20th Annual
Robert Mittelstaedt Doctoral Symposium Proceedings

March 31 – April 2, 2011

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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PROGRAM

20TH ANNUAL ROBERT MITTELSTAEDT DOCTORAL SYMPOSIUM
MARCH 31 – APRIL 2, 2011

THURSDAY, MARCH 31 – AFTERNOON

Guests check in at the Embassy Suites, 1040 P Street, (402) 474-1111

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: REGENTS A

Breakfast available for guests staying at the Embassy Suites

7:45 – 8:00 Welcome
Dr. Jim Gentry, Mittelstaedt Doctoral Symposium Coordinator
Dean Donde Plowman, James Jr. and Susan Stuart Endowed Dean, College of Business Administration
Dr. Robert Mittelstaedt, Nathan J. Gold Distinguished Professorship in Marketing, Emeritus

8:00 – 8:30 Justine Rapp, University of Nebraska–Lincoln
“What Brings You Pleasure? The Developmental Stages of Compulsive Purchasing”

8:30 – 8:40 Discussant: Laurel Cook, University of Arkansas

8:40 – 8:50 General Discussion

8:50 – 9:00 Break
9:00 – 9:30  Ahreum Maeng, University of Wisconsin-Madison
“Does A Crowded Store Lead to a Crowded Mind? Crowding and Mental Construal of Product Features”

9:30 – 9:40  Discussant: Aaron Gleiberman, University of Oklahoma

9:40 – 9:50  General Discussion

9:50 – 10:00  Break

10:00 – 10:30  Hyo Jin (Jean) Jeon, University of Oklahoma
“Reflections on Service Brand and Service Quality”

10:30 – 10:40  Discussant: Youngsu Lee, Iowa State University

10:40 – 10:50  General Discussion

10:50 – 11:00  Break

11:00 – 11:30  Xiaodan Dong, University of Missouri
“Responsiveness Increases MNC’s Performance. Really?”

11:30 – 11:40  Discussant: Arunachalam Swaminathan, Iowa State University

11:40 – 11:50  General Discussion

11:50 – 1:00  Lunch in the Atrium, P Street Dining area, Embassy Suites

FRIDAY, APRIL 1 – AFTERNOON
LOCATION: REGENTS A

1:00 – 1:30  Darrell Bartholomew, Oklahoma State University
“Brand Community Ritualization”

1:30 – 1:40  Discussant: Sang-Uk Jung, University of Iowa

1:40 – 1:50  General Discussion

1:50 – 2:00  Break

2:00 – 2:30  Younghan Bae, University of Iowa
“Modeling the Determinants of the Satisfaction-Loyalty Relationship: Theory and Empirical Evidence”

2:30 – 2:40  Discussant: Stephen Hampton, University of Missouri
2:40 – 2:50  General Discussion
2:50 – 3:00  Break
3:00 – 3:30  James A. Mourey, University of Michigan
            “Sleight of Mind: The Interaction of Conscious and Nonconscious Consumption Goals”
3:30 – 3:40  Discussant: Manja Zidansek, Washington State University
3:40 – 3:50  General Discussion
3:50 – 4:00  Break
4:00 – 4:30  Brian Gillespie, Washington State University
            “The Effects of Ego-Depletion on Viewer Brand Recognition and Brand Attitudes Following Exposure to Product Placements in Television Programs”
4:30 – 4:40  Discussant: Cat Armstrong Soule, University of Oregon
4:40 – 4:50  General Discussion

**FRIDAY, APRIL 1 – EVENING (DRESS CASUALLY)**
**LOCATION: REGENTS A**

6:30 – 9:00  Evening Reception and Banquet
            6:30 - Social
            7:00 - Banquet
9:00 – late  On your own

**SATURDAY, APRIL 2 – MORNING (DRESS PROFESSIONALLY)**
**LOCATION: REGENTS A**

Breakfast available for guests staying at the Embassy Suites

8:00 – 8:30  Anastasia Thyroff, University of Arkansas
            “Thinking Too Small? Predicting Intentions to Consume Nanofoods: A Pilot Study”
3:00 – 3:30  Discussant: Christy Russon, Oklahoma State University
8:40 – 8:50  General Discussion
8:50 – 9:00  Break

9:00 – 9:30  Jesse King, University of Oregon  
“Reexamining the Role of Affect in Fluency Based Judgments of Risk”

9:30 – 9:40  Discussant: Gregory J. Fisher, University of Illinois at Urbana Champaign

9:40 – 9:50  General Discussion

9:50 – 10:00  Break

10:00 – 10:30  Ying Xiao, University of Illinois at Urbana Champaign  
“Retailer Brand Introduction with Strategic Consumers”

10:30 – 10:40  Discussant: Erika Paulson, University of Wisconsin-Madison

10:40 – 10:50  General Discussion

10:50 – 11:00  Break

11:00 – 11:30  Jungsil Choi, University of Kansas  
“Unanticipated Marketing Effects of Color on the Efficacy of Charitable Appeals”

11:30 – 11:40  Discussant: Kee Yeun Lee, University of Michigan

11:45 – 11:50  General Discussion

11:50 – 12:00  Closing

12:00  Box lunches will be available for those who requested them
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MARCH 31 - APRIL 2, 2011

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WHAT BRINGS YOU PLEASURE? THE DEVELOPMENTAL STAGES OF COMPULSIVE PURCHASING

Justine M. Rapp, University of Nebraska–Lincoln

INTRODUCTION

Both impulsive and compulsive consumption are pervasive issues affecting consumers and their overall well-being. Impulsive consumption literature spans several academic disciplines, including psychology, sociology, and economics (Ainslie 1975; Davis and Havighurst 1946; Strotz 1956, respectively). Assessment of impulsive behaviors reached the consumer behavior literature through the evaluation of shopping behaviors and consumption impulses and is most generically defined as a “sudden and spontaneous desire” to purchase and/or consume a product (Rook and Hoch 1985, 23). Compulsive consumption, on the other hand, is defined as a repeated act that is both focused on the experience of consuming and brings detriment to the consumer (Schlosser et al. 1994).

Despite extensive research on both impulsive and compulsive consumption, there is an apparent gap in the literature connecting the two constructs. Each phenomenon is studied as an independent force dictating consumer actions; however, no link has been established between the two. This paper intends to develop a causal link between impulsive and compulsive buying behavior. It must be noted from the onset that the transition described below does not apply to all consumers; rather, it aims to suggest an alternative means for the development of compulsive purchasing behavior for some consumers. Beginning with a thorough examination of both consumption behaviors, I will establish the differences and the similarities between the two concepts. Next, I will present and discuss a developmental model to illustrate a consumer’s transition progressing from impulsive to compulsive purchasing. The Compulsive Consumption Development Model intends to reveal a stage-wise sequence through which a consumer progresses towards compulsive consumption triggered by increases in desire and decreases in self-control. Implications to the consumer behavior literature are subsequently discussed.

IMPULSIVE CONSUMPTION

An extensive amount of research has been conducted in the attempt to understand and evaluate impulsive behaviors in individuals. Freud (1911, 1920) associated impulsive actions with the internal opposition of pleasure and reality, while more modern day psychologists assess impulsiveness as related to spontaneous actions (Eysenck et al. 1985) and a need for stimulation (Gerbing, Ahadi, and Patton 1987; Weun, Jones, and Beatty 1998). While there remain several minute differences between academic interpretations, a general understanding of impulsive behavior remains the same. As defined by Goldenson (1984, 37), an impulse is “a strong, sometimes irresistible urge: a sudden inclination to act without deliberation.” (emphasis added by the author).

For the purposes of this paper, it is necessary to point out several key attributes in the aforementioned definition. First, an impulsive act is defined around the context of a single occurrence at a specific point in time; a notion that will be carried throughout this paper. Second, an impulse occurs suddenly, without any planning or foresight. Finally, such behavior is defined as irresistible. The effects of this final attribute will be discussed at length further in the paper through an analysis of both desire and self-control. Through incremental increases and decreases of desire and self-control, respectively, the consumer is enraptured by their impulsions and, thus, progresses towards more destructive behaviors.

Within the marketing literature, a substantial amount of regard has been given to research surrounding impulsive buying behaviors (Bellenger et al. 1978; Kacen and Lee 2002; Piron 1991; Weinberg and Gottwald 1982; Weun et al. 1998). Rook and Hoch (1985) revived scholarship on impulsiveness by identifying five main criteria that determine the differences between a consumer with an
impulsive trait and one without, illustrated as (1) sudden and spontaneous desire to act, (2) psychological disequilibrium, (3) psychological conflict and struggle, (4) cognitive evaluation, and (5) a lack of regard for the consequences. Two years later, Rook (1987, 191) stated impulsive buying occurs “when a consumer experiences a sudden, often powerful and persistent urge to buy something immediately… [one that is] hedonically complex…and prone to occur with diminished regard for its consequences.” As is seen, this definition mimics that of Goldenson’s described above, with two important alterations. One important addition is the recognition that such behavior is hedonically complex, meaning the consumer derives a sense of internal pleasure from the behavior. Most often, impulsive behaviors are driven by an excited positive mood. In fact, a study by Faber and Christenson (1996) found that 80% of their sample stated they were most likely to be in a positive mood following an impulsive purchase (although, as will be discussed later, this mood is short lived). In the model discussed below, such pleasure generates an increasing level of desire, one of the main drivers of the transition between impulsive and compulsive consumption. The second meaningful addition to Rook’s (1987) definition is the acknowledgment that the action is object focused (…to buy something). The consumer behaves impulsively to derive pleasure from the consumption of a given object.

Youn and Faber (2000, 180) explore the relationship between impulse buying and personality traits, finding that a lack of self-control, stress reaction, and absorption (defined as “a tendency to become immersed in self-involving experiences triggered by engaging external and internal stimuli”) increases a consumer’s likelihood to act in impulsive ways. Further, the authors sought to examine cues that trigger impulsive behaviors. Among these triggers were the availability of money (in line with Beatty and Ferrell (1998)), as well as lower priced or discounted items. Couched within these triggers is a discussion of emotion, as the author’s findings suggest that both positive and negative emotional states encourage impulsive behaviors. While this finding is somewhat contradictory to prior definitions, it is an important extension to theory, as impulsive behaviors can be generated by a general heightened emotional state, rather than one of joy or excitement.

Rook and Fisher (1995) delve deeper into the discussion of impulsive buying by recognizing the differences between consumers with an impulsive trait and those who simply make impulse purchases. This difference is an important distinction to recognize within the scope of this article; there is a distinction between a solitary act of impulsiveness and a consumer who possesses a trait that generates impulsive behavior within them. As the model discusses below, the transition from impulsive consumption to compulsive consumption is not a universal phenomenon. Although a consumer may act impulsively (such as an unplanned purchase of a Snickers bar while standing in a check-out line), I do not argue that they will eventually become a compulsive consumer. Rather, the frequency of impulsion, combined with the development of desire, the depletion of self-control, and an inherent impulsive trait, play a significant role in a consumer’s transition.

