, which makes this source of information an important one to explore. This study separates offline and online others’ input to add richness to the results. Offline others’ input usually come from those that the consumer personally knows such as family and friends. On the other hand, online others’ input usually comes from those that the consumer personally does not know such as other internet forum members and authors of online reviews. This distinction is valuable in the sense that it adds more clarity to the research results. Moreover, it makes it possible to control for source-related effects, such as source credibility, to better isolate the effect of product-related factors on information source importance in essay three.

Factors affecting the importance of information sources

Different scholars have offered different classifications of factors affecting consumers’ use of information sources (See Maity, Dass, and Malhotra 2014, p.235 for a review). In this essay, we use a classification model that incorporates and summarizes several of these individual classifications. This classification refers to factors such as demographic characteristics, previous experience, and attitudes as personal factors. Additionally, it refers to factors such as situational characteristics, market environment and the nature of decision process as situational factors. Finally, it incorporates product-related factors as the third type of factors influencing information usage.
A number of theoretical frameworks and paradigms guided the selection of factors from the literature. First, this model draws upon Elaboration Likelihood Model (ELM) (Petty and Cacioppo 1986) to include factors pertaining to individuals’ ability and also motivation to pursue information. According to the ELM, both the ability to process information and the motivation to do so must be present for someone to engage in effortful cognitive processing. In the context of this study, both motivation and ability are necessary for effortful information search to happen. Another paradigm supporting the model is the cost-benefit paradigm from economics (e.g., Bettman 1979; Stigler 1961; Urban, Hulland, and Weinberg 1993). This paradigm exerts that individuals search for information continues until the marginal cost of obtaining a unit of information is equal to the marginal benefit of acquiring a unit of information. An implication of this assumption is that the extent of information search is negatively correlated with the costs of searching and is positively correlated with the benefits of search increase. Finally, based on Thompson’s (1967) contingency theory, the dissertation hypothesizes that the effect of personal and situational factors may vary across different products, thus the inclusion of the product-related factors in the proposed model. According to the above discussion, the following hypotheses are developed:

H1: Personal factors affect importance of information sources.

H2: Situational factors affect importance of information sources.

H3: Product-related factors affect importance of information sources.

H4: Product-related factors moderate the effect of personal factors on importance of information sources.

H5: Product-related factors moderate the effect of situational factors on importance of information sources.

Figure 1 depicts the summary model of factors affecting information source importance.

Figure 1: A Summary Model of the Determinants of Information Source Importance
Table 1 shows the factors that a review of literature identified in each of the three categories, along the corresponding studies. Essay 3 uses the identified personal and situational factors as controls when examining the effect of product-related factors on information source importance. The dotted lines indicate the hypothesized moderation effects.

### Table 1: Personal, Situational, and Product-Related Factors Identified in the Existing Literature, along the Corresponding Studies

<table>
<thead>
<tr>
<th>Type of Factor</th>
<th>Factors</th>
<th>Relation with Extent of External Search</th>
<th>Example Corresponding Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>Attitudes toward shopping</td>
<td>Positive</td>
<td>Beatty and Smith (1987)</td>
</tr>
<tr>
<td></td>
<td>Desire to seek information</td>
<td>Positive</td>
<td>Punj and Staelin (1983)</td>
</tr>
<tr>
<td></td>
<td>Positive experience</td>
<td>Positive</td>
<td>Srinivasan and Ratchford (1991)</td>
</tr>
<tr>
<td></td>
<td>Ability to search</td>
<td>Positive</td>
<td>Schmidt and Spreng (1996)</td>
</tr>
<tr>
<td></td>
<td>Shopping enthusiasm</td>
<td>Positive</td>
<td>Schmidt and Spreng (1996)</td>
</tr>
<tr>
<td></td>
<td>Desire for optimal decision</td>
<td>Positive</td>
<td>Schmidt and Spreng (1996)</td>
</tr>
<tr>
<td>Situational</td>
<td>Purchase involvement</td>
<td>Positive</td>
<td>Beatty and Smith (1987)</td>
</tr>
<tr>
<td></td>
<td>Time pressure</td>
<td>Negative</td>
<td>Wright &amp; Weitz (1977)</td>
</tr>
<tr>
<td></td>
<td>Cost of search</td>
<td>Negative</td>
<td>Punj and Staelin (1983)</td>
</tr>
<tr>
<td></td>
<td>Size of feasible set</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived benefits</td>
<td>Negative</td>
<td>Srinivasan and Ratchford (1991)</td>
</tr>
<tr>
<td></td>
<td>Information accessibility</td>
<td>Positive</td>
<td>Schmidt and Spreng (1996)</td>
</tr>
<tr>
<td>Product-Related</td>
<td>Search and Experience goods</td>
<td>Positive, and negative, respectively</td>
<td>Klein 1998</td>
</tr>
<tr>
<td></td>
<td>Product complexity</td>
<td>Positive</td>
<td>Schmidt and Spreng (1996)</td>
</tr>
</tbody>
</table>

The zero-sum game among the information sources

Simonson and Rosen (2014, p. 24) suggest that we consider the mix of the information sources taking part in a “zero-sum game.” That is, “the greater the reliance on one source, the lower the need for the others. For example, if the impact of others’ input on a purchase decision about a food processor goes up, the influence of marketers’ input or consumers’ predispositions, or both, must go down.” That the influence mix possesses such a zero-sum nature could be justified from different perspectives. One intuitive reason is that individuals have limited resources—mainly time—available to them to gather the required information through their own reflections, others’ input, and marketers’ input. Individuals’ total information search time for each purchase can be considered as the total time spent on all of these sources. Assuming that individuals wish to keep their total search time and effort for each purchase constant, changing the time and effort spent on one source must be compensated with a change in time and effort spent on one or more of the other sources. Moreover, one may consider the effect of information overload on consumers’ information processing behavior. As Malhotra (1984) notes, consumers try to limit their intake of information to prevent cognitive overload to avoid confusion, cognitive strain, and other dysfunctional consequences.

Another argument for the zero-sum nature of the influence mix comes from the accessibility/diagnosticity framework put forward by Feldman and Lynch (1988). According to this
framework, any piece of information in a person’s possession influences any evaluation that that person makes. It states that the likelihood that information is used is a function of the accessibility of other pieces of information, and the perceived diagnosticity of the information, among others. Thus, an implication that can be drawn from this framework is that when two pieces of information from two different sources are both diagnostic, the one that is accessible is used at the peril of the one that is not. This is another way of saying that the competition between information sources represents a zero-sum game.

Finally, Ratchford, Lee, and Talukdar (2003) provide some evidence for this assumption, as they found that the more that individuals use the internet as an information source, the less average time that they spend searching for information. Similarly, Dhar and Chang (2009) find evidence of a zero-sum game among information sources when it comes to their effect on sales in the music industry.

Based on the above discussion, the importance that consumers give to each source must be intercorrelated. This inter-correlation bears an important implication for the research presented. Briefly, this implication points to a limitation in previous research, as it has not considered each information source simultaneously. This issue will be discussed in more detail in the method section and the following hypothesis is developed to test the inter-correlation premise:

H6: Importance scores of information sources are negatively correlated with one another. That is, the more important one source is, less important other ones will be.

**PRODUCT-RELATED FACTORS AFFECTING IMPORTANCE OF INFORMATION SOURCES**

**Introduction**

Figure 1 shows the three categories of factors determining the importance of information sources: personal, situational, and product-related factors. The existing literature is filled with factors in the first two categories but not the last one, as implied by table 1. Thus, the main goal of essay two is to develop a battery of product-related factors that affect the importance of each information source. That is, this study investigates which product-related factors influence information source importance.

**Design**

To answer this question, a pilot, exploratory study was conducted in which 15 undergraduate students enrolled in a marketing class in a mid-western university engaged in a brainstorming activity to come up with such product characteristics in return for extra credit. Students took an online survey in which they first were informed about the concept of search behavior and the three information sources. Then, they were asked to rate the relative importance of each source of information as they conducted their own product searches for one of the several product categories (e.g., laptop computers). The online survey apparatus allowed students to move a slider to the left or the right to set the importance of each information source on a 0–5 scale. Then, the students were asked to list the product characteristics that influenced the importance that they placed on each information source. Appendix A contains a screenshot of the survey for one of the products. The participants answered the questions for a total of 11 products including goods (search and experience) and services. The Google product taxonomy was used to identify the list of product types. The names of the 11 product types can be found on the horizontal axis in figure 2.

**Results**

Table 2 shows the product characteristics identified in the survey. These characteristics were extracted from respondents’ comments which conveyed why they rated the importance of each information source in the way that they did for a given product. Some of the more explicit comments about the product characteristics, information source that they influence, and the directionality of influence are included in the table. Table 2 also shows the product type about which the comment was made.
Table 2: Product Characteristics Affecting Information Source Importance

<table>
<thead>
<tr>
<th>Product Characteristics</th>
<th>Product Type(s)</th>
<th>Verbatim Comment</th>
<th>Affected Information Source</th>
<th>Hypothesized Direction of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Consumer Knowledge and expertise</td>
<td>Instrument, Toothpaste</td>
<td>“resell value and brand comparison information” “If I was very knowledgeable about music I would take the decision myself” “not much science”</td>
<td>M &amp; O</td>
<td>+</td>
</tr>
<tr>
<td>Involvement</td>
<td>Instrument</td>
<td>“extension of you” “Personal buy” “how comfortable you feel it” “Frequency of use”</td>
<td>P</td>
<td>+</td>
</tr>
<tr>
<td>Purchase size</td>
<td>Instrument</td>
<td>“Big purchase” “big ticket item”</td>
<td>M</td>
<td>+</td>
</tr>
<tr>
<td>Subjectivity of Opinions</td>
<td>Instrument</td>
<td>“Everyone has different opinion”</td>
<td>O</td>
<td>-</td>
</tr>
<tr>
<td>Product Sophistication</td>
<td>Instrument</td>
<td>“sophisticated products”</td>
<td>M &amp; O</td>
<td>+</td>
</tr>
<tr>
<td>Credibility of Other’s Input</td>
<td>Instrument</td>
<td>“if I respect the playing of another musician”</td>
<td>O</td>
<td>+</td>
</tr>
<tr>
<td>Similarities Between Alternatives</td>
<td>Instrument</td>
<td>“in general different brands of instruments have similar features”</td>
<td>M</td>
<td>-</td>
</tr>
<tr>
<td>Possibility of repeat purchase</td>
<td>Instrument</td>
<td>“Because musical instruments rely more on one time purchases rather than return business, I do not trust their[marketers’] input”</td>
<td>M</td>
<td>+</td>
</tr>
<tr>
<td>Marketing Source Trustability</td>
<td>Instrument, Car, Movie</td>
<td>“all musical instruments claim they're the best” “Marketing input almost believed to be fluff” “They only show the best the part of the movie”</td>
<td>M</td>
<td>+</td>
</tr>
<tr>
<td>Product Personality</td>
<td>Instrument, Laptop</td>
<td>“personality of the instrument can be determined by the buyer” “apple represents sophistication”</td>
<td>P</td>
<td>+</td>
</tr>
<tr>
<td>Tie to Social Status/visibility</td>
<td>Refrigerator, Wrist watch</td>
<td>“I don't really see a refrigerator as something that I want to show off” “you just want to know where the brand fits in socially”</td>
<td>P, O</td>
<td>+</td>
</tr>
<tr>
<td>Notes: M, P, and, O refer to marketers’ input, consumer predisposition, and others’ input, respectively. Table 2 shows the verbatim comments from which product characteristics are proposed to affect information source importance have been derived (3rd column). It also shows the product type for which</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Heterogeneity of consumers’ needs | Refrigerator | “big family or small family” “I see demographic playing a role in who would by what” “everyone has their own distinct preferences with technology” “exact haircut” | O | + |

| Need for long-run reliability | Car | “others experiences on the products to tell me if it really is reliable” | O | + |

| Technological turbulence | Refrigerator | “Marketing of refrigerators of the latest technology is important to consumers” | M | + |

| New learning required | Laptop | “a laptop requires a lot of new learning” “Most watches have similar purpose” | M | + |

| Association with Related products | Laptop | “I purchased my apple laptop based on my experience with my iPhone” “you are able to see if the movie will be worth watching by the previous movies you've seen with the same directors” “if I read and liked the book first I will be more interested in the movie” “experience with a website such as Facebook will lead you to get the app” | P | + |

| Impulse buying | Toothpaste | “You might pick up a new brans if you remember their commercial” | M | + |

| Externality | Mobile app | “sometimes there are apps that are fun to share with friends or play with friends” “I like having the same phone as my friends and family because of certain apps that we can connect” | O | + |
the comments have been made (2nd column), the relevant information source (4th column), and the proposed directionality of effect (5th column).

Although study 2’s goal was to develop a list of product characteristics that are proposed to affect the importance of information sources, a secondary insight emerged, which acts as one impetus for the next essay. Specifically, some interesting patterns emerged in the differential information source importance across the products under consideration. Figure 2 and table 3 show these patterns.

**Figure 2: Information Source Importance across Different Product Types**

![Figure 2: Information Source Importance across Different Product Types](image)

Note: M stands for marketers’ input, P for consumer predisposition, and O for others’ input. The Y-axis shows the importance of each information source on a 0-5 scale. The X-axis shows the 11 product categories used in study 1.

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Min.</th>
<th>1st Quarter</th>
<th>Median</th>
<th>Mean</th>
<th>2nd Quarter</th>
<th>Max.</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketers’ Input</td>
<td>1.44</td>
<td>2.75</td>
<td>3.50</td>
<td>3.14</td>
<td>3.73</td>
<td>3.86</td>
<td>0.59</td>
</tr>
<tr>
<td>Predisposition</td>
<td>1.86</td>
<td>2.34</td>
<td>3.00</td>
<td>2.81</td>
<td>3.13</td>
<td>4.15</td>
<td>0.24</td>
</tr>
<tr>
<td>Others’ Input</td>
<td>2.29</td>
<td>2.92</td>
<td>3.33</td>
<td>3.13</td>
<td>3.53</td>
<td>3.71</td>
<td>0.46</td>
</tr>
</tbody>
</table>

As seen in figure 2, the information source importance for cars and haircuts has the smallest and greatest variance, respectively. This suggests that the zero-sum nature between different information sources may not exist for some products. Also, for a product such as a musical instrument, the importance of marketers’ input and others’ input seem to be identical, whereas for products such as movies and wristwatches, the importance of marketers’ input and consumer predisposition are identical. Furthermore, we can see that marketers’ input is of minimal and maximal importance for haircuts and movies, respectively. Further, others’ input reaches its minimal and maximal importance for toothpaste and movies,
respectively. Finally, consumer predispositions are of minimal and maximal importance for mobile apps and movies, respectively.

Some of these findings are consistent with Nelson's (1974) theory of information and consumer behavior and Urbany and Weilbaker's (1987) prediction that personal sources are a more important for experience-type products. Decisions to watch movies were found to be substantially affected by all information sources, in opposition to Simonson and Rosen’s (2014) assertion that the mix of the information sources is a “zero-sum game”. Moreover, one can see from table 3 that the average importance rating for consumers’ predisposition importance differs greatly from the other two information sources. This indicates that across the tested products, marketers’ and others’ inputs play a more significant role than consumer predispositions in the purchase decision. Also, the maximum importance of marketers’ input and others’ input are very close, however, the variance of others’ input importance is much lower and its minimum is much higher. This suggests that others’ input is consistently more important than marketers’ input across products, which suggests that cultivating the influence of others’ input may prove to be a wise strategy when we consider a diverse array of products, irrespective of their specific characteristics.

PREDICTING INFORMATION SOURCE IMPORTANCE BASED ON PRODUCT-RELATED FACTORS

Now that a list of product-related factors is developed, the goal of essay 3 is to explore how such product characteristics can explain information source importance across a variety of different product types and also investigate the patterns found in the previous study. To achieve this goal, respondents are recruited from Amazon MTurk. According to Buhrmester, Kwang, and Gosling (2011, p.3), “the data obtained from Amazon MTurk are at least as reliable as those obtained via traditional methods”. Respondents assess each product regarding each of its characteristics as independent variables. Then, they rate the importance of each information source importance on a 0-10 scale when purchasing that specific product as the dependent variable. A 0-10 range in the DV measurement allows for more diverse statistical analyses, since the measured variable can be considered to be continuous.

During the analysis, some non-product-related factors must be controlled for. A review of literature identifies Beatty and Smith (1987) and Westbrook and Fornell (1979) as two sources with a comprehensive list of such non-product-related factors that can potentially affect information source importance. Besides the factors listed in the two aforementioned studies, a number of other factors may also be controlled for. These include: respondents’ prior knowledge with product type, holistic vs systematic thinking styles, ad skepticism, perceived risk associated with the purchase, involvement (including the notions of enduring involvement and ego involvement, in which the product is related to important values and the ego of the individual), search motives, on-going search (for example, an item such as “I usually gather information about this product even when I don't mean to purchase it in the short term.”), size of consideration set, available time, perceived price range, approach to search, satisfaction with last-purchased product of this type, intention to purchase the product in the near future, self-confidence, importance of product, and so on (Bloch and Richins 1983).

The set of dependent variables in this study—importance values for M, P, and O—does not represent a single variable. These three variables are inter-correlated. Thus, creating a number of equations with each M, P, and O being regressed on product characteristics and control variables may violate the assumption of independence of errors from each equation. When modeling multiple DVs, a researcher faces a choice among three options: 1) analyze each DV separately, 2) perform a multivariate analysis such as MANOVA, or 3) aggregate the DVs before the analysis. One approach that could help the researcher to decide which option to choose is analysis of correlations among the dependent variables (Dattalo 2013). If correlations are low ($r < .2$), option 1 is appropriate simply because the dependent variables are statistically distinct and there is no need for a multivariate analysis. If correlations are moderate ($0.2 < r < 0.5$), a
multivariate analysis, such as MANOVA, is appropriate since performing a number of univariate analyses may inflate the family-wise type I error and also ignore possible conceptual relationships among the dependent variables. In case of high positive correlations ($r > .5$), option 3 is the appropriate option since the dependent variables are too similar to be considered separate (Stevens 2009). One possible method for such a dependent variable is Multivariate Regression Analysis. This analysis allows for multiple dependent variables in one equation and tries to solve the following equation for each product type:

$$M, P, O = \beta_0 + \sum_{i=1}^{I} \beta_i P_i + \sum_{j=1}^{J} \lambda_j C_j + \sum_{k=1}^{K} \gamma_k PC_k$$

where $M$, $P$, and $O$ are the importance values, $P_i (i=1, 2, ..., I)$ are product characteristics, $C_j (j=1, 2, ..., J)$ are the control variables, and $PC_k$ are interaction terms between product characteristics and control variables, especially psychological factors. After the parameters are estimated, given the values of $P$ and $C$, one can predict the importance of $M$, $P$, and $O$. To cross-validate the results, this dissertation measures $P$ and $C$ for a number of new products from each product category (for example, a coffee maker, instead of a refrigerator, to represent home appliances). Then, it predicts the importance of $M$, $P$, and $O$ for each product type, and compares the results to the importance values declared by the same respondents.

**SUMMARY**

According to Edmondson (1997), fifteen percent of Americans say that they want sales advice when shopping for jeans, and this share increases to two-thirds when shopping for prescription drugs. Moreover, Simonson and Rosen (2014) note that habitual purchases (such as buying milk) tend to be dominated by consumer predispositions, while fashion products, along with most experience goods, seem to be heavily influenced by others’ input. Despite such evidence that information source importance varies across products, this study is the first to exclusively identify product characteristics that cause such variation and attempt to predict such importance levels given any product category.

The research presented has several useful implications for marketing strategists as understanding consumers’ information search behavior is crucial for firms' strategic decision making (Moorthy, Ratchford, and Talukdar 1997). Based on the purchase decision process found in almost every marketing textbook, for a product to sell, it must first be in consumers’ consideration sets. A product can get into consumers’ consideration sets if it is found during their search process. To be found in consumers’ search processes, the product must be found in the right information sources, the one(s) consulted by consumers. By knowing how consumers rate the importance of information sources, managers can prioritize those sources more effectively. Moreover, managers should be aware that besides affordability, reach, strength of impact, and so on, product type may be another factor to consider when deciding on the most effective advertising medium. Insight into how product characteristics can affect information source importance is significant in the sense that with the growing number of information sources available to consumers, it can get unwieldy for managers to manage all of these sources. Firms’ resource constraints dictate that managers invest in information sources that are most important for consumers. The results from this study can also help managers since managers can evaluate the characteristics of their own product, but they may not have an accurate idea of how important each information source is for their consumers. The response function developed in study 2 can provide managers with an estimate of information source importance, given any product.
The importance placed by consumers on each information source should have a role in its share of the total promotional budget. For instance, if the consumer’s predisposition is the most important and marketers’ input is the least important source of information for a particular product, it may be advisable that managers focus on enhancing consumers’ prior experiences and beliefs instead of bombarding them with new information through advertisements and marketing campaigns. The results from study 1, though non-conclusive, suggest that for a product such as a piano, others’ input is as important as marketers’ input. The conclusion for a piano-manufacturing company, such as Yamaha, is to consider and nurture these two information sources equally.
REFERENCES


APPENDIX

Rate the relative importance of each source of information when gathering information prior to purchasing a Musical instrument (e.g. a piano or guitar)

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing Input (M)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your Predisposition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others’ input (O)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What characteristics of the above product made you rate the sources like that? (please complete by talking about the characteristics of the product not yourself). I chose that order because this product...
ABSTRACT

Prior research on customer prioritization has suggested the value-enhancement of treating prioritized customers preferentially while recognizing the potential backfire regarding the negative responses of non-prioritized customers. Given that having unhappy customers is costly to a company and that companies usually have some customers who are desirable but unable to receive preferential treatment, this research explores the possibility that a non-prioritized customer will respond to the preferential treatment received by other customers in a favorable manner via the feeling of benign envy. Furthermore, the moderating effects of attitudinal loyalty, relationship orientation, and reward attainability are identified. The current research provides marketing implications for the practice of customer prioritization.

INTRODUCTION

Across a wide range of industries, U.S. companies expend more than $1.2 billion on loyalty reward programs every year (Wagner, Hennig-Thurau, & Rudolph, 2009). It is a commonly adopted belief that companies can better manage customer relationships by prioritizing customers based on their profitability and allocating more resources to treat prioritized customer preferentially (Bowman & Narayandas, 2004). Previous research has focused on exploring the benefits of practicing customer prioritization, such as the relationship development with valuable customers (Homburg, Droll, & Totzek, 2008) and favorable behavior of increased purchases and positive word-of-mouth (Lacey et al., 2007). However, many loyalty reward programs fail to achieve the expected goal (Nunes & Drèze, 2006) and have even been viewed as “shames” due to the problems associated with the programs (Shugan, 2005).

One problem contributing to the program failure is that treating selective customers preferentially can make non-prioritized customers feel ignored and abandoned by a company and drive them to respond negatively (Haenlein & Kaplan, 2010). The prioritization practice to limit certain customers’ access to services has been criticized as facilitating the resentment of non-prioritized customers (Fournier, Dobscha, & Mick, 1998). Because it is common to have some desirable customers not in the position to receive preferential treatment (Thompson, Gooner, & Kim, 2015) and having unhappy customers can be detrimental to a firm (Buttle, 1998), it is critical to explore customer prioritization practice from the perspective of non-prioritized customers and examine how to encourage their positive responses.

Henderson, Beck, and Palmatier (2011) indicate the importance to consider “cross-customer effects” and call for research that investigates the effect of customer prioritization practice on non-prioritized customers. To answer this call, this research aims to investigate how and when firms can encourage non-prioritized customers to react in a favorable manner and discourage their negative responses in the context of noticing other’s preferential treatment. Drawing upon social comparison theory, I propose a conceptual model that emphasizes benign envy as the key mechanism in driving the favorable responses of non-prioritized customers. With the proposed model, the current research aims to contribute to the literature on customer prioritization, benign envy, social comparison and negative word-of-mouth as well as provide managerial implications for customer prioritization practice.

LITERATURE REVIEW: SOCIAL COMPARISON AND ENVY

The essence of social comparison theory is that people use the means of social comparison to evaluate themselves (Festinger, 1954). People can compare themselves with other people in two ways (Suls, Martin, & Wheeler, 2002): 1) downward comparison to compare with someone in an inferior position and
(2) upward comparison to compare against a person in a superior position. While downward comparison highlights the relative advantage that brings positive self-views and produces a sense of self-enhancement, upward comparison signals the relative disadvantage that threatens a person’s self-concepts and drives an individual to cope with the discrepancy with the superior comparison target by either ceasing the social comparison or improving the current position to reduce the discrepancy (Smith, 2000).

In response to the inferior position derived from upward comparison, it is common for people to experience the emotion of envy (Parrott, & Smith, 1993; Smith & Kim, 2007). As a negative emotion derived from the lack of others’ superiority (Cohen-Charash & Mueller, 2007), envy is usually characterized by hostility and often brings unfavorable outcomes, such as triggering intergroup conflicts (e.g., Duffy & Shaw, 2000; Thernstrom, 1998). In line with this logic, the word envy has traditionally been considered as an undesirable emotion that needs to be frowned upon (Schoeck, 1969).

Despite the negative connotation, envy has been suggested to be one of the universal passions that drives self-improvement (Van de Ven, Zeelenberg & Pieters, 2009). Even though researchers (e.g., Foster, 1972; Neu, 1980; Rawls, 1971; Silver & Sabini, 1978) have pointed out the possibility that the word envy has two different meanings, it is only recently that scholars started to empirically and conceptually differentiate two forms of envy. While malicious envy is the traditional type of envy that represents the hostile feeling derived from the relatively inferior position reflected by upward social comparison, benign envy is the new aspect of envy that refers to the motivational feeling associated with the social comparison with a superior target (Van de Ven et al., 2009). The former envy is characterized by the destructive features associated with resentment that drives a person to pull-down the upward comparison target, and the latter envy can be viewed as constructive in nature that motivates an individual to keep up with the superior other (Van de Ven et al., 2009).

Because benign envy is a desirable emotional response but has received little attention from academia (Smith & Kim, 2007), it is the main focus in the current research. Given that benign envy is motivational in nature, it is in line with the insights from the literature on social comparison that comparing with a superior target can motivate people to work toward a superior position (Johnson & Stapel, 2007; Romero-Canyas et al., 2010). While social comparison literature (e.g., Collins, 1996; Sundie, Ward, Beal, Chin, & Geiger-Oneto, 2009) has largely focused on the comparison of abilities and performance between a focal individual and a comparison target, this research extends the social comparison literature by investigating the comparison involving a third party who contributes to the position differences. In the situation that a frontline worker treats selective customers preferentially, the witnessing customer is likely to compare upwardly against those customers. As upward comparison can either be destructive (i.e., pulling the superior other down) or constructive (i.e., keeping up with the superior other), in response to prioritized customers’ preferential treatment, a non-prioritized customer is proposed to react either positively with benign envy to engage more in a reward program or negatively with hostility to spread negative word-of-mouth. The next section will propose a conceptual model to discuss these relationships in details based on the social comparison theory.

HYPOTHESES DEVELOPMENT

Emphasizing on the research context that non-prioritized customers notice preferential treatment provided to the selective customers, I define the concept of rule clarity as the degree to which customers understand the rules regarding the preferential treatment provided to other customers. Because social comparison literature suggests that it is less likely for an individual to react negatively if that the upward comparison target’s superiority is justified (Smith, 2000), I propose that rule clarity can justify the preferential treatment provided to prioritized customers and, thereby, discourage the undesirable reactions of non-prioritized customers. To recognize the findings from prior research that non-prioritized customers are likely to react to the practice of customer prioritization in a negative fashion (Haenlein & Kaplan, 2010;
Steinhoff & Palmatier, 2014), the negative emotion of hostility is proposed to be the negative response focused in this research. As non-prioritized customers tend to consider that the company practicing customer prioritization contributes to their relatively inferior position, the company emerges to be the target of non-prioritized customers’ hostility, which refers to the state resentful feeling toward the company providing preferential treatment to other customers.

H1: The rule clarity associated with others’ preferential treatment exerts a negative effect on the non-prioritized consumer’s hostility toward the company.

In addition to discouraging non-prioritized customers from responding negatively, rule clarity can possibly encourage the positive responses of those customers. I explore this possibility by proposing that the key to positive responses is benign envy, which is the inspirational feeling associated with the positive prospect of future reflected by the superiority of a comparison target (Van de Ven et al., 2009). While social comparison theory suggests that people are motivated to react to the threatened self-concepts derived from the discrepancy with a superior comparison target through either ceasing the comparison or improving one’s current position (Festinger, 1954), benign envy features the self-improvement motivation that leads people to manage the threatened self-concepts by keeping up with the superior target. Because people are more likely to consider a superior comparison target an inspirational role model and experience benign envy if the superior other’s advantage is justified (Van de Ven, Zeelenberg & Pieters, 2011), the clarity of reward rules is proposed to justify the preferential treatment of prioritized customers and bring the desirable emotion of benign envy.

H2: The rule clarity associated with others’ preferential treatment exerts a positive effect on the non-prioritized consumer’s benign envy toward the preferentially treated consumers.