It is clear from the review of literature above that impulsive consumption is sudden, hedonically driven, and product focused. This behavior is largely triggered by both external and internal stimuli, in which the consumer feels an intense desire to consume a product once cognitive awareness has been generated. Resulting positive affect is then immediately experienced by the consumer suggesting a subsequent increased desired state for similar behavior schemes. The following section entails a literature review of compulsive consumption, in an attempt to discriminate between the two constructs.

COMPULSIVE CONSUMPTION

Compared to impulsive consumption, compulsive purchasing is a relatively young topic within the marketing literature (Faber and O’Guinn 1992; Hirschman 1992; Rindfleish, Burroughs, and Denton 1997; Schlosser et al. 1994; and, for an excellent review of compulsive consumption, see Faber and O’Guinn 2008). Faber, O’Guinn, and Krych (1987) spearheaded the movement introducing compulsive buying as “a type of consumer behavior which is inappropriate, typically excessive, and clearly disruptive.
to the lives of individuals” (132). Comparable to impulsive consumption, compulsive behaviors are irresistible urges that a consumer feels they must do even against their will (Scherhorn 1990). Two years later, O’Guinn and Faber (1989) developed a more concise definition of the phenomenon stating that compulsive consumption is a “response to an uncontrollable drive or desire to obtain, use, or experience a feeling, substance or activity that leads an individual to repetitively engage in a behavior that will ultimately cause harm to the individual and/or to others” (148). (emphasis added by the author).

It is integral to the discussion of this paper to address certain aspects of the given definition above, in comparison to the definition of impulsive consumption. First, a compulsive behavior is defined around an action, rather than centered on a consumption object as is discussed within the impulsive consumption literature. Second, this action must be involuntarily repeated over time, rather than a solitary instance. Finally, compulsive behaviors are defined as harmful to the individual. While it may be argued that an impulsive action can be harmful to a consumer (e.g., if they do not have the money to support an impulsive purchase), compulsive consumption behaviors push the consumer into an addicted and uncontrollable state. Rather than focusing on a product itself, a consumer in a compulsive state craves the feeling derived from the consumption activity and thus ultimately remains unsatisfied once the consumption object is obtained.

The power of one’s emotions plays a significant role in compulsive purchasing behaviors. Unfortunately, such emotional states are primarily negative (e.g., anxiety, depression, and anger) and compulsive behavior is motivated by the desire to alter or escape from such feelings, although such diversion is short-lived (Faber and Christenson 1996). While some compulsive behaviors are developed as an attempt to prolong positive moods, Faber and Christenson (1996) discovered that most compulsive consumers are shown to “experience negative emotions more frequently and more deeply” (813). From this perspective, Faber and Vohs (2004) explained compulsive behavior as a reaction illustrated by escape theory. Consumers engage in compulsive behaviors to escape the painful realities of life and focus narrowly on immediate and pleasurable tasks. Such mood repair (the ability to relieve emotional torment through compulsive behaviors) is a common coping mechanism used among compulsive consumers (Elliot 1994). Although mood repair may be seen as acceptable behavior in limited quantities, compulsive consumers become dependent on the activity to relieve negative emotions, and thus develop an unhealthy and uncontrollable coping mechanism for normal emotional states.

Similar to impulsive consumption, compulsive buying has been linked to the presence of certain personality traits. O’Guinn and Faber (1989) evaluated a consumer’s propensity to fantasize and found that compulsive buyers fantasized more than normal consumers. These fantasies are surmised to be used in an attempt to escape negative feelings, “more easily dissociate negative consequences from antecedent behavior” (153), and find relief from the painful realities of life (Jacobs 1986). Self-esteem and anxiety, which are more prominently developed through socialization in childhood, are also common traits discussed in the compulsive consumption literature (Elliot 1994; Faber, O’Guinn, and Krych 1987; O’Guinn and Faber 1989; Scherhorn 1990). A consumer’s struggle with self-esteem is further exacerbated by their inability to control their compulsive behaviors, generating a downward spiral. Scherhorn (1990) describes this lack of self-control as an experience that “grows to dominate the person’s life by gradually destroying the person’s ability to derive satisfaction from other involvements” (41). The consumer’s arousal system is thus compromised and reacts in unstable ways. As a result, the compulsive consumer relies on excitement and pleasure seeking motives that intensify as the consumption behavior persists over time (DeSarbo and Edwards 1996). With each consumption activity that leaves the consumer ultimately unsatisfied, the consumer seeks bigger and “better” means to reach their desired state of arousal.

One of the most unique aspects to compulsive consumption is the role the consumption object plays for the consumer. In fact, the consumption object plays as minimal a role as possible. Frequently,
compulsive consumers make little short-term use of the products they purchase, often leaving the goods in the original packaging or locking the object in the trunk of a car or in a closet to hide the shame and/or guilt derived from the behavior (O’Guinn and Faber 1989). Instead, it is the “addictive experience” that is desired, as these consumers use the product as an excuse to temporarily escape their troubles and a way to cope with unhappiness (Scherhorn 1990, 40). Accordingly, compulsive consumption is a behavior that is triggered by internal stimuli and driven by the fulfillment of experiential satisfaction (DeSarbo and Edwards 1996). Sadly, compulsive consumers rarely experience lasting satisfaction as, once the experience is over, they return to their original state of emptiness and need to escape.

PLEASURE-SEEKING TENDENCY

As stated earlier, the transition from impulsive to compulsive consumer is not all encompassing; not every consumer who experiences an impulsive purchase will progress into a compulsive state. One significant difference between the general population and the 5.8% of consumers engaged in compulsive buying behaviors (Koran et al. 2006, 1807) is their propensity to seek out pleasure enhancing activities (Whiteside and Lynam 2001). The presented model operates under the assumption that the consumer maintains an inherent trait of pleasure-seeking, which follows them through the complete transition. According to the impulsive consumption literature, a consumer engaging in impulsive behaviors is most likely to seek activities that result in positive affective states (Piron 1999; Rook 1987). It is important to first identify this personality trait to establish a baseline for the transition. I propose that the pleasure-seeking tendency within a consumer enables his/her advancement through the process.

H1: A consumer scoring high on (a) impulsive and (b) compulsive consumption traits will also score highly on pleasure-seeking tendencies.

The pleasure-seeking tendency is at the root of the Compulsive Consumption Development Model. It is this tendency towards pleasure producing activities that drives the incremental development (depletion) of a consumer’s desires (self-control). Once pleasure is achieved through an impulsive action, the consumer is indeed satisfied, but also desires more (Foddy and Savulescu 2007). The consumer develops a yearning for the positive affective state generated from impulse purchasing and, thus, the progression through the stages is initiated.

Before fully delving into the transitional model, a caveat must be considered. The model presented in this paper is one path to compulsive consumption development and is not intended to dictate how every consumer becomes encapsulated by compulsive behaviors. There are indeed numerous substances and activities (i.e. smoking, illegal drugs, eating, and gambling) beyond the scope of this paper that are not suggested to begin through impulsive actions. In this context, however, I argue that there is an apparent gap in the literature neglecting the obvious role impulsivity plays in the development of compulsive buying.

THE MODEL

With that said, the model in Figure 1 represents a consumer’s transition from impulsive to compulsive purchasing behaviors (see Table 1 for synopsis). Although scholarship within the marketing domain primarily separates impulsive and compulsive consumption into different phenomena, some hints have been made at the connection between the two. For example, Rook and Hoch’s (1985, 511) statement that impulsive consumption may “deteriorate into a destructive character disorder,” suggests that harmful characteristics may develop from impulsiveness. Further, Hirschman (1992) discusses the possibility that some impulsive consumers “may be at risk to move into compulsive consumption” and that some “people usually purchased in response to impulses but had lost the ability to establish and maintain rules to constrain their buying” (157).
In order to discuss the sequential movement from one type of consumption to the other, it is first necessary to establish a relationship between the two constructs. As discussed in the literature reviews above, impulsive and compulsive consumption are distinct constructs that represent destructive consumer behaviors. This paper intends to argue that consumers in Stage II: Impulsive Consumption Behavior are at risk to transitioning to Stage IV: Compulsive Consumption Behavior; and that, inversely, compulsive consumption develops from impulsive consumption. In Stage III: the Transition Stage, the consumer’s purchasing behavior changes through learned experiences relating to positive emotional states, desire, and a lack of self-control. Consumers learn from positive affective responses resulting from impulse purchases, rely on them for both enjoyment and an escape from reality, and, as desires intensify and lack of self-control diminishes, the consumer eventually reaches Stage IV and is considered a compulsive consumer.

**H2:** Compulsive consumers score highly on impulsive buying tendencies.

**Stage I: No Behavior**

The first stage in the model is classified as a state of “No Behavior,” which specifically relates to both impulsive and compulsive consumption actions. In this stage, the consumer does not exhibit any of the signs relating to the phenomena discussed in this paper, and thus normal consumption patterns exist. The consumer purchases goods without feelings of sudden intensity or need, and mood states after the consumption experience remain static. There exists no uncontrollable desire to consume more, and the consumer maintains the ability to resist other unneeded products.

Although a consumer in Stage I does not express any of the common signs relating to impulsive or compulsive consumption, there remains a possibility for him/her to transition into Stage II and to make impulse purchases. This sentiment was acknowledged earlier in the paper, as consumers are likely to buy goods impulsively at one point or another (e.g., at the check-out counter). Movement between Stage I
and Stage II can be fluid and does not necessarily entail progressive movement into Stage III and beyond. Most generally, consumers are categorized into Stage I with occasional lapses into Stage II.

**Stage II: Impulsive Consumption Behavior**

Once in Stage II, the consumer either does or does not experience an emotional reaction to the impulsive purchase. For certain consumers, the impulse purchase is the beginning of the transition into a compulsive consumer. As discussed above, a predominant player in impulsive consumption is a consumer’s pleasure-seeking tendency. During an impulsive act, the consumer is driven toward consuming an object suddenly and without prior deliberation. The impulse purchase is irresistible to the consumer and occurs at a moment when the consumer feels they must own the desired product.

Further enhancing the draw towards pleasurable feelings is the instantaneous positive affect that the consumer experiences after an impulsive purchase. As discussed above, a defining aspect of impulsive consumption is its hedonic nature. Consumers experience a sense of pleasure and euphoria after an impulsive purchase, as the purchased good is described as making the consumer feel “good,” “satisfied,” “wonderful,” and “high” (Rook 1987, 195). The consumer sought pleasure, and pleasure is what they received.