Because the purpose of employing reward programs is to develop customer relationships and relationship marketing activities influence customers to different degrees depending on the level of their desire to build relationships with a company (Gwinner et al., 1998), the influence of rule clarity on hostility and benign envy can be further moderated by non-prioritized customers’ relationship orientation. In the current research, relationship orientation is conceptualized as a customer’s desire to have relationships with firms (De Wuff et al., 2001; Palmatier et al., 2008). Because relationship-oriented customers are likely to consider the marketing activities of a company as relevant while the influence of social comparison on people is facilitated as the comparison matters become more relevant (Festinger, 1954), relationship orientation is proposed to draw non-prioritized customers’ attention to rule clarity information and strengthen the impact of rule clarity on hostility and benign envy.

H3: Relationship orientation strengthens (a) the negative effect of rule clarity on the hostility toward the company providing preferential treatment, and (b) the positive effect of rule clarity on the benign envy toward the preferentially treated customer.

Given that the attainability of loyalty rewards can influence how customers react to the prioritization practice (Bagchi & Li, 2011), it is likely that the effect of rule clarity on benign envy and hostility is also moderated by reward attainability. Adapting the conceptualization of goal attainability (Brendl & Higgins, 1995; Klesse et al., 2012), reward attainability is defined as the extent to which a non-prioritized customer perceives others’ preferential treatment as achievable. In accordance with social comparison theory, if a person considers himself/herself similar to a superior comparison other such that the superiority is viewed as attainable, the upward comparison reflects an optimistic prospect in the near future and motivates the person to work toward the superior position (Collins, 2000). As the attainability of the relative advantage possessed by an upward comparison target characterizes the opportunities for self-improvement rather than the threatened self-concepts associated with the relatively inferior position of a
focal person (Collins, 2000), rule clarity’s positive effect on the motivational feeling of benign and its negative effect on the negative feeling of hostility are proposed to be strengthened.

H4: Reward attainability strengthens (a) the negative effect of rule clarity on the hostility toward the company providing preferential treatment, and (b) the positive effect of rule clarity on the benign envy toward the preferentially treated customer.

In response to the hostility toward the company practicing customer prioritization, a non-prioritized customer is proposed to vent the anger by spreading negative word-of-mouth. In this research, negative word-of-mouth refers to a non-prioritized customer’s communication of negative experiences related to the customer prioritization practice of a company that is directed at other potential customers. As literature on social comparison suggests that people tend to respond to the resentful feeling resulting from the unjustified advantage of an upward comparison target with the accusation of wrongdoings regarding the superiority (Smith, 2000), a non-prioritized customer is proposed to respond to the hostility derived from the unjustified preferential treatment provided to other customers with negative word-of-mouth to imply the wrongdoings associated with the prioritization practice.

H5: The hostility toward the company practicing customer prioritization leads a non-prioritized consumer to spread negative word-of-mouth toward the company.

In the case that a non-prioritized customer feels benign envy toward prioritized customers who receive preferential treatment, he/she is motivated to engage in a reward program to attain the preferential treatment for himself/herself. The rationale is that the inspirational feeling of benign envy tends to drive people to reduce the discrepancy with an upward comparison target by working toward the target’s superior position (Van de Ven et al., 2011) while the action a non-prioritized customer can take to earn preferential treatment is to engage more in a reward program. In turn, based on the conceptualization of engagement (Mollen & Wilson, 2010; Verhoef, Reinartz, & Krafft, 2010), program engagement intention is the positive response focused here and defined as the behavioral intention of a non-prioritized customer to expend more effort into active participation in a loyalty program. As social comparison theory indicates that people can be motivated to adjust relative inferiority resulting from upward comparison by improving their positions (Collins, 1996), benign envy is proposed to lead non-prioritized customers to pay more attention to the self-improvement aspect of upward comparison with preferentially treated customers and to feel motivated to engage more in a reward program to earn the preferential treatment.

H6: Benign envy toward preferentially treated consumers exerts a positive effect on the program engagement intention of a non-prioritized consumer.

It is also critical to take into accounts the moderating influence of attitudinal loyalty because not only loyalty is key to the practice of customer prioritization but also the attitudinal aspect of loyalty facilitates favorable responses, such as positive word-of-mouth (Reichheld 2003) and repeat purchases (Liddy 2000). In this research, I define attitudinal loyalty as a non-prioritized customer’s psychological attachment toward a company (Wirtz, Mattila, & Lwin, 2007). Even though non-prioritized customers have not demonstrated behavioral loyalty (i.e., not spending enough money or not participating in the reward program) to be considered valuable to a company, it is still possible that they have attitudinal loyalty. Given that the impact of non-prioritized customers’ attitudinal loyalty is a key yet overlooked topic and that attitudes and emotions often interact to affect behaviors (Allen, Machleit, & Kleine, 1992), I explore how attitudinal loyalty moderates the influence of the benign envy and hostility feelings on the behavioral responses of non-prioritized customers.

While the comparison of service treatment is likely to be more important to attitudinal loyal customers, social comparison literature points out that the importance of comparison matters strengthens
the desire of a person to manage the discrepancy with an upward comparison target (Festinger, 1954). In line with this logic, the positive influence of benign envy on program engagement is proposed to be enhanced as a non-prioritized customer’s attitudinal loyalty increases. On the other hand, I propose that attitudinal loyalty can also facilitate the undesirable response of negative word-of-mouth. According to the love-hate relationship literature (Grégoire, Tripp, & Legoux, 2009), customers who have strong relationships with a company tend to respond more negatively when encountering unfavorable events. In turn, I expect that attitudinal loyalty strengthens the positive influence of hostility on negative word-of-mouth spread by non-prioritized customers.

**H7:** Attitudinal loyalty strengthens (a) the positive effect of the hostility toward the company providing preferential treatment on negative word-of-mouth toward the company, and (b) the positive effect of the benign envy toward the preferentially treated customer on program engagement intention.

See figure 1 for a proposed conceptual model of these hypotheses.

**FIGURE 1. PROPOSED MODEL**

**METHOD**

To examine the proposed research model, three studies will be conducted. The first study utilizes a scenario-based experiment to test the main effects. The second study employs a critical incident manipulation that requires subjects to recall a service experience and fill out the questionnaire based on the past experience. The last study investigates the conceptual model with a field survey. Given that customer prioritization has shown to be a prevalent practice particularly in the hospitality industry (Hoffman & Lowitt 2008; McCall & Voorhees, 2010) and that hotels provide a broad range of preferential treatment rewards with various levels of rule clarity, these three studies will examine the hypotheses in the hotel context.
Study 1

Study one aims to examine the proposed main effects in a controlled environment and to show the appropriateness to focus on the context in which preferential treatment is noticed by non-prioritized customers. As the independent variable of rule clarity is working under the context that preferential treatment is noticed by non-prioritized customers, it is needed to investigate the influence of neutral condition (i.e., regular service encounters without preferential treatment) before I hold the presence of preferential treatment constant. Therefore, a 2 (rule clarity: clear vs unclear) x 2 (preferential treatment: yes vs no) scenario-based experiment with between-subject design is used to manipulate preferential treatment and rule clarity with four different hotel service scenarios.

Undergraduate students in a large university will be recruited to participate in this study. Participants will first be instructed to imagine that they are non-prioritized customers of a fictional hotel chain and read a manipulated scenario regarding a hotel service encounter. Shortly after, they will be asked to answer a survey based on the imaginary scenario that they have read earlier. Using 7-point Likert scale, the survey questions will include the measures of benign envy (Van de Ven et al., 2009), hostility (Watson & Clark, 1999), negative word-of-mouth (Alexandrov, Lilly, & Babakus, 2013), and program engagement intention (Wang, 2006) as well as manipulation checks. Lastly, they will be requested to provide information regarding their personal values and background.

Study 2

Given study one employs a scenario-based experiment to investigate only the main effects, the purpose of study two is to extend the previous study by taking boundary conditions into account to examine the proposed model as a whole with field data. In this study, the presence of preferential treatment is holding constant. In particular, I use critical incident technique to manipulate rule clarity by asking participants to recall an incident in which they are aware of the preferential treatment provided to other customers either with or without rule clarity. In turn, a mixed design will be used to manipulate the variable of rule clarity and to measure the dependent variables (i.e., hostility, benign envy, program engagement intention and negative word-of-mouth) and moderators (i.e., relationship orientation, attitudinal loyalty, and reward attainability).

Through online research panel, subjects who frequently stay in hotels will be recruited to participate in the current study. I plan to randomly assign participants into one of the following conditions: recalling a hotel service experience in which they watch others receive preferential treatment with rule clarity or a similar hotel service experience without rule clarity. All participants will be instructed to describe the recalled incident in details. Then, they will be asked to fill out a questionnaire regarding the moderating measures of reward attainability (Brendl & Higgins, 1995), relationship orientation (Palmatier et al.’s, 2008) and attitudinal loyalty (Wirtz et al., 2007) and the dependent variable measures. I measure the dependent variables of hostility, benign envy, negative word-of-mouth and program engagement intention in a manner similar to the previous study.

Study 3

In the previous two studies, the proposed model has been examined by manipulating rule clarity as a dichotomous measure. As the degree of rule clarity can possibly influence the responses of a non-prioritized customer differently, there is a need to examine rule clarity variable as a continuous measure. In addition, in order to demonstrate the importance of the benign envy mechanism, it is essential to rule out the alternative explanation that the favorable response of program engagement is simply driven by the incentives of monetary rewards. In study three, I aim to address the above issues by taking the survey method to investigate all the research variables with continuous measures as well as testing the alternative explanation of monetary benefits regarding the rewards of a loyalty program.
Customers of a large international hotel chain will be recruited to participate in this study. Specifically, hotel managers will send out an email to invite customers who are not in the hotel’s reward program to participate in the current study. Participants will be able to fill out the survey electronically through the survey link included in the email. The survey includes the questions regarding the independent measure of rule clarity; the control variable of preferential treatment level and perceived monetary benefits of loyalty rewards; the dependent measures of benign envy, hostility, program engagement intention and negative word-of-mouth; and the moderating measures of relationship orientation, attitudinal loyalty, and reward attainability.

**GENERAL DISCUSSION**

In spite of the increasing focus on the practice of customer prioritization, limited attention has been paid to non-prioritized customers’ responses. To the best of my knowledge, the current research will be the first to investigate ways to encourage non-prioritized customers’ favorable responses. This issue is important because prior research has suggested that customer prioritization practice can backfire by triggering the negative responses of non-prioritized customers (Fournier et al., 1998; Haenlein & Kaplan, 2010) and that companies often have some customers who are desirable but unable to receive preferential treatment (Thompson et al., 2015). To examine this issue, I propose that, in the context of seeing preferential treatment provided to other customers, the rule clarity of preferential treatment encourages the favorable response of program engagement intention by driving non-prioritized customers’ feeling of benign envy while discouraging the unfavorable response of negative word-of-mouth by lowering their feeling of hostility. This study contributes in various ways to the literatures and managerial practices.

**Theoretical Contributions**

This research broadens the literature on customer prioritization by exploring the ways to encourage the positive responses of non-prioritized customers, given that previous research has primarily identified the positive responses of prioritized customers and the negative responses of non-prioritized customers. Furthermore, given that limited attention has been paid to the inspirational feeling of benign envy, the paper extends the envy literature by investigating the strategic role of benign envy in facilitating the positive effects of marketing activities. Moreover, while social comparison literature (e.g., Collins, 1996; Sundie et al., 2009) has mainly focused on the comparison of abilities or performance between a focal person and a comparison other, this research provides insight into this literature by examining the social comparison involves a third party contributing to the status difference through identifying not only key relational factors featuring the interactional nature but also behavioral reactions important to managerial practices. Lastly, as negative word-of-mouth has traditionally be considered as driven by customers’ dissatisfaction with the services received, the paper contributes to this literature by suggesting that preferential treatment can also lead customers to spread negative word-of-mouth.

**Managerial Implications**

This research provides suggestions to marketing managers interested in practicing customer prioritization. Given that it is common for companies to have some desirable customers unable to receive preferential treatment (Thompson et al., 2015), the companies are well-advised to clearly communicate the rules associated with the preferential treatment provided to prioritized customers in order to encourage non-prioritized customers’ positive response through the feeling of benign envy. For instance, a hotel can offer prioritized customers complimentary goodie bags upon check-in along with a big sign explaining the rules of earning free goodie bags. In particular, the strategy is more effective when non-prioritized customers are relationship oriented and attitudinal loyal as well as consider earning preferential treatment as attainable. For example, managers can utilize customer feedback survey to gain information about customers’ relationship orientation, attitudinal loyalty and their perception of reward attainability. It is also critical for practitioners to note that, although some customers might not show behavioral loyalty to a company, those customers can still develop attitudinal loyalty with the company. According to the literature on love-hate.
relationships, non-prioritized customers who are more attitudinal loyal are even more likely to respond to the hostility with negative word-of-mouth. In turn, when encountering attitudinal loyal customers, practitioners are recommended to be more careful to ensure that the preferential treatment rules are clearly communicated to those customers.

**Limitations and Future Research**

In spite of the contributions, the present research has a few limitations that need to be cautiously taken into account when generalizing the proposed model herein. First, empirically testing the proposed model in the future is needed to build a concrete foundation of the propositions. Second, as this research focuses only on non-prioritized consumers’ reaction toward preferential treatment in general, it is likely that service types, program characteristics and customer-employee relationships can further influence non-prioritized consumers’ responses. For instance, future research can examine the boundary conditions of preferential treatment types, purchase purposes (i.e., utilitarian versus hedonic), technology-aided self-service as opposed to interpersonal service experiences, and the rapport between consumers and service workers, who provide preferential treatment. Third, while this research suggests the important role of benign envy in motivating non-prioritized consumers, prioritized consumers’ reaction toward the perception of being envied provides an additional avenue for future research. For example, it is possible that the perception of being benignly envied helps prioritized consumers to better enjoy the preferential treatment, while the perception of being maliciously envied leads those consumers to feel uncomfortable about their treatment. Lastly, although customers are generally the emphasis of prioritization programs, it is also interesting to explore preferential treatment from service providers’ perspectives. That is to say, service employees may experience a status enhancement when they serve prioritized customers, while they may feel guilty treating consumers differentially when they are high in customer orientation. To extend the knowledge on the topic, future research is encouraged to examine the prioritization practice of preferential treatment from the perspectives of both customers and service providers.
REFERENCES


YOUR GOLDILOCKS IS OUT THERE! CONSUMER LAY EXPERTISE IN THE DESTIGMATIZATION OF MISUNDERSTOOD CONSUMPTION PRACTICES

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ABSTRACT
The stigma surrounding certain products and practices may hinder their adoption and sustained use, despite such products and practices being more beneficial to consumers (e.g., healthier or more sustainable). This paper draws upon extant consumer research on stigma to further the theoretical understanding of the volitional adoption of stigmatized and misunderstood consumption options. Through a qualitative investigation in which we utilize netnography and depth-interviews, we examine how consumers make sense of a new product in a stigmatized domain, and how they acquire and disseminate consumer lay expertise as they adopt the product. Our findings reveal that the users achieve and display (1) informational expertise (through knowledge acquisition and dissemination, customization, challenging experts, and developing strategies for successful word-or-mouth), and, (2) emotional lay expertise (through using creative emotionally laden references to describe the product and offering emotional support to other users). These findings are important as lay expertise may serve to normalize and demystify stigmatized consumption options that marketers and policy makers may want to encourage consumers to adopt.

INTRODUCTION
Certain products and practices may offer more benefits (e.g., are healthier or more sustainable) than their alternatives. However, such products and practices may be stigmatized and misunderstood due to various sociocultural factors. Consequently, consumers who adopt these stigmatized consumption options may be subjected to ridicule by their family, friends, and even strangers. For example, despite the advantages that plant-based diets have over meat-based diets (e.g., health, economic, and sustainability benefits), consumers’ adoption of a vegan or vegetarian diet may be stigmatized in Western economies where meat-based diets are the conventional practice (Beverland 2014). In particular, social structures in these economies associate plant-based diets with deviance, poverty and weakness, while meat consumption is associated with power and wealth. Similarly, black or African American women who choose not to use chemical hair straighteners, but choose to wear their hair in its natural, tightly coiled or curled state (also referred to as “going natural”), may be stigmatized in societies that subscribe to the Eurocentric beauty ideal of straight, flowing hair (Onwuachi-Willig 2010). This is in spite of the documented harmful effects of chemical hair straighteners, such as burns to the scalp, loss of hair and allergic reactions (Etemesi 2007; Wise et al. 2012).

In other instances, products may be associated with stigmatized conditions or characteristics such as human sexuality or disease. In some of these cases, policy makers may want to encourage the adoption of certain products, but the social stigma surrounding such products may hinder their acceptability and uptake. For instance, in the domain of reproductive health, parents may be reluctant to have their teenage daughters get pre-exposure sexually transmitted disease vaccines (e.g., the Human Papillomavirus [HPV] vaccine), because of the stigma that allowing their daughters to be vaccinated is a sign of parental consent for the girls to engage in sexual activity at an early age (Starling et al. 2015). In addition, misunderstandings on the part of the consumer regarding the safety of the vaccine, despite independent clinical tests that have found the vaccine to be safe with an extremely low likelihood of complications, may hinder adoption of the vaccine (Grimes 2016).

Research on stigma and consumption has mainly explored coping strategies that consumers adopt in order to navigate the marketplace and consumption experiences, especially in areas that consumers may have little control over in their choice of consumption practices (e.g., coping with low literacy [Adkins and
However, this stream of research has not examined the tensions that underscore consumers’ volitional adoption of stigmatized and misunderstood products and practices. Similarly, the role of lay experts has been examined primarily in contexts related to issues such as overconsumption (Moisio and Beruchasvili 2010), chronic illnesses (Liang and Scammon 2011), and the pursuit of major life-goals, such as parenthood (Fischer, Otnes, and Tuncay 2007). Our research draws upon extant consumer research on stigma to further the theoretical understanding of the adoption of stigmatized products and practices. In particular, we examine the adoption of beneficial stigmatized options and investigate the following question: what is the role of lay expertise in aiding consumers to make sense of, and normalize stigmatized and misunderstood products?

To gain insights into this question, we utilize the context of the stigmatized domain of women’s reproductive health, more specifically, menstruation and the adoption of the menstrual cup, a new, unconventional, menstrual hygiene product. Findings from this research have the potential to extend theory on stigmatized consumption. From a practical perspective, this research may provide insights as to how consumers, both on an individual level and in consumer collectivities, and through the acquisition and dissemination of lay expertise are an important aspect in guiding one another in the adoption and use of beneficial stigmatized products and practices. From a policy perspective, this is important because consumer lay experts can help to destigmatize products and practices and enhance the emotional well-being of other consumers, thus encouraging adoption and ensuring the successful, sustained use of a product or practice.

In the next sections, we first present a theoretical framework consisting of stigma and lay expertise. Second, we present the method section, which includes the context of the stigmatized domain of menstruation and the menstrual cup, and a description of the data collection and analysis process. The findings are then presented, and we conclude with a discussion of the potential contributions of this research.

LITERATURE REVIEW

Stigma and Consumption

Stigma is “an attribute that is deeply discrediting” and reduces an individual “from a whole and usual person to a tainted, discounted one” (Goffman 1963, 3). Goffman defines three types of stigma: (1) abominations of the body, or physical deformities, (2) blemishes of individual character, or deviations in behavior (e.g., mental disorders, unemployment, imprisonment and addictions), and (3) tribal stigma, or being part of a discredited group (e.g., based on race, ethnicity, class, and religion). Goffman’s seminal work on stigma centers on the individual bearing the discrediting attribute or being the stigmatized entity. However, other researchers have subsequently broadened this definition, recognizing that stigma is not limited to people. In a more comprehensive description, Kaspersion, Jhaveri, and Kaspersion (2001) define stigma as “a mark placed on a person, place, technology, or product associated with a particular attribute that identifies it as different and deviant, flawed, or undesirable” (319). In addition, as Pavia and Mason (2012) point out, physical and behavioral deviations are now difficult to differentiate. To illustrate, obesity may be associated with a behavioral deviation (overeating), be considered as an abomination of the body (the obese body), and also be categorized as a tribal stigma (being part of a discredited group of obese people).

Based on the aforementioned categorizations of stigma, four types of stigma domains can be outlined: 1) stigmatized personal characteristics, 2) stigmatized practices or behaviors, 3) stigmatized situations, and 4) stigmatized products. While these categories may exist in isolation, they mostly overlap with one another. Stigmatized personal characteristics align with Goffman’s “abominations of the body” and “tribal stigma”, while stigmatized practices may be equivalent to Goffman’s “deviation of behavior.” Stigmatized situations can be thought of as closely linked to stigmatized behaviors (e.g., homelessness, unemployment and excessive gambling), but may also encompass personal characteristics such as physical
disability. Stigmatized products may be associated with stigmatized situations (e.g., menstrual products being associated with menstruation), and stigmatized personal characteristics (e.g., fat laden foods being linked to obesity). In other instances, a product may become stigmatized due to its association with causing illness (e.g., cigarettes are linked to lung cancer, and lung cancer in turn becomes a stigmatized situation due to its association with a stigmatized product).

Research in marketing related to abominations of the body and tribal stigma has explored a variety of domains, examining stigmatized personal characteristics and their impact on consumers’ experiences and actions in the marketplace. This includes: how consumers of plus-size fashion (who are stigmatized because of being overweight) seek greater inclusion and more choice from mainstream markets (Scaraboto and Fischer 2013); how minority consumers face systemic restricted choice in their access of financial services, specifically being offered less information and less encouragement and assistance, and having more information required from them compared to their white counterparts (Bone, Christensen, and Williams 2014); and how consumers with visual impairments personalize their shopping experience and seek normalcy (Baker 2006). Research related to stigmatized practices includes how and why consumers voluntarily choose a stigmatized practice, specifically wearing the Islamic veil (Sandikci and Ger 2010). Research that touches on stigmatized situations includes survival strategies adopted by the homeless to deal with restricted choice (Hill and Stamey 1990). Research related to stigmatized products includes the stigmatizing effects of certain labelling practices on genetically modified foods (Ellen and Bone 2008).

Stigma is not necessarily a static state, but can be dynamic, with a person or product moving from a non-stigmatized to stigmatized category (or vice versa). For example, British Beef, which under typical circumstances does not carry stigma, was stigmatized and banned worldwide in 1996 due to mad cow disease (Powell 2001). In other instances, the status of a stigmatized practice, e.g., wearing tattoos, may be transformed or changed over time, so that it becomes more acceptable or less stigmatized (Larsen, Patterson, and Markham 2014). In addition, a product or practice may be non-stigmatized in certain environments but stigmatized in another. For example, while breastfeeding in one’s home may not be stigmatized, breastfeeding at a public place such as a restaurant may be stigmatized (Office of the Surgeon General US et al. 2011). Stigma is also socially constructed, and as such, stigmatized practices and products may vary from culture to culture. Crocker, Major, and Steele (1998) point out that “stigmatized individuals possess (or are believed to possess) some attribute, or characteristic, that conveys a social identity that is devalued in a particular social context” (505).

Stigmatized products, practices, and characteristics can also be thought of in two broad categories: those that people do not choose (e.g., one’s race or age, illness or medical conditions and associated products such as incontinence pads, colostomy bags and insulin pumps), and those that are volitional (e.g., pre-exposure Sexually Transmitted Infection (STI) vaccines, choosing a vegetarian diet, and black women choosing to wear their hair in its natural texture). The focus of our research is the latter category, that is, products and practices that consumers choose to adopt, and more so, those that may be beneficial from the perspective of consumers and/or experts. For instance, consumers may consider a vegetarian diet to be healthier than a meat-based diet due to experts’ (e.g., clinicians) assessment that plant diets generally have lower levels of saturated fats and higher levels of antioxidants, and hence are linked with lower rates of ailments such as heart disease (Janda and Trocchia 2001). Consumers may also be concerned about harmful chemicals (e.g., growth hormones) that may be administered to animals (which consumers may learn about from various sources, e.g., other consumers or experts). Consumers’ motivation to adopt a vegetarian diet may thus be fueled by an interplay of both expert assessments and lay theories.
Consumer Lay Expertise

Lay expertise originates from medical contexts, whereby laypeople do not consider expertise to solely exist in professionals, such as medical experts (Barker 2008). This is particularly the case in situations of medical uncertainty (illnesses whose symptoms medical experts have no firm explanation for, e.g., fibromyalgia syndrome and irritable bowel syndrome). A driver for lay expertise lies in individuals experiencing a particular illness and subsequently becoming experts in their condition. Internet technologies have facilitated this, and “the process of understanding one’s embodied distress has been transformed from an essentially private affair between doctor and patient to an increasingly public accomplishment among sufferers in cyberspace” (21).

Barker and Galardi (2011) point out that while lay expertise can be at the individual, group, or social movement level, it develops from personal experience, and consists of (1) emotional support and (2) information sharing. Emotional lay experts share “similar, authentic and credible experiences of suffering” (Moisio and Beruchasvili 2010, 872), enabling them to form support systems to solve specific problems. Information sharing is facilitated by two forms of knowledge: (1) experiential knowledge developed by consumers, such as patients’ knowledge that results from their coping with everyday aspects of their chronic illness (Prior 2003), and (2) lay people gaining knowledge from trained experts and subsequently reproducing, disputing and challenging this expert knowledge (Storni 2013). Research by Broom et al. (2014) on women’s engagement with complementary and alternative medicine revealed that the women amassed and enacted systematic lay expertise through (1) knowledge production (e.g., through experimentation), (2) knowledge dissemination through communication, and (3) knowledge absorption through communication and consumption. This lay expertise acts as a way to contest, enhance, and refine practitioner expertise.

In consumer research, lay expertise is closely linked to the cultural discourse of self-management, whereby consumers become self-reliant and develop their own stock of expert knowledge, even challenging experts, such as medical professionals (Fisher, Otnes and Tuncay 2007; Thompson 2005). In addition, consumers have been found to deal with issues of overconsumption (e.g., obesity) by participating in support groups or self-help groups, where they rely on lay expertise of group members, rather than on experts (e.g., health care specialists). This has been found to be the case in both face-to-face groups (Moisio and Beruchasvili 2010) and online communities (Liang and Scammon 2011). Lay expertise provides a unique lens to examine consumers’ interaction with a beneficial, yet stigmatized and misunderstood everyday product that they choose to adopt. By unpacking how consumers share their experiential knowledge and challenge and dispute experts and other consumers who may contribute to the stigmatization of the product, we hope to shed insight on how consumer lay experts clear up misunderstandings about stigmatized consumption options, and ways in which the consumers normalize a stigmatized product.

METHOD

Context

In this research, we utilize the context of the adoption of a product in a stigmatized domain, specifically the menstrual cup. This context is relevant because menstruation and menstrual blood are viewed as repulsive in most cultures, including Western cultures, resulting in menstruation being a source of social stigma (Chrisler 2011; Chrisler 2013; Johnston-Robledo and Chrisler 2013). Hence, menstruating girls and women may be viewed as possessing a stigmatized personal characteristic in their capacity as menstruators, a stigma that is perpetuated in menstrual product advertisements, whereby menstruation is framed as a hygienic crisis that must be hidden and managed (Kissling 2006).

In particular, the nuances surrounding the adoption of an unconventional menstrual product, the menstrual cup, are examined in this study. Menstrual cups, bell-shaped receptacles that collect menstrual flow, are worn internally like tampons. Unlike conventional disposable menstrual products, menstrual cups
collect, rather than absorb, menstrual flow and are reusable for several years. This particular context is relevant because menstrual cups may be considered to be a more sustainable and even healthier option than conventional disposable menstrual products. In particular, menstrual cups are marketed as eco-friendly, cost-effective, and a safer, more comfortable alternative to disposable menstrual products (Shihata and Brody 2014). Menstrual cups may, however, require women to engage in more contact with their bodies and with menstrual blood than conventional menstrual products (disposable sanitary pads and tampons) do, and prior research has documented negative sociocultural attitudes toward menstrual cups due to such concerns (Grose and Grabe 2014). As a result, menstrual cups may be stigmatized due to both their reusable nature and their affiliation with menstruation, a stigmatized situation.

Menstrual cups also have a learning curve, and it may take a few menstrual cycles for women to get accustomed to using them. Consequently, adopting the product may be accompanied by product failure or dysfunction, a characteristic shared by other stigmatized products such as contraceptives (e.g., female condoms), and certain medical devices (e.g., colostomy bags). All the aforementioned factors make the context of menstruation and menstrual cups relevant in examining the role of lay expertise in the adoption and normalization of stigmatized products, and to offer insights on how to enhance adoption and sustained use of such products.

Data Collection-Phase 1

A netnographic approach (Belk, Fischer, and Kozinets 2013) was adopted for this first phase of data collection, in which archival posts from the LiveJournal Menstrual Cups online community (http://menstrual-cups.livejournal.com/) were collected and analyzed. Since the online forum is not affiliated with any particular menstrual cup brand, it offers a more balanced view of user experiences and is more credible and relevant than a marketer-generated website would be (Bickart & Schindler, 2001). The online community provides “help, information and stories about menstrual cups”, and has approximately 6,200 members, more than 12,000 journal entries, and more than 138,000 comments. The community exists independent of brand sponsorship and is currently the largest publicly accessible online community of menstrual cup users.

Unobtrusive observation of interactions on the online community was done in Fall 2013 and Spring 2014. Ultimately, a total of 660 archival public journal entries, with their accompanying comments, drawn from 12 months of posting activity (six months in 2013 and six months in 2014) were downloaded. This yielded more than 1,400 single-spaced pages of text and images. Data analysis was done alongside data collection, in which the data was manually coded for themes.

In addition, menstrual cup manufacturer websites, menstrual cup reviews on Amazon.com, menstrual cup blogs (Menstrual Cups WordPress, Menstrual Cups Info WordPress), and Facebook groups (Resusable Menstrual Products Lovers & Paddicts, Feminine Wear Forum, and Menstrual Cups Worldwide) that are affiliated with menstrual cup users were examined to get oriented with the nature of communications about menstrual cups on other online spheres.

Data Collection-Phase 2

In this second phase of the research, twenty-eight one-on-one semi-structured depth interviews were collected in Kenya in Summer 2015 with women who had either bought or had the menstrual cup supplied to them for free in a variety of projects since the year 2012. Kenya was selected for this research because of previous and ongoing projects and initiatives by a variety of parties (e.g., menstrual cup companies and non-governmental organizations) to supply menstrual cups to women and girls in some parts of the country. As such, most of the informants had access to the physical product when the product was first introduced to them. This is in contrast to online community members in phase 1 of this research, who mostly reside in Western countries and purchase the product online, and do not see or touch the physical product prior to purchase. In addition, most of the informants in Kenya do not access the Internet or
participate in virtual communities; rather, they get a lot of information mostly from face-to-face interactions (e.g., with neighbors, friends, and community health workers).

Most of the informants were introduced to the product in group sessions and knew the other women in the group who got the product at the same time as they did (e.g., a neighbor, friend, or relative). Most of the informants are regular users of the product, while a few are occasional users or used the product only once or a few times and then stopped using it. In addition, one informant is a non-user of the product, even though she is still in possession of the product. Respondents were drawn from two urban areas in Kenya: Nairobi and Nakuru counties. The respondents were recruited through personal contacts, and purposive and snowball sampling were utilized. The informants were all female, ranging from 20 to 51 years old (see table 1 for respondents’ profiles). Most interviews were conducted in participants’ homes, and were either in English or Swahili, based on the preferences of the participants. Two interviews were conducted over the phone. The duration of the interviews ranged from about half an hour to 2 hours.

Table 1: Interview Respondents’ Profiles

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Age and Marital Status</th>
<th>Education</th>
<th>Occupation</th>
<th>Product User Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice</td>
<td>35 years old, married mother</td>
<td>Class 8 (Equivalent to 8th Grade)</td>
<td>Food Vendor</td>
<td>Regular user</td>
</tr>
<tr>
<td>Annabel</td>
<td>34 years old, married mother</td>
<td>Class 7 (Equivalent to 7th Grade)</td>
<td>Casual Laborer</td>
<td>Regular user</td>
</tr>
<tr>
<td>Ashley</td>
<td>Mid-to-late 20s, single mother</td>
<td>Form 3 (Equivalent to 11th grade)</td>
<td>Casual Laborer/Micro-Entrepreneur</td>
<td>Regular user</td>
</tr>
<tr>
<td>Becky</td>
<td>25 years old, married mother</td>
<td>Class 8 (Equivalent to 8th Grade)</td>
<td>Hairdresser</td>
<td>Regular user</td>
</tr>
<tr>
<td>Candace</td>
<td>23 years old, married mother</td>
<td>Class 8 (Equivalent to 8th Grade)</td>
<td>Micro-Entrepreneur</td>
<td>Regular user</td>
</tr>
<tr>
<td>Carol</td>
<td>30 years old, married mother</td>
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<td>Housewife</td>
<td>Regular user</td>
</tr>
<tr>
<td>Catherine</td>
<td>34 years old, married mother</td>
<td>Form 2 (Equivalent to 10th Grade)</td>
<td>Hairdresser</td>
<td>Regular user</td>
</tr>
<tr>
<td>Danielle</td>
<td>30 years old, single mother</td>
<td>Class 8 (Equivalent to 8th Grade)</td>
<td>Vendor</td>
<td>Regular user</td>
</tr>
<tr>
<td>Daisy</td>
<td>21 years old, single</td>
<td>Enrolled in Community College</td>
<td>Grassroots Gender Activist, Youth Leader</td>
<td>Regular user</td>
</tr>
<tr>
<td>Diana</td>
<td>Single</td>
<td>Class 8 (Equivalent to 8th Grade)</td>
<td>Micro-Entrepreneur</td>
<td>Used product for one year</td>
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<tr>
<td>Emily</td>
<td>34 years old, single</td>
<td>Higher Diploma, Beauty Therapy (Equivalent to Associates Degree)</td>
<td>Beautician</td>
<td>Used product only a few times</td>
</tr>
<tr>
<td>Erin</td>
<td>23 years old, single mother</td>
<td>Form 3 (Equivalent to 11th Grade)</td>
<td>Casual Laborer</td>
<td>Regular user</td>
</tr>
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<td>Name</td>
<td>Age, Marital Status</td>
<td>Education/Equivalent Grade</td>
<td>Occupation</td>
<td>User Status</td>
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</tr>
<tr>
<td>Fiona</td>
<td>38 years old, married mother</td>
<td>Form 2 (Equivalent to 10th Grade)</td>
<td>Vendor and Dancer</td>
<td>Regular user</td>
</tr>
<tr>
<td>Faith</td>
<td>51 years old, married mother</td>
<td>Class 6 (Equivalent to 6th Grade)</td>
<td>Micro-Entrepreneur</td>
<td>Regular user</td>
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<tr>
<td>Gabby</td>
<td>29 years old, single</td>
<td>Masters’ Degree (MBA)</td>
<td>Regular user</td>
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<td>Jackie</td>
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<td>Class 4 (Equivalent to 4th Grade)</td>
<td>Casual Laborer</td>
<td>Regular user</td>
</tr>
<tr>
<td>Jane</td>
<td>27 years old, single mother</td>
<td>Form 4 (Equivalent to 12th Grade)</td>
<td>Used product only a few times</td>
<td></td>
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<tr>
<td>Janice</td>
<td>30 years old, single mother</td>
<td>Associates Degree</td>
<td>Data Analyst</td>
<td>Occasional user</td>
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<tr>
<td>Jennifer</td>
<td>28 years old, married mother</td>
<td>Form 3 (Equivalent to 11th Grade)</td>
<td>Casual Laborer</td>
<td>Regular user</td>
</tr>
<tr>
<td>Julia</td>
<td>40 years old, married mother</td>
<td>Class 7 (Equivalent to 7th grade)</td>
<td>Housewife</td>
<td>Regular user</td>
</tr>
<tr>
<td>Lucy</td>
<td>37 years old, married mother</td>
<td>Undergraduate degree in Early Childhood Education</td>
<td>Kindergarten Teacher</td>
<td>Has never used product</td>
</tr>
<tr>
<td>Maureen</td>
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<td>Form 2 (Equivalent to 10th Grade)</td>
<td>Casual Laborer</td>
<td>Regular user</td>
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<tr>
<td>Nancy</td>
<td>30 years old, single mother</td>
<td>Undergraduate degree in Development Studies</td>
<td>Social Worker</td>
<td>Regular user</td>
</tr>
<tr>
<td>Naomi</td>
<td>34 years old, single</td>
<td>Law Degree</td>
<td>Judge</td>
<td>Regular User</td>
</tr>
<tr>
<td>Phyllis</td>
<td>25 years old, single mother</td>
<td>Class 8 (Equivalent to 8th grade)</td>
<td>Casual Laborer/Security Guard</td>
<td>Regular user</td>
</tr>
<tr>
<td>Rita</td>
<td>20 years old, single</td>
<td>Form 4 (Equivalent to 12th Grade)</td>
<td>Sales</td>
<td>Regular user</td>
</tr>
<tr>
<td>Sally</td>
<td>21 years old, single</td>
<td>Certificate in Hairdressing</td>
<td>Hairdresser</td>
<td>Regular User</td>
</tr>
<tr>
<td>Violet</td>
<td>33 years old, married</td>
<td>Undergraduate degree, Biochemistry; ongoing Masters in Bioinformatics</td>
<td>Entrepreneur (Sells fabrics, water filters, energy saving stoves)</td>
<td>Regular user</td>
</tr>
</tbody>
</table>

The interviews began with “grand tour” questions (McCracken 1988) including participants’ demographic information, such as their occupation, educational history and personal relationships. Participants were then asked more specific questions about their adoption of the menstrual cup, including how they found out about menstrual cups, and to recount their first reactions on seeing the product. Other questions that participants were asked included whether they encountered challenges in using the product, whether they sought any help to overcome challenges, and whether they speak to other people about the product, and if so, the reactions they get. Participants were also asked about their history of using other...
menstrual products, including how they dealt with menstruation while they were growing up, and how they learned about the menstrual products that they use. In addition, as the interviews progressed, participants raised other aspects in the domain of women’s reproductive health products, such as contraceptives, and questions related to this were incorporated in subsequent interviews (e.g., whether topics such as menstruation and contraceptives are freely discussed by the women in their network). Specific probes were used to get further clarification as the interviews proceeded.

The interviews were all audio recorded and transcribed. Interview transcripts that were in Swahili were translated to English. This interview data yielded over 330 pages of single-spaced text. The interviews were analyzed using a hermeneutical approach (Thompson 1997), first involving intra-text (each interview transcript) and then inter-text analysis, in which patterns and differences across the different interviews were examined. This was an iterative process that involved comparing emergent themes in the data with existing literature.

FINDINGS

Analysis of the discourses on the online community and the interview data yielded two broad themes related to consumer lay expertise: informational lay experts and emotional lay experts. The first theme has several sub-themes related to consumers’ experiential knowledge, reproduction of this knowledge and disputing experts. These sub-themes are: (1) knowledge acquisition and knowledge dissemination of product use, (2) customization of the product, (3) challenging experts, and (4) offering recommendations for word-of-mouth. The second theme reveals users as emotional lay experts, whereby they are involved in (1) using emotionally laden references to describe the product, and (2) emotional support.

Informational Lay Experts

Knowledge Acquisition and Dissemination

Respondents recounted their first reactions to the menstrual cup, and the numerous questions and concerns they had about the product (e.g., fears about the huge size of the product relative to their anatomy size, concerns about whether the product would cause physical pain, whether the product was made of a material that would harm the body, and whether it would get stuck or disappear in the body, necessitating surgery or other help to remove the product from the body). Some of these fears were driven by a lack of knowledge by the users about their anatomy and body. As Alice narrates, she had concerns about body-product fit, the source of the product, and her skills. However, during the group introductory session that she was a part of, she asked several questions and the answers she received gave her the confidence to try the product:

*I wondered: what is this [cup] and how can you use it? When you insert it how will you get seated? So, I was pondering: will I try to use it or not? The first time I used it, I felt when I sat down, when I walked, I was okay. Because I was seeing like I may insert it and it disappears in my body. But the moment I inserted it, I felt I was okay.... The worry was there at first because I was wondering: we have been told that this thing [menstrual cup] is for using during that time and I have never used it, how will I use it? And this thing has come with white people, where have they brought it from? We have been brought a technology that we will not be able to use! But once I heard that this is how you use this thing, and I understood well, I felt this is a good thing and my heart liked it, and I have seen the benefits of this thing... Because I asked questions and I was answered, I saw it did not have a problem and then when I started using it I saw it is good. The worry was also there because I was wondering, what if you insert this thing and it goes completely inside your body, what will you do? And you will not call those people [who distributed the cup] and tell them to come over, the thing has already disappeared in your body. At that time, I*
just asked more questions, then I was answered well and told there is no way [the menstrual cup] can disappear in your body and there is no day that will happen. (Alice).

Alice’s absorption of knowledge at the introductory session motivated her decision to try the product. Similarly, Faith, who is 51 years old, had concerns about the safety of the product. However, she was satisfied that the product would be a good fit for her when she asked questions during the group introductory session and also read the product instructions:

I was holding it [the menstrual cup] like this… I was the first one to ask a question whether it has any effects. You know there are some other embarrassments that come and people are like “what was this lady running after and she is about to finish [reach menopause]? She should just have stayed like that and yet she has other options to use why didn’t she just leave it?” But what I heard and when I asked my question and I was answered I knew there are no side effects and there was a paper that had some writings on it [instructions], I read it and was ok and one week later I started using it and saw it was ok… The first day is when it gave me a few problems but I was like no, we were told this and this and this is the photo illustrating this and this so I tried and that was it… I went back to that paper and read and saw and remembered what we were told and compared with the instructions and I realized how to use it. So I put it and pushed it in a little and it was fine. (Faith).

Even though the women may have had concerns about product fit and functionality, knowledge acquisition helped them to gain the confidence to try the product and dispel fears they had about the product. In the following quote, Carol expressed how, after being introduced to the product, she had the desire to acquire experiential knowledge, rather than relying on hearing about other women’s experiences. She subsequently shared her experiences, disseminating knowledge to other women who were yet to use the product:

So I thought and told myself, let me just go and try [the cup] because it is something we have never used. Let me go try it first, then that is when I will start using it. You know you cannot use something before you know what it is. Because she [the introducer] told us [the cup] is being used [by other women] but when I myself try it, that is when I will know whether I will use it or not use it… We were asking questions as a group. “Does the cup have any bad effects?” We were answered “no”. “Can it hurt someone?” We were told “no”. So even when you go use it, you are using it with the guarantee that this is a good thing… So, even that day, I did not wait even though I did not use it while on my period. I decided to go insert it, I see whether it will hurt me. I had told myself “if it hurts me, I will throw it away”. But when I put it on in a dry run, I felt the product was good, so I washed it and put it away in a safe place… Now you know, we women have to meet as we go about our everyday business. So we were asking among ourselves, “have you used yours? Have you used yours?” Now, I told them “yes, this thing is very good, it cannot even hurt someone.” You know sometimes someone may be afraid, thinking that maybe it will hurt you. But it doesn’t hurt someone. (Carol).

Customization
An analysis of communications from the online forum revealed how users are offered personalized technical advice or informational support by other users. For instance, some members are advised to try a different brand or size of cup for a better fit, and tips are offered on how to insert and remove the cup. Product customizations have been identified as a way that customers express their uniqueness (Tian, Bearden and Hunter 2001). However, as the following posts from online forum members indicate, the customizations that the users come up with are mainly remedies to make the product a better fit, which is
crucial to successful adoption and sustained use of the product. These customizations result in a substantial difference in the cup’s functionality for the users seeking help. As the following quotes show, some users, based on experiential knowledge and reproduced knowledge, offer recommendations to other users on creative ways to customize the product. Online Forum Member 1 describes customizations she made to make the cup fit more comfortably and easier to remove, while Online Forum Member 2 advises another user that enlarging the suction holes of the product makes removal easier:

I cut the stem off and filed it down, then made a horizontal hole through the thick part of the base and threaded a thick nylon thread through which I tied in a long loop. I used it to get my cup in and out for a few months, before the thread broke and I just started grabbing the base of the cup itself. (Online Forum Member 1).

Certainly sounds like those air holes need to be enlarged. I've enlarged holes on a [cup brand] I used to own, and it made a huge improvement in reducing the "super suction." Back then, I had my husband take a power drill to my cup, with not aesthetic, but functional results. Definitely look into a 12-gauge piercing tool for the job if you choose to go that route. (Online Forum Member 2).

Challenging Experts

Narratives from the online menstrual cup community revealed that some menstrual cup users were dissatisfied with the manner in which cup manufacturers promote the cup or communicate instructions on how to use the product. These users use the online forum to correct what they consider to be misinformation from the manufacturers. This situation is consistent with the concept of self-management (Fisher et al. 2007; Thompson 2005), where, rather than relying on experts’ opinion at face value, individuals pursue self-reliance, build their own expert knowledge, and challenge experts. By pointing out the misinformation from product manufacturers, the product users become a more accurate, comprehensive, and authoritative source of information, compared to any one or a combination of the manufacturers’ websites. In the following post, an online community member calls upon menstrual cup users to ignore the manufacturer instructions, and offers alternative instructions and explanations:

IGNORE the crappy [cup manufacturer] instructions that say to twist or turn the cup. You don’t 'need' to do that unless it helps you create a seal/open the cup up. If you can't do it, don't worry and stop trying :) Likewise despite what [cup manufacturer] say you want the cup to sit right underneath your cervix. (Online Forum Member 3).

Other posts from the online forum related to challenging manufacturers included comments such as “throw the instructions away and forget that you ever saw them,” and “the diagrams in the literature [instruction pamphlets] are misleading”. Other types of manufacturer information that forum members challenge include instructions given on how to choose a cup and the diagrammatic portrayal of how the cup is positioned internally once inserted. The following user expresses surprise at how these diagrams are misleading:

Not to mention, I feel a bit cheated and misinformed. If the whole cervix touching the cup and forming a seal with it thing is true, then why the companies that make them, don't make it clear? They're producing them, for pete's sake, how come they don't know what happens when you put it in? (Online Forum Member 4).

Another group of experts that menstrual cup users find themselves at odds with for their choice to use a menstrual cup are medical personnel, e.g. doctors. As the following online forum member indicates, several doctors have not heard about menstrual cups, and thus may not support the users’ decision to adopt the product:
If you see a Doctor, be sure to bring your cup with you because he probably doesn't know what one is. But don't expect him to share your enthusiasm for the cup. Some doctors take the attitude that if they didn't know about it, fit you for it, prescribe it for you, etc then it's no good, a silly fad and you shouldn't use it. (Online Forum Member 3).

Offering Recommendations for Word-of-Mouth

Online community members and research informants displayed their expertise in dealing with negative reactions that they receive when they try to introduce menstrual cups to their family and friends. The following quote is from an online community member who gives her opinion on why cups are generally not accepted, the challenges she faces when talking about the product to others, and the strategies she adopts to introduce the cup to others:

It is very, very hard for many women to get past the social conditioning they've had all their lives that tells them periods and vaginas are dirty and horrible and shouldn't be touched (except by a man in the latter case). This is why applicator tampons and "quiet wrappers" and all these things exist, why so many women don't know how their own anatomy even works, and why such a hands-on approach such as cup use will still be met with an "ew, gross!"... As for cup evangelism, you really have to pick and choose your audience carefully. I've converted a grand total of one person, and I knew her well enough to know that the cost and environmental factors would be the best selling points. With other friends, I don't think those same arguments would work. Mostly I just try to show how easy and convenient it is if asked, and try not to push anything too much. And if I get an "ew, gross!" then I leave it for another day because that's a lot of social conditioning I'm not going to be able to fight, sadly. (Online Forum Member 5)

The market for Lifestyles of Health and Sustainability (LOHAS) products (e.g., organic foods and alternative medicine) is growing (Kotler 2011). However, adopting such a lifestyle may be stigmatized, and consumers may be labelled as “hippies” or “tree huggers.” One online forum member described how, prior to her decision to adopt the menstrual cup, she thought of cups as “crazy hippie devices.” However, her desperation to find an alternative feminine hygiene product, given the challenges she faced with conventional disposables (tampons and sanitary pads), coupled with discourses on the menstrual cup online community, convinced her that menstrual cups “aren’t just for hippies.” This suggests that consumer narratives influence potential users of the product and may prevent them from internalizing the negative social labels that stigmatized products may have. The following online community member gives her advice on how to frame the product, given that some potential users may be turned off by the environmentally friendly quality of the cup:

Most people don’t appreciate [product] evangelism so I think you need to err on the side of talking less and just hoping it’s working through their brain. Ultimately it's none of your business what they do with their waste tissue, and it's important not to act like you think it is! When you do talk about it, leave the environmental stuff out of it as people who aren’t already convinced take this as you telling them that they need to do something weird and uncomfortable to protect the icecaps and can’t they just bleed in peace...!? (Online Forum Member 6)

Interview data from the research informants in Kenya revealed a label that they adopt that may serve to frame the cup attractively when talking about it to others. Some participants described the cup as “digital,” leveraging on current discourses in Kenya about new technologies and products. The “digital” label is in reference to Kenya’s migration from analog to digital TV broadcasting to comply with the International Telecommunications Union guidelines (Wainaina 2015). This mandatory move ignited a new
parlance in Kenya, in which consumers now commonly refer to old products and technophobes as “analog,” and new products and technologically savvy people as “digital.” In the following quotes, Diana describes her curiosity to try the menstrual cup, while Phyllis recounts her answer to her boyfriend’s reaction to her usage of the product:

It’s not that the [tampon brand] was bad, it was just ok but you know nowadays things are digital... And also if you see something good you want to try it... I wanted to use the product and get to see what was good about it. That is why I was interested. (Diana).

He was surprised and was like, “you walk with these things [cups] in your body?” I told him yes, it’s the new digital thing that has been brought, you don’t have to struggle with pads or the likes. (Phyllis).

**Emotional Lay Experts**

*Emotionally Laden References to Describe the Product*

Stigmatized products and practices undergo a social labelling process, similar to that of individuals with stigmatized conditions or characteristics, that mark them as deviant and flawed (Kasperson, Jhaveri, and Kasperson 2001). The following online community member responds to a question on why menstrual cups seem to be more popular in Europe than in the U.S., revealing the negative social labelling of the product:

Americans are, it sometimes seems, more hung up on body functions, "hygiene" and the "ick factor" than people in other countries. Hygiene is in quotes because I think the cup is way more hygienic than pads and tampons, but people seriously think I'm nuts when I talk about the cup. They think it's gross, dirty, icky, weird, and that people who use them must be tree-hugging hippies (well, I AM a tree hugging hippy but that isn't even my primary motivation for using the cup). (Online Forum Member 7).

Discourses from the online community revealed interesting made-up words that users come up with to frame product attributes and product-person fit. Several online forum members describe themselves as “cup addicts,” “cupaholics,” “cup junkies,” “converts,” among others, to describe their excitement and obsession with the product. This obsession is manifested by the users’ purchase of the product in multiple brands and colors. In addition, the members describe the product in endearing terms, such as “cute”, “squishy”, “adorable”, and “pretty,” with the term “goldilocks” frequently being used to refer to a menstrual cup that is a perfect fit. The following quote illustrates this:

I am a cup obsessive chick. I will think "Oh, I finally have the Goldilocks cup, and I am good! I won't be buying more cups... Yeah, sure, a few months go by and damn I want a particular new brand cup. No, I NEED it, lol. I watch You Tube, go to the web site, plan my better future with that cup. (Online Forum Member 8).

These narratives are in contrast to the negative social labelling of the product, and may lead to emotional contagion (Howard and Gengler 2001), whereby these positive and exciting emotions are transferred to potential users who read these communications on the online community. This may ignite an interest in a potential user to try the product where there might have been no prior interest.

**Emotional support**

Menstrual cups come with a learning curve, and several users on the online community shared their struggles to get the cup working right for them. Similar to support groups that are organized to deal with issues of overconsumption (e.g., Weight Watchers [Moisio and Beruchasvili 2010]), the menstrual cup
users on the online forum offer emotional support to encourage those who may be struggling in the adoption process. The following quotes illustrate such emotional support:

I was the same way when I first got mine. I was suddenly terrified about getting it out and the first few times getting it out were hard and I honestly just wanted to stop using it and go back to tampons lol. The more you do it the easier it'll get :) ...I've had my cup for 4 years and sometimes it still doesn't work on the first try, so don't get super frustrated, because you'll get the hang of it and even people that have been using cups for a while don't always get it on the first try! (Online Forum Member 9).

Hi! I just want to share with you all that I'm really and truly happy! I found my ideal cup...I'm just saying this, because I really thought I wasn't "cup material" in the beginning, that there must be some unique anomaly about my body preventing me from mastering the learning curve...but I am and there isn't. So to those of you who are struggling, there is hope and since you were clever enough to make an absolutely fantastic decision, you are clever enough to get your cup to work. :) (Online Forum Member 10).

DISCUSSION

This paper has examined how consumers make sense of a new product in a stigmatized domain, and how they acquire and disseminate consumer lay expertise as they adopt the product. Findings have revealed that the users serve as informational experts through knowledge acquisition and dissemination, customization, challenging experts, and developing strategies for successful word-of-mouth. This informational expertise is important in the context of stigmatized consumption, because it may enable the successful adoption of such consumption options, and help to dispel fears and myths about product meanings and usage. In addition, the users’ display of emotional lay expertise by using creative emotion-laden references to describe the product, and offering emotional support to users, may serve to make the product an attractive option and help other users who may be struggling to master product usage.

Our research furthers theoretical understanding of the adoption of stigmatized consumption. In particular, the bulk of extant consumer research within stigmatized domains has examined stigmatized personal characteristics or situations that consumers may not have a choice or much choice in, e.g., the consumers may be a certain age (Tepper 1994), race (Bone, Christensen, and Williams 2014), have a certain disability (Pavia and Mason 2012), or have low literacy levels (Adkins and Ozanne 2005). To further this research stream, our research addresses consumer adoption and sustained use of a stigmatized product that is optional and that policy makers may want to encourage consumers to adopt, due to benefits that the product presents (e.g., environmental and financial sustainability).

By investigating the volitional adoption of a stigmatized product, we uncover how consumer lay expertise can play a crucial role in enabling successful adoption and sustained use of such products, and strategies that consumers adopt that normalize the product or consumption practice. We also present consumer lay expertise as extending beyond the concept of “self-management” in major life-projects, such as pursuing parenthood (Fischer et al. 2007) and natural childbirth options (Thompson 2005). In particular, we demonstrate that lay expertise is also relevant in mundane, habitual consumption areas such as new product adoption in the context of feminine hygiene. In addition, we present lay expertise as helpful in aiding consumers not just to cope with, and manage chronic illness, but also to successfully adopt an everyday product associated with a stigmatized domain. In particular, for stigmatized products with a learning curve, product failure may be accompanied by negative feelings, such as embarrassment and frustration. Prior research has found that for products that require skills to use (e.g., sports equipment and
cell phones), prior to purchasing the product, consumers form perceptions of their ability to acquire the skills to use the product, and this usually follows the pattern of overpredicting or being overconfident of skill acquisition before initial use of the product, then losing confidence or underpredicting learning after first use (Billeter, Karla, and Loewenstein 2011). For beneficial stigmatized products and practices that have a learning curve (e.g., menstrual cups, the female condom), informational and emotional lay expertise are crucial in boosting feelings of self-esteem and self-efficacy even in the face of product failure, to ensure adoption and sustained use of the product.

Findings from this research have the potential to offer marketers and policy makers insights into the type of interventions that they can use to make stigmatized consumption options attractive. For instance, using certain emotion-laden tags to describe stigmatized products may be a way to enhance emotional contagion and encourage product adoption. For future research, the use of an experimental design may be helpful in investigating the influence of positive emotion-laden references of stigmatized products and practices on the willingness to adopt such products and practices, in and beyond the context examined in our research. For instance, how can more sustainable plant diets be framed in Western economies, where such diets are associated with poverty and weakness? However, marketers and policy makers also need to be cognizant that certain messages that are aimed to promote positive, healthy, and sustainable consumption options, may be responsible for inadvertently perpetuating stigma. For instance, Gurrieri, Previte, and Brace-Govan (2012) demonstrate how social marketing efforts may reinforce stigma and marginalize certain women through visual representations that idealize women’s experiences with breastfeeding, weight management, and physical activity.

CONCLUSION

To conclude, norms and beliefs that underpin stigmatized consumption options heavily influence consumers’ adoption decisions, and may affect consumer well-being for consumers who choose to adopt stigmatized products and practices. In turn, marketers and policy makers may experience challenges in encouraging the adoption and sustained use of products and practices that may be beneficial, yet are stigmatized and misunderstood. Hence, a deeper understanding of the experiences of consumers’ adoption of such products and practices, and the role that consumer lay expertise plays in the process provides useful insights that consumers, marketers and policy makers can utilize to normalize and demystify stigmatized consumption.
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NEGATIVE OPEN-LOOP EXCHANGE SPIRALS: HOW THIRD PARTY OBSERVERS RESPOND TO OVERHEARD SERVICE FAILURES

Jeff Joireman, Ismail Karabas, and ShinHye Kim, Washington State University

ABSTRACT

Addressing calls to study consumer decision-making in a broader relational context, the present work examines third party observer responses to overheard service failures. Two experiments show that third party observers punish servers and the establishment due to a desire for revenge toward the server and unfavorable attitudes toward the establishment.