Positive affect is developed as the consumer impulsively acquires the consumption object. Subsequently, a desire for additional positive affect builds within the consumer, driving them to behave in a similar manner in the future. These positive emotions are stored in memory and, as control processes weaken (as will be discussed in a subsequent section), the consumer’s decisions will be based on affective motivations rather than cognitive deliberation (Shiv and Fedorikhin 1999, 279). As desires heighten (discussed below), consumers are drawn to purchasing situations that satisfy their emotional cravings for positive affect. Through the transition process, the consumer becomes dependent on this affective result to satiate both a pleasure-seeking tendency and a later developed escape from distress.

**H3:** The consumer experiences a positive affective emotional state after an impulsive purchase.

**Stage III: Transitional Behavior**

A consumer moves beyond Stage II into Stage III when his/her impulsive behaviors begin to have a significant effect on his/her emotions and internal motivations. In Stage III, a transition is occurring through which a consumer becomes no longer focused on the consumption object itself (i.e., impulsive behavior); rather, he/she becomes motivated by the pleasure derived from the actual consumption experience (i.e., compulsive behavior). In the transitional stage, a consumer’s need for pleasure transforms through incremental increases (decreases) in desire (self-control) that eventually lead them into fully developed compulsive purchasing behavior.

**Trigger Event**

As discussed in the literature reviews above, both impulsive and compulsive consumption behaviors are generated through either external or internal stimuli, often known as triggers. These triggers drive the consumer to behave in extreme ways. As such, the trigger event is an important component of the transition process. As already stated, impulsive purchases are often triggered by external stimuli, such as sale advertisements and the availability of money (Youn and Faber 2000). This assessment is clearly in line with the definition of impulse buying, as the consumption action is unplanned and spawned immediately through contextual cues.

Conversely, compulsive consumption is most prominently triggered by internal stimuli, such as low self-esteem and anxiety (Elliot 1994; Faber et al. 1987; O’Guinn and Faber 1989; Scherhorn 1990). These internal triggers are largely responsible for the perceived need to escape the present painful realities
of one’s life (Faber 2004). As such, once the internal cue is triggered, the consumer is driven to compulsion with no other possible alternative action in mind.

The separation between external and internal triggers is the key to the transition described in Stage III (Kellett and Bolton 2009). Within this developmental model, the consumer begins with an inherent tendency to purchase goods impulsively when faced with an external trigger. Although unplanned, the consumer recognizes the pleasure derived from such behavior and thus the trigger is reinforced. As unpleasant or painful mood states begin to affect the consumer, he/she seeks to relieve such uncomfortable feelings with formerly proven means of pleasure development. An impulse purchase is thus repeated when presented with an external cue, and the consumer finds him/herself satisfied from both external and internal cravings. Once this internal pain has been replaced by a pleasurable experience, the consumer begins to treat consumption as a coping mechanism. These triggers are even further exacerbated by increases (decreases) in desire (self-control) (as discussed below) and, each time the consumer is triggered by an internally based discomfort, he/she is driven towards making a purchase.

 Desire

After the initial feelings of positive affect following an impulsive purchase disintegrate, the consumer experiences a state of desire for further moments of such pleasure. Belk et al. (2003) describe desire as a “hot, passionate emotion” that is “born between consumption fantasies and social situational contexts” (327). Consumers experience such feelings during both impulsive and compulsive consumption, yet it is important to note that the role desire plays in each behavior type differs. From an impulsive consumption perspective, the consumer desires the object itself and said state of desire is described as a pleasurable feeling (2003). From a compulsive perspective, desire is more intense and experientially driven.

From an additional perspective, Foddy and Savulescu (2007) characterize desires involved in impulsive and compulsive behaviors in three distinct ways such that they (a) are especially strong, (b) occur in a particular context that “that triggers the anticipation of pleasure and a strong drive to satisfy the desire,” and (c) are socially unacceptable (30). We see here that desires are both intense and harmful, which describes both consumption paradigms evaluated in the current study. The second point in this description exemplifies how a consumer proceeds through the impulsive-compulsive transition process. An impulse is triggered by an unanticipated emotional reaction that results in the consumption of an object. Once the consumer gets a taste of satisfaction (i.e. positive affect) from consuming, their desire for additional pleasurable feelings is heightened. During the transition stage, the desire for pleasure eventually manifests itself in an alternative agenda – to escape pain. Belk et al. (2003) further express this idea noting that “desire lies in the promise of escape or alterity” (335) and that “the condition of craving still anticipates a positive state where things will be better…, a matter of acting against our better judgment” (334). The authors describe the evolution of desire as a cycle in which “desire-acquisition-reformulation of desire, ad infinitum” causes the continual craving for pleasurable mood states derived from deviant consumption behaviors (341).

In the presented model, the function of desire increases within Stage III. In a similar vein to Belk et al.’s (2003) assessment of the desire cycle, I propose that desire for pleasurable affect increases incrementally as the consumer continues to consume impulsively. This increased desire will eventually surmount the consumer’s level of self-control (discussed below), at which point compulsive consumption behaviors will emerge, and the consumer will progress to Stage IV. Not only does the desire itself become stronger, but the pleasure that is desired for also intensifies.

**H4:** Consumers scoring high on impulsivity and compulsivity will exhibit higher levels of desire, compared to non-impulsive/compulsive consumers.
**Self-Control**

Also experienced within Stage III is the reduction of self-control processes. The diminishing nature of self-control is one of the key moderators in the transition from impulsive to compulsive purchasing behaviors. This is not to say that consumers with instances of low self-control will always progress through the stages, rather those who proceed through the complete transition will have characteristically low levels of self-regulation.

Conceptualized from Gottfredson and Hirschi’s (1990) original definition of self-control, Grasmick et al. (1993, 8) identified six main components of the construct that most appropriately fit the model proposed in this paper: (1) Impulsivity, (2) Preference for simple tasks, (3) Risk seeking, (4) Prone to physical activity, (5) Self-centered, and (6) Hot tempered. The most noticeable facet of Grasmick et al.’s definition is the first component, impulsivity, which clearly identifies self-control as an obvious player within the Compulsive Consumption Development Model. Additionally, Tangey et al. (2004) discuss self-control as “the ability to override or change one’s inner responses, as well as to interrupt undesired behavioral tendencies (such as impulses) and refrain from acting on them” (274). It is clear that the self-control literature identifies impulsivity as a force affecting a consumer’s ability to maintain self-control.

Furthermore, there is a strong link between the concepts of desire and self-control, leading to interplay between the two phenomena. Hoch and Loewenstein (1991) illustrated this connection in their discussion of time-inconsistent preferences. Time-inconsistent preferences, defined as a choice driven by hedonic pleasure that otherwise would not have been made under a clearer cognitive state, demonstrate a consumer’s inability to maintain self-control when faced with the risk of deprivation. The authors state that the struggle between desire and willpower is the primary determinant of irrational consumption behavior, such that when desire outweighs willpower, the consumer is most likely to act impulsively. If the object is not obtained, the consumer experiences deprivation, and subsequently experiences an even heightened desire to consume.

The reasons why self-control often fails has been explored by Baumeister and colleagues (see Baumeister (2002) for an integrated overview). Citing “standards, a monitoring process, and the operational capacity to alter one’s behavior” (671), Baumeister evaluates under what conditions a consumer is likely to consume irrationally. Standards involve a consumer’s goals and ideals that dictate their intentions. Self-control failure is seen to arise when conflict exists between these standards and uncompromising desire. In fact, Winston (1980) suggested 20 years prior that much of the struggle with self-control involves an individual’s conflict between pleasure and duty. A consumer may recognize the right path to take, but is tempted by an option that produces a more satisfying result (as characterized by the conflict between a devil on one shoulder and an angel on the other). The emotional distress derived from such conflict breaks down the consumer’s ability to control purchasing behavior.

Baumeister’s (2002) third reason, the consumer’s capacity to change, is arguably the most influential of the three and describes how self-control resources are often depleted over time. As self-control resources are used, the ability to maintain steady amounts of control decreases. Deteriorating amounts of self-control can be attributed to fatigue, coping with stress, continued exertion of self-control, and even the activities of everyday life (Baumeister 2002; Muraven, Baumeister, and Tice 1999). As a consumer struggles with the conflict between duty and desire, their resources of control are continually in decline, leaving them more susceptible to impulsive behaviors (Muraven, Tice, and Baumeister 1998).

**H5a:** Consumers scoring high on both impulsivity and compulsivity will exhibit lower levels of self-control, compared to non-impulsive and non-compulsive consumers.

**H5b:** Self-control will be lower for more compulsive consumers than less compulsive consumers.
**Consumer Transition**

As a consumer’s desire (self-control) increases (decreases), enough psychological momentum is eventually built up to transfer one into Stage IV. Jacobs (1986) identified two important components attributing to the perpetuation of the transition: “(a) the positive reinforcement obtained from the memory and expectation of pleasure, and (b) the negative reinforcement of escape from and avoidance of anticipated pain” (24). As was discussed earlier, the transition begins with a pleasure-seeking consumer. After the first impulsive encounter, the consumer recognizes the resulting positive affect and stores that moment in memory. The purchased object has now become a source of pleasure. As affect wears off, the consumer develops a sense of desire to return him/her to the previous pleasurable state. Due to a lower level of self-control, the consumer is more easily motivated to consume again once the object of desire comes into cognitive recognition.1

During Stage III, the consumer experiences psychological changes driven by desire and a lack of self-control. A combination of trigger events occur, through which a consumer’s desire incrementally increases for a repeated pleasurable sensation obtained from the consumption activity. Concurrently, a consumer’s self-control incrementally decreases. As discussed in the self-control section above, the emotional strain of consuming combined with an attempt to fight one’s desires, depletes a consumer’s supply of self-control. This process exemplifies the transition into compulsive consumption.

This effect is most appropriately characterized by Foddy and Savulescu (2007) as the hedonic treadmill, which explains that “the same level of some pleasurable activity performed repetitively generates less pleasure such that [consumers] require newer and higher levels of activity” (31). In the beginning stages of the model, the consumption object generates enough pleasure to satisfy the consumer. However, as the process evolves, the consumer desires more and more stimulation, while also losing the ability to independently create and enjoy pleasurable experiences (Nakken 1996). This need for increased stimulation is found within the consumption experience.

The ability to generate pleasure from the consumption experience is attributed to negative reinforcement, which is the second force operating within the transitional process (Jacobs 1986). This motivation develops further into the cycle akin to operant learning. As the consumer psychologically begins to recognize the pleasure derived from his/her impulsive consumption behaviors, such behavior is used to alleviate pain and discomfort. This emotional pattern is illustrated by Faber and Christenson (1996), in which compulsive consumers indicated having more negative mood states before shopping, more positive mood states while shopping, and an increase in mood after shopping, than the comparison group. This study shows that the consumer’s behavior is no longer spawned by an urge to generate even higher moods from an originally elated state (as is the case with impulsive consumption); rather, the consumer seeks pleasure to escape negative emotions. The consumer progresses deeper into Stage III as the immediate pleasure derived from impulsive consumption wears off and the consumer is confronted with the same static emotions as before. At this point, self-control has substantially decreased and the consumer again is drawn towards a deviant consumption behavior. It is at this point where both positive and negative reinforcement combine, and the consumer begins to experience pleasure from the pure act of consuming, while no longer giving credence to the object involved in the equation. The consumer has now reached Stage IV.