INTRODUCTION

The bulk of consumer research treats consumers as individual decision-makers or as parties to a consumer-service provider exchange. Complementing this perspective, there have been recent calls for understanding consumer decision-making within the broader context of interpersonal relationships (Cavanaugh forthcoming; Lamberton forthcoming; Simpson, Griskevicius, and Rothman 2012). Simpson, Griskevicius, and Rothman (2012, p. 2) summarize this position, stating: “Although consumer research has rarely crossed paths with relationship science, the fusion of these two major areas has the potential to substantially advance our understanding of consumer behavior in relationship contexts.” In the present paper, we address these calls by examining how consumers respond to a heated exchange between another customer and a service provider. Utilizing theory and research on third party punishment (Fehr and Fischbacher 2004; Lin, Dahl, and Argo 2013) and negative open-loop exchange spirals (Groth and Grandey 2012), we hypothesize that observers who overhear a service failure will take actions to punish the offending party (e.g., reducing one’s tip). In addition to contributing to the nascent literature on consumer decision-making in a broader relational context, this work helps extend the literature on service failures, which has almost exclusively focused on how consumers respond when they, as actors, experience a service failure.

Service Failures

Service failures occur when service levels fall below a consumer’s expectation (Michel 2001). Due to the variable nature of services, service failures and failed recoveries (or double deviations; Bitner, Booms, and Tetreault 1990) are nearly unavoidable (Hart et al. 1990; Fisk, Brown, and Bitner 1993). It is well established that service failures lead to customer dissatisfaction (Maxham and Netemeyer 2002), anger (e.g., Zeelenberg and Pieters 2004), desire for revenge (Bechwati and Morrin 2003; Grégoire, Tripp, and Legoux 2009), defection (Reichheld 1996), and negative word of mouth (Richins 1983). Because service failures and failed recoveries can be costly to a firm, researchers have devoted attention to the most successful recovery strategies (Hart, Heskett, and Sasser 1990; Smith, Bolton, and Wagner 1999), which include the salutary effects of apologies and compensation (Joireman et al. 2013; Wirtz and Mattila 2004).

Consumers as Third Party Observers

Expanding beyond the direct consumer-service provider exchange, recent theory and research have emphasized the importance of recognizing the broader relational context within which these exchanges take place. In particular, there is growing interest in understanding how consumers respond when they observe others in a retail or service environment violate a social norm, fail to provide adequate service, or treat each other with disrespect. For example, Lin, Dahl and Argo (2013) show that consumers will punish other consumers who violate a social norm (e.g., make a mess in a retail setting), while Porath, MacInnis, and Folkes (2010) report that when consumers observe employees behaving unkindly toward each other, consumers generalize their negative impressions of the interaction to other employees, the firm as a whole, and the prospect of future encounters with the firm. Additional work has focused on how consumers respond
when they overhear a negative service encounter between another customer and a service provider. These studies find that third party observers tend to attribute the cause of the failure to the service provider, especially if observers are from an individualistic culture (Cowley 2005) and believe the other customer is similar to them (Wan, Chan, and Su 2011).

**Negative Open-Loop Exchange Spirals**

In their recent review, Groth and Grandey (2012) propose that such unsavory interactions between employees and customers can lead to *negative exchange spirals* where employees and customers trade off, in a tit-for-tat manner, increasingly destructive actions. Importantly, these negative exchange spirals are assumed to be “open loop spirals,” suggesting that the negative spiral initiated between a customer and a service provider can spill over and negatively affect third party observers of the interaction, including other customers and employees.

As just discussed, a growing number of studies are consistent with this idea. Notably, however, studies addressing third party observer responses to such “negative open loop spirals” have focused largely on observers’ perceptions (e.g., attributions for the failure, perceptions of employees and the firm). While clearly important, this raises an interesting question: does observing a negative service encounter between another customer and service provider result in additional, downstream consequences, such as subsequent treatment of the service provider, return intentions, and willingness to recommend the establishment?

**Hypotheses**

There are several reasons to believe that third party observers will punish servers who respond negatively to a customer complaint. As noted earlier, third party observers tend to attribute failures to the service provider (Cowley 2005). These attributions should establish an expectation that service providers should respond favorably to customer complaints, and lead negative responses to be viewed as a norm violation. This is important because third party observers have been found to punish norm violators (Lin, Dahl, and Argo 2013; Okimoto and Wenzel 2011), even when not directly affected by the norm violation (Fehr and Fischbacher 2004; Helweg-Larsen and LoMonaco 2008). In addition, fairness is a key concern in service failures (Joireman et al. 2013). When a server responds negatively to a customer complaint, this is likely to create an unfair state and a subsequent desire for revenge against the server (e.g., Joireman et al. 2013). This line of reasoning led us to test the following hypotheses:

**H1:** When servers respond negatively to a customer complaint, third party observers will have a stronger desire for revenge against the server (H1a), will be less likely to tip the server (H1b) and will give the server a lower tip (H1c).

It is also important to recognize that servers are the “face” of an establishment toward its customers. Thus, it is likely that servers’ behaviors will be reflected in customers’ evaluations of and actions towards the restaurants. Accordingly, we hypothesized:

**H2:** When servers respond negatively to a customer complaint, third party observers will form less favorable attitudes toward the establishment (H2a) and will be less likely to return to the establishment (H2b) and recommend it to others (H2c).

Complementing H1 and H2, we also tested the following mediation hypotheses:

**H3:** Desire for revenge and attitude toward the restaurant will mediate the effect of server’s response on tip likelihood (H3a), tip percentage (H3b), return intentions (H3c) and likelihood of recommending (H3d).
PILOT STUDY

An important assumption underlying our work is that consumers do, in fact, attend to and adjust their behavior as third party observers to a service failure. As an initial test of this assumption, we asked 179 adults living in the U.S. (recruited via MTurk) whether they had ever overheard a service failure in a restaurant (a common setting for service failures). The majority (90.5%) recalled overhearing a service failure in a restaurant, but only a small percentage (14.5%) indicated they had adjusted their tip: 11.7% (2.8%) increased (decreased) their tip.

On the surface, these results appear to undermine the idea that consumers take actions as third party observers of a service failure. However, closer inspection yields insights into why more consumers did not take action: those who did not take action rated the service provider’s response as positive in an absolute sense (Ms = 5.99 on a 7-point scale, \(p < .01\)), and more positive (\(p < .01\)) than the customer’s response, which was neutral (Ms = 3.90, ns). Moreover, those who increased their tip found the server’s response much more positive (\(M = 5.90\)) than the customer’s response (\(M = 2.05\)) (\(p < .01\)), while those who decreased their tip found the server’s response more negative (\(M = 3.38\)) than the customer’s response (\(M = 4.73\)) (\(p < .01\)).

This pattern of results suggests three important points: (1) often, a customer’s complaint is neutral and the server’s response is positive, and under these circumstances customers do not reward the server; (2) when a customer’s response is highly negative, and the service provider’s response is positive, customers may reward the service provider; and (3) when the customer’s response is reasonable (somewhat positive), and the server’s response is negative, customers will punish the service provider. More broadly, these results suggest that the majority of customers who overhear service failures do not typically reward service providers for “a job well done”, but will punish servers who “fall significantly below expectations.” Our primary experiments aimed to provide a causal test of the effect of the server’s response and customer complaint severity on tipping, return intentions, and likelihood of recommending the restaurant.

STUDY 1

Study 1 had two goals. First, study 1 assessed the degree to which third party observers alter their tipping behavior as a function of the valence of the server’s response and severity of the customer’s complaint. Second, study 1 tested the hypothesis that desire for revenge toward the server would mediate the impact of the server’s response on the third party tipping.

Method

Participants and Design

Undergraduate business students at a large state university in the U.S. (\(N = 524\); 45% female; age range 19 to 52; median age = 21; 73% Caucasian) participated in partial fulfillment of a course requirement. Participants read a restaurant scenario in which they imagined they overheard (at an adjacent table) a customer complain to a server about slow service and the server responding to the complaint. Participants were randomly assigned to one of three complaint severity conditions (low severity, high severity, high severity/repeated complaint) and one of three server response conditions (positive, neutral, negative). In all complaint conditions, participants imagined a customer at an adjacent table who had been waiting for his food for 20 minutes. In the low severity complaint condition, the customer politely asked the server where his food was. In the high severity complaint condition, the customer unleashed a profanity-laced complaint. In the high severity/repeat condition, the customer made the same initial complaint and then after the server’s response again expressed some profanities and said he was never coming back to the restaurant again. In addition to reading one of these three complaints, participants read one of three server responses. In the positive server response condition, the waitress said she did not know why the order was delayed, apologized twice, said she was sorry, and promised to check on the order. In the neutral server response condition, the waitress simply said she didn’t know why the order was delayed and promised to check on...
the order. In the negative server response condition, the waitress said “I don’t know [why your food is delayed]. I put your order in. Just wait.”

**Measures**

After reading the scenario, participants rated their likelihood of tipping the server on a 7-point Likert scale (1 = very unlikely, 7 = very likely) and indicated the percentage of tip that they would likely give to the server using a slider scale (0% - 25%). Participants then completed a five-item scale assessing desire for revenge toward the server (adapted from Grégoire, Tripp, and Legoux 2009) (α = .95) using a 7-point Likert scale (1 = not at all, 7 = very much).

**Results and Discussion**

We first conducted a 3 (server’s response: negative, neutral, positive) x 3 (complaint severity: low, high, high/repeat) multivariate analysis of variance (MANOVA) on tip likelihood, tip percentage, and desire for revenge toward the server as a set. Results revealed a significant multivariate main effect of server’s response, Wilks’ Lambda = .88, $F(6, 992) = 11.42, p < .001$, no significant main effect for complaint severity ($p = .10$) and no significant interaction between the server’s response and complaint severity ($p = .61$). We next conducted univariate 3 x 3 ANOVAs on each dependent variable. Each analysis revealed a significant main effect of server’s response ($p < .001$), a main effect of customer complaint on desire for revenge ($p < .05$), and no interactive effects (means and F-values shown in Table 1). Subsequent Tukey post hoc tests revealed that tip likelihood and tip percentage were significantly lower, and desire for revenge was significantly higher, in the negative server response condition than the neutral and positive server response conditions ($p < .05$), while the neutral and positive server response conditions did not differ.

We next tested whether desire for revenge would mediate the effect of the server’s response on tip likelihood and tip percentage using hierarchical regression. Given the aforementioned Tukey post hoc test results, we created two contrast coded comparisons to reflect the server’s response (i.e., contrast 1 = negative vs. neutral/positive; contrast 2 = neutral vs. positive). We entered the two contrasts on step 1, and desire for revenge on step 2. As expected based on our earlier results, on step 1, contrast 1 was a significant predictor of tip likelihood and tip percentage ($p < .001$). Further, when desire for revenge (the hypothesized mediator) was entered on step 2, it was a significant (negative) predictor of tip likelihood and tip percentage ($p < .001$); contrast 1 was weaker but still significant for tip likelihood ($p < .001$), suggesting a partial mediation; and contrast 1 became non-significant for tip percentage ($p = .10$), suggesting full mediation. Complementing these analyses, we also tested the 95% confidence interval for the indirect effect of contrast 1 on tip likelihood and tip percentage through desire for revenge using Hayes’ (2013) PROCESS program. Each indirect effect was significant, as neither confidence interval contained zero. As a final step in our analysis, we used structural equation modeling to test the overall model linking the server’s response to tip likelihood through desire for revenge. As shown in Figure 1, the path model fit the data well.

**STUDY 2**

Study 1 provided initial support for our hypotheses. To test the stability and generalizability of our findings, Study 2 integrated two additional outcome variables (return intentions and likelihood of recommending) as well as an additional mediator (attitude toward the restaurant) to account for the residual direct path from server’s response to tip likelihood revealed in study 1.

**Method**

**Participants and Design**

Undergraduate business students at a large state university in the U.S. ($N = 423$; 42% female; age range 18 to 34; median age = 21; 72% Caucasian) participated in partial fulfillment of a course requirement and entrance into a drawing for a $25 Amazon gift card. The server response and customer complaint conditions were identical to those used in study 1.
Measures
After reading the scenario, participants rated their likelihood of tipping the server on a 7-point Likert scale (1 = very unlikely, 7 = very likely), indicated their tip percentage using a slider scale (0% - 25%) and rated their likelihood of returning to the restaurant and recommending it to others (1 = very unlikely, 7 = very likely). Participants then completed the desire for revenge toward the server scale (Grégoire, Tripp, and Legoux 2009) (α = .95) and a six-item semantic differential scale assessing attitude toward the restaurant (Oliver and Bearden 1985) (α = .95).

Results and Discussion
We first conducted a 3 (server’s response: negative, neutral, positive) x 3 (complaint severity: low, high, high/repeat) MANOVA on the six dependent measures as a set. Results revealed a significant multivariate main effect of server’s response, Wilks’ Lambda = .76, \( F(12, 788) = 9.40, p < .001 \), no significant main effect for complaint severity \( (p = .88) \), and no a significant interaction between the server’s response and complaint severity \( (p = .10) \). We next conducted univariate 3 x 3 ANOVAs on each dependent variable. Each analysis revealed a significant main effect of server’s response \( (p < .01) \), and a significant interaction between server’s response and complaint severity on desire for revenge \( (p = .04) \) (means and F-values shown in Table 1). However, the nature of this interaction was not interpretable. Subsequent Tukey post hoc tests revealed that tip likelihood, tip percentage, likelihood of returning, and likelihood of recommending, and attitude toward the restaurant were significantly lower, and desire for revenge was significantly higher, in the negative server response condition than the neutral and positive server response conditions \( (p < .05) \), while the neutral and positive server response conditions did not differ.
TABLE 1
Summary of Univariate ANOVAs

<table>
<thead>
<tr>
<th>Server’s Response</th>
<th>Negative</th>
<th>Neutral</th>
<th>Positive</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip Likelihood</td>
<td>4.44(_a)</td>
<td>5.22(_b)</td>
<td>5.49(_b)</td>
<td>21.84***</td>
</tr>
<tr>
<td>Tip Percentage</td>
<td>10.05(_a)</td>
<td>11.65(_b)</td>
<td>12.39(_b)</td>
<td>7.72***</td>
</tr>
<tr>
<td>Desire for Revenge</td>
<td>2.42(_a)</td>
<td>1.74(_b)</td>
<td>1.55(_b)</td>
<td>28.04***</td>
</tr>
<tr>
<td><strong>Study 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip Likelihood</td>
<td>4.76(_a)</td>
<td>5.38(_b)</td>
<td>5.42(_b)</td>
<td>8.20***</td>
</tr>
<tr>
<td>Tip Percentage</td>
<td>9.89(_a)</td>
<td>12.06(_b)</td>
<td>12.04(_b)</td>
<td>6.87***</td>
</tr>
<tr>
<td>Desire for Revenge</td>
<td>2.05(_a)</td>
<td>1.70(_b)</td>
<td>1.66(_b)</td>
<td>4.78**</td>
</tr>
<tr>
<td>Attitude toward Restaurant</td>
<td>3.50(_a)</td>
<td>4.57(_b)</td>
<td>4.80(_b)</td>
<td>56.59***</td>
</tr>
<tr>
<td>Intention to Return</td>
<td>3.95(_a)</td>
<td>4.71(_b)</td>
<td>4.89(_b)</td>
<td>18.87***</td>
</tr>
<tr>
<td>Willingness to Recommend</td>
<td>3.61(_a)</td>
<td>4.29(_b)</td>
<td>4.31(_b)</td>
<td>11.21***</td>
</tr>
</tbody>
</table>

Note: Means not sharing a subscript differ significantly according to Tukey’s test (p < .05). Study 1 df = (2, 498); Study 2 df = (2, 399) for the main effects of server response. In study 1, customer complaint severity had a main effect only on desire for revenge, F(2, 498) = 3.69, p < .05; M\(_{low\, severity}\) = 2.10\(_a\) vs. M\(_{high\, severity}\) = 1.86\(_ab\) vs. M\(_{high\, severity-repeat}\) = 1.76\(_bc\). In study 2, the interaction of server response and customer complaint severity was significant on desire for revenge, F(4, 399) = 2.57, p < .05, but the nature of this interaction was not interpretable.

We next tested whether desire for revenge and attitude toward the restaurant would mediate the effect of the server’s response on tip likelihood, tip percentage, likelihood of returning, and likelihood of recommending using hierarchical regression. Following the strategy used in study 1, we contrast coded server’s response (i.e., contrast 1 = negative vs. neutral/positive; contrast 2 = neutral vs. positive). We then entered the two contrast codes on step 1, desire for revenge on step 2, and attitude toward restaurant on step 3. As expected, on step 1, contrast 1 was a significant predictor of tip likelihood, tip percentage, likelihood of returning, and likelihood of recommending (ps < .001). Further, when desire for revenge was entered on step 2, it was a significant (negative) predictor of each dependent variable (ps < .001) and contrast 1 was weaker but still significant for all dependent variables (ps < .01), suggesting partial mediation. Finally, when attitude toward the restaurant was entered in step 3, it was a significant (positive) predictor of all dependent variables (ps < .001) and contrast 1 became non-significant (or flipped signs, in the case of likelihood of recommending), indicating that attitude toward the restaurant fully mediated the remaining effect of server’s response. Complementing these analyses, we also tested the 95% confidence interval for the indirect effect of contrast 1 on tip likelihood, tip percentage, likelihood of returning, and likelihood of recommending through desire for revenge and attitude using Hayes’ (2013) PROCESS program. Each indirect effect was significant, as none of the confidence intervals included zero. As a final step in our analysis, we used structural equation modeling to test the overall model linking the server’s response to tip
likelihood, tip percentage, likelihood of returning, and likelihood of recommending through desire for revenge and attitude. As can be seen in Figure 1, the path models fit the data well.

**FIGURE 1**
Representative Path Model Results

**STUDY 1**

![Path Model for Study 1](image)

**STUDY 2**

![Path Model for Study 2](image)

Note: Contrast 1 (negative = 1, neutral/positive = 0); Contrast 2 (neutral = 1, positive = 0). In study 1, similar results were obtained for tip percentage, though there was no significant direct path from the negative vs. neutral/positive contrast to tip percentage. In study 2, identical results were obtained for tip percentage, intention to return, and willingness to recommend. Additionally, across both studies, all models yielded acceptable fit indexes (CFI > .95, TLI > .95, and RMSEA ≤ .07). Values in rectangles next to endogenous variables are $R^2$ values.

** $p < .01$; *** $p < .001$.  

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GENERAL DISCUSSION

Addressing calls for increased attention to consumer decision-making in the context of relationships, the present studies explored how consumers respond to overheard service failures in a restaurant setting. Across an initial survey and two experiments, results show that consumers will punish servers who respond negatively to another customer’s complaint by reducing tip likelihood and percentage, even when the customer’s complaint is highly negative. In addition to punishing the server, customers who overhear a server’s negative response are less likely to return to the establishment and recommend it. Process analyses further suggest that these effects are driven by a desire to punish the server and unfavorable attitudes toward the establishment. These findings offer practical and theoretical insights, and pave the way for future research.

From a practical perspective, the implications are clear: regardless of how negative the customer’s complaint, service employees should avoid responding in a negative manner. This may be fairly intuitive, on one level. But it bears repeating that while some research has examined how third party observers perceive service failures, investigating how third party observers actually respond to the server is new. It is also important to reiterate that observers do not appear to “cut the server slack” when the customer’s complaint is highly negative or repeated. Theoretically, it is possible that, in an effort to restore justice, third party observers would show more favorable responses to a server if a customer’s complaint was highly negative, but the present results do not support that reasoning.

Interestingly, results also indicate that a service employee need not “bend over backwards” to please the customer, as third party observers do not appear to differentiate between a neutral and a positive server response to customer complaints. This suggests that servers who try especially hard to please the customer will not benefit from those efforts, and in fact may become depleted as a result (Chan and Wan 2012). These results are intriguing and somewhat counterintuitive. Indeed, why might third parties not give more credit to servers who go “above and beyond the call of duty” to satisfy complaining customers? One possibility is that responding positively is simply expected. Thus, rather than constituting a citizenship behavior, third party observers (and customers interacting directly with the server) are more likely to view positive responses as in-role behaviors (i.e., part of the job). Future research assessing expected role behaviors of servers could shed light on this possibility.

Theoretically, the present results also provide useful insights into the reactions of third party observers of service failures. Most notably, the present results strongly suggest that third party punishment occurs during overheard service failures, and that there is a clear negativity bias operating, with observers weighing negative information more heavily than positive information. Though not directly addressed, it is also likely that responsibility attributions and role expectations play a pivotal role in driving the observed results. To wit, third party observers are likely to attribute the service failure to the server (or at least the firm) and to hold default expectations that servers will address the problem and not respond in a negative manner. Testing these explanations, and identifying potential boundary conditions for the effects (e.g., management intervention), would further advance an understanding of this process.

The present work contributes to an understanding of consumer decision-making in the context of interpersonal relationships. Nevertheless, two methodological considerations point to the need for future work. First, the primary (experimental) data were based on self-reported responses to hypothetical scenarios. While this method is common in service failure research, future research should attempt to replicate these findings in more naturalistic environments. Second, the present work focused on service failures in a restaurant setting. Testing whether similar findings emerge in other settings (e.g., hotel industry) would provide stronger support for the generalizability of the third party punishment phenomenon.
REFERENCES


SWAYED BY THE NUMBERS: THE UNINTENDED CONSEQUENCES OF DISPLAYING REVIEW COUNTS

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ABSTRACT

While previous research investigating online product reviews has largely focused on purchase incidence, we extend this stream of literature by also investigating consumer preference within a choice set. Seven experiments and one observational study demonstrate how displaying review counts may unintentionally bias consumer preference, and ultimately, purchase likelihood. We find that consumers are more likely to prefer a lower-rated product when it has more reviews than another option, but only when both products feature small review counts. Furthermore, we show that withholding review counts leads to greater purchase likelihood than displaying small review counts. These effects are driven by a change in the perceived importance of review counts as the relative magnitude between options changes. We extend prior literature by investigating consumer preference, in addition to purchase likelihood, in an experimental format. Our observational study suggests that a majority of online retailers may be unintentionally promoting this bias on their websites. We conclude with implications for managers, suggesting possible avenues to counteract or utilize this bias to their advantage.

INTRODUCTION

Online product reviews continue to gain prominence in the marketplace, as well as in consumer decision-making research. Recent reports conclude that 65% of consumers alter their consideration set based on product reviews (Weber and Shandwick 2012). Furthermore, 79% of consumers trust online reviews as much as personal recommendations, yet consumers are increasingly reading fewer reviews before forming opinions about products (BrightLocal 2013). This suggests that consumers are extracting information not from the content of the reviews, but rather from aggregate statistics presented by the retailers, such as the average product rating and review counts (i.e., the number of product reviews).

Product review information is typically presented in two forms: aggregate-level information (i.e., average product rating and review counts) and individual-level information (i.e., individual product rating and text content of each of the customer’s review). Interestingly there is no uniform practice regarding displaying aggregate-level information between online retailers, and large variations in practice are observed. For example, within the same product category (athletic shoes), Nike.com does not display any product review information on its product search page, whereas Footlocker.com displays only the average product rating, while Amazon.com displays both the average product rating and product review count.

A growing body of literature demonstrates the importance of online product reviews in the consumer decision process (Mayzlin, Dover, and Chevalier 2012; Dellarocas, Zhang, and Awad 2007; Duan, Gu, and Whinston 2008; Liu 2006; Moe and Trusov 2011). Yet, these papers tend to focus on large industry-leading online retailers such as Amazon.com. The retailers analyzed often have larger consumer bases, resulting in larger review counts relative to their competitors. Expanding on prior findings, this paper investigates consumer preferences when choosing amongst products that have small review counts. As we show next, small rather than large review counts are prevalent for the majority of online retailers and thus constitute an important, yet unexplored area of research. Furthermore, prior work on the influence of review counts on consumer choices has focused on purchase incidence; we extend these findings by also investigating the influence of review counts on product choice. Besides providing important insights to marketers regarding consumer behavior in this underexplored marketplace space, our paper also contributes
to the numerosity literature by expanding our understanding of how consumers’ preferences between products systematically change when they make choices under conditions of large versus small review counts.

In what follows, we first demonstrate empirical support for our claim that retailers with small review counts constitute a large and important area of online commerce, and we explore the distribution of product review counts in the current online marketplace. Next, we review the literature and develop our hypotheses about consumer decision-making when making choices between products with small rather than large review counts.

**An empirical analysis of online product reviews**

We conducted an observational study to better understand the dispersion of product review counts displayed online. Two independent raters used the Alexa database to compile a list of over 300 of the largest online retailers across three of the largest online product categories (consumer electronics, home appliances, and apparel) based on NRF E-Commerce Sales (2010). For each website that sold one of the product categories, the raters were instructed to enter a keyword in the search bar (e.g., “batteries” for consumer electronics, “coffee maker” for home appliances, “shoes” for apparel). On the results page, the raters then viewed each product and recorded whether product review information was available. If information was available, the raters then recorded the three largest review counts for products on the first search page. If information was not displayed on the search page, the raters clicked on the first three product links, and went through the same process.

The raters’ search process resulted in 337 websites analyzed across the three product categories. Of the websites analyzed, 93 (27.60%) did not display any review information. Of the remaining 244 websites that displayed review count information, the average number of reviews was 282. However, a large amount of variance existed, suggesting that most websites feature significantly less product reviews (median = 1.50; standard deviation = 1069.69; range = 7154.33). To investigate further, we dichotomously classified websites as large (if the review count average was greater than or equal to 100) or small (if the review count average was under 100).

Of the websites that displayed reviews, roughly one-quarter (26.64%; 65/244) averaged over 100 reviews for the most reviewed products, meaning that nearly three-quarters of websites (73.36%; 179/244) featured products with less than 100 reviews. The “large” websites averaged 1417.46 reviews (median = 436.83; standard deviation = 2093.07; range = 7052.17), while the “small” websites averaged 16.31 reviews (median = 2.83; standard deviation = 24.55; range = 96.00).
The results of this analysis suggest that while a majority of online retailers choose to display product reviews, very few retailers feature “large” product review counts. Our findings here are a conservative estimate of average product review counts as we sampled the largest review counts from the largest online retailers of the largest retail product categories. As such, it is reasonable to expect that an even greater proportion of online retailers feature a small number of product reviews.

Given that a majority of online retailers feature small (under 100) rather than large review counts, it is important to understand the influence that small product review counts have on consumer choices. Thus while prior research has investigated the influence of large product review counts on purchase likelihood, generally concluding that an increase in product review counts leads to an increase in purchase incidence (Mayzlin, Dover, and Chevalier 2012; Sun 2012), we provide complementary research to these findings, focusing on small rather than large online retailers.

Furthermore, while consumer research has found that decisions of “what” to buy (product choice) are fundamentally different than “whether” to buy (purchase incidence) (Dhar 1996; Okada 2005; Xu & Wyer 2012), prior research on product reviews has focused only on the latter, examining effect of review counts on consumers’ binary purchase decisions (i.e., buy or don’t buy). We extend this literature by investigating the systematic shift in preference between choice options that occurs when consumers see small (large) review counts.

**Effects of review counts in consumer decisions**

Word of mouth has a strong influence on consumer purchase decisions by decreasing uncertainty in the value of goods that consumers are considering for purchase (Brown and Reingen 1987; Murray 1991; Banerjee 1992). Increasingly, consumers use online customer reviews in the same capacity. As described earlier, consumer review information is usually presented in the form of average review rating and review count. While a majority of the work demonstrates a strong relationship between review ratings (or valence of reviews) and purchase likelihood, the evidence for the influence of review counts is not as strong (Floyd et al. 2014). For example, Godes and Mayzlin (2004) examined how review counts influence ratings of television shows, but find no significant relationship. In contrast, Duan, Gu, and Whinston (2008) find that
while there is no significant influence of rating valence on a movie’s box office success, an increase in
review count significantly predicted box office sales. Similarly, Liu (2006) investigates how movie pre-
release online chatter influence box office sales and finds that it is the volume of the WOM, rather than
the valence, that positively influences box office sales. Chevalier and Mayzlin (2006), while examining book
sales ranks on Amazon and Barnes & Noble websites found that as the review count increased for a given
book, the sales rank of that book would improve. However, this effect was only observed on Amazon.com,
a website largely featuring more review counts relative to its competitors. Consistent with this finding, in
one of the few experimental examinations of online reviews counts and consumer decision-making, Khare
et al. (2011) found that when the review count was large, a narrow (wide) dispersion of individual ratings
enhanced preference for the product with a positive (negative) average rating, however dispersion was a
nonfactor when the review count was small. Thus, while there is some evidence that review counts influence
purchase incidence, this research does not investigate consumer preference between options, nor does it
investigate the effect of review counts independent of other factors.

Moreover, previous literature only focused on the effect of review counts on purchase likelihood
of a single product. We extend this literature by examining how review counts influence option preference
when consumers are deciding within a choice set (i.e., conditional on a willingness to buy, which product
does the consumer prefer if the choice set displays small (large) review counts for both options).

THEORETICAL BACKGROUND
A large body of research has suggested that consumer choices are influenced by the choice context.
In line with this view, we believe that consumer behavior will systematically differ based on whether the
choice set includes relatively more or less reviews (e.g., large online retailers vs. small online retailers).
Because we examine choice between options, it is necessary to identify the systematic biasing that may
occur with large and small review counts. This biasing process exists because of two factors. First,
consumer choice involves evaluating differences between choice options (Brenner, Rottenstreich, and Sood
1999; Medin, Goldstone, and Gentner 1993). While both similarities and differences among the options
are considered, differences are more diagnostic for choosing (Dhar and Sherman 1996; Tversky 1977).
Indeed, an “elimination by aspects” heuristic (Tversky 1972) proposes that the attributes that are similar
across options are simply eliminated from the decision process. Further, presence of multiple options
increases evaluability of the attributes that consumers would otherwise have a hard time judging in isolation
(Hsee 1996; Hsee & Leclerc 1998; Hsee et al., 1999). Thus, in the context of online shopping, a product’s
review count would become more evaluable as an attribute, when another option has a visible review count.

Second, prior research demonstrates that consumers are differentially sensitive to relative and
absolute differences between numerical attributes (Tversky and Kahneman 1981; Bonini and Rumiati 2002;
Moon, Keasey, and Duxbury 1999; Heath, Chatterjee, and France 1995). For example, the numerosity
literature explores how the expanse of a scale systematically biases behavior. This research has shown that
attribute differences seem larger when displayed on an expanded scale (e.g., 5 out of 10 vs. 50 out of 100)
(Pandelaere, Briers, Lembregts 2011). Similarly, this area has shown that expanded scales make
incremental progress seem greater, but also make distance to completion seem greater (Bagchi & Li 2011).
As such, the relative and absolute differences that exist between options can differentially influence
behavior.

Building on these findings, we propose that because any absolute difference in the review counts
between choice options would appear relatively larger on the small retailer website, consumers will perceive
review counts to be more important in a choice set featuring small review counts, relative large, leading to
a greater weight being placed on review counts in the decision process. Because review counts have
increased weight in a choice set featuring small (rather than large) review counts, we expect to observe a
systematic bias such that a consumer viewing a choice set with small review counts will show less
preference for the higher-rated option when a competing option features more reviews, relative to a consumer viewing a choice set with large review counts. Formally, we propose:

H1: Consumers observing a choice set with small (versus large) review counts, will show relatively less preference for the option with the higher product rating when it also features less reviews.

H2: Consumer preference is mediated by the perceived importance of review counts.

Finally, as has previously been discussed, consumers use others’ reviews to inform their evaluations of product quality (Brown and Reingen 1987; Murray 1991; Banerjee 1992). If the risk of making a wrong purchase is reduced by presence of other signals of quality, we expect the differential effect of review counts on choices to be attenuated. Therefore, we expect that when consumers are choosing between products with high overall evaluations, they would be less likely to incorporate the review counts in their decision-making.

Furthermore, previous research investigating the valence of word of mouth finds that negative word of mouth is generally more influential than its counterpart (Yang et al. 2012; Arndt 1967). One reason for this asymmetry was suggested by Chevalier and Mayzlin (2006): positive WOM is significantly more prevalent than negative WOM online; therefore negative WOM is more unique. We propose that for this reason, the unique (i.e., rare) negative WOM is likely to be analyzed more closely. Applying this finding to our research, we propose that consumers facing choice sets with low (negative) or mixed (neutral) product ratings, would be more likely to incorporate product review counts into their decision relative to consumers that view a choice set with high (positive) ratings, demonstrating a moderating effect of the phenomenon proposed in H1. Combining these two predictions, we formally state the following:

H3: The influence of review counts on consumer choice is moderated by the valence of the average product rating, such that when the average product rating is high (vs. neutral and low) the effect of review counts would be attenuated.

Next, we test these hypotheses in a series of studies.

OVERVIEW OF STUDIES

We explore our hypotheses in seven studies. Study 1a demonstrates how review counts systematically shift consumer preference between alternatives based on whether the review counts are large or small, while Study 1b replicates the findings with consequential choice. Study 2a demonstrates the generalizability of this finding to another common quality signal, brand name, rather than product rating. Study 2b shows that even by highlighting certain options (e.g., “Best-Seller!”), review counts still remain influential. Study 3 demonstrates one condition, valence, by which the influence of review counts can be mitigated. Lastly, Studies 4a and 4b investigate the managerial implications of our findings. Specifically, Study 4a investigates consumer preference when one of the two options does not display a review count, and Study 4b demonstrates the consequences of review counts beyond preference shifts, by measuring purchase intentions.

Study Paradigm

Each study followed a similar format. Participants were told that they were in need of a new item for their home (e.g., blender) and had narrowed their options down to two possible choices. They then viewed both options simultaneously with a list of attributes beneath the images. After this, participants would answer the primary dependent variable for the study (i.e., preference or choice), followed by any other measures.
Study 1a: Effect of review counts on product preference

Study 1a was designed to test Hypothesis 1: given one option that has more reviews with a lower product rating, and one that has less reviews with a higher product rating, consumer preference will shift away from the product with more reviews as the total number of reviews for both options increases. We tested this hypothesis across five product categories (within-subject) and five levels of review counts (between-subjects). Critically, in all of our conditions, the choice option with more reviews always featured a lower product rating, while the choice option with less reviews was always rated higher. This allowed for a conservative test of review count influence in consumer preferences – in this scenario, picking the option with a higher review count would indicate that the consumer weighs the number of reviews, more than the product rating, as an indication of the product’s quality.

Method
Participants and Design. 250 participants (31% female; M_age = 31.35) were recruited via Amazon mTurk to complete a survey in exchange for a $0.50 payment. Participants were randomly assigned to one of five review counts conditions: control (i.e., review counts not listed), small (e.g., 8 vs. 64 reviews), mid-small (e.g., 72 vs. 128 reviews), mid-large (e.g., 201 vs. 257 reviews), or large (e.g. 456 vs. 512 reviews) in a between-subjects design. Within-subjects, each participant viewed five replicate scenarios (headphones, microwaves, coffeemakers, speaker systems, and lounge chairs).

Procedure. The procedure followed our study paradigm. For each scenario, participants were told a simple scenario: they were looking to purchase a specific product (e.g., a microwave) and that they had narrowed the choice set down to two possible options. They then viewed both options simultaneously, and each option in the choice set was nearly identical (i.e., the products did not differ from each other), with the exception of the product rating, and the review counts. Specifically, Option A would always have a higher average product rating than Option B (e.g., 3.5 vs. 3.2), but a lower review count (e.g., 8 vs. 64 reviews). The absolute difference between the two review counts was kept constant across all conditions which featured review counts (the control condition withheld review counts).
After viewing the choice set, participants were asked to indicate relative preference between the products on a 7-point scale (1 = Strongly Prefer Product A to 7 = Strongly Prefer Product B).

**Results**

**Review Count Levels.**

A linear regression analysis of product preference on review count level yielded a significant result for four of the five product categories. Results were significant for the coffeemaker (β = -.345; t(1,197) = -5.159; p < .001), microwave (β = -.320; t(1,197) = -4.736; p < .001), speaker system (β = -.293; t(1,197) = -4.303; p < .001), and the lounge chair (β = -.195; t(1,197) = -2.786; p < .01). While, a linear relationship was not significant for the headphones (p > .1), it was directionally consistent with the other products. To highlight the influence of review counts, we next focus on the extremes of review count conditions (small and large conditions), as well as the control condition.

<table>
<thead>
<tr>
<th>Product</th>
<th>Msmall</th>
<th>Mlarge</th>
<th>Mcontrol</th>
<th>F(2,147)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffeemakers</td>
<td>4.38</td>
<td>2.36a</td>
<td>2.88a</td>
<td>18.766</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Microwaves</td>
<td>4.29</td>
<td>2.55a</td>
<td>3.00a</td>
<td>13.245</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Speaker Systems</td>
<td>3.84</td>
<td>2.57a</td>
<td>2.98a</td>
<td>7.313</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Lounge Chairs</td>
<td>3.42</td>
<td>2.38a</td>
<td>2.13a</td>
<td>7.512</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Headphones</td>
<td>3.87</td>
<td>3.28</td>
<td>3.06</td>
<td>1.589</td>
<td>&gt;.1</td>
</tr>
</tbody>
</table>

*same superscripts indicate no significant differences between conditions in a row

Option Preference.

Three-level (review count: large, small, control) one-way ANOVAs were used to analyze the pattern of results for each product category. Four of the product categories (coffeemakers, microwaves, speaker systems, and lounge chairs) yielded results consistent with H1. While the results for headphones were not significant, they were directionally consistent with other results, indicating the systematic shift from the option with a larger review count in a choice set featuring small review counts to the option with the higher product rating when the choice set featured large review counts. Planned contrasts between review counts further showed no significant differences between the large and control review count conditions for all product categories.
Next, we intend to show the robustness of this effect by replicating the findings with a consequential choice task.

**Study 1b: Replication with consequential choice**

*Method*

*Participants and Design.* 105 university students were intercepted in the student union and offered a $5 payment in exchange for completing several studies. For this study, participants were also informed that 1 out every 50 participants would be entered into a raffle to win their preferred product ($42 value). Because, we were uncertain of the number of participants, we focused only on two conditions. Participants were randomly assigned to one of two review count conditions (large or small) in a between-subjects design, and viewed one product scenario.

*Procedure.* The procedure followed the same format as our previous study with a few minor exceptions. In this study we changed the product category to blenders to further test generalizability. Furthermore, we only focused on the extreme (large and small) review count conditions. Once again participants indicated relative preference. Lastly, they would leave their email as a form of contact in the event that they won the raffle.

*Results and Discussion*

*Option Preference.*

A one-way ANOVA on product preference yielded a significant difference between large and small conditions ($M_{large} = 3.08$, $M_{small} = 4.68$; $F(1,104) = 19.098; p < .001$). This study replicates the previous findings: consumers show significantly greater preference for the higher-rated option when the review counts in a choice set are both large, relative to when choice set features small review counts. By replicating these results in a different category, and involving consequential choice, we have shown the effect to be robust. Having provided ample support for the existence of the influence of review counts on product preference, we next seek to illuminate the process by which this effect operates. We also aim to further generalize the effect by demonstrating its implications for other product attributes.
**Study 2a: Product brand name as a signal of quality**

**Method**

*Participants and Design.* 143 undergraduate students participated in this study in exchange for course credit. Participants were randomly assigned to one of two conditions (review count: large vs. small) in a between-subjects design.

*Procedure.* While the process was similar to our previous studies, in this study we held product rating constant and used brand name as a signal of quality. Participants were told that they needed a new toaster and had narrowed their options down to two. Option A was a well-known brand (Cuisinart) with less reviews relative to Option B, which was a fictitious brand (Generica) which has more reviews. Once again, we manipulated whether the total number of reviews was “large” or “small” while keeping the absolute difference in review count between options constant.

After participants indicated relative preference between options, we also measured their perceived importance of each attribute on display (product image, brand name, price, product rating, and review count).

**Results**

*Option Preference.*

As predicted, a one-way ANOVA yielded significant results for toaster preference ($F(1,142) = 6.793; p = .01$). Participants were significantly more likely to prefer Option B (generic brand, larger review count) in the small review counts condition ($M_{\text{small}} = 4.78$) compared to the large ($M_{\text{large}} = 3.96$) condition.

*Attribute Importance.*

We predicted that when both options had a small review count, the absolute difference in the number of reviews would lead consumers to perceive review counts as an important attribute. Yet, when both options featured a large review count, the relative difference would lead consumers to perceive review counts as relatively less important in this condition. As such, we thought that consumers would base their decision largely on review counts in the small condition, but on product rating in the large condition. A one-way ANOVA yielded significant results for the importance of number of reviews ($F(1,142) = 11.954; p = .001$). Confirming our predictions, participants were significantly more likely to consider the number of reviews important in the small review counts condition ($M_{\text{small}} = 5.68$) compared to the large ($M_{\text{large}} = 4.85$) condition. As expected, no other attributes (product image, brand, price, product rating) significantly differed in importance ($p > .1$).

*Mediation.*

We used biased-corrected bootstrapping ($n=1,000$) to determine if review count importance drives consumer preference between options (model 4; Preacher and Hayes 2007). Supporting our theory, the overall indirect effect of review count importance on option preference was significant ($\beta=-.4923; 95\% \text{ CI: } -.8306 \text{ to } -.2254$). This finding provides support for our hypothesis, suggesting that the perceived importance of the review counts mediates the relationship between consumer preference and the actual review counts.

**Study 2b: Preference with a popular option**

**Method**

*Participants and Design.* In exchange for course credit, 403 students participated in this study. Participants were randomly assigned to a 2 (review count: large vs. small) x 2 (popularity signal: present vs absent) cell, in a between-subjects design.
**Procedure.** Participants viewed a scenario similar to other studies informing them that they were purchasing a new microwave, and trying to decide between two options. However, to manipulate popularity in this study, participants were also informed that one Option A (less reviews, higher product rating) was a “best-seller”. If popularity was the mechanism by which large review counts influenced consumer preference, this manipulation should have effectively moderated our effect, leading participants to favor Option A regardless of review count.

**Results**

**Option Preference.**

As before, a one-way ANOVA on product preference yielded a significant difference between large and small conditions (M_{large} = 2.74, M_{small} = 4.63; F(1, 398) = 124.431; p < .001) as well as between popularity present and absent conditions (M_{absent} = 4.01, M_{present} = 3.34; F(1, 398) = 14.901; p < .001). The interaction term was not significant (p > .1), suggesting that popularity is not the mechanism by which review counts influence consumer preference.

**Discussion**

This study replicates the previous findings: consumers show significantly greater preference for the higher-rated option when the review counts in a choice set are both large, relative to when choice set features small review counts. Furthermore, this study rules out a possible alternative explanation: if perceived popularity was driving the review count effect, then tagging an item as a “best-seller” should have moderated our previous findings, which it did not. However, we did uncover a main effect such that a product labeled as a best-seller yields a main effect of increased preference and increased choice confidence for that option, though this has seemingly no implications for review counts.

**Study 3: Moderating effect of review valence**

We posit that the review counts are used as a signal of rating accuracy, and thus, an increase in review counts increases consumer certainty in a product’s rating. As such, consumers are fearful of the unknown, choosing the relatively more certain option (larger review count), over the option that has more variance (smaller review count). Yet, if consumers perceive that the variance around an option is relatively positive, we posit that consumers will be more willing to take a risk on the less-certain option that provides more upside. That is, a valence threshold exists, such that consumers will prefer the “safer” option when the ratings are moderate or low, but will show increased preference for the “risky” option when the valences of the overall choice set is high.

Furthermore, we posit that when consumers view a choice set of highly-rated products, they are confident that both options will be satisfactory, which leads to higher confidence in choice, shifting consumer preference toward Option A (higher product rating score, lower review counts). Yet, when products feature negative or neutral ratings, they engage in the tradeoff process exhibited in earlier studies (H6). In the next study, we test these hypotheses by analyzing the review counts effect across three valences (negative, neutral, positive) of product ratings. We examine these possibilities in this study by including self-reported choice confidence as a mediator, and manipulating the valence of product ratings between-subjects.

**Method**

**Participants and Design.** 433 students participated in this study in exchange for course credit. Participants were randomly assigned to condition in a 2 (review count: large, small) x 3 (product rating valence: negative, neutral, positive) between-subjects design and viewed one product scenario.

**Procedure.** This study followed the same study paradigm as before, but product rating valence was manipulated across three levels. In the negative rating valence condition, the product options were rated 2.4 and 2.1 on a 5.0 scale, respectively. In the neutral condition, product options were rated 3.4 and 3.1.
(consistent with prior studies). And in the positive condition, product options were rated 4.4 and 4.1. The review count manipulation was identical to prior studies. After reading the scenario, and viewing the options, participants were asked to indicate their relative preference between the two chairs. Rather than measure attribute importance of participants indicated preference, we measured confidence in their choice on a 7-point scale.

**Results**

**Option Preference.**

A one-way ANOVA yielded significant differences in preference between valence groups \(F(2,430) = 12.409; p < .001\). Simple contrasts revealed that Option A was preferred significantly more in the positive ratings condition \((M_{\text{high}} = 3.01)\) relative to the neutral ratings \((M_{\text{average}} = 3.89; F(1,289) = 15.104; p < .001)\) or negative ratings conditions \((M_{\text{low}} = 3.74; F(1,287) = 20.608; p < .001)\). No significant difference existed in preference between negative and neutral conditions \((F(1,284) = .641; p > .4)\). A 2 (review count: large, small) x 3 (product rating valence: negative, neutral, positive) ANOVA on preference yielded the predicted interaction \(F(2,427) = 3.582; p < .03\). In the negative valence condition, participants preferred Option A (higher product rating, smaller review count) significantly more when the review counts were large \((M_{\text{large}} = 3.32, M_{\text{small}} = 4.15; F(1,142) = 10.955; p < .002)\), as predicted. In the neutral valence condition, the same pattern held \((M_{\text{large}} = 3.38, M_{\text{small}} = 4.38; F(1,140) = 14.570; p < .001)\), consistent with earlier studies. However, in the positive valence condition, there was no significant difference in preference between groups \((M_{\text{large}} = 2.97, M_{\text{small}} = 3.04; F(1,145) = .060; p > .80)\), confirming our position that positive product ratings can mitigate the effect of review counts in consumer decisions.

**Figure 4**

**Study 4a: Review count effects on missing review count information**

Sometimes however, an option may lack review count information. How do consumers respond? For example, Figure 5 is a screenshot of Google Shopping’s results for a particular blender.
While one option displays the product rating and number of reviews, the other only displays the product rating. In the next study, we seek to answer how consumers respond when presented with this (lack) of information. As seen in Study 2a, review counts mediate the consumer decision: when review counts are small, consumers show increased preference for the option that has more reviews. We believe this same concept applies when only one option displays. As such, when one option has a higher product rating with no review count information (vs. an option featuring a lower product rating with reviews), relative preference will be shifted towards the option display a review count, but only when that review count is small. When that review count is large, consumers infer that the other option likely has many reviews as well, and determine that review counts are less important (relative to when the option has a small review count). Formally:

H4: When one choice option is missing review count information, consumer preference increases for the option that displays a review count when shopping on a website that features small, relative to large, review counts.

If this hypothesis holds true, this is one such way that smaller retailers can compete with larger retailers, or newer products can compete with more established products.

Participants. This study was conducted as a within-subjects factor of Study 2b. As a result, 403 students participated in this study in exchange for course credit. Participants were randomly assigned to a 2 (review count: large vs. small) x 2 (review count information: present vs absent) cell, in a between-subjects design.

Procedure. This study followed the same design as Study 2a, with one exception. In the review count absent condition, we withheld the review counts of Option A (higher product rating). Thus participants would choose between Option A (higher product rating, no review count) and Option B (lower product rating, review count displayed). Specifically, Option A would feature a message that said “***Error retrieving data***”, while Option B would feature the review count (e.g., 9 or 443 ratings).

After viewing the choice set, participants were asked to indicate relative preference between the products on a 7-point scale (1 = Strongly Prefer Product A to 7 = Strongly Prefer Product B). Then participants were asked the importance of the five displayed attributes.

Results
Option Preference.

A one-way ANOVA yielded significant results for blender preference (F(1,142) = 4.376; p < .05). Participants were significantly more likely to prefer Option A (higher product rating, review count absent) in the large review counts condition (M_{large} = 3.00) compared to the small (M_{small} = 3.58) condition. Thus, when review count was large, participants were more likely to prefer the option that had a higher rating and
less information, but when review count was small, participants felt justified in preferring the lower-rated option that featured more information.

Attribute Importance.

A one-way ANOVA yielded significant results for the importance of number of reviews (F(1,142) = 14.591; \( p < .001 \)). Participants found the number of reviews to be significantly more important in the small review counts condition (M\(_{\text{small}}\) = 5.51) compared to the large (M\(_{\text{large}}\) = 4.56) condition. As expected, no other attributes (image, brand, price, ratings) significantly differed in importance (\( p > .1 \)).

Mediation.

We used biased-corrected bootstrapping (n=1,000) to determine if perceived importance of the review counts drives consumer preference between options (model 4; Preacher and Hayes 2007). Supporting our theory, the overall indirect effect of review count importance on option preference was significant (\( \beta =-.3676; 95\% \text{ CI: } -0.6668 \) to \(-.1673 \)).

Discussion

This study provided further support for our proposed mediation hypothesis (H2), while also exemplifying one such way that managers could utilize the review count effect to their advantage. Thus far, we have only shown the unintended consequence of preference shift due to review counts. If a website is unintentionally shifting product preference, we argue that this is a negative effect, but as long as products are being sold, it may not seem important to managers. Next, we investigate the objectively negative effect of decreased purchase intentions due to the influence of review counts.

Study 4b: Review Count Effects on Consumer Preference and Purchase Likelihood

Our final study also incorporates a purchase intentions measure into our research paradigm. If review counts systematically shift consumer preference, we think it quite likely that review counts can systematically influence purchase intentions as well.

Consumers view the information provided by a retailer as information that the retailer deems relevant. As such, by providing review counts to the consumer, consumers are made to believe that this attribute should be part of the consideration process. While some research has concluded that more information is good (Gao & Simonson 2015), we posit that no information is actually better than little information. Meaning, withholding review counts is actually better than displaying small review counts when it comes to purchase likelihood. More formally:

H5: When no review count information is displayed, consumers are more likely to make a purchase than when small review counts are revealed by the online retailer.

Method

Participants and Design. 183 participants were recruited via Amazon mTurk to complete a survey in exchange for a $0.50 payment. Participants were randomly assigned to one of three review counts conditions (large, small, or control) in a between-subjects design.

Procedure. Participants were asked to imagine that they were looking for a new blender and had narrowed their selection down to a two options. As before, the options displayed five attributes (image, product name, price, product rating, and review count). Option A was rated higher than Option B, but would also have less reviews. In the control condition, neither option displayed review counts.

Rather than indicate relative preference, as before, participants were asked for absolute choice: Option A, Option B, or to defer purchase. After choosing, participants indicated the relative importance of each attribute.
Results

Choice Deferral.

A three-level (review counts: large, small, control) one-way ANOVA yielded significant effect of condition on deferral rate ($\chi^2(2,183) = 4.856; p < .01$). Planned contrasts further showed that participants were significantly more likely to defer purchase in the small review counts ($P_{\text{small}} = 29\%$) and the large ($P_{\text{large}} = 13\%; \chi^2(1,122) = 4.856; p < .05$) conditions. Importantly, the deferral rate was higher than when no reviews were displayed ($P_{\text{control}} = 8\%; \chi^2(1,120) = 8.514; p < .01$), consistent with H1. Differences between the absent and large conditions were not significant ($\chi^2(1,124) = .669; p > .1$). This suggests that displaying low review counts, as we have observed in Study 1, can negatively affects sales for online retailers.

Option Preference.

Restricting our analyses only to participants who chose a product option, a three-level (review count: large, small, absent) one-way ANOVA yielded a significant effect of review count condition on the choice of blenders ($\chi^2(2,153) = 16.172; p < .001$). Planned contrasts further provided evidence for our hypotheses. Not surprisingly, preference for the higher-rated product (Option A) increases as the review counts increase ($P_{\text{large}} = 61\%, P_{\text{small}} = 36\%; \chi^2(1,97) = 11.953; p < .001$). However, we find support for our boundary condition in that participants who did not view review counts also significantly preferred the higher-rated product ($P_{\text{control}} = 71\%; \chi^2(1,98) = 12.431; p < .001$). Differences between the control and large conditions were not significant ($\chi^2(1,111) = .004; p > .1$).

Attribute Importance.

A three-level (review counts: large, small, absent) one-way ANOVA yielded no effect of condition on the product rating ($F(2,180) = .056; p > .1$). However, for the importance of “number of raters”, a three-level (review count: large, small, absent) one-way ANOVA yielded a marginal effect ($F(2,180) = 2.7; p < .07$). Planned contrasts further showed that participants were significantly more likely to find the number of raters more important in the small review count condition ($M_{\text{small}} = 5.59$) compared to the absent ($M_{\text{absent}} = 5.18; t(180) = -1.798; p < .08$) or large ($M_{\text{large}} = 5.10; t(180) = 2.186; p < .05$) conditions. Differences between the absent and large conditions were not significant ($p > .1$).

Discussion

Study 4b varied the review counts across conditions, giving participants options with large or small review counts, or withholding the review counts entirely. Results suggest that there are no significant differences between large review counts and withholding review counts, yet small review counts cause consumers to behave significantly different than the other two groups. Specifically, consumers who view small review counts are more likely to defer purchase, but if they do make a choice, they are likely to choose the lower-rated product in exchange for choosing the product that has more reviews. Taken together with the results from Study 1, it appears that most retailers are unintentionally causing shifts in preference with their consumers between product options due to the presence of review counts (supporting H1 & H2), but also potentially encouraging consumers to look elsewhere to purchase (supporting H5).
GENERAL DISCUSSION

Our objective in this article was to highlight a common manipulation to consumer decisions that online retailers may not realize is occurring. By displaying review counts, smaller retailers may be systematically disadvantaged against larger retailers who have the consumer base to rapidly acquire large review counts for their products. Over the course of seven studies, we demonstrated the influence of review counts at multiple magnitudes (Study 1a), replicated the effects with consequential choice (Study 1b), showed that review counts are mediating the consumer decisions (Study 2a), ruled out a possible alternative explanation (Study 2b), determined the moderating role of valence (Study 3), showed the implications for managers in withholding review count information (Study 4a), and finally, demonstrated how review counts can decrease purchase intentions (Study 4b).

Not only was product preference influence by review counts, but so too, was purchase likelihood. Preference for the less-reviewed, higher-rated option increased as the total review counts increased for both options. Yet, by nature of the quality inferences garnered from product ratings, higher-rated products should yield higher customer satisfaction and lead to a greater likelihood of customer loyalty and repeat business. By displaying a low review count, the authors showed that consumers are less likely to choose the higher-rated (i.e., optimal) option, which could yield decreased satisfaction relative to choosing the higher-rated option. Furthermore, our experiments detail how review counts can shift preference not only across product ratings, but also across more traditional quality indicators, like brand name.

Implications for Marketing Practice

While practitioners try to provide consumers as much information as possible, results suggest that it is better for managers to withhold review count information unless they have a sufficiently large amount of reviews. Yet even then, a large review count may not be a benefit. In the current research, withholding review counts did not yield significant differences from large review counts, so managers must think long and hard about how their consumers will respond to the information presented on the website.

Throughout the paper, possible implications of this research were discussed. Understanding the effect of review counts could aid practitioners in increasing purchase intention, and also shifting preferences across brands, price points, and options to influence potential retail sales and profits. While we believe most firms do not benefit from review counts, and indeed, actually face consequences by revealing this information, it is necessary to understand the intricacies of the possible review count influences to aid their firm.

Limitations and Future Research

While this research provides an important contribution to the decision-making literature by investigating consumer behavior online, there are possible extensions ripe with promise. In this article, the authors make no assumption regarding the usage of products; however consumers are known to behave differently regarding hedonic and utilitarian products (Dhar and Werttenbroch 2000). Do these differences apply to the online decision-making context? Furthermore, the authors assumed the comparison shopping was taking place within a specific website, however it is common for consumers to comparison shop across a multitude of websites in real life. Do alternative-based processing and attribute-based processing yield different results in relation to the influence of review counts? Furthermore, different websites have different presentation formats, therefore it is likely cross-site comparison shopping may present consumers with a variety of missing data for complete comparisons. How do consumers respond when faced with entirely different presentation formats, and multiple pieces of missing information? Or how do consumers behave when websites use different rating metrics: one using star ratings, and another using percentage ratings? These questions only scratch the surface of how consumers behave when shopping online, but they are all important questions to answer in an effort to aid online retailers in marketing products on the web.
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WHY IS MENU LABELING OFTEN INEFFECTIVE? THE ROLE OF CONSUMERS’ FOOD-VALUE ORIENTATIONS

Christopher Berry, University of Arkansas

Food is among the most ubiquitous products purchased by consumers. Total food expenditures in the United States reached $1423 billion in 2013 with purchases for food consumed away from home accounting for nearly half (49.5%) (ERS 2015a). Although the total food expenditure in the United States has increased dramatically over past sixty years, food now accounts for only about 11.4 percent of Americans’ disposable incomes, whereas sixty years ago, Americans spent approximately 23 percent of their disposable income on food (ERS 2015a). In general, the abundance of relatively inexpensive, convenient, and appetizing food alternatives now available to consumers in the United States may be viewed as a success story for the U.S. food marketing system (Redmond 2009).

Many critics feel that the food marketing system is overly efficient and, by providing an abundance of inexpensive food that is conveniently available, is a significant contributor to obesity (Loewenstein 2011; Nestle 2007; Seiders and Petty 2004). While Americans are spending less of their disposable incomes on food (ERS 2015a), the average number of calories consumed per day continues to increase over time (ERS 2015b). Thus, obesity rates in the United States have more than doubled during the last thirty years with over 63 percent of adults in the United States now either overweight or obese (CDC 2015; Rashad 2005). Obesity contributes to mortality (Flegal et al. 2005) and has major health care cost implications (Finkelstein et al. 2009).

To attempt to counter the negative consequences related to consumer health associated with changes experienced in the supply chain and consumer marketplace over the past fifty years, there has been and currently is substantial interest in the communication of the importance of the nutritional value of foods. For example, Public Law 111-148, effective December 1, 2016, mandates the provision of calorie information on menus and menu boards for chain restaurants. Since nutrition information is generally not available to consumers who are dining outside of the home, consumers generally have very little knowledge of calories and other nutritional attributes of the foods they are ordering and consuming (Burton and Creyer 2004). In fact, consumers drastically underestimate the number of calories, fat content, and sodium content of restaurant meals, and this is especially true for less healthful meal options (Burton et al. 2006; Burton, Howlett, and Tangari 2009). Thus, the provision of calorie labeling on restaurant menus may have beneficial outcomes on consumer health by reducing calorie consumption (Burton et al. 2006).