1 It is necessary to note that at this stage, the consumer does not seek out said object; rather the impulsive nature is activated when the object becomes available for the consumer.
Stage IV: Compulsive Consumption Behavior

Compulsive consumption is the fourth stage in the Compulsive Consumption Development Model. At this stage, the consumer is completely overcome by compulsive purchasing behaviors as defined in the review section at the start of the paper. The consumer’s behavior is repetitive in nature and becomes detrimental to his/her overall wellbeing. The urges to consume persist; however, the consumer derives pleasure from the act of consuming and regards the consumption object as merely a means to an end to avoid pain. It is at this stage that the consumer begins to neglect not only him/herself, but others around them. Also classified as addictive behavior (Elliot 1994; Faber and O’Guinn 2008; Hirschman 1992; Scherhorn 1990), compulsive purchasing places the consumer in a state of duress in which he/she feels as though he/she must consume regardless of any harmful consequences.

Stage V: Recovery

Recovery is the final stage in the Compulsive Consumption Development Model. Recovery occurs when the consumer is no longer exhibiting compulsive behaviors, most often mediated by treatment procedures. Although recovery is beyond the scope of this paper, it is important to recognize this stage in connection with compulsive behaviors. Just as not every consumer progresses into a compulsive buyer, not every consumer reaches the stage of recovery. Furthermore, not every consumer who reaches recovery remains there; often, consumers move back and forth between compulsion and recovery several times before fully committing to life-long abstinence from compulsive behaviors (Nakken 1996).

The stage of recovery as it relates to compulsive buying is still an area needing future research. While recovery is a well-developed area of discussion within the addiction literature, typical recovery methods, such as abstinence (Nakken 1996; Wormer 2003), are unrealistic for consumers plagued by compulsive purchasing behaviors. It is simply not feasible for a person to stop shopping completely. Future research needs to examine how to remove the sense of pleasure derived from the shopping experience. While erasing psychological motives may arguably seem unrealistic, some suggestions have been made thus far to enhance and develop a consumer’s control processes, through which he/she is able to control his/her compulsive behavior when triggered by a dangerous situation (Kellett and Bolton 2009).

METHOD

The first attempt taken to establish statistical evidence for the proposed model consisted of a compilation of pre-established survey instruments within the extant literature. Seven pre-existing measures were used: (1) a 12-item sensation-seeking scale (Whiteside and Lynam 2001), (2) a 9-item buying impulsiveness scale (Rook and Fisher 1995), (3) a 10-item positive affect and 10-item negative affect scale (Watson et al. 1988), (4) a 13-item shortened self-control scale (Grasmisk et al. 1993), and three separate scales measuring compulsive buying behaviors (Faber and O’Guinn 1991; Edwards 1993; Monroe et al. 2010). Three scales measuring a consumer’s compulsive buying tendency are used in this study as a preliminary for future research objectives to observe which scale is the most effective and telling scale of compulsive buying tendency. As such, the variables in the model will be analyzed using all three scales.

Additionally, a two-factor, fourteen-item scale measuring desire for both impulsivity and compulsivity developed by the author was used as a more proximate estimate for shopping desire than available scales in extant literature. The author first tested twenty preliminary items on 71 undergraduate students who volunteered to participate for course credit. A five-factor solution was found, illustrating that some preliminary items failed to load on either impulsivity or compulsivity. Thus, six items were eliminated. A second factor analysis was then conducted with the fourteen remaining items, through which two-factors were revealed: eight items measuring compulsive desire and six items measuring impulsive desire. Furthermore, a significant, positive relationship between the developed desire scale and
impulsive consumption ($r = .532, p < .001$), as well as all three compulsive consumption scales, as such, (1) Faber and O’Guinn 1991 ($r = .473, p < .001$), (2) Edwards 1993 ($r = .748, p < .001$), and (3) Monroe et. al. 2010 ($r = .622, p < .001$).

**Preliminary Findings**

Demographically, the total collected sample of 305 students at the University of Nebraska–Lincoln is comprised of 62.2% male ($n = 189$) and 37.8% female ($n = 115$), who were offered course credit for the completion of the survey (unequal distribution of males and females may be attributed to the voluntary nature of the study with an extra credit incentive). Total household income for the population is heavily concentrated in the range $75,001-100,000 (22.3%, n = 68) and $100,000+ (42.3%, n = 129). A more equal distribution occurred between $0-25,000 (11.1%, n = 34), $25,001-50,000 (9.5%, n = 29) and $50,001-$75,000 (14.8%, $n = 45). Additionally, the sample is largely comprised of undergraduate Juniors (66.1%, $n = 201$), with the second largest grouping consisting of undergraduate Seniors (31.3%, $n = 95$). The age of the participants was dispersed between 19 and 31 years of age with most responding 20 (34.1%, $n = 104$) or 21 (37.4%, $n = 114$).

These preliminary findings show both strong support for the proposed model, as well as intriguing patterns for further exploration. Most generally, we find strong correlations between impulsiveness and all three compulsive consumption measures, (1) Faber and O’Guinn 1991 ($r = .594, p < .001$), (2) Edwards 1993 ($r = .732, p < .001$), and (3) Monroe et. al. 2010 ($r = .717, p < .001$). These strong correlations imply that compulsive consumption behaviors are strongly related to consumer impulsiveness, thus supporting H2.

More specifically, we also see strong correlations between impulsivity/compulsivity and the moderating variables; (a) positive affect, (b) self-control, and (c) desire. Beginning with positive affect, the author finds that compulsivity is positively related to a positive affective state after purchasing, as such; (1) Faber and O’Guinn 1991 ($r = .215, p < .001$), (2) Edwards 1993 ($r = .312, p < .001$), and (3) Monroe et. al. 2010 ($r = .268, p < .001$). Furthermore, we find similar results with impulsive consumers, as these consumers are more likely to experience a positive affect after a purchase than less impulsive consumers ($r = .266, p < .001$). Thus, H3 is supported.

Secondly, we find that compulsivity is positively related to a sense of desire for future purchases, as such; (1) Faber and O’Guinn 1991 ($r = .554, p < .001$), (2) Edwards 1993 ($r = .854, p < .001$), and (3) Monroe et. al. 2010 ($r = .711, p < .001$). Furthermore, we find similar results with impulsive consumers, as these consumers experience a greater sense of desire for future purchases than less impulsive consumers ($r = .723, p < .001$). Thus, H4 is supported.

Finally, the same pattern exists between self-control and impulsivity/compulsivity. We find that compulsivity is positively related to low levels of self-control, as such; (1) Faber and O’Guinn 1991 ($r = -.504, p < .001$), (2) Edwards 1993 ($r = -.281, p < .001$), and (3) Monroe et. al. 2010 ($r = -.403, p < .001$). Furthermore, we find similar results with impulsive consumers, as these consumers exhibit lower levels of self-control than less impulsive consumers ($r = -.452, p = .000$). Thus, H5 is supported.

Several interesting patterns also emerged within this preliminary study. Although the presence of positive affect is only included within the presented model, negative affect was tested for as well (Watson et al. 1988). Interestingly, significant correlations were found between negative affect and consumers high in compulsivity signaling that these consumers are more likely to experience negative affect after a purchase situation than less compulsive consumers, as such; (1) Faber and O’Guinn 1991 ($r = .379, p < .001$), (2) Edwards 1993 ($r = .118, p = .042$), and (3) Monroe et. al. 2010 ($r = .136, p = .019$). Conversely, a non-significant correlation was found between negative affect and impulsivity ($r = .064, p = .272$), perhaps illustrating the notion that compulsive consumers may experience a sense of guilt and shame.
from purchasing, where as impulsive consumers do not experience adverse affects from their consumption behaviors.

An additional interesting pattern is seen with the sensation-seeking tendency of the respondents. Contrary to H1b, all three compulsive consumption scales were not significantly related to a consumer’s inherent tendency to seek pleasure, as such; (1) Faber and O’Guinn 1991 (r = .092, p = .113), (2) Edwards 1993 (r = .044, p = .447), and (3) Monroe et. al. 2010 (r = -.016, p = .781). Thus, H1b is not supported. Conversely, H1a is supported as a positive, significant relationship between sensation seeking and impulsivity was found, stating that more impulsive consumers are more likely to possess an inherent sensation seeking trait than less impulsive consumers (r = .150, p = .010). This effect is likely demonstrative of the trigger event discussed above, as impulsivity driven by sensation seeking tendencies than compulsive, repetitive purchasing behaviors.

Furthermore, we find an encouraging pattern with the measures for compulsively derived desired and impulsively derived desired. As is hypothesized in the model, we expect the desire to purchase from a compulsive (impulsive) perspective to increase (decrease) as a consumer transitions through the stages of compulsive consumption development. While the statistical analysis at this point is insufficient to measure this exact transition, we find an encouraging pattern that suggests a supporting behavioral pattern. The author finds a strong, positive relationship between impulsivity and a desire for impulse purchases (r = .718, p < .001), as well as a strong relationship between compulsivity and a desire for compulsive purchases for all three compulsivity scales, (1) Faber and O’Guinn 1991 (r = .536, p < .001), (2) Edwards 1993 (r = .833, p < .001), and (3) Monroe et. al. 2010 (r = .682, p < .001). These findings suggest that the desire for impulse (compulsive) purchases gets weaker (stronger) as a consumer transitions through the Compulsive Consumption Development Model, thus H4 is further supported.

DISCUSSION

It is quite clear that both impulsive and compulsive behaviors induce deviant forms of consumption. Impulsive consumption behaviors occur as a result of spontaneous and irresistible urges to purchase, while compulsive consumption takes this a step further through repetition and ego-depletion. This paper postulates that impulsive and compulsive consumption are, in fact, related constructs through which a consumer may transition from one phenomenon to another. Primarily driven by an inherent pleasure-seeking tendency, a consumer’s transition begins with an initial impulse purchase. The consumer then continues to cycle through the feedback loop with incremental increases in desire and a continually depleting system of self-control. Finally, the consumer crosses over the threshold of transition to become a clearly defined compulsive consumer. Pleasure is no longer derived from the consumption object; rather pleasure is sought from the consumption experience itself as a mechanism to avoid pain.