This legislation mandating menu calorie labeling for chain restaurants was passed despite concerns that the market-based change to the information environment will not have widespread effects on consumer choice behavior (Elbel et al. 2009; Elbel, Gyamfi, and Kersh 2011; Ellison, Lusk, and Davis 2014; Finkelstein et al. 2011; Harnack and French 2008; Long et al. 2015; Lowenstein 2011; Tandon et al. 2011; Swartz, Braxton, and Viera 2011). That is, although some laboratory-based research supports the effectiveness of menu calorie labeling (Burton, Howlett, and Tangari 2009; Howlett et al. 2009; Parker and Lehmann 2014; Roberto et al. 2010), there is an increasing amount of evidence suggesting that calorie provision will be ineffective in changing consumers’ crystallized food consumption behaviors (see Long et al. 2015 for a review). For example, Elbel et al. (2009) conducted a natural experiment before and after menu calorie labeling was introduced in New York City. Data collected in New York City was then compared to data collected in a control location (i.e., Newark, New Jersey). Although 28% of people who saw calorie labeling in New York City said the information influenced their food choice, calorie labeling did not influence calories ordered (Elbel et al. 2009).

Although there is a plethora of evidence from recent field studies conducted in restaurant settings suggesting that calorie labeling is ineffective (Elbel et al. 2009; Elbel, Gyamfi, and Kersh 2011; Ellison,
Lusk, and Davis 2014; Finkelstein et al. 2011; Harnack and French 2008; Long et al. 2015; Tandon et al. 2011; Swartz, Braxton, and Viera 2011), it could be argued that these field studies suffer from not considering individual difference variables (Burton and Kees 2012). For example, laboratory-based studies conducted outside of restaurant settings have shown calorie labeling to be particularly influential on evaluations for consumers who are highly motivated to process nutrition information (Bates et al. 2009; Howlett et al. 2009). Although there are many potential impediments to widespread market-based effects of calorie labeling on food choice in restaurant settings (Burton and Kees 2012), understanding consumer-level differences with respect to how they use calorie labeling information is critical (Stewart and Martin 2004). This is because enduring individual differences among consumers likely influence how consumers respond to calorie disclosures (Stewart and Martin 1994; 2004), and these individual differences have not been measured or considered in restaurant-based calorie labeling studies to date (Burton and Kees 2012).

Extending this notion, differences among consumers may mask both increases and decreases in calories ordered in response to calorie provision on menus (Finkelstein et al. 2011; Harnack and French 2008; Long et al. 2015). That is, some consumers may decrease calories ordered in response to calorie labeling, while other consumers may increase calories ordered in response to calorie labeling. Thus, calorie provision is unlikely to be effective for consumers whose food-value orientations have become responsive to the food market environment which has successfully increased the availability of appetizing and voluminous food options available at historically low prices. Consumers with these food-value orientations (that are unrelated to product healthfulness) are likely to be immune to calorie provision and other nutrition-related disclosures. Conversely, these consumers may actually use calorie information to make tastier and more voluminous food choices, which could result in an increase in the number of calories ordered by these consumers. Thus, it is necessary to develop measures to address sources of consumer perceptions of food-based value that may impact food-related attitudes, intentions, and product choices across various contexts.

THEORETICAL FRAMEWORK
Consumers' Quest for Food-Value
Consumers attempt to maximize value by choosing products that are instrumental in goal attainment (Köpetz et al. 2012; Köpetz et al. 2011; Kruglanski et al. 2013; Kruglanski et al. 2002). Similarly, others argue that products are means of accomplishing customers’ purposes (i.e., goals) and that products create value through the delivery of consequences (Woodruff and Gardial 1996). If a product helps a consumer meet their goals, it delivers desirable consequences, which creates value for the consumer (Woodruff and Gardial 1996). However, when discussing perceived value, the negative consequences, such as price or time, also need to be accounted for (Woodruff and Gardial 1996; Ziethaml 1988). Thus, perceived value is conceptualized as a tradeoff between the positive and negative potential consequences (Woodruff and Gardial 1996). This conceptualization is in line with how others have defined perceived value: “the consumer's overall assessment of the utility of a product based on what is received and what is given” (Zeithaml 1988, p. 14).

When it comes to food choice, consumers must often take into account multiple goals, such as taste and nutrition, which may result in a complicated decision-making process aimed at satisfying their goals (Finkelstein and Fishbach 2010). Consumer researchers have generally focused on two conflicting goals that consumers face when making food consumption decisions (Chandon and Wansink 2007; Dhar and Simonson 1999; Fishbach, Friedman, and Kruglanski 2003). One of these goals is the utilitarian goal of maintaining one’s health, while the other is the hedonic goal of taste enjoyment (Dhar and Simonson 1999; Fishbach, Friedman, and Kruglanski 2003). Consumers with hedonic goals have been found to choose tasty, unhealthy food options over less tasty, healthier options (e.g., Ramanathan and Menon 2006).

Although taste and health are important to many consumers, consumers weigh a number of considerations when making food purchasing decisions (Connors et al. 2001; Furst et al. 1996; Glanz et al. 1998). Consumers likely derive value from food based on various attributes, and decisions are likely made
based on whether a food option delivers various types of perceived value to the consumer. Thus, consumer researchers examining food consumption could benefit from considering consumers’ enduring food-value orientations that may influence food consumption decisions. That is, consumers have enduring food-value orientations that they strive to satisfy when making food consumption decisions. For example, when making a food choice from a menu, one consumer may be oriented toward health-value and thus choose a food option that they believe is instrumental in providing them the most healthful food for the money they spend. In contrast, other consumers may value quantity or taste and strive to maximize these food attributes for the money they spend on food products.

**Consumers’ Food-Based Value Orientations**

Perceived value has been said to be equal to consumers’ perceived utility of the product based on what is “received” and what is “given” (Zeithaml 1988). There are a number of attributes that consumers may seek to “receive” as benefits to determine the value of food alternatives, including taste, quantity, and healthfulness (Glanz et al. 1998), and these potentially differ substantially across consumers (Finkelstein et al. 2011; Glanz et al. 1998). In terms of what is “given” by the consumer for restaurant food choices, in this research, the focus is on the price paid (Zeithaml 1988). This view is consistent with other definitions of value that appear in the literature, where price paid is the denominator of the value-based equation.

Taste is a primary driver of food choice for many consumers (Glanz et al. 1998), while the quantity of food received may be a driver of food choice for other consumers (Loewenstein 2011). Consumers oriented toward quantity- or taste-value may choose restaurant fare that satisfies their orientation. Since consumers likely choose options that are consistent with their orientation, taste-value orientation and quantity-value orientation should be positively related to consumers’ expectations of taste and quantity prior to consuming the meal (H1). Because food volume is generally positively related to caloric content and because consumers tend to have a tasty equals unhealthy intuition (Raghunathan, Naylor, and Hoyer 2006), consumers with these orientations are likely to order more calories in their quest to maximize value (Loewenstein 2011) (H2). In contrast, there are consumers who are more concerned with the health-value of the product. Consumers who value health should strive to make more healthful food consumption decisions and, in doing so, order fewer calories. Therefore, consumers’ health-value orientation is predicted to be positively related to consumers’ expectations of the overall healthfulness of the meal that is ordered by the consumer (H1) and negatively related to the number of calories ordered (H2).

**H1:** For meals chosen by consumers, (a) consumers’ health-value orientation will be positively related to the expected healthfulness of their chosen meal, (b) their taste-value orientation will be positively related to the expected taste of their chosen meal, and (c) their quantity-value orientation will be positively related to the amount of food they expect to receive as part of their chosen meal.

**H2:** Consumers’ (a) health-value orientation will decrease the number of calories ordered, while (b) taste-value orientation and (c) quantity-value orientation will increase calories ordered.

**Response to Calorie Provision**

In comparing laboratory studies and field studies examining the effects of calorie provision on calories ordered by consumers, researchers have suggested that restaurant-based field studies suffer from not considering consumers’ enduring individual-level characteristics which may influence food consumption decisions (Burton and Kees 2012). Others have pointed out the criticality of considering consumers’ enduring individual characteristics as potential moderators to information disclosures (Stewart and Martin 1994; 2004). Similarly, based on this theoretical framework, consumers’ enduring food-value orientations should play a role in consumers’ response to information disclosures and food labeling. That is, because consumers’ food-value orientations determine what consumers consider to be important when making food consumption decisions, these orientations should moderate effects of menu calorie labeling.
Although consumers who value health when making food consumption decisions generally try to order more healthful, lower calorie options, this is difficult in limited information environments where calorie level expectations are often substantially different from objective calorie levels (Burton et al. 2006). Because consumers with this orientation value health and strive to make healthful consumption decisions, the additional information provided by menu calorie labeling should enable these consumers to more effectively order fewer calories. Thus, calorie provision is likely effective in reducing the number of calories ordered by consumers who are oriented toward health-value. That is, consumers’ health-value orientation should moderate the effect of calorie provision on calories ordered. However, calorie provision will be ineffective for consumers who are not oriented toward health-value and find value in food attributes unrelated to health.

\[H3:\] Consumers’ health-value orientation will moderate the effect of calorie provision on meal calories ordered. For consumers higher in health-value orientation, calorie provision will reduce calories ordered, and this effect will be attenuated for consumers lower in health-value orientation.

In contrast, other consumers, who are most concerned with maximizing the quantity- or taste-value of food choices, are likely immune to the intended effects of calorie provision because it does not align with their food-value orientation. However, the aggregate effect of taste-value orientation, quantity-value orientation, and their interactions with calorie provision should have an incremental, positive influence on calories ordered. Thus, this unintended increase in calories ordered counterbalances the intended decrease in calories ordered due to calorie provision health-value orientation, and the calorie provision x health-value orientation interaction.

\[H4:\] The combined effects of consumers’ taste-value orientation, quantity-value orientation, and the interaction of each of these orientations with calorie provision will have a positive, incremental influence on calories ordered.

### STUDY 1

Study 1 involves the development and validation of the three food-value orientation measures. First, a description of the initial pool of items is provided. Subsequently, to examine the reliability and structure of the food-value orientations, the results of confirmatory factor analysis are reported for the value orientation items collected from a national sample of adults. Finally, discriminant validity is tested, and nomological validity is examined by examining the relationships between food-value orientations measures and other theoretically related constructs.

#### Methods

**Initial Pool of Food-Value Orientation Items**

An initial pool of 45 items was generated based on dimensions of food value identified in extant literature (Connors et al. 2001; Furst et al. 1996; Glanz et al. 1998). Each of these items related to one of the three food-value orientations (i.e., healthfulness-, taste-, and quantity-orientation). Each of these items were considered for content validity and clarity regarding the items appropriateness as a measure of each orientation. This resulted in final item pool of 14 items. Specifically, four to five items were retained for each of the food-value orientation measures.

**Procedure and Sample**

To evaluate the reliability and structure of the food-value orientation measures, a national sample of 310 adults was obtained. Seventy-four percent of the participants were the primary shoppers in their household. Sixty-two percent of the participants were females, and thirty-eight percent were males. The mean age of the sample was 33, the median annual household income was $40,000 to $49,999 a year, and
90% of the participants had some college education. A survey was administered to the national sample using Amazon’s Mechanical Turk (MTurk).

Measures
Participants responded to the measures of each food-value orientation, including taste-value orientation, health-value orientation, and quantity-value orientation. In addition, demographic measures and measures of nutrition knowledge, nutrition motivation, self-risk, height, and weight were collected to examine nomological validity. Subjective nutrition knowledge was measured using three seven-point scale items (α = .92) drawn from prior nutrition labeling literature (Burton, Garretson, and Velliquette 1999). Also drawing from prior nutrition labeling research (Burton, Garretson, and Velliquette 1999; Howlett et al. 2009; Keller et al. 1997; Moorman 1990), motivation to process nutrition information was measured with three seven-point items (α = .94). Self-risk was measured using three seven-point items (α = .92): “Compared with other men and women of your age, do you consider your risk of heart disease or stroke to be:” with endpoints of “much lower than others/much higher than others,” “less likely/more likely,” “much better than average/much worse than average.” To calculate participants’ body mass index (BMI), the height and weight of each participant was collected. Demographics included gender, education, and income.

Results
Confirmatory Factor Analysis
Confirmatory factor analysis was conducted using Amos 22 (Arbuckle 2006) to examine the items for each value orientation and their structure. Prior to these analyses, the Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy indicated that the data were appropriate for factor analysis. The difference in chi-square values between the three-factor model and the null model was significant (p < .001). Although the chi-square of the three-factor model was significant (p < .001), it was within 2.5 to 3 times the number of degrees of freedom, as recommended by Bollen (1989). In addition, the fit indices for the measurement model indicate adequate fit (Comparative Fixed Index (CFI) = .98, Tucker-Lewis Index (TLI) = .98, Root Mean Square Error of Approximation (RMSEA) = .04). Both the CFI of .98 and the TLI of .98 met the cutoff recommended by Hu and Bentler (1999), and the RMSEA of .04 indicated good model fit (Hu and Bentler 1999).

Convergent Validity
Table 1 shows the range of factor loadings, construct reliability, and average variance extracted (AVE) for each value orientation. As shown in Table 1, the factor loadings for each value orientation exceeded .70. The construct reliability estimates (Fornell and Larcker 1981) are well above .70, suggesting good reliability. Also indicating acceptable convergence, the AVE estimates ranged from .68 to .77, which exceeds Fornell and Larker’s (1981) recommendation of .50.
TABLE 1
Example Items and CFA Results for the Food-Value Orientations

<table>
<thead>
<tr>
<th>Taste-Value Orientation (5 items)</th>
<th>Example Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average variance extracted (AVE)</td>
<td>0.69</td>
</tr>
<tr>
<td>Construct reliability</td>
<td>0.92</td>
</tr>
<tr>
<td>Range of standardized factor loadings</td>
<td>0.74, 0.87</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthfulness-Value Orientation (4 items)</th>
<th>Example Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average variance extracted (AVE)</td>
<td>0.77</td>
</tr>
<tr>
<td>Construct reliability</td>
<td>0.93</td>
</tr>
<tr>
<td>Range of standardized factor loadings</td>
<td>0.84, 0.90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantity-Value Orientation (5 items)</th>
<th>Example Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average variance extracted (AVE)</td>
<td>0.68</td>
</tr>
<tr>
<td>Construct reliability</td>
<td>0.91</td>
</tr>
<tr>
<td>Range of standardized factor loadings</td>
<td>0.74, 0.91</td>
</tr>
</tbody>
</table>

Note: Confirmatory factor results and tests of factor structure are replicated and confirmed across several studies.

Discriminant Validity
Support for discriminant validity was demonstrated by the confidence interval for the correlation between each pair of value orientations (plus or minus two standard errors) not containing a value of one (Anderson and Gerbing 1988). In addition, a series of constrained models were estimated in which the correlation for each pair of factors was constrained to one. Each constrained model was compared to the unconstrained model in which the correlation was freely estimated. In each instance, there was a significant difference in the model fit of the constrained and unconstrained models (ps < .001), providing initial evidence of discriminant validity (Anderson and Gerbing 1988). Following the recommendation of Fornell and Larker (1981), discriminant validity was again assessed among the three value orientations by comparing the squared correlation estimate between each pair of value orientations with the AVE from each value orientation in the pair. Supporting discriminant validity, all AVEs exceeded the squared correlation for each pair of value orientations.

Nomological Validity
Several tests of nomological validity were performed. Table 2 is the correlation table for the measures included in this study. This table includes each of the food-value orientations as well as measures of demographics, nutrition knowledge, nutrition motivation, self-risk, and body mass index (BMI; calculated based on the participant’s height and weight). As shown in Table 2, the correlation between health-value orientation and quantity-value orientation was negative (ps < .05). However, the correlation between health-value orientation and taste-value orientation was nonsignificant (p > .30). As could be expected, there was a negative correlation between income and quantity-value orientation (p < .01). Similarly, there was a negative relationship between consumers’ age and quantity-value orientation (p <
.05). In addition, there were positive relationships between health-value orientation and both nutrition knowledge and nutrition motivation (both ps < .01), but negative relationships between health-value orientation and both BMI and self-risk (both ps < .05).

### TABLE 2
Correlations for Food-Value Orientation Measures, Demographics, and Related Constructs

<table>
<thead>
<tr>
<th></th>
<th>Taste-Value Orientation (TVO)</th>
<th>Healthfulness-Value Orientation (HVO)</th>
<th>Quantity-Value Orientation (QVO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVO</td>
<td>0.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HVO</td>
<td>0.06</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td>QVO</td>
<td>0.23**</td>
<td>-0.12*</td>
<td>0.91</td>
</tr>
<tr>
<td>Age</td>
<td>0.02</td>
<td>0.10</td>
<td>-0.12*</td>
</tr>
<tr>
<td>Income</td>
<td>0.04</td>
<td>-0.01</td>
<td>-0.13*</td>
</tr>
<tr>
<td>Education</td>
<td>-0.01</td>
<td>0.05</td>
<td>-0.12*</td>
</tr>
<tr>
<td>Nutrition Knowledge</td>
<td>-0.09</td>
<td>0.40**</td>
<td>-0.20**</td>
</tr>
<tr>
<td>Nutrition Motivation</td>
<td>-0.06</td>
<td>0.53**</td>
<td>-0.23**</td>
</tr>
<tr>
<td>Self-Risk</td>
<td>0.09</td>
<td>-0.23**</td>
<td>0.06</td>
</tr>
<tr>
<td>BMI</td>
<td>0.09</td>
<td>-0.14*</td>
<td>0.08</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01

### STUDY 2

Studies 2 and 3 will use consumers’ food-value orientations to provide insight into consumer response to menu calorie labeling in online experiments outside of actual restaurant settings. Specifically, the first experiment (Study 2) will test the direct and moderating role consumers’ health-value orientation on the effect of calorie disclosure on calories ordered from a restaurant menu.

#### Methods

**Design and Procedure**

As an initial test of H1-H3, Study 2 was a 2 condition (calorie provision versus no calorie provision) between-subjects experiment. Participants were randomly assigned to one of the two experimental conditions. Participants first viewed a menu from a fictitious restaurant, and they were asked to order from the menu as they would for dinner on an ordinary day. Menu items were obtained from major chain restaurants. In addition, the objective calorie information was also obtained for these menu items from actual chain restaurants. While viewing the menu, participants were asked to consider which entrée they would like to order for their meal. They were also informed that they could, but were not required, to order a side or sides and a drink. In the calorie provision condition, calorie information was included on the menu based on the information obtained from chain restaurants. Finally, participants recorded the entrée, side(s), and drink they would like to order and then responded to measures of their health-value orientation and demographic variables, respectively.

**Measures**

To examine the influence of health-value orientation on calories ordered and expectations regarding the healthfulness of the meal and the moderating role of health-value orientation on the effect of calorie provision on meal calories ordered, health-value orientation was included as a measured moderator. Specifically, health-value orientation was measured using the same measure established in Study 1 (α = .97; see Table 1). The focal dependent measure was total meal calories ordered. This measure was the sum of the objective calories contained in the entrée, side(s), and drink ordered by the participant. The mean
number of meal calories ordered by participants was 1263.83 ($SD = 482.86$). In addition, expectation of the healthfulness of the meal was measured using two seven-point items adapted from prior nutrition labeling research ($r = .95, p < .001$; Kozup, Creyer, and Burton 2003): (1) “I think the nutrition level of the meal I ordered is:” with endpoints of “poor/good” and (2) “Overall, how would you rate the level of nutritiousness of the entire meal that you ordered?” with endpoints of “not nutritious at all/very nutritious.” The mean of this multi-item measure was used in analyses.

**Sample**

A national sample of 103 adult participants was obtained using Amazon’s MTurk. Participants’ mean age was 37.5 ($SD = 11.4$), and 59.2% (40.8%) of the participants were females (males). The sample had a median household income of $40,000-$49,999, and 45.6% of the sample had obtained a four-year college degree.

**Results**

**Effects on Meal Healthfulness Expectations**

H1a predicted that consumers’ health-value orientation will be positively related to expectations of the meal’s healthfulness. To test H1a, model 1 in PROCESS with 10,000 bootstrap samples was used (Hayes 2013). Specifically, nutrition expectation was regressed on calorie provision (calories provided on the menu = ‘1’ and calories not provided on the menu = ‘0’), health-value orientation, and the calorie provision x health-value orientation interaction. To aid in interpretation, predictors were mean centered prior to creating the interaction term and conducting the analyses. Health-value orientation was positively related to the expected healthfulness of the meal ($b = .37, t(99) = 3.84, p < .001$), supporting H1a. In addition and as expected, the effects of calorie provision and the calorie provision x health value orientation interaction on nutrition expectations were nonsignificant ($p s > .60$). These results indicate that consumers’ oriented toward health-value orientation strive to order healthful meals and expect that their meal is relatively healthful regardless of whether calorie information is provided on the menu.

**Effects on Calories Ordered**

H2a predicted that consumers’ health-value orientation will be negatively related to calories ordered, while H3 predicted that health-value orientation will moderate the effect of calorie provision on calories ordered. That is, consumers oriented toward health-value will strive order more healthful meals and thus order fewer calories. For these consumers (i.e., high in health-value orientation), calorie provision should be more effective in reducing total meal calories ordered by providing consumers with additional information in an otherwise limited information environment. To test these hypotheses, model 1 in PROCESS with 10,000 bootstrap samples was used again (Hayes 2013). Calories ordered was regressed on calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction. Again, predictors were mean centered prior to analysis.

Supporting H2a, health-value orientation was negatively related to calories ordered ($b = -60.49, t(99) = 2.02, p < .05$). In addition, consistent with prior experiments conducted outside of restaurant settings (Burton et al. 2006; Burton, Howlett, and Tangari 2009; Howlett et al. 2009; Parker and Lehmann 2014; Roberto et al. 2010), calorie provision had a significant, negative effect on the number of calories ordered ($b = -281.03, t(99) = -3.19, p < .01$). However, these effects were qualified by a significant calorie provision x health-value orientation interaction ($b = -161.33, t(99) = -2.67, p < .01$), indicating that the effect of calorie provision was moderated by health-value orientation. The effect of calorie provision on total meal calories ordered was examined at five percentile levels of health-value orientation (Hayes 2013). Figure 1 shows these results. As shown in Figure 1, the effect of calorie provision on calories ordered was significant when health-value orientation was at or above the 50th percentile (50th percentile: $b = -309.49, t(99) = -3.47, p < .001$; 75th percentile: $b = -427.49, t(99) = -4.18, p < .001$; 90th percentile: $b = -588.82, t(99) = -4.12, p < .001$). However, the effect of calorie provision on calories ordered was not significant when health-value orientation was below the 50th percentile. The results suggest that calorie provision has a stronger effect on calories ordered for those consumers who are more oriented toward health-value.
orientation was low (i.e., at 25th or 10th percentile; $p > .20$ for both). These results provide support for H2a and H3.

**FIGURE 1**

Study 2: Effect of the Calorie Provision and Health-Value Orientation Interaction on Calories Ordered

<table>
<thead>
<tr>
<th>Calories Ordered</th>
<th>HVO Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10th</td>
</tr>
<tr>
<td></td>
<td>25th</td>
</tr>
<tr>
<td></td>
<td>50th</td>
</tr>
<tr>
<td></td>
<td>75th</td>
</tr>
<tr>
<td></td>
<td>90th</td>
</tr>
</tbody>
</table>

**Discussion**

Study 2 provides initial support for the effect of health-value orientation on healthfulness expectations (H1) and total meal calories ordered (H2) and provides support for the moderating role of health-value orientation on the effect of calorie provision on meal calories ordered (H3). Based on these results, consumers’ oriented toward health-value order meals that they expect to be more healthful and contain fewer calories. In addition, by providing consumers with additional information regarding the calorie content of meal items, calorie provision is effective in decreasing the number of meal calories ordered by health-value oriented consumers. However, calorie provision is not effective in influencing the number of meal calories ordered by consumers relatively low in their orientation toward the health-value of food products. These consumers are not concerned about maximizing the healthfulness of their meal orders and are therefore not influenced by the provision of calorie information on restaurant menus.

Extending the findings of Study 2, Study 3 will examine the influence of taste-value orientation and quantity-value orientation on meal expectations and total calories ordered. In addition, this study will test H4 by examining the positive, aggregate influence of taste-value orientation, quantity-value orientation, and their interactions with calorie provision on the total number of meal calories ordered. In aggregate, these positive effects are predicted to offer a countervailing influence to calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction.

**STUDY 3**

Study 3 will extend Study 2 findings using a longitudinal pretest-posttest experimental design with a control group. This study will examine how the provision of calorie information will influence consumers’ order but does so using a design that mimics the change that will be made in the marketplace when calorie disclosures become mandatory. In addition, this study uses new dependent measures to test H1 and provide theoretical support for how food-value orientations unrelated to health (i.e., taste-value orientation and quantity-value orientation) influence consumers’ food choices from a restaurant menu.
Methods

Design and Procedure

To extend Study 2 findings and test H1-H4, Study 3 was a longitudinal pretest-posttest experiment (calorie provision versus no calorie provision at Time 2) designed primarily to examine the proposed countervailing effects of calorie provision, health-value orientation, taste-value orientation, and quantity-value orientation on calories ordered. At Time 1 (T1), participants ordered from a fictitious menu with no calorie information and responded to the measures of food-value orientations and demographics. One month later, at Time 2 (T2), participants ordered from the same fictitious menu. However, at T2, participants were randomly assigned to a menu with or without calorie information. Using the same menu used in Study 2, all menu items and calorie levels were obtained from major table service chain restaurants. At both T1 and T2, participants were asked to order from the menu as they would for dinner on an ordinary day, including an entrée, side(s), and a drink. Participants were informed that they could, but were not required, to order a side or sides and a drink. The primary dependent variable was the number of calories ordered at T2; however, to address H1, healthfulness, taste, and quantity expectations were also measured at T2 after participants indicated the entrée, sides, and drink that they would like to order for their meal.

Sample

To participate in this study, a national sample of 271 adult participants was obtained using Amazon’s MTurk. Participants’ mean age was 39.3 (SD = 12.8), and 57.6% (42.4%) of the participants were females (males). The sample had a median household income of $40,000-$49,999, and 48.0% of the sample had received a four-year college degree.

Measures

At T1, after participants indicated their meal order, they responded to measures of food-value orientations and demographics. The health-value (α = .96), taste-value (α = .94), and quantity-value orientations (α = .95) were each measured using the same measures established in Study 1. The focal dependent measure in this study was the total number of meal calories ordered at T2. This measure was the sum of the objective calories contained in the entrée, side(s), and drink ordered by the participant. Meal calories were also calculated at T1 using the same measure, and this measure was used as a control variable in the analyses. The mean number of meal calories ordered at T1 was 1388.70 (SD = 518.63), while the mean number of calories ordered at T2 was 1210.30 (SD = 410.40).

At T2, after participants indicated their meal order, they responded to dependent measures of perceived healthfulness, taste, and quantity expectations for their chosen meal. Healthfulness expectation was measured using the same two-item measure used in Study 2 (r = .91, p < .001). Taste expectation was measured using two seven-point scale items (r = .90, p < .001) drawn from prior food labeling research (Berry et al. 2015): “I believe that the taste of this product would be:” with endpoints of “very poor/excellent” and “very bad/very good.” Quantity expectation was measured using two-seven point items (r = .83, p < .001). An example is: “Based on your order, how much food would you expect to receive?” with endpoints of “a little/a lot.” The mean of each of these multi-item measures was used in analyses.

Results

Effects on Meal Healthfulness, Taste, and Quantity Expectations

H1 predicted that consumers’ health-value, taste-value, and quantity-value orientation will be positively related to the expected healthfulness of the meal chosen by the participant, expected taste of the meal chosen by the participant, and the amount of food consumers expect to receive as part of their chosen meal, respectively. To test this hypothesis, three regression models were estimated using model 1 of PROCESS with 10,000 bootstrap samples (Hayes 2013). To test the effect of health-value orientation on meal healthfulness expectation, healthfulness expectation was regressed on health-value orientation, calorie provision (calories provided on the menu = ‘1’ and calories not provided on the menu = ‘0’), and the health-
value orientation x calorie provision interaction. Next, to test the effect of taste-value orientation on taste expectation, taste expectation was regressed on taste-value orientation, calorie provision, and the taste-value orientation x calorie provision interaction. Finally, to test the effect of quantity-value orientation on quantity expectation, quantity expectation was regressed on quantity-value orientation, calorie provision, and the quantity-value orientation x calorie provision interaction.

Prior to estimating each of these models, predictors were mean centered to aid in interpretation. As predicted in H1, health-value orientation was positively related to the expected healthfulness of the meal ($b = .34, t(267) = 6.49, p < .001$), taste-value orientation was positively related to the expected taste of the meal ($b = .20, t(267) = 4.23, p < .001$), and quantity-value orientation was positively related to the quantity of food the participant expected to receive ($b = .26, t(267) = 6.22, p < .001$). These results offer support for H1 and provide insight into the reasons why consumers with these orientations order the meals that they do.

**Effects on Calories Ordered**

To test H2-H4, hierarchical multiple regression was used to estimate three models. Three interaction terms were created using the product of calorie provision and each of the three food-value orientations. Again, prior to creating the interaction terms and performing the hierarchical regression analysis, predictors were centered at their means. In model 1, calories ordered at T2 was regressed on calories ordered at T1 (i.e., meal calories ordered at T1 serves as a control variable). In model 2, calories ordered at T2 was regressed on calories ordered at T1, calorie provision (calories provided on the menu = ‘1’ and calories not provided on the menu = ‘0’), health-value orientation, and the calorie provision x health-value orientation interaction. Finally, in model 3, calories ordered at T2 was regressed on calories ordered at T1, calorie provision, health-value orientation, taste-value orientation, quantity-value orientation, calorie provision x health-value orientation, calorie provision x taste-value orientation, and calorie provision x quantity-value orientation.

Based on the predictions offered in H2, it is expected that the model 2 results will show a negative effect of health-value orientation on the number of calories ordered at T2. In addition, model 2 should explain a significant amount of variance in calories ordered at T2, beyond the influence of the control variable (i.e., calories ordered at T1). Based on H3, health-value orientation should moderate the effect of calorie provision on calories ordered in model 2. Specifically, calorie provision should be more effective in decreasing calories ordered among consumers oriented toward the health-value of food products. Based on the predictions offered in H2 and H4, model 3 results should reveal positive effects for taste-value and quantity-value orientation on the number of meal calories ordered at T2. In addition, model 3 should explain a significant amount of variance in calories ordered at T2, beyond the variance explained in model 2. That is, beyond the effects of calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction, taste-value and quantity-value orientations and their interactions with calorie provision should have positive, incremental influence on the number of calories ordered at T2. The results relevant to these predictions are shown in Table 3.
## TABLE 3
Study 3: Hierarchical Regression Results for the Longitudinal Study

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1210.30, &lt; .001</td>
<td>1211.68, &lt; .001</td>
<td>1209.64, &lt; .001</td>
</tr>
<tr>
<td>Calories Ordered at T1</td>
<td>.28, &lt; .001</td>
<td>.29, &lt; .001</td>
<td>.27, &lt; .001</td>
</tr>
<tr>
<td>Calorie Provision (CP)</td>
<td>-182.08, .001</td>
<td>-174.62, .001</td>
<td></td>
</tr>
<tr>
<td>HVO</td>
<td>-45.86, .01</td>
<td>-32.36, .08</td>
<td></td>
</tr>
<tr>
<td>CP x HVO</td>
<td>-66.40, .06</td>
<td>-66.71, .06</td>
<td></td>
</tr>
<tr>
<td>TVO</td>
<td></td>
<td>55.93, .08</td>
<td></td>
</tr>
<tr>
<td>QVO</td>
<td></td>
<td>42.10, .03</td>
<td></td>
</tr>
<tr>
<td>CP x TVO</td>
<td></td>
<td>64.01, .31</td>
<td></td>
</tr>
<tr>
<td>CP x QVO</td>
<td></td>
<td>-49.83, .20</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.10</td>
<td>.17</td>
<td>.21</td>
</tr>
<tr>
<td>Model F-value</td>
<td>$F(1, 269) = 28.34, p &lt; .001$</td>
<td>$F(4, 266) = 13.14, p &lt; .001$</td>
<td>$F(8, 262) = 8.68, p &lt; .001$</td>
</tr>
<tr>
<td>$F$ for change in $R^2$</td>
<td>---</td>
<td>$F(3, 266) = 7.40, p &lt; .001$</td>
<td>$F(4, 262) = 3.70, p &lt; .01$</td>
</tr>
</tbody>
</table>

Notes: The dependent variable was total meal calories ordered at Time 2. Predictors were centered at their means prior to creating interaction terms and conducting analyses.

As shown in Table 3, the results of model 2 of the hierarchical multiple regression analysis revealed that health-value orientation and calorie provision decreased calories ordered at T2. Model 2, by including calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction as predictors, explained a significant amount of variance in calories ordered at T2. This was beyond the variance in calories ordered at T2 explained by calories ordered at T1 (i.e., the control variable). In addition, the calorie provision x health-value orientation interaction approached significance.

Model 3 results of the hierarchical multiple regression analysis also revealed that health-value orientation and calorie provision decreased calories ordered at T2, while quantity-value orientation increased calories ordered. These results provide support H2a and H2c. In addition, taste-value orientation had a positive influence on calories ordered, but this effect did not reach significance. As shown in model 3 of Table 3, the calorie provision x health-value orientation interaction approached significance. To examine the moderating role of health-value orientation on the effect of calorie provision on calories ordered, the effect of calorie provision on total meal calories ordered was tested at five percentile levels of health-value orientation (Hayes 2013). Figure 2 shows these results. As shown in Figure 2, the effect of calorie provision on calories ordered was significant when health-value orientation was at or above the 25th percentile (25th percentile: $b = -112.58, t(262) = -1.84, p < .05$; 50th percentile: $b = -179.29, t(262) = -3.45, p < .001$; 75th percentile: $b = -245.95, t(262) = -3.81, p < .001$; 90th percentile: $b = -312.70, t(262) = -3.47, p < .001$). However, the effect of calorie provision on calories ordered was not significant when health-value orientation was low (i.e., at or below the 10th percentile; $p > .80$).
A primary concern of this study was the potential countervailing influence of consumers’ taste-value orientations, quantity-value orientations, and their interactions with calorie provision on calories ordered. Specifically, H4 predicted that the combined effects of consumers’ taste-value orientation, quantity-value orientation, and the interaction of each of these orientations with calorie provision will have a positive, incremental influence on calories ordered. As shown in model 3 of Table 3 and supporting H4, taste-value orientation, quantity-value orientation, the taste-value orientation x calorie provision interaction, and the quantity-value x calorie provision interaction explained a significant incremental amount of variance, increasing total calories ordered. These results provide support for the proposed countervailing effects (H4), which partially offset the decreases in calories ordered due to health value-orientation, calorie provision, and the health-value orientation x calorie provision interaction.

Discussion

Study 3 provides support for H1 for the effects of health-value, taste-value, and quantity-value orientation on healthfulness, taste, and quantity expectations for meals ordered by consumers. In addition, using this longitudinal experiment, this study provides additional support for the direct and moderating effect of health-value orientation on meal calories ordered. Based on the results of this study, consumers’ oriented toward health-value order meals that they expect to be more healthful and contain fewer calories. In contrast, consumers’ oriented toward taste-value or quantity-value order meals that they expect to be tasty and large in size. Thus, because food quantity is generally positively related to calorie content and because consumers have a tasty equals unhealthy intuition (Raghunathan, Naylor, and Hoyer 2006), consumers’ who are oriented toward taste- and quantity-value order a greater number of calories than consumers who are less oriented toward taste- and quantity-value.

In addition, calorie provision is effective in decreasing the number of meal calories ordered by health-value oriented consumers. However, calorie provision is not effective in influencing the number of meal calories ordered by consumers who are less oriented toward health-value or oriented toward taste- or quantity-value. Consumers oriented toward taste- and quantity-value are primarily concerned with maximizing the taste and quantity of their meal orders. Therefore, these consumers are largely immune to the intended effects of calorie provision because it does not align with their value orientation. Furthermore,
Study 3 offers an explanation for the plethora of nonsignificant findings regarding the effect of calorie provision on calories ordered in restaurant settings. Specifically, the findings show that taste-value orientation, quantity-value orientation, and their interactions with calorie provision have a positive, incremental influence on the total number of calories ordered by consumers. In aggregate, these unintended increases in calories ordered offer a countervailing influence to the decreases in calories ordered caused by calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction.

STUDY 4

Study 4 will use consumers’ food-value orientations to provide insight into consumer response to menu calorie labeling in a restaurant setting. There is a plethora of evidence from studies conducted in restaurants suggesting that calorie provision on restaurant menus and menu boards will not have widespread effects on the number of meal calories ordered by consumers (Harnack and French 2008; Long et al. 2015; Swartz, Braxton, and Viera 2011). Although calorie provision may not have widespread effects, the findings from both Study 2 and Study 3 indicate that there are consumers who respond to calorie provision by ordering fewer calories. However, Study 3 results also show that there are other consumers oriented toward taste- and quantity-value who appear to order more calories in their quest to make tasty and voluminous food choices. Given these findings, consumers’ food-value orientations will be used to examine the countervailing influences that calorie provision may have across consumers in a restaurant setting.

Method

Design, Procedure, and Measures

Study 4 was a between-subjects field experiment (calorie provision vs. no calorie provision) conducted in a restaurant to again examine the effects of calorie provision and food-value orientations on calories ordered (H2-H4). This study was conducted for six consecutive days at a fast-casual restaurant located in the Southeast. Throughout the week, objective calorie information either was or was not disclosed on the menu and menu boards on a rotating daily basis. Upon entering the restaurant, participants placed their order at the counter. After placing their order, they were asked if they would like to participate in a study in exchange for $3 off their next visit to the restaurant. After participants’ food and drink order was recorded, participants responded to measures of food-value orientations and demographics. The dependent measure in this study was the total number of meal calories ordered. This measure was the sum of the objective calories contained in the entrée, side(s), and drink(s) ordered by the participant. The mean number of meal calories ordered by participants was 999.66 (SD = 352.64). Food-value orientations were assessed using the measures established in Study 1 and used in the previous studies (see Table 1).

Sample

Out of the restaurant patrons who visited the restaurant while the study was being conducted, there was a 65% response rate, resulting in a final sample of 279 adult diners. All of these participants only visited the restaurant once during the test period. The mean age of the participating restaurant diners was 47.4 (SD = 16.8), 67.4% (32.6%) of the participants were females (males), and 71.1% were married. The median annual combined household income for the sample was $80,000-$89,999, and 56.3% of the sample had obtained a four-year college degree.

Results

To examine the effects of calorie provision and the food-value orientations on calories ordered, hierarchical multiple regression was used. Three interaction terms were created using the product of calorie provision and each of the three food-value orientations. Two models were estimated: (1) total meal calories ordered was regressed on calorie provision (calories provided on the menu = ‘1’ and calories not provided on the menu = ‘0’), health-value orientation, and the calorie provision x health-value orientation interaction and (2) total meal calories ordered was regressed on calorie provision, health-value orientation, taste-value orientation, quantity-value orientation, calorie provision x health-value orientation interaction, calorie provision x health-value orientation interaction.
taste-value orientation, and calorie provision x quantity-value orientation. Prior to creating the interaction terms and performing the hierarchical regression analysis, predictors were centered at their means.

Based on the predictions offered in H2 and H3, it was anticipated that model 1 results would show a significant effect for the direct and moderating role of health-value orientation and explain a significant amount of variance in calories ordered. It was also expected that model 3 results would reveal a negative effect of health-value orientation on calories ordered, a positive effect of taste- and quantity-value orientation on calories ordered, and a significant calorie provision x health-value orientation interaction. Based on H4, it was also anticipated that model 3 would explain an incremental amount of variance in calories ordered due to the positive, countervailing influence of taste-value orientation, quantity-value orientation, and the interactions of these two orientations with calorie provision. The results relevant to these predictions are shown in Table 4.

### Table 4: Study 4: Effects on Meal Calories Ordered in the Restaurant Field Experiment

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>p-value</td>
<td>b</td>
<td>p-value</td>
</tr>
<tr>
<td>Constant</td>
<td>1005.61</td>
<td>&lt; .001</td>
<td>1004.50</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Calorie Provision (CP)</td>
<td>-10.06</td>
<td>.81</td>
<td>-16.77</td>
<td>.68</td>
</tr>
<tr>
<td>HVO</td>
<td>-69.63</td>
<td>&lt; .001</td>
<td>-67.27</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>CP x HVO</td>
<td>-57.66</td>
<td>.08</td>
<td>-72.86</td>
<td>.03</td>
</tr>
<tr>
<td>TVO</td>
<td>11.98</td>
<td>.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QVO</td>
<td>41.46</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP x TVO</td>
<td>65.96</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP x QVO</td>
<td>-9.97</td>
<td>.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.07</td>
<td></td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Model $F$-value</td>
<td>$F(3, 275) = 6.82$</td>
<td>$p &lt; .001$</td>
<td>$F(7, 271) = 4.50$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>$F$ for change in $R^2$</td>
<td>---</td>
<td></td>
<td>$F(4, 271) = 2.64$</td>
<td>$p &lt; .05$</td>
</tr>
</tbody>
</table>

Notes: The dependent variable was total meal calories ordered. Predictors were centered at their means prior to creating interaction terms and conducting the analyses.

As shown in Table 4, model 1 explained a significant amount of variance in meal calories ordered. Model 1 results show a significant negative effect of health-value orientation on calories ordered. In addition, the calorie provision x health-value orientation approached significance. However, similar to other studies conducted in restaurant settings (e.g., Elbel et al. 2009), calorie provision alone did not affect calories ordered.

To test the predictions offered in H2-H4, the primary focus is on model 2 of Table 4. Supporting H2a and H2c, model 2 results of the hierarchical multiple regression analysis revealed that health-value orientation decreased calories ordered, while quantity-value orientation increased calories ordered. Again, in this model, calorie provision alone did not influence the number of calories ordered, which could be expected in this setting. In addition, supporting H3, the calorie provision x HVO interaction on calories ordered was significant, indicating that calorie provision was only effective in decreasing the number of calories ordered by health-value oriented participants and that the negative influence of health-value orientation on calories ordered was accentuated by calorie provision. Using the same approach used in Studies 2 and 3 to examine the moderating role of health-value orientation on the effect of calorie provision.
on calories ordered, the effect of calorie provision on total meal calories ordered was tested at five percentile levels of health-value orientation (Hayes 2013). Figure 3 shows these results. As shown in Figure 3, the effect of calorie provision on calories ordered was significant when health-value orientation was at or above the 90th percentile \((b = -135.51, t(271) = -1.99, p < .05)\). However, the effect of calorie provision on calories ordered was not significant when health-value orientation was at or below the 75th percentile \((ps > .05)\). These results provide further support for H3.

**FIGURE 3**

*Study 4: Effect of the Calorie Provision x Health-Value Orientation Interaction on Calories Ordered*

![Graph showing calorie provision and health-value orientation interaction on calories ordered.](image)

*Note:* This plot shows the results of the calorie provision x HVO interaction on calories ordered, accounting for the effects of HVO, TVO, QVO, calorie provision, and the TVO- and QVO-calorie provision interactions.

Although calorie provision alone did not have an effect on calories ordered, this nonsignificant effect is explained by the increase in calories ordered associated with the incremental effect of taste-value orientation, quantity-value orientation, and the taste-value orientation x calorie provision interaction (see Table 4). As shown in Table 4 and providing further support for H4, the combined effects of consumers’ taste-value and quantity-value orientations and the taste-value orientation x calorie provision interaction had a positive, incremental influence on calories ordered \((F(4, 271) = 4.50, p < .001)\). Thus, the increase in calories ordered associated with these orientations and interactions appear to counterbalance the decrease in calories ordered associated with the orientation toward health-value.

**Discussion**

This between-subjects field experiment extends the results of Studies 2 and 3 by testing H2 through H4 in a restaurant setting. The results of this field experiment provide additional support for H2 for the positive effect of health-value orientation on total meal calories ordered and the negative effect of quantity-value orientation on calories ordered. Additional support was also for the moderating effect of health-value orientation on total meal calories ordered, such that calorie provision only leads to the intended decreases in the number of calories ordered by consumers who are highly health-value oriented. In addition, the plot shown in Figure 3 reveals an interesting pattern of results for this interaction that has not been shown in the results of the online experiments. When calorie information is not provided on the restaurant menus, consumers oriented toward health-value order slightly fewer calories than consumers who are less oriented toward health-value. However, by providing consumers with calorie content information, calorie provision accentuates the difference in calories ordered based on health-value orientation.
Extending the results of Study 3 to a restaurant setting, the results of Study 4 show that taste-value orientation, quantity-value orientation, and their interactions have a positive, incremental influence on the total number of meal calories ordered by the consumers dining in this restaurant. The unintended increases in calories ordered caused by these orientations offer a countervailing influence to the intended decreases in calories ordered caused by calorie provision, health-value orientation, and the calorie provision x health-value orientation interaction. Thus, although calorie provision alone did not decrease calories ordered across all consumers, there are consumers for which calorie provision has its intended effects. Yet, there are other consumers for which, when considered in aggregate, calorie provision leads to an unintended increase in calories ordered.

GENERAL DISCUSSION

With obesity clearly on the rise (CDC 2015; Rashad 2005) and consumers spending a significant amount of their food budget on dining away from home (ERS 2015a), communication of nutrition information for restaurant meals is a growing concern. Given that calorie labeling on restaurant menus is already mandatory in some cities and counties across the country (Roberto, Schwartz, and Brownell 2009) and will soon be mandatory nationwide (Public Law 111-148), understanding the effect of menu calorie labeling on calories ordered is critical. While there are numerous studies examining the effect of menu calorie labeling on calories ordered (see Long et al. 2015), these studies have failed to account for consumer level factors that may have an influence on calories ordered (Burton and Kees 2012). The findings of this research demonstrate that consumers’ food-value orientations moderate consumer response to calorie provision, which affects the number of meal calories ordered by consumers. Specifically, results demonstrate that menu calorie labeling has the potential for desired changes for some consumers. However, these desirable changes appear to be offset by the countervailing influence of other consumers maximizing the taste or the quantity of their food choice, which potentially results in an increase in calories ordered. These countervailing effects provide an explanation for the numerous findings showing a nonsignificant effect of calorie provision on calories ordered for the aggregate market (see Long et al. 2015).

Theoretical Contributions

For consumers, food choice involves a complicated decision-making process aimed at satisfying multiple food-related goals (Finkelstein and Fishbach 2010). That is, consumers weigh a number of considerations when making their food purchases (Connors et al. 2001; Furst et al. 1996; Glanz et al. 1998), and consumer research examining food consumption could greatly benefit from considering consumers’ enduring food-value orientations that may influence their consumption decisions. Specifically, drawing from goal systems theory, it appears that consumers make food choice decisions based on whether or not a specific food choice satisfies their food goal(s) and thus delivers food-related value (Köpetz et al. 2011; Köpetz et al. 2012; Kruglanski et al. 2002; Kruglanski et al. 2013; Woodruff and Gardial 1996). Based on these notions, this research provides conceptualizations of food-value orientations and develops reliable and valid measures for each of the orientations.

In general, understanding how consumers’ enduring goals interact with information disclosures seems critical (Stewart and Martin 2004). Based on consumers’ usage goals, information disclosures may result in positive effects for certain consumers and negative effects for other consumers (Stewart and Martin 1994; 2004). This research examines how consumers’ food-value orientations moderate food-related decisions in laboratory and restaurant contexts. Thus, food-value orientations provide an explanation for the plethora of nonsignificant findings regarding the effects of calorie disclosures in field studies conducted in restaurant settings. Beyond providing an understanding of the intended and unintended consequences of consumers’ responses to calorie labeling, consumers’ food-value orientations may provide insight into consumers’ responses to promotional stimuli and other information communication.

Thus, this research contributes to theory by providing a more thorough understanding of the enduring, individual level factors that have a direct and moderating influence on consumers’ food
consumption decisions. Extending beyond goals that have been examined as either contextually activated or experimentally manipulated (e.g., Dhar and Simonson 1999; Fishbach, Friedman, and Kruglanski 2003; Haws and Winterich 2013), food-value orientations define what consumers consider to be of value when they make their food purchases. This makes consumers’ food-value orientations enduring in nature and useful for understanding how consumers respond to food-related promotion, packaging, labeling, and other forms of information communication.

Public Policy Implications

Given that American consumers spend approximately half of their total food budget on food prepared outside the home (ERS 2015a), restaurant meals are an obvious target for nutrition disclosures aimed toward decreasing obesity (Downs et al. 2013). This is especially true given that food consumed outside the home is generally higher in caloric content and lower in overall nutrition quality (Roberto, Schwartz, and Brownell 2009). Although recent findings suggest that calorie provision on restaurant menus is ineffective in changing consumers crystallized food consumption behaviors (Elbel et al. 2009; Elbel, Gyamfi, and Kersh 2011; Ellison, Lusk, and Davis 2014; Finkelstein et al. 2011; Harnack and French 2008; Long et al. 2015; Tandon et al. 2011; Swartz, Braxton, and Viera 2011), the findings from this research suggest that policy makers and the public health community should be hesitant to conclude that calorie labeling is ineffective. Instead, consumers’ individual differences, such as food-value orientation, should be considered when considering how differing consumer groups will respond to this form of information provision.

Limitations and Future Research

Although these results indicate that calorie provision and consumers’ food-value orientations interact to affect the number of calories ordered, potential mediators could be examined. For example, calorie provision could act as a prime that increases health importance, but only among consumers who value the health of food products (Haws and Winterich 2013). In addition, this research focuses on the influence of consumers’ enduring food-value orientations and their interaction with calorie provision. Yet, these enduring orientations could interact with temporary food-related goals that are activated by primes, such as food-related promotion. Finally, the findings from the field experiment conducted in the fast-casual restaurant provide support for the predictions. However, since calorie labeling will be mandatory across all chain restaurants with twenty or more locations, future research should examine these effects in other restaurant settings because there may be potential differences found across restaurant settings.
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THE EFFECTS OF PRE-GIVING INCENTIVES ON CHARITABLE DONATIONS

Bingqing (Miranda) Yin, Yexin Jessica Li, and Surendra Singh, University of Kansas

ABSTRACT

Charities often include pre-giving incentives like coins with their donation requests. Do the benefits justify the costs? In four lab studies and one field study, we show that the default perceived relationship type for charities is communal, but including monetary (versus non-monetary or no) pre-giving incentives increase perceived exchange relationship, and lead to lower donations.

Americans are overwhelmed by over 14 billion mail solicitations from nonprofit organizations each year (Diamond and Iyer 2007), and a substantial number receive over 1,000 pieces of such mail annually (Press 1995). With an average response rate of only 1% to 3.4% (DMA 2012), charitable organizations seek various ways to increase compliance rates (Stone 1997). Pre-giving—the provision of benefits or favors before requesting compliance (Marwell and Schmitt 1967; Regan 1971)—is one such practice. For example, Food for the Poor, Inc. sends out donation request letters enclosed with dimes and pennies displayed in plastic envelope windows. Save the Children includes wrapping paper and gift tags with its donation appeals during the holiday season. Appeals from Orbis (an international blindness prevention charity) include personalized address labels as well as greeting cards. Including such gifts to potential donors requires time and money, resources that are already scarce for many nonprofits. Do the benefits justify the costs?

On the one hand, the norm of reciprocity suggests people who have received a benefit return the favor (Cialdini 1993; Gouldner 1960), even if the benefit is unrequested or undesirable (Regan 1971). Providing a small favor (e.g. giving a brochure) to a target before requesting compliance is more effective than directly asking for help (Bell et al. 1994; Boster et al. 1995; Church 1993; Regan 1971; Wilke and Lanzetta 1970). Such findings suggest pre-giving incentives will lead to more donations. In this paper, however, we argue that using pre-giving incentives in donation solicitations may have negligible benefits, or even backfire in certain situations. We propose that these effects are driven by the extent to which donors perceive that they have an exchange relationship with the charity organization.

Our research provides a number of theoretical and practical insights. First, we focus on a costly behavior that has been extensively practiced by charity organizations, but has received scant attention in the donation literature (Diamond and Iyer 2007). As utilization of pre-giving incentives increases in quantity and type (e.g. monetary, non-monetary), it is important to understand the effects associated with different types of incentives, and whether any incentive would be more effective than no incentives in soliciting donations. Second, we contribute to knowledge about reciprocity by proposing situations in which this otherwise strong social norm is violated. Third, this research broadens our understanding of communal and exchange relationships. We suggest that, contrary to business organizations (Aggarwal 2005), consumers perceive themselves to be in communal relationships with non-profits. However, perceptions of relationship type shift relatively quickly with the presence of certain cues (e.g. pre-giving incentives). Finally, our research extends the literature on charity donations by examining the impact of communal and exchange relationships on donation behavior.
THEORETICAL DEVELOPMENT AND HYPOTHESES

Pre-giving incentives and reciprocity

Research on pre-giving incentives has examined the effectiveness of sequential persuasion such as giving people a brochure or pamphlet before asking for donation (Bell et al. 1994, Bell et al. 1996), or using pre-giving incentives (both monetary and nonmonetary) to elicit higher survey responses (e.g. Church 1993). Diamond and Iyer (2007) examined how pre-giving incentives affect perspective donors’ attention toward charity appeals across different involvement levels, and found that high involvement donors paid more attention to appeals with pre-giving incentives. Research suggests that “pre-giving” is a direct application of the reciprocity norms—a general tendency for people to return the favor if they have received a benefit (Cialdini 1993; Gouldner 1960)—to increase compliance (Bell et al. 1994). Research suggests that social exchange is guided by the norm of reciprocity (Gouldner 1960) and individuals are obligated to repay gifts, favors, and services that they receive (Cialdini and Goldstein 2004). Cialdini (1984) used Hare Krishna solicitors as an example to show that by pre-giving prospective donors a small gift such as a book or a flower in public places and refusing to take it back, donors were compelled to reciprocate by contributing. Therefore, according to the norms of reciprocity, people who receive pre-giving incentives such as coins or greeting cards in donation solicitations should reciprocate by giving something back to the charities. However, in this paper, we propose that relationship norms influence reciprocity and enclosing pre-giving incentives in charity appeals violates the relationship norm between donors and charities.

Communal and exchange relationships

Consumers build and maintain relationships with brands much as they do people (e.g. Aggarwal 2004). For example, Fournier (1998) found that people perceived brands as relationship partners, such as best friend or a romantic fling. These relationships predict brand loyalty, service failure forgiveness (Wan, Hui and Wyer 2011), and positive word of mouth (Lovett, Peres and Schachar 2013). Most of this work has focused on for-profit companies, but understanding the relationship people have with nonprofits is critical in determining when and why charity solicitations are successful. Two types of relationships are especially important when considering non-contingent helping: communal and exchange relationships (Clark and Mills 1979; 1993). Communal relationships are those in which individuals attend to each other’s needs and demonstrate concern for one another. Most family relationships, romantic relationships and friendships can be categorized as communal (Clark and Mills 1979). In such relationships, benefits are provided by the donor without obligation or expectation of repayment by the recipient. In comparison, exchange relationships are those where benefits are given with the expectation that comparable benefits will be repaid in a timely manner. Prototypical examples of exchange relationships are those between strangers or business partners (Clark and Mills 1993). While relationships are often characterized as either communal or exchange, research shows they are actually distinct constructs and should not be conceptualized as polar opposites. They are typically not negatively correlated, and people can perceive their relationship as having characteristics of both types (Johnson and Grimm 2010).

Previous literature on communal and exchange relationships has examined the impact of communal and exchange relationships on consumer attitudes towards the brand and helping behaviors (Aggarwal 2004), brand information processing (Aggarwal and Law 2005), consumers’ loss aversion (Aggarwal and Zhang 2006), consumers’ response to interactional fairness (Aggarwal and Larrick 2011) and service failures (Wan, Hui, and Wyer 2011), and the decoding of conspicuous symbolism (Scott, Mende and Bolton 2013). Interestingly, this literature suggests relationship type dictates not just whether, but what kind of, benefits are expected to be repaid. People in exchange relationships expect comparable benefits or repayments (e.g. monetary payments) in exchange for providing benefits or help, whereas people in communal relationships prefer non-comparable benefits and do not expect immediate repayment (Clark 1981). To illustrate, Aggarwal (2004) found that people in communal relationships perceived the brand as more negative than those in exchange relationships when they were offered a comparable reward (a $15 discount coupon) than a non-comparable reward (e.g. 1-hour free coupon) for a monetary donation.
In this research, we examine how different types of pre-giving incentives affect donation behavior through donors’ perceptions of their communal and exchange relationship with the charitable organization. Due to the altruistic and socially responsible nature of charitable organizations, we predict that people perceive communal relationships as the default relationship for these organizations. However, monetary incentives accompanying a charity appeal may lead people to perceive more of an exchange relationship with the charity. This is because offering comparable benefits before requesting a favor (e.g. money for money) leads people to perceive the interaction as a *quid pro quo* exchange transaction (Aggarwal 2004, Schwartz 1967). In addition, reminders of money induce an exchange mentality, and thinking about money leads people to perceive they are in a business-like relationship with others (Jiang, Chen and Wyer 2014).

In sum, we predict:

**H1:** In general, people perceive communal relationship as the default relationship with the charitable organizations, whereas exchange relationship as the default relationship with the business organizations.

**H2:** Monetary pre-giving incentives in charitable donation requests increase perceptions of exchange relationship with the charity.