Deviant purchasing behaviors have the potential to cause great harm to the consumer. Although impulsive consumption is much less worrisome than compulsive consumption, problems can arise from both. From a debt perspective, uncontrollable urges to spend put the consumer at risk of increased debt when faced with the inability to pay off obtained goods. These debts have the potential to not only harm the consumer in question, but spillover effects may translate as problems to the consumer’s family as well. Furthermore, as the impulsive consumer transitions into a compulsive consumer, the behaviors and resulting consequences worsen. Consumers are now completely unable to control their urge to purchase, often neglecting themselves and their loved ones in the process. Additionally, the consumption objects are often discarded or left unused, which exacerbates unnecessary waste and the collection of debt.

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2 Further investigation is indeed needed to test this complete transition process. These are exploratory findings only.
Taking this discussion a bit further, the literature addresses compulsive consumption as synonymous with addiction (Elliot 1994; Faber and O’Guinn 2008; Hirschman 1992; Scherhorn 1990). While compulsive purchasing is emphasized throughout this paper, it is also important to note the consequences of more traditionally considered addictions, such as illegal drugs and alcohol. The transition model proposed in this paper may shed some light on both the development of addiction and the recognition of potential addiction forming behaviors. The extant literature on compulsive consumption does a very thorough job evaluating the drivers of addiction (Elliot 1994; Hirschman 1992; Scherhorn 1990); however, minimal connection has been made between addiction and impulsive consumption. While there is some mention of impulsiveness as a trait existent within addicted consumers, there is no apparent exploration of how these impulsive behaviors drive the development of compulsion.

With the knowledge put forth in this paper, it is fair to suggest that recognizing the signs of progression into compulsive behaviors can not only save hardship, but it can save lives. Using this information, consumers will be able to recognize certain patterns developing in their lives (e.g., an intensely developed interest in purchasing a certain good), and their families will be able to notice cautionary behaviors as well. Family members may be able to notice odd consumption behaviors (e.g., the development of mood swings from the sudden increase and subsequent decrease in positive affective emotions) and take action before it becomes too late and the addiction takes hold both physically and mentally.

It is an undeniable part of human nature to have feelings of both happiness and sadness. Events that occur in our lives create a myriad of emotions that we, as consumers, must deal with on a day to day basis. Some consumers, however, lack both the emotional and cognitive ability to properly handle certain emotional states. Striving to feel pleasure, some individuals consume impulsively, generating happiness from physical objects. Even more serious, compulsive consumers struggle with negative emotional states and, rather than dealing with their emotions in healthy ways, these consumers escape their feeling through pleasure seeking mechanisms that quickly allow them to evade negative emotions. While these negative emotions disappear for a brief moment of pleasure, the underlying problems eventually reemerge creating a cyclical behavioral stream. It is the goal of this paper to connect these two phenomena into a causal linkage explaining how consumers behaving impulsively are at risk to compulsivity. Further research should investigate ways to prevent a consumer from progressing through this transitional process. Stopping compulsive behavior before it starts can not only prevent substantial financial hardship, but can provide at-risk consumers with a chance to avoid self-destructive behaviors that not only affect their lives, but the lives of those around them. Additionally, a more complete analysis of advertising through all five stages of the compulsive consumption development process will provide marketers with a more clear idea of the role advertisements play in the development of compulsive behaviors. If specific problem areas are identified, it is likely that action can be taken to minimize or eliminate pressures encouraging individuals to over-consume.
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DOES A CROWDED STORE LEAD TO A CROWDED MIND?
CROWDING AND MENTAL CONSTRUAL OF PRODUCT FEATURES

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SHORT ABSTRACT
We propose that the social crowdedness of an environment influences how consumers construe their surroundings. Four studies support this idea and demonstrate that individuals in crowded environments tend to rely on concrete low-level construals, while those in less crowded environments utilize more abstract high-level construals.

DOES A CROWDED STORE LEAD TO A CROWDED MIND?

Consider the following scenario: You are shopping for a new DVD player at a local electronics retailer. You first visit the store on a Saturday afternoon when the store is filled close to capacity and the aisles are crowded. You eventually pick out a player that you think you would like to purchase but decide to think it over at the weekend. You then return early Monday morning when the store is substantially emptier, make your way back to the DVD player aisle, and once again compare the players in your consideration set. Our question of interest is might the less crowded store environment causes you to mentally construe features of the DVD players differently than you did during your prior visit, thus potentially causing you to change your choice? The goal of this research is to investigate this fascinating possibility.

Recently researchers have indeed begun to explore is how the physical characteristics of the choice environment (e.g., ceiling height or aisle width in a retail setting) might influence consumer’s behavior (Meyers-Levi and Zhu 2007; Levav and Zhu 2009). For example, Levav and Zhu (2009) demonstrate that spatial confinement (e.g., narrower aisles) invokes reactance in consumers (Brehm, 1966) which results in them making more varied and unique choices as a way of reasserting their freedom. This focus on the effects of physical confinement maps on to what Stokols (1972) originally termed “nonsocial crowding”, namely a lack of physical space determined by purely physical factors, which he distinguished from “social crowding,” which he defined in terms of being surrounded by other people. In this article we build on the research on physical confinement by exploring the distinct consequences of being crowded by multiple others. Drawing on research in social crowding (Desor, 1972; Worchel and Teddlie, 1976) and attentional scope (Easterbrook 1959; Derryberry and Tucker 1994), we propose that a socially crowded environment leads consumers to experience tense arousal (i.e., feelings of stress and anxiety) which causes them to represent the environment in terms of lower level construals (Trope and Liberman, 2003)

THEORETICAL BACKGROUND

Research on Crowding
The earliest research relevant to understanding the effects of crowding was actually in the domain of animal populations, and chronicled many negative consequences associated with increasing population density. Multiple studies suggested that high population densities were associated with stress and anxiety and lead to undesirable phenomena such as ineffective mating behavior, increased aggression, social withdrawal, and increased disease and death (Calhoun, 1962; Christian, Flyer, and Davis, 1960). These findings from animal studies were largely corroborated in human populations by correlational demographic research (Schmitt 1957; Schuessler, 1962), which demonstrated that increases in population density were positively correlated with increased rates of crime, disease, mortality, infertility, and admission to psychiatric institutions. However, controlled laboratory studies revealed more mixed results. Consistent with the demographic research, some studies indicated that high social density lead to
increased hostility (Griffitt and Veitch, 1971), asocial behavior (Ittelson, Proshansky and Rivlin, 1970), and inferior task performance (Glass and Singer, 1972). However, other research failed to observe such effects (Stokols, Ralol, Pinner, and Schopler, 1973; Freedman, Klevansky, and Ehrlich, 1971).

The primary reason for these initially incongruous findings was that while most of the researchers began by positing a link between being crowded and stress, crowding was conceptualized (and thus manipulated) in several different ways. In particular, most of the early experimental work confounded density (number of individuals per unit of available space) with interpersonal distance. To clarify this distinction, consider a group of people either gathered in the corner of a room, or evenly distributed throughout the space. While both scenarios would lead to the same measure of density at the room level, the former involves lower interpersonal distances and thus greater potential for the people in the group to feel crowded. This important distinction, first highlighted by Stokols (1972), was elegantly exposed by Desor (1972) who asked experimental participants to place as many scale model figures into scaled-down fiberboard rooms as was possible without overcrowding them. Manipulating whether the rooms contained partitions (which had no effect on overall density, but did lower the number of other figures each had line of sight to) suggested that perceptions of crowdedness appeared to be significantly determined by social stimulation, rather than a simple lack of space.

This finding in the psychological literature was broadly consistent with the seminal work of the anthropologist Edward T. Hall (1959, 1966) whose theory of proxemics suggested that stress was an automatic consequence of violations of interpersonal space. Initial empirical support for proxemic theory was provided by Sommer and colleagues (Felipe and Sommer, 1966; Sommer, 1967; Sommer and Becker, 1969) who found that personal space violation did indeed lead individuals to experience stress and discomfort. Finally, bringing the research on social crowding and personal space together, Worchel and Teddlie (1976) demonstrated that perceptions of crowdedness were indeed primarily determined by interaction distance rather than density, and that feeling crowded was arousing and stressful. Crowding generated tense arousal has been measured both by behavioral measures such as self-manipulative behaviors, performance on a cognitive task, and self reported nervous tension (Evans, 1979; Schaeffer and Patterson, 1980) and physiological measures such as skin conductance levels (Aiello, Epstein, and Karlin, 1975), blood pressure and pulse rate (Evans, 1979).

In summary then, extant research on social crowding suggests that it is a) distinct from spatial confinement or physical crowding, and b) tends to lead to tense arousal, which typically manifests itself as anxiety or stress. With this link between social crowding and tense arousal having been established, in the next section we discuss how tense arousal might influence how consumers attend to and process information.

**Tense Arousal Narrows Attentional and Conceptual Scope**

In one of the earliest and most influential conceptualizations of how motivation might influence cognition, Easterbrook (1959) argued that aversive motivational states, such as stress and anxiety, constrict the span of perceptual attention. This leads to a focus on central (as opposed to peripheral) details in visual space. This proposition has since been broadly supported by a considerable number of studies suggesting that psychological stress impairs either the speed or accuracy of response to peripheral visual cues (Bursill, 1958; Reeves and Bergum, 1972; Tyler and Tucker, 1982; Weltman, Smith, and Egstrom, 1971). Put differently, as Weltman et al. (1971) proposed, the effect of stress can be conceptualized as narrowing the attentional “beam” via which we process our environment. Moving beyond visual attention, however, Spence (1958) demonstrated that while anxious subjects performed well at remembering closely related words, their recall of remotely associated words was inferior to that of non-anxious subjects. This result thus suggested that rather than simply restricting attentional scope, aversive motivational states might in fact narrow conceptual scope more broadly.
This possibility was subsequently addressed by Tucker and his colleagues (Derryberry and Tucker, 1994; Luu, Tucker, and Derryberry, 1998; Tucker and Williamson, 1984) who have integrated Easterbrook’s original hypothesis into a broader theory of how motivation influences attention. Tucker’s attentional tuning model makes three core predictions: First, following Spence (1958), it predicts that aversive arousal not only reduces the scope of perceptual attention, but that it similarly narrow conceptual attention (e.g., remote associations to a given construct are less likely to be activated in memory). Second, while Easterbrook focused on how aversive motivational states lead to a narrowing of attention, the attentional tuning model makes the reciprocal prediction, namely that approach motivational states (i.e., elated arousal) lead to a broadening of perceptual and conceptual scope. Finally, these biases in information processing are argued to be hard-wired, thus suggesting they may influence behavior automatically.

A considerable number of studies support the main predictions of the attentional tuning model. For example, Gasper (Gasper, 2004; Gasper and Clore, 2002) showed that inducing individuals to experience elated arousal (i.e., happiness) rendered them relatively more likely to categorize complex figures (e.g., a set of small triangles in the shape of a square) based on their global structure rather than on the basis of their local components. On the aversive arousal side, Mikulincer, Kedem, and Paz (1990) found that both state and trait anxious participants were more likely to exclude possible exemplars from a given category. This latter result is particularly interesting, as the same category exemplar measure has been used to evidence changes in how individuals mentally represent their environment.

**From Crowding to Construal Level**

Construal level theory (Trope and Liberman, 2003) suggests that how psychologically distant an attitude object is moderates how it is mentally construed. In particular, distant objects tend to be construed in terms of their prototypical or essential features (high-level construals) while nearer objects are construed more in terms of their concrete and peripheral features (low-level construals). In our view, while largely viewed as independent theories, changes in construal level are conceptually adjacent to the changes in conceptual attention predicted by Tucker’s attentional tuning model. For example, the Mikulincer et al. (1990) finding that anxious individuals are more likely to exclude prospective exemplars from inclusion in given categories, is highly reminiscent of the finding in the temporal construal literature that prospective exemplars are excluded from categories when considered in the present vs. the distant future (Liberman, Sagristano, and Trope, 2001). This suggests to us the possibility that the effects of tense arousal may not be limited to a narrowing of perceptual and conceptual attention, but may also lead to changes in the way consumers mentally represent their immediate environment. If this is the case, then the tense arousal associated with crowding might lead consumers to construe products and services differently depending on the social crowdedness of the environment. This research was designed to investigate this possibility.

**STUDY 1**

Study 1 was designed as a first test of the potential relationship between the crowdedness of the environment and how the environment is construed. To manipulate crowdedness, we adapted the Cartesian coordinate task used by Williams and Bargh (2008) to prime distance. Specifically, participants viewed a Cartesian plane on which eight (two) points were plotted in the crowded (uncrowded) conditions. Next, in a supposedly unrelated rating task, participants were then asked to rate a DVD player (described over eight attributes). One of the attributes of the DVD player was varied to be either feasibility orientated or desirability orientated. We hypothesized that the participants who were primed with crowdedness would prefer the DVD player with the more feasible feature; whereas the participants who were primed the not crowded cue would prefer the DVD player with the desirable feature.
Method

Two-hundred eighty-three participants from a general online panel participated in this study for payment. The study was designed as a 2 (priming: crowded vs. uncrowded) X 2 (presentation: feasibility vs. desirability) between subject design. Participants were randomly assigned to each condition. Participants were first shown the Cartesian coordinate plane pictured in Figure 1 below. In the crowded condition, the following eight points were plotted on the plane: (1, 1), (-2, -2), (2, -1), (-1, 2), (1, 3), (-2, 1), (1, -2), and (-1, -1). In the uncrowded condition, only two points were plotted at (1, 1) and (-1, -1). In both conditions, to facilitate the likelihood that the plane would serve as a prime of the level of crowdedness, a small stick figure was located at the origin of the Cartesian plane. Participants in the crowded condition was asked to enter the coordinates of “any two” of the plotted points, while those in the uncrowded condition were asked to enter the coordinates of “the two” plotted points. Thus all participants entered the coordinates of two of the plotted points into the computer.

Figure 1

After plotting the dots on the supplied grid, participants were next asked to evaluate a DVD player in a supposedly unrelated task. Each DVD player had seven described features, six of which were common in each condition (high-quality digital sound system, two-year warranty, special student discounts, two free DVDs, user-friendly and easy to operate, DVDs can be viewed directly through a television without distortion). However, in the feasibility condition one of the attributes of the DVD player was varied to be feasibility orientated (“manual is easy to use”) while in the desirability condition it was varied to be desirability orientated (“player is made of environmentally friendly materials”). This critical feature was presented first on the list of features presented to the participants. After reading the feature list, participants indicated their evaluation of the product on a seven-point Likert scale, anchored at 1 (bad product) and 7 (good product). Both the DVD feature set, and rating DV, were adopted from Fujita et al. (2008; Study 2), who used them to demonstrate that temporal construal influences how individuals construe product attributes.

Results and Discussion

A 2 (level of crowdedness: crowded vs. uncrowded) x 2 (product feature: feasible vs. desirable) ANOVA revealed no main effects but an interaction between the two ($F(1, 283) = 5.020, p < .03$). Participants in the uncrowded condition rated the DVD player with the desirably feature higher ($M = 5.77$) than the player with the feasibility feature ($M = 5.43$). In the crowded condition, however, the player with the feasible feature was rated higher ($M = 5.75$) than the one with desirable feature ($M = 5.46$). These data thus provide initial support for a link between the crowdedness of the environment and the way products are construed.
STUDY 2

Study 2 was designed to generalize the results from study 1 with a different measure of construal level, category inclusiveness. Specifically, participants were tasked with sorting 38 camping equipment items into mutually exclusive groups of like items (Liberman et al., 2002). We also utilized a different picture priming method to prime crowdedness with participants being exposed to a picture of a scene that was either highly crowded or uncrowded. We predicted that participants exposed to the crowded prime would define categories more concretely, and as a result would generate a greater number of total categories. Conversely, we predicted participants who viewed the uncrowded prime would think more abstractly and as a result would categorize the equipment into fewer total categories.

Method

One-hundred thirty-one undergraduate students participated in this study for extra credit and were randomly assigned to either the crowded or uncrowded condition. In a supposed picture perception study, participants were first presented with one of the two pictures (highly crowded vs. uncrowded) shown in Figure 2 below.

![Figure 2](image)

Participants were asked to imagine how they would feel if they were in the scene that was presented and to record their thoughts. Next, participants proceeded to an in an ostensibly unrelated camping study. Participants were told to imagine they were going camping and that they would be taking the 38 items of equipment listed on the page. The objects were: brush, tent, matches, camera, soap, gloves, bathing suit, shovel, fishing pole, hat, marshmallows, socks, blanket, flashlight, pants, sunglasses, rifle, shoes, cigarettes, rope, hotdogs, canteen, toothbrush, underwear, beer, sleeping bag, pillow insect repellent, potato chips, and an axe. Participants were instructed to place the equipment into groups by writing the names of items that belong together next to each other, and then circling each group.

Results and Discussion

As we predicted, participants generated more discrete categories after being primed with the picture of a crowded scene (M = 6.0) than did participants primed with the picture of a less crowded scene (M = 5.35; t(129) = -2.491, p<.02). This finding is thus consistent with our contention that within a crowded environment, events are represented in terms of relatively lower-level construals with more abstract high level construals being used in less crowded environments.
Next we turned to explore the mechanism underlying this effect. Recall that our core prediction is that crowded environments lead individuals to experience tense arousal, and that it is this anxiety/stress that leads to the environment being construed in terms of lower level construals. To investigate this, two independent coders coded participants’ descriptions of how they would feel in the primed scenes in terms of whether they did (coded 1) or did not (coded 0) mention stress or anxiety. Agreement between the two coders was high ($\alpha = .97$, disagreements were resolved through discussion). This data was then used to perform a mediation analysis as in the work by Barron and Kenny (1986). The regression coefficients for the relationships in this analysis are displayed in the Figure 3 below.

![Figure 3](image)

There was a significant relationship between types of picture priming, namely the level of crowding, and tense arousal ($a$), level of crowding and number of category generated ($b$), and negative arousal and the number of categories generated ($c$). The relationship between level of crowding and the number of categories generated was not significant when controlling for negative arousal ($d$). A Sobel test was significant ($z = 2.084, p=0.037$), revealing that the mediator variable (i.e., tense arousal) significantly carried the influence of the level of crowding to the number of categories that participants generated. Therefore, the number of groups generated in the categorization task was mediated by mentions of tense arousal in responses to the picture primes.

**STUDIES 3A AND 3B**

Studies 1 and 2 successfully illustrated the effect of crowding on mental representation using two distinct priming techniques. In studies 3a and 3b we move away from priming the crowding construct and instead manipulate it directly. In particular, we focused on manipulating social crowding in a real (classroom) space so that the effects of crowding on mental representation could be measured in a controlled environment. Specifically, in the uncrowded conditions, 3 participants completed two studies (3a and 3b) in a small breakout room. In the crowded conditions, between 16 and 24 participants completed the same two studies. Study 3a was a replication of the DVD rating result from study 1, while study 3b was a different categorization task.

**Methods**

*Common.* One hundred ninety one undergraduate students participated for extra credit. Participants were randomly assigned to either a crowded session (23 participants invited) or an uncrowded session (3
participants invited). Due to normal attendance issues the actual number of subjects in the crowded conditions ranged from 16 to 23.

**Study 3a.**

Study 3a was an exact replication of study 1, except that instead of the Cartesian plane prime, social crowdedness was directly manipulated.

**Study 3b.**

Participants were presented four exemplars from three categories: furniture, clothing, and vegetables. We selected two typical and two atypical exemplars for each category based on Rosch’s (1975) norms. For the furniture category, chair and sofa were presented as typical exemplars, whereas radio and clock were presented as atypical exemplars. For the clothing category, typical exemplars were shirt and pants; atypical exemplars were purse and ring. For the vegetables category, pea and carrot were typical exemplars; pumpkin and seaweed were atypical exemplars. Participants were simply asked to evaluate each exemplar in terms of the extent to which it belong to the given category on a 10-point scale anchored from 1 (that the item definitely does not belong to the category) to 10 (the item definitely does belong to the category). Our prediction was that while the typical exemplars would be rated as belonging to the relevant category in both crowdedness conditions, the atypical exemplars would be perceived as being category members more in the uncrowded room (where we expected participants to rely on high level construals) than in the crowded room (where we expected participants to rely on low level construals).

**RESULTS**

**Study 3a**

A 2 (level of crowdedness: crowded vs. uncrowded) x 2 (product feature: feasible vs. desirable) ANOVA revealed no main effects but an interaction between the two \((F(1,190)=7.32, P<.001)\). When participants were in the crowded room, they evaluated the DVD player with the feasibility feature higher (M = 2.43) than the DVD player with the desirable feature (M = 2.19). However, those that were in the less crowded room preferred the desirability featured player (M = 2.50) over the player with the feasibility orientated feature (M = 2.06).

**Study 3b.**

A mixed-design ANOVA was performed on the ratings of category inclusion with average ratings of the typical and atypical exemplars as a repeated measures factor and crowding as a between-subject factor. Table 1 presents the ratings of the typical and atypical exemplars. A main effect of type of exemplars confirmed that participants rated the typical exemplars to be considerably better category members than were the atypical exemplars \((F(1,170)=2333, p<.001)\). Of greater importance, a main effect of crowding indicated that participants in the less crowded room tended to be more inclusive in their categorization (M = 7.09) than those in the crowded room (M = 6.72; F(1,170)=11.18, p < 0.001). However, these main effects were qualified by the predicted interaction, \(F(1,170)=3.23, p < 0.07\). As expected, participants who were in the crowded room were less inclusive in their categorization of atypical exemplars (M=3.72) than those in the less crowded room (M=4.33; t(170)=−2.989, p<0.01). In contrast, the level of crowding had no impact on typical exemplar ratings (p>0.1).