We further propose that increased perception of exchange relationship with the charity will decrease donations. In an exchange relationship, receiving benefits leads people to behave in a *quid pro quo* manner—expect comparable benefits (Aggarwal 2004). Therefore, receiving a monetary incentive should lead people to return a comparable benefit, which results in less donation amount.

**H3:** People who receive monetary pre-giving incentives will donate less than people who receive non-monetary incentives or no incentives.

**H4:** The relationship between incentive type and donation amount will be mediated by perceived exchange relationship with the charity.

**OVERVIEW OF EXPERIMENTS**

Four lab studies and one field study empirically test our proposed hypotheses. A pilot study demonstrates that the default relationship type people have with nonprofits (businesses) is communal (exchange). Experiment 1A, using a hypothetical scenario, examines the effect of pre-giving incentives on inducing charitable donations. Results show that people who receive monetary pre-giving incentives donate significantly less compared with people who receive non-monetary incentives or no incentives. Experiment 1B replicates experiment 1A with real stimuli and actual donation behaviors. Experiment 2 examines the mediating role of communal and exchange relationship between donors and the charitable organization. It finds that, compared with charity appeals enclosing non-monetary incentives and no incentives, including monetary pre-giving incentives induces higher exchange relationships with the charity, and subsequently leads to lower donation amounts. The field experiment reveals that, apart from generating lower donation amounts due to enclosures of monetary pre-giving incentives, both monetary and non-monetary pre-giving incentive conditions result in a higher net loss per mailing compared with no incentives. This provides further support that pre-giving incentives in general do not perform better in terms of generating donations compared with no incentives; instead, they lead charities to suffer more net loss.
PILOT STUDY

We conducted a pilot study to establish the default relationship between consumers and nonprofits. The study employed a 2 (organization type: charity, business) X 2 (familiar with the organization: yes, no) between-subject design. One hundred and thirteen students from a major Midwestern university participated in the study in exchange for course credit, and were randomly assigned to one of the four conditions. Eight business organizations (Burger chef, Starbucks, MacDonald’s, Alibaba, Walmart, Amazon, Big Y World Class Market, and Barista Prima Coffeehouse) and eight charitable organizations (American Cancer Society, Food for the Hungry, United Way, American Red Cross, Beatson Cancer Charity, Freedom from Hunger, Help the Homeless, Rainbow Trust Charity) were selected to be presented to participants, with half of the organizations (both business and charitable organizations) being familiar and the other half being unfamiliar organizations. Half of the participants saw the logos of the eight business organizations while the other half were presented with the logos of the eight charitable organizations. Among the participants who saw the eight business (charitable) organizations, half of them were asked to choose one business (charitable) organization that they were familiar (not familiar) with and write down the name in a blank box. Following this, participants completed a 7-item communal and exchange relationship measure, a manipulation check question on familiarity (1= not familiar at all, 7=very familiar) with the eight business (charitable) organizations, and a few demographic questions.

Dependent measure

Communal and exchange relationship. We adapted the measures for communal and exchange relationship from previous research (Aggarwal 2004). Four questions tapped into communal relationship norms (is concerned about other people’s welfare; helps people without expecting anything in return; have warm feelings toward the organization; does not promptly expect anything in return from those who benefit from its services; Cronbach’s alpha= 0.85). Another three questions tapped into exchange relationship orientation (whenever this organization gives or offers something, it expects something in return; expects people to reciprocate; is like a business organization; Cronbach’s alpha= 0.76).

Results and discussion

Prior to checking the dependent measures, sixteen participants were eliminated from the data analysis because they failed an attention check. This left 96 participants (Female= 38, Mage= 21) in the final data set.

Manipulation check. A manipulation check of familiarity with the organizations was accessed through the question, “how familiar are you with each of the organizations listed in the picture.” Results showed that participants perceived familiar business and charitable organizations as more familiar than both unfamiliar business and charitable organizations ($M_{\text{familiar business}} = 6.74$, $M_{\text{unfamiliar business}} = 1.30$, $F (1, 93) = 468.47, p < .001$; $M_{\text{familiar charity}}= 6.16$, $M_{\text{unfamiliar charity}} = 1.55$, $F (1, 93) = 318.02, p < .001$). Familiar business organizations were perceived as more familiar than familiar charitable organizations ($M_{\text{familiar business}} = 6.74$, $M_{\text{familiar charity}}= 6.16$, $F (1, 93) = 5.59, p = .02$). There is no difference between unfamiliar business and unfamiliar charitable organizations.

Dependent Measures. Results from repeated measure ANOVA showed that the 2 (repeated measure: communal, exchange; within subject) x 2 (type: charity, business, between-subject) x 2 (familiarity: familiar, not familiar between subject) three-way interaction was not significant ($p = .47$). The two-way interaction between the repeated variable and the organization type was significant ($F (1, 93) = 75.27, p < .001$), suggesting that depending on the organization type, people’s communal and exchange relationship perception varied. With charitable organizations, results showed that people perceived having a higher communal than exchange relationship ($M_{\text{communal}} = 5.35$, $M_{\text{exchange}} = 3.37$, $t (46) = 6.74, p < .001$). Similarly, with business organizations, results suggested that people perceived having a higher exchange than communal relationship ($M_{\text{communal}} = 3.47$, $M_{\text{exchange}} = 4.92$, $t (46) = -5.379, p < .001$).
Taken together, these results support our first hypothesis that people perceive communal relationship as the default relationship with the charitable organizations and exchange relationship as the default relationship with business organizations, regardless of whether people are familiar with the organizations or not.

**EXPERIMENT 1A**

The primary goal of this experiment was to examine the amount of money people were willing to donate in response to charity appeals with monetary pre-giving incentives, non-monetary pre-giving incentives, and no incentives.

**Procedure**

One hundred and seventy-seven students (122 male, M_age = 21.98) from a major Midwestern university participated in the study in exchange for course credit. Participants were randomly assigned to one of three conditions – monetary pre-giving incentives, non-monetary pre-giving incentives, and no incentives. Upon arrival in the lab, participants were told that they would be participating in a study on charity donation; all instructions were computer-based. Participants were presented with a charity letter (one page, four paragraphs) from the Help Fight Cancer Society (a fictitious charity). Depending on the conditions, it included 25 cents (monetary incentive), a greeting card (non-monetary incentive), or nothing (no incentive). Pre-giving incentives were included at the top of the letter. After reading the letter, participants were asked how much they were willing to donate to this charity.

**Results and Discussion**

Two participants left the donation question blank. Results from the remaining 175 students revealed an effect of incentive type on donations ($M_{monetary} = $15.79, $M_{non-monetary} = $38.51, $M_{control} = $32.49; $F(2, 172) = 7.15, p = .001$). Supporting our first hypothesis, those who received the monetary incentive donated significantly less than people who received non-monetary incentives ($F(1, 172) = 13.54, p < .001$) or no incentives ($F(1, 172) = 7.09, p < .01$). The donation amount in the non-monetary condition was not different from that in the no-incentive condition ($F(1, 172) = .98, p = .32$) (see Figure 1). To gain more confidence in the accuracy of the results, we conducted an actual behavioral study to further explore this phenomenon.

![Figure 1. The Effects of Types of Incentive on Donation Amounts](image-url)
EXPERIMENT 1B

The purpose of this experiment was to extend the results of experiment 1a in three key ways. First, instead of an imagined scenario and a fictitious charity, we partnered with a real charity and provided participants with a real charity letter to open and read. Second, we conducted a pretest on the perceived costs and benefits of the included monetary and non-monetary incentives to ensure that any observed effects on donation amount were not due to value differences associated with the incentives. Third, in lieu of asking a hypothetical amount-to-donate question, we asked participants to actually donate money.

Design and Procedure

One hundred and thirty-two students (71 female, $M_{age} = 20.77$) from a major Midwestern university participated in this study in exchange for five dollars (five one dollar bills) cash payment. Participants were randomly assigned to one of the three incentive conditions, monetary pre-giving incentive ($\.50$), non-monetary pre-giving incentive (a greeting card), and no pre-giving incentive. Since perceived incentive value is a potential confound, we first conducted a pretest to ensure that the perceived costs and benefits of these two incentives are equal. Thirty-two students from a major Midwestern university volunteered to participate in this within subject pretest. Participants were asked to estimate the cost (between $\.25$ and $1$, in $\.25$ increments and an “others” option) and benefit ($1 =$ no benefit at all, $7 =$ a lot of benefit) of the incentives. The order in which participants rated the incentives was counterbalanced. Results from a repeated measures ANOVA showed no difference in either the perceived cost ($M_{card}=.56, M_{coins}=.59, F(1, 31) = .225, p =.64$) or perceived benefit ($M_{card}=3.25, M_{coins}=3.47, F(1, 31) = .225, p =.44$) for the monetary and non-monetary incentives.

Upon arrival in the main study, participants were told that they would be participating in a donation study, and researchers were interested in their attitudes toward a charitable organization. They would get five dollars as well as course credit in return for their participation. All instructions and responses took place on paper. Participants were first instructed to read the information statement, ensure that there was $5$ in the payment envelope, and fill in a payment form for tax purposes. Afterwards, they were instructed to make sure there were four things on the table, an envelope with a letter from Headquarters Counseling Center, a survey booklet, a donation envelope, and a binder clip. Next, participants opened the sealed charity envelope and read the accompanying letter (one page, five paragraphs, with incentives placed at the top of the letter), and responded to questions in the survey booklet. At the end of the study, participants were instructed to use the binder clip to clip the survey booklet and the donation envelope together and put them on the side of the table.

Dependent Measure

Participants were asked how much money they would like to donate from the cash or coins they received from the study. Those who wished to donate wrote in their donation amount in the survey booklet and placed the money in the donation envelope. This method led to discrepancies in total amount of money available for donation across conditions; participants in the monetary pre-giving incentive condition had $5.50$ from which to donate, whereas those in the non-monetary and control conditions only had $5.00 to donate. Thus we computed two dependent measures – a donation percentage (donation amount divided by the total amount of money received) and the actual donation amount.

Results and Discussion

Eliminating responses from two participants—one participant refused the five dollars cash payment before the study started and another participant correctly predicted the hypothesis—left an effective sample size of 130.
Donation percentage: Donation percentage was calculated because participants in the monetary pre-giving incentive condition had $5.50 from which to donate, whereas those in the non-monetary and control conditions only had $5.00 to donate. Results from a one-way ANOVA revealed a main effect of incentive type ($M_{\text{monetary}} = 28.76\%$, $M_{\text{non-monetary}} = 47.44\%$, $M_{\text{control}} = 50\%$, $F(2, 127) = 3.44, p < .05$). Consistent with the results from experiment 1, which supported hypothesis 3, participants in the monetary condition donated significantly less than participants in the non-monetary condition ($F(1, 127) = 4.43, p < .05$) and those in the control condition ($F(1, 127) = 5.80, p < .05$). Similar donation amounts were obtained from the people who received the non-monetary incentive and those who didn’t receive anything ($F(1, 27) = .08, p = .78$) (see Figure 2).

Donation amount: Results for donation amount showed that donations were lower in the monetary incentive condition than the control condition ($M_{\text{monetary}} = 1.58$, $M_{\text{control}} = 2.50$, $F(1, 127) = 4.10, p < .05$), and marginally lower in the monetary as compared to the non-monetary condition ($M_{\text{monetary}} = 1.58$, $M_{\text{non-monetary}} = 2.37$, $F(1, 127) = 3.00, p = .09$). There was no difference between the non-monetary and control conditions ($p > .7$) (see Figure 3).

In summary, these findings are consistent with our hypothesis that people who receive monetary pre-giving incentives donate significantly less compared with people who receive non-monetary pre-giving incentives or no incentives. Results from both experiments 1A and 1B provide convergent evidence for the hypothesis that enclosing pre-giving incentives do not provide donation advantages that are expected from reciprocity.

Figure 2. The Effects of types of Incentive on Donation Amount (percentage)
EXPERIMENT 2

The purpose of this experiment was to examine the mediating role of donors’ perceived communal and exchange relationships on pre-giving incentive type and donation amount. The theory of communal and exchange relationships (Clark and Mills 1992, Aggarwal 2004) suggests that in communal relationships, people give benefits to demonstrate concern and do not expect comparable benefits in return. Moreover, whether one receives benefits or not does not change the likelihood of helping someone in a communal relationship. In contrast, exchange relationships are based on quid pro quo norms – benefits are given with the expectation that comparable benefits will be returned. We propose that monetary incentives would increase perceptions of an exchange relationship with the charity, leading to decreased donations.

Another goal of this experiment was to rule out an alternative explanation—the anchoring and adjustment heuristic (Tversky and Kahneman 1974). This hypothesis suggests people who receive a monetary pre-giving incentive will use the incentive as a reference point or anchor, and donate less compared with people who receive non-monetary incentives or no incentive. We tested whether this was the case by asking participants how much they charity expects individuals to donate. If participants use monetary pre-giving incentives as an anchor, they should indicate a lower amount in the monetary condition than the non-monetary and control conditions.

Design and Procedure

One hundred and six students (61 female, mean age 21) from a major Midwestern university participated in this study in exchange for course credit. Participants were randomly assigned to a monetary condition ($0.50), a non-monetary condition (a greeting card), or a no-incentive condition. Participants were instructed to read a one-page charity letter from Headquarters Counseling Center (an image of the same letter used in study 1B).

Dependent measures

Communal and exchange relationships. We used the same measures for communal and exchange relationships as the pilot study, with four items tapping into communal relationship (Cronbach alpha = .82) and three items measuring exchange relationship (Cronbach alpha = .83). All items were on a seven-point Likert scale (1 = completely disagree, 7 = completely agree).
Donation amount. Participants indicated how much they were willing to donate by dragging a slider anchored at $0 and $50, with an option to write in a different amount if they were willing to donate more than $50.

Donation amount expectation: Participants were asked to indicate the minimum amount they thought that Headquarters Counseling Center expected an average person to donate.

Results and Discussion

Responses from two participants were eliminated—one participant correctly predicted the hypothesis and one participant didn’t follow the instruction—left an effective sample size of 104.

Donation amount: Results from a one-way ANOVA revealed that monetary incentives elicited significantly less donations compared with non-monetary incentives \( (M_{\text{monetary}} = 7.00, M_{\text{non-monetary}} = 11.94, F(1, 103) = 4.27, p < .05 ) \) and marginally less donations compared with no incentives \( (M_{\text{monetary}} = 7.00, M_{\text{control}} = 11.06, F(1, 103) = 2.91, p = .09 ) \). No donation difference was observed between non-monetary and no incentive conditions.

Communal and exchange relationships: The 2 (repeated measure: communal, exchange) X 3 (incentive types: monetary, non-monetary, control) interaction was not significant \( (p = .16) \), indicating that the communal and exchange relationship perception did not differ within each type of pre-giving incentive.

Results from the exchange relationship index showed that monetary incentives increased perceptions of exchange relationship with the charity compared with non-monetary incentives \( (M_{\text{monetary}} = 4.10, M_{\text{non-monetary}} = 3.36, F(1, 103) = 4.51 p < .05) \), and no incentives \( (M_{\text{monetary}} = 4.10, M_{\text{control}} = 3.46, F(1, 103) = 3.41, p = .07) \). Results showed no perceived communal relationship difference based on different incentive conditions \( (F(2, 101) = .69, p = .50) \). Results supported our hypothesis that monetary pre-giving incentives increased participants’ perception of having an exchange relationship with the charity.

Mediation: To test the mediating role of communal and exchange relationships, we conducted a dual mediation model using PROCESS (Hayes 2013, model 4). We used a bootstrapping procedure to avoid any potential concerns with nonnormality of the distribution of the indirect effect (MacKinnon, Lockwood, and Williams 2004). The conditional process model was estimated using 10,000 bootstrap samples.

Since there were three different incentive conditions (monetary, non-monetary and control), we dummy coded the three groups by creating two new dummy variables, COND (comparing the effect of non-monetary incentive vs. monetary incentive) and DBACK (comparing the effect of no incentive vs. monetary incentive) with the monetary incentive condition as the reference group (Hayes 2013). By using DBACK as the independent variable and controlling for COND, results showed that the indirect effect of incentive type on donation amount was mediated by perceived exchange relationship \( (b=1.01, SE=.75, \text{bootstrap CI}}: .0507, 3.2693) \), suggesting that higher perceived exchange relationship with the charity led to lower donation amount. Consistent with our prediction, the indirect effect of incentives on donation amount was not mediated by perceived communal relationship with the charity \( (b=.58, SE=.66, \text{bootstrap CI}}: -.2342, 2.5849) \).

Next, to compare the monetary and non-monetary pre-giving incentive conditions, we used COND as the independent variable and controlled for DBACK. Results revealed a significant indirect effect—the effect of incentive type on donation amount was mediated by the perceived exchange relationship with the charity \( (b=1.17, SE=.90, \text{bootstrap CI}}: .0398, 3.8715) \), but not perceived communal relationship \( (b=.55, SE=.70, \text{bootstrap CI}}: -.3672, 2.6967) \). Overall, the results supported our hypothesis that higher levels of exchange relationship perceptions lead people to donate less (see Figure 4).
Figure 4. Relative Indirect Effect of Incentive Types on Donation Amounts through Perceived Communal and Exchange Relationship with the Charity

Relative indirect effect:
Exchange-orientation:
BootLLCI = .0507  BootULCI = 3.2693
Communal-orientation:
BootLLCI = -.2342  BootULCI = 2.5849

Communal relationship

Exchange relationship

DBACK: C vs. M

COND: NM vs. M

Donation amount

Note: M=monetary
NM= non-monetary
C= control

(Hayes 2013 Model 4)

*Donation amount expectation:* Results showed no perceived difference among three groups in how much the charity expected individuals to donate ($M_{\text{monetary}} = 5.70$, $M_{\text{non-monetary}} = 9.03$, $M_{\text{control}} = 8.14$, all $p$s > .13). We further included donation amount expectation as a covariate in the mediation models. By using DBACK as the independent variable and controlling for both COND and the donation amount expectation, results consistently showed that the indirect effect of incentive type on donation amount was mediated by the perceived exchange relationship (bootstrap CI: .1918, 3.7895), but not the perceived communal relationship (bootstrap CI: -.1275, 2.4451). Similarly, using COND as the independent variable and controlled for both DBACK and the donation amount expectation, results revealed a significant indirect effect through the perceived exchange relationship with the charity (bootstrap CI: .2463, 4.4508), but not perceived communal relationship (bootstrap CI: -.2146, 2.5262). The results suggested that the observed effect of different types of pre-giving incentives on donation amount was not due to the anchoring effect.

In sum, experiment 2 examined the underlying mechanisms for why different types of pre-giving incentives elicit different donation behaviors. Our results suggest that monetary pre-giving incentives, compared with non-monetary pre-giving incentives or no incentive condition, increase people’s perceived exchange relationship with the charity. This, in turn, led to lower donation amounts. These results are important in highlighting that enclosing monetary incentives in donation appeals harms the donor-charity relationships by emphasizing the exchange element of the relationship, and subsequently hurting donation behavior.
THE FIELD EXPERIMENT

In this study, we partnered with a local charity organization—Headquarters Counseling Center—to determine whether our findings would replicate outside of the lab.

Pretest

We first conducted a pretest to ensure that any observed effects are not due to perceived cost or value differences between the incentives we intend to use in the field study. Thirty-eight participants (15 female, M\_age = 38) recruited from Amazon Mechanical Turk participated in the pretest. Participants viewed both the greeting card and the quarter. We counterbalanced the order of presentation, such that half of the participants were presented with the greeting card first while the other half saw a quarter first. Participants were told to imagine they had received a charity donation request letter in the mail, and the greeting card (a quarter) was enclosed in the letter as a gift. Participants were first asked to estimate the cost of including the greeting card (a quarter) for the charity, followed by a question on the perceived benefit they got from receiving the greeting card (a quarter) on a 7-point Likert scale (1 = no benefit at all, 7 = a lot of benefit). Results from a repeated measures ANOVA indicated that the two incentives were perceived similarly in terms of cost (M\_card = .32, M\_coins = .32, F (1, 37) = .01, p = .93) and value (M\_card = 2.37, M\_coins = 2.58, F (1, 37) = .62, p = .44).

Main study

In general, charities utilize three types of donation campaigns: donor acquisition campaigns, donation campaigns for recurring donors, and donation campaigns for volunteers (Smart Annual Giving 2013). These campaigns have different purposes and elicit different response rates. In collaboration with Headquarters Counseling Center, we decided to launch a donor acquisition campaign for the purposes of this research. These campaigns are aimed to solicit donations through potential donors who had never donated to the charity. As previous research (Smart Annual Giving 2013) indicates, charitable organizations should expect to lose money in these campaigns. The goal of such campaigns is to increase awareness and acquire donors for future lists. We believed a donor acquisition campaign would be the cleanest test of our hypotheses since potential donors would be less likely to be influenced by extant attitudes toward the charity, prior behaviors toward the organization, and knowledge about the charity’s previous donation request letters.

Mailing list. A city-wide mailing list of 11,000 people was acquired by Headquarters Counseling Center. The mailing list contained potential donors’ names, addresses, zip codes and phone numbers. Nine thousand people were randomly selected from the mailing list and were randomly placed to be in one of the three conditions: receiving a donation request letter containing either a monetary incentive ($0.25), a non-monetary incentive (a greeting card), or no incentive. Based on their donor base, Headquarters Counseling Center eliminated their existing donors from the mailing list to ensure that these people had not donated to Headquarters before.

Previous research (Smart Annual Giving 2013) suggests that response rates vary depending on whether the mailing list is “cold” (where prospects have no prior relationship with the charitable organization) or “warm.” For a “cold” list, the average return rate is around 0.65%, and the average gift excepted is between $15 and $45. For donor acquisition campaigns, charities usually spend much more on the mailing than what they get back from the donations. Thus, we are interested in both average donation amount and the net loss per mailing.

Materials

Donation request letter envelopes. The donation request letter envelopes were standard #10 white envelopes, designed to include a tinted window to display donors’ name and addresses.
Business reply return envelopes. We included a standard #9 business reply return envelope in the big donation request envelope. Participants also had the option of supplying their own stamps to help the charitable organization reduce cost. A code was stamped on the return envelopes to keep track of incentive condition.

Donation request letters, incentives and return card. Three versions of the donation request letter were created to correspond to the monetary, non-monetary and no incentive conditions, along with a perforated return card at the bottom of the letter. For both monetary and non-monetary conditions, an additional sentence was placed on the top front page of the donation request letter, “Please accept the attached quarter (greeting card) as our gift to you.” A quarter was glued to the top front page in the monetary incentive condition, and a blank greeting card with accompanying envelope was placed within the folded donation request letter so participants could immediately see the coin or card after opening the envelope. The perforated return card at the bottom of each letter contained questions regarding the donation (e.g., credit card information) on one side, and a survey with communal and exchange relationship questions on the back. Participants were encouraged to fill in the nine-question survey and return the perforated return card whether they chose to donate or not.

Online Donation links. An online donation option was also available for participants who preferred not to send checks or credit card information through mail. Three distinct online donation links were created to correspond to each incentive condition along with the same nine questions to measure the communal and exchange perception. The link was included in the donation letter under the online donation option.

Dependent Measures
Average donation amount per new donor acquired. The donations received from each return envelope as well from the three online donation links were recorded.

Net loss per person. The costs associated with incentives, postage, and printing costs were similar or lower than the costs of comparable campaigns Headquarters has run in the past. However, these costs differ by condition. To better answer the question of whether including incentives is a good return on investment, we calculated the net loss per person per condition by subtracting the donation amount from the cost for all 9,000 participants (net loss per person = donation amount – material cost – incentive cost (if any) – return envelope cost (for people who had donated using the return envelopes)).

Results and Discussion
Average donation amount per new donor acquired. Our response rate seven weeks (Dec. 18th, 2015—February 5th, 2016) after mailing was 0.56%, which is comparable with other donor acquisition campaigns (Smart Annual Giving 2013). One response from the monetary condition included an outlier (z > 3). Therefore, we report the results both excluding and including the outlier.

Without the outlier, results from a one way ANOVA suggests that people in the monetary incentive condition donated significantly less compared with people in the no incentive condition ($M_{monetary} = 17.48$, $M_{control} = 47.50$, $F(1, 45) = 10.36$, $p = .002$). No significant difference was observed between participants in the non-monetary condition and control conditions ($M_{non-monetary} = 30.45$, $M_{control} = 47.50$, $F(1, 46) = 2.36$, $p = .13$) or between participants who received monetary incentives versus non-monetary incentives ($p = .18$) (see Figure 5). With the outlier, there was a marginally significant difference between people in the monetary condition and those in the control condition ($M_{monetary} = 24.24$, $M_{control} = 47.50$, $F(1, 46) = 3.22$, $p = .08$). No donation amount difference was observed between any of the other conditions ($M_{monetary} = 24.24$, $M_{non-monetary} = 30.45$, $M_{control} = 47.50$, all $ps > .2$).
Net loss per person. As we mentioned earlier, it is critical for charities to lower the cost of donor acquisition campaigns since the initial monetary loss outweighs the monetary gain. Therefore, we computed the net loss per person by subtracting the donation amount of each person from the cost per person to mail the letter (including incentive costs depending on the condition). Again, we analyzed the results with and without the outlier from the monetary condition.

Without the outlier, results suggest that the net loss per person in the no incentive condition was significantly lower than the monetary incentive condition ($M_{control} = $0.25, $SD_{control} = 3.59, M_{monetary} = $0.59, SD_{monetary} = 2.80, F(1, 8998) = 21.65, p < .001) and the non-monetary incentive condition ($M_{control} = $0.25, SD_{control} = 3.59, M_{non-monetary} = $0.49, SD_{non-monetary} = 2.00, F(1, 8998) = 11.20, p < .001) (see Figure 6). Results were similar when the outlier was included: the net loss per person in the no incentive condition was significantly lower compared to that in the monetary incentive condition ($M_{monetary} = $0.52, SD_{monetary} = 4.58, M_{control} = $0.25, SD_{control} = 3.59, F(1, 8999) = 9.23, p = .002) and the non-monetary incentive condition ($M_{non-monetary} = $0.49, SD_{non-monetary} = 2.00, M_{control} = $0.25, SD_{control} = 3.59, F(1, 8999) = 7.31, p = .007).
Extrapolated, for our campaign with 9,000 individuals, including monetary pre-giving incentives resulted in an additional $.34 net loss per mailing ($1,020 in total) excluding the outlier and $.27 per mailing ($810 in total) including the outlier, while including non-monetary incentives resulted in an additional $.24 net loss per mailing ($720 in total). The findings from the net loss analyses provide strong evidence that both monetary and non-monetary incentives incurred significantly higher net loss compared with no incentives.

Overall, the field study supports the claim that neither monetary nor non-monetary incentives elicit more donations than no incentives. Monetary incentives induced less donations compared with no incentives. Non-monetary incentives did not elicit more donations compared with no incentives.

GENERAL DISCUSSION

The present work examined how charitable organizations’ common practice of enclosing incentives affects donation behaviors, along with the mediating role of exchange relationship as the underlying mechanism. Results across five studies provided converging support for our predictions. A pilot study demonstrated that people have a default communal relationship with charities, and a default exchange relationship with businesses. Results from experiments 1A and 1B suggest that people donate less money after receiving monetary (versus non-monetary or control) pre-giving incentives from a charity. Notably, the performance of non-monetary incentives was no better than no incentives, indicating a violation of the norm of reciprocity. Results from experiment 2 showed that the reduced donation amount in the monetary incentive condition was due to the perception of increased exchange relationships with the charitable organization. We also ruled out anchoring effect as an alternative explanation. Finally, the field experiment suggested that 1) pre-giving incentives in general do not perform better in terms of generating donations compared to no incentives and, 2) both monetary and non-monetary pre-giving incentives lead the charitable organizations suffer more net loss compared to no incentives. In sum, these results suggest that the benefits of enclosing pre-giving incentives in donation appeals do not justify the costs but, instead, burden charities with higher net loss. Because they increase perceived exchange relationship with the charity, enclosing monetary pre-giving incentives may even backfire and hurt the donor-charity relationship and subsequent donation behaviors.
The present work provides important theoretical and practical implications. We show that relationship type can be affected by cues such as monetary gifts and suggest that the norm of reciprocity may operate differently for people in communal relationships. Charities should be aware that, by default, people perceive their relationships with charities as communal rather than exchange. Enclosing monetary incentives may lead donors to perceive more of a business/exchange relationship with the charity, which decreases donations. Thus, charities should focus on maintaining and enhancing the communal side of the relationship with potential donors. Practically, our results imply pre-giving incentives should not be encouraged in soliciting donations for charitable organizations. These results add greatly to our understanding of donor-charity relationships by proposing and testing the default donor-charity relationship and how the default relationship could be altered by cues such as pre-giving incentives.

A potential limitation of this research is that we didn’t test the impact of various amounts of monetary incentives on donations (e.g. 1 cent vs. $1), or whether two greeting cards or a pack of greeting cards would have similar impact on donation behavior as one greeting card. It’s possible that including higher-value pre-giving incentives would activate the norm of reciprocity and lead to higher donations. Future research could explore this possibility in greater detail, as well as examine boundary conditions for our effects, such as donors’ socioeconomic status.
REFERENCES