Further results suggest that these findings are not due to effects of mood. General moods were not different across conditions \((M_{\text{crowded}}=6.39, M_{\text{uncrowded}}=6.39, p>0.9)\) and neither was happiness \((M_{\text{crowded}}=6.07, M_{\text{uncrowded}}=6.00, p>0.6)\). However, arousal related measures such as tension \((M_{\text{crowded}}=4.78, M_{\text{uncrowded}}=4.17, p=0.14)\) and relaxation \((M_{\text{crowded}}=5.17, M_{\text{uncrowded}}=5.59, p=0.14)\) illustrated that participants reported more arousal in the crowded room (see Table 2). In addition, adjusting for these as covariates did not change the results of the analyses reported above, suggesting that the effect of
crowding on construal is not mediated by mood. Study 5 thus provides further evidence that items evaluated in a crowded environment are represented in a more concrete and less inclusive manner than items in a less crowded environment.

**GENERAL DISCUSSION**

Four studies supported the idea that a socially crowded environment leads individuals to represent their environment using lower level construals, whereas less crowded environments show the opposite pattern. First, in studies 1 and 3a, a crowded environment led consumers to prefer a product described with a feasibility orientated feature over one with a desirability orientated feature, while a less crowded environment lead to the opposing pattern of preference. Second, in studies 2 and 3b, individuals adopted narrower and less inclusive category breadth when they were part of crowded environment compared to those in a less crowded environment. Of note, these effects of crowding were observed using a variety of different manipulations of social crowding, whether it be a subtle Cartesian plane prime (study 1), a more overt picture prime (study 2) or an actually crowded environment (studies 3a and 3b).

This research makes a number of important theoretical contributions. First, it supports our contention that the social crowdedness of an environment moderates how individuals construe that environment. Second, it supports tense arousal as being the mediating mechanism for this effect. This is itself an important discrete finding, as we are aware of no other work directly linking stress and tension to changes in construal level. Finally, and perhaps most importantly, our research suggests the possibility that construal level theory may be too narrowly defined in terms of psychological distance.

Finally, from a pure marketing perspective, one can imagine a plethora of practical implications. For example, retailers might want to use subtly use different persuasive appeals depending on whether they are a low or high traffic store. Our results suggest high traffic stores might want to place greater relative emphasis on highlighting the feasibility related attributed of their products with low traffic stores focusing more on desirable attributes. On the other hand, low traffic stores would better position their products with global features than local features. Moreover, as digital signage becomes more common on store shelves retailers might want to dynamically alter certain appeals based on the current level of crowdedness of the store.
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REFLECTIONS ON SERVICE BRAND AND SERVICE QUALITY

Hyo Jin (Jean) Jeon, University of Oklahoma

Service marketing is different from product marketing. With products, the customer employs many tangible cues (e.g., style, color, label, packaging, and fit) to judge quality; fewer tangible cues exist to evaluate purchased services. Since services are often characterized as intangible, inseparable, heterogeneous, and perishable, the determinants of product and service quality vary (Berry 1980; Parasuraman, Zeithaml and Berry 1985b). Brand characteristics, such as responsiveness, competence, courtesy, communication, and credibility, are often used by customers as determinants of service quality (Parasuraman, Zeithaml and Berry 1985a). This study attempts to analyze the psychological effects of brand characteristics and perceived customer value on service providers. The investigation focuses on the drivers of customers’ preferences for two kinds of service providers: (1) nationally-known franchised brands (e.g., franchise systems like Super Cut or Jackson Hewett) and (2) locally-grown neighborhood brands (e.g., Scott’s Haircutting & Style or Jane Doe, CPA).

This paper addresses three research questions: What influences customers when they purchase a service from a particular service provider? Do customers’ perception of service quality vary depending on brands of service providers (i.e., nationally-known franchised brands and locally-grown neighborhood brands)? Does customers’ perception on service quality vary depending on service categories (i.e., experience-based services and credence-based services)? Finally, how does the interactive effect of brand and service category influence customers’ perception on service quality of service providers?

The contributions to the literature focus on the relationship between service providers and brands. First, the paper investigates how customers differentiate between service providers with nationally-known franchised brands and service providers with locally-grown neighborhood brands. Second, the paper studies how customers differentiate between service providers in experience-based services and service providers in credence-based services. By investigating the key service quality dimensions, researchers are better able to provide actionable managerial guidance for franchisors, franchisees, and independent service providers. Service firms can develop marketing strategies and concentrate their efforts on building loyalty among current customers and attracting profitable future prospects.

The paper is organized into three sections. First, the concept of service quality as discussed in the literature is reviewed. Second, the paper presents the theoretical development leading to the specification of our hypotheses. Third, the experiment method and the execution of the experiment are described. Finally, the results, the future direction of the study, and possible limitations are discussed.

SERVICE QUALITY DIMENSIONS

As already stated, this study investigates how brands of service firms in different service categories influence customers’ perspectives on service quality. Parasuraman, Zeithaml and Berry (1988) initially developed the SERVQUAL dimensions and measures to evaluate services according to 10 criteria: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding, and access. The SERVQUAL has since been revised and developed through various researchers suggestions on alternative service quality and performance scales (Brady and Cronin 2001; Carmon 1990; Cronin and Taylor 1992; Dabhokar, Thorpe, and Rentz 1996; Parasuraman, Zeithaml, and Berry 1988; Teas 1993). Seiders, et al. (2007) extended access dimension in SERVQUAL and developed SERVCON to measure various dimensions of service convenience. In this study, four SERVQUAL dimensions (i.e., reliability, security, tangibility, and responsiveness), convenience, and perceived risks are selected to investigate whether customers’ perceptions on service providers differ across service categories. Table 1 summarizes the evaluation of SERVICE quality related literature.
Table 1
Summary of Previously Proposed Schemes for Service Quality Measurements

<table>
<thead>
<tr>
<th>Author</th>
<th>Proposed SERVQUAL Dimension</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasuraman, Zeithaml, &amp; Berry (1985b)</td>
<td><strong>Based on exploratory study Ten SERVQUAL dimensions are introduced.</strong> Tangibles, Reliability, Responsiveness, Communication, Credibility, Security, Competence, Courtesy, Understanding, Access</td>
<td>The determinants of service quality based on the exploratory study (i.e., executive and focus group interviews) are suggested.</td>
</tr>
<tr>
<td>Parasuraman, Zeithaml, &amp; Berry (1988)</td>
<td><strong>The initial Ten dimensions are revised to Five dimensions</strong> Tangibles, Reliability, Responsive, Assurance (including five dimensions such as communication, credibility, security, competence, and courtesy), Empathy (including two dimensions such as understanding and access) “Perceived quality is viewed as the degree and direction of discrepancy between customers’ perceptions and expectations (p.1)”</td>
<td>A 22-item scale to measure the five factors for SERVQUAL is developed through the conceptualization and operationalization of the service quality in service and retailing organizations.</td>
</tr>
<tr>
<td>Carmon (1990)</td>
<td><strong>Different services settings require different dimensions</strong> For example:</td>
<td>The author argues that PZB dimensions are not completely generic. As PZB presented the treatment of perception and expectation to evaluate SERVQUAL are critical.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Tire Store</strong>: Tangibles, Reliability, Responsive, Security, Courtesy, Access</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Placement Center</strong>: Tangibles, Reliability, Responsive, Security, Personal Attention, Access, Convenience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Dental Clinic</strong>: Tangibles, Reliability, Security, Convenience, Cost</td>
<td></td>
</tr>
<tr>
<td>Cronin &amp; Taylor (1992)</td>
<td><strong>The alternative SERVPERF scales are suggested</strong> by investigation the relationships between service quality, customer satisfaction, and purchase intentions.</td>
<td>The authors disagree on SERVQUAL since SERVQUAL is based on a flawed paradigm using a satisfaction paradigm rather than an attitude model. Empirical and literature support the performance-based scale developed (SERVPERF).</td>
</tr>
<tr>
<td>Teas (1993)</td>
<td><strong>An Evaluated Performance (EP) model and a Normed Quality (NQ) model</strong> of perceived quality are developed as alternatives to SERVQUAL.</td>
<td>The author argues that PZB’s perceptions-minus-expectations framework is questionable because of their conceptual definitions, theoretical justifications and measurement validities. Modeling approach is used to develop EP and NQ.</td>
</tr>
<tr>
<td>Dabholkar, Thorpe, &amp; Rentz (1996)</td>
<td><strong>A hierarchical approach</strong> is used to capture customers’ perceptions of service quality in retail industries and a Retail Service Quality Scale is introduced. Physical aspects, reliability, and personal interaction are identified as distinct and actionable dimensions and each dimensions are defined by two subdimensions <strong>Physical aspects</strong>: appearance, convenience <strong>Reliability</strong>: promises, doing it right <strong>Personal interaction</strong>: inspiring confidence, courteous/helpful</td>
<td>SERVQUAL has been empirically replicated in a number of studies involving “pure” service settings; however, the service quality scales for a mix of merchandise and service is needed in order to successfully reflect the retail store environment.</td>
</tr>
<tr>
<td>Author &amp; Date</td>
<td>Proposed SERVQUAL Dimension</td>
<td>Comment</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>Brady &amp; Cronin, Jr. (2001)</td>
<td>A hierarchical approach is used to conceptualize service quality. Interaction quality, physical environment, and outcome quality are identified as distinct and actionable dimensions and each dimensions are defined by three subdimensions: Interaction quality: attitude, behavior, expertise. Physical Environment quality: ambient conditions, design, social factors. Outcome quality: waiting time, tangibles, valence.</td>
<td>The authors recognize the little advance in service quality measurement and consolidate multiple conceptualizations and measurements of service quality into a new and integrated conceptualization of service quality.</td>
</tr>
<tr>
<td>Seiders, Voss, Godfrey, &amp; Grewal (2007)</td>
<td>A second-order, five-dimensional service convenience scale (SERVCON) is conceptualized. Decision convenience, access convenience, benefit convenience, transaction convenience, post-benefit convenience.</td>
<td>The construct of “convenience” is reflected on one item in PZB’s SERVQUAL (E19); however, the authors incorporate the greater demand of convenience in service exchange and develop the comprehensive and validated scales.</td>
</tr>
</tbody>
</table>

1 The authors refined and reassessed the SERVQUAL scales by replicated them in five different customer samples in different industries Parasuraman, Zeithaml, and Berry, (2001). They also provided the guidelines for using the modified SERVQUAL scales.

2 After the Cronin and Taylor (1992) and Teas (1993) argued the flaws of the SERVQUAL (Parasuraman, Zeithaml, and Berry, 1988), Parasuraman, Zeithaml, and Berry (1994) defend their SERVQUAL scales. In the same issue of the Journal of Marketing where the articles were published Cronin and Taylor (1994) and Teas (1994) also rebuttal to argue their perspectives.

**Reliability**

Reliability involves consistency of performance and dependability and confidence that the service firm will perform the service right the first time. It also means that the firm will honor its promises, including accuracy in billing and accurate record keeping and performing the service at the designated time (Parasuraman, Zeithaml, and Berry 1985b). The heterogenous nature of services makes it difficult for customers to receive uniform services on different occasions even from the same service providers.

**Security**

Security refers to the freedom from danger, risk, or doubt. For service providers, security comes from alleviating customers’ concerns regarding physical safety, financial security, and confidentiality (Parasuraman, Zeithaml, and Berry 1985b). Both service providers and customers believe that brand reputation is an important criterion to foster perceptions of service quality (Bharadwaj, Varadarajan, and Fahy 1993). Nevertheless, the management perspectives on the relationship between the brand reputation of service providers and the quality of services may differ from the parallel perspectives of the customers (Parasuraman, Zeithaml, and Berry 1985b). On the one hand, the large size of firms positively signals quality of service because growth of firms indirectly demonstrates customers’ approval of service quality (Parasuraman, Zeithaml, and Berry 1985b). Alternatively, customers may believe that small and independent service providers could not sustain their businesses without great quality of service in a competitive market environment (Parasuraman, Zeithaml, and Berry 1985b), and thereby ascribe greater service quality to such businesses. Customers may also feel more secure and trust service providers in small service firm.
Tangibility

Tangible cues play an important role in influencing customers’ attitudes and behaviors (Baker, Grewal, and Parasuraman, 1994; Bitner 1990, 1992; Zeithaml, Parasuraman, and Berry 1985). Tangible cues in products such as color, features, and label, signal the quality of products so customers can set expectations and evaluate their purchasing decisions. Due to the intangible nature of services, physical environment in service firms provide analogue tangible cues for customers (Bitner 1992). Physical aspects such as the attractiveness of service providers, the modernity of the equipment, and state-of-art facilities that are perceived by customers during their service experiences would be considered as tangible cues of service quality (Koerning and Page 2001; Zeithaml, Parasuraman, and Berry 1985).

Responsiveness

Responsiveness can be defined as the willingness or readiness of service providers to deliver services in a respectful and correct manner (Zeithaml, Parasuraman, and Berry 1985). Responsiveness measures whether service providers promptly and accurately respond to customers’ requests when service transactions occur. The empowerment of service providers can increase responsiveness since each empowered service providers are more likely to have more positive attitudes toward customers. Also, empowered service providers would look for solutions if they encounter challenges in service deliveries (Zeithaml, Berry, and Parsuraman 1988).

Convenience

Convenience can be defined as resources such as time, opportunity, and energy that customers have to expend for purchasing services (Berry, Seiders, and Grewal 2002; Brown 1990). Berry, Seiders, and Grewal (2002) identified five dimensions of service convenience such as decision, access, transaction, benefit, and post-benefit conveniences. Because of inseparable characteristic of services, service convenience is an important dimension when customers select a service provider and evaluate its service quality.

Perceived Risk

Perceived risk can be defined as expected loss resulting from purchasing services with uncertainty (Bettman 1973; Dowling 1986; Kaplan, Szybillo and Jacoby 1974; Roselius 1971). In risk theory literature, researchers have proposed a multi-facet interpretation of perceived risk including financial, performance, physical, psychological, social and convenience loss (e.g., Dowling 1986; Peter and Tarpey 1975; Ross 1972). Since services are typically associated with greater degrees of intangibility, perishability, inseperability, and variability, it is difficult for customers to reasonably estimate both the consequences of alternatives and the probability of loss risks (Bettman 1973; Murray and Schlater 1990; Zeithaml, Parasuraman, and Berry 1985). The level of uncertainty related to outcomes of an exchange varies depending on the characteristics of service industries (Bettman 1973).

THEORETICAL BACKGROUND

Script Theory

A script is defined as a “predetermined-stereotyped sequence of actions that define a well-known situation” that provides individuals the knowledge of how events are supposed to occur in that context (Schank and Abelson 1977; Shoemaker 1996, p.43). Scripts help individuals encode their information for cognitive procedures when service transactions occur, and the developed scripts allow customers to retain a set of context specific responses. Scripts generate relevant expectations, help cultures infer and evaluate the received services as compared to their expectations, and, hence, help evaluating service transactions. Thus, script theory provides insights into how service transactions should occur by describing the interaction between customers and service providers (Bower, Black and Turner 1979; Leigh and Rethan 1984).
In the foregoing section we discuss how customers perceive and interpret the quality of services using a script theories framework. Whether customers’ perceptions on service quality vary depending on the type of brands of service providers (i.e., nationally-known franchised brand and locally-grown neighborhood brand) and service categories (i.e., experience-based services and credence-based services) is the focus of this investigation. Since any discrepancies between two scripts based on the perspectives of customers and the perspectives of service providers can result in dissatisfaction with services divided (Shoemaker 1996), this investigation will shed light on how consumer process their evaluations in the services marketing.

Brand and Two Scripts from Service Providers and Customers

In order for service providers to succeed, they not only need excellent skills and expertise in their fields of service, but they also need a business mindset: competence in business skills, and operational skills. By acquiring the proven operational procedures combined with managerial support through franchise systems, franchisees service providers hope to gain operational efficiency and effectiveness. In addition, individual service providers enjoy benefits from the brand equity of franchise systems. However, establishing brand equity based on the general principle of standardization can pose a challenge for contexts where heterogeneous or customized services are expected. Franchise systems are known for establishing and maintaining their brand equity through uniform products, services, and operations across franchised units, providing recognizable services to customers who anticipate a consistent brand product. Standardizing generally leads to higher efficiency, higher productivity, and lower costs (Rust and Chung 2006). Independent service providers, on the other hand, have more flexibility to customize their services to the specific local market at their own discretion, even though such customization may result in lower efficiency, lower productivity, and higher costs (Anderson et al. 1997; Rust and Chung 2006). From a managerial perspective, therefore, service providers with franchised brands face different challenges than local ones.

When customers select a service provider, brands (i.e., nationally-known franchised brands and locally-grown neighborhood brands) influence development of cognitive scripts in different ways. Since many nationally-known franchised systems tend to have large market shares and the resources for innovation, nationally-known franchised brands often set the industry standard and the cognitive scripts related to the selection, purchase, and evaluation of services. According to script theory the more developed specific service purchasing schemas are in customers’ minds, the more easily they can evaluate services (Goodstein 1993; Shoemaker 1996). In addition, the developed familiarity with brands and the perceived self-expertise can increase perception of service convenience when customers make purchasing decisions (Kumar, Kalwani, and Dada 1997; Solomon 1986).

Customers then use the new script when they purchase services from service providers with locally-grown neighborhood brands. If customers recognize a discrepancy between their current script and perceived services from service providers with locally-grown neighborhood brands, then customers would be less likely to purchase a service from neighborhood providers. On the other hand, franchised brands may be handicapped by the perception of uniform products, services, and operational procedures. If customers’ cognitive script is developed based on their experiences with the local environment and culture, service providers with neighborhood brands would have advantage even their franchisee counterparts. Since franchisees need to follow policy controlled by franchisors, they may not able to meet the script expectations of customers and the level of satisfaction could be expected to decrease.

In service industries, brands can be used to set the level of expectation for services and may reduce customers’ perceived risk. Service providers with nationally-known franchised brands are more likely to provide more consistent services that meet with customers’ brand expectations. In addition, physical environments in nationally-known franchised brands have similar designs and interiors in each operating outlet under the same brands; hence, familiarity and comforts that are contributed by physical
environments in nationally-known franchised brands affect customers’ attitudes and behaviors. Moreover, in nationally-known franchised brands, service firms (franchisors) manage their brands by supporting and monitoring service providers who encounter customers in operating outlets (franchisees). Since franchisors want to standardize the quality of services to provide uniform services throughout various outlets under their brand names, franchisors provide training and on-going support for franchisees to be more responsible (Justis and Chan 1991; Kaufmann 1999). However, service providers with locally-grown neighborhood brands would be less likely to realize the customers’ expectations due to a lack of development of the quality control system and support from an experienced leader (i.e., franchisors). Mills and Margulies (1980) admit that non-standardization of services results from the inability of service providers to isolate the “technical” core of the “manufacturing process” of services. Customers would believe that service providers with nationally-known franchised brands have the ability to provide services in a more consistent and uniform manner. In summary, the following hypothesis is proposed:

H1: Nationally-known franchised brands will have a higher level of expectation of (a) reliability, (b) security, (c) tangibility, (d) responsiveness, (e) convenience, than locally-grown neighborhood brands; however, locally-grown neighborhood brands will have a higher level of expectation of (f) perceived risk than nationally-known franchised brands.

Service Categories and Customers’ Perception on Service Quality

Darby and Karni (1973) developed a framework to evaluate experience and credence properties of quality for services. Experience-based services (e.g., visiting a restaurant, staying at a hotel, and getting a haircut) can be evaluated by customers through their sensory experiences. In contrast, credence-based services, such as education, auto repair, financial services, physician care, real estate services, etc., cannot be evaluated by customers through their senses and experiences of such services since customers often have insufficient informational cues to evaluate service quality and value (Darby and Karni 1973; Parasuraman, Zeithaml, and Berry 1985b). Experience-based services are those that customers can evaluate after consuming services; however, credence-based services are those that are difficult to evaluate even after several consumptions have occurred (Zeithaml 1981). The purchase of a credence-based service is often perceived to be somewhat riskier because customers are not confident of their ability to judge the quality of service (Murray and Schlacter 1990).

Although customers are not able to evaluate the quality of perceived services for credence-based services due to a lack of knowledge and expertise, cognitive scripts still help customers evaluate perceived services. For example, Alford (1998) empirically showed that customers develop cognitive scripts based on the initial service encounter for credence-based services like dental procedures. Any deviations from customers’ expected cognitive script influences their opinion towards the service provider, satisfaction with the perceived service, and repurchasing intentions. Customers also borrow existing cognitive scripts to evaluate new situations they consider to be similar (Shoemaker 1996). When a patient develops a cognitive script after visiting a physician, the patient may use the same script to evaluate the service of a dentist or specialist. Regardless of the nature of services, customers develop scripts from prior experiences and use such scripts to evaluate the quality of both types of service firms.

However, it would be much easier for customers to develop a script for experience-based services. In experience-based services customers may expect service providers to deliver more standardized services that are relevant with the developed script. It is because customers are more likely to consider themselves as experts on delivered services for experience-based services. Since customers’ prior experience is evaluated and used for future purchases, the role of service providers becomes important to increase repeat purchase intentions (Mitra, Reiss, and Capella 1999). Credence-based service providers are expected to offer a higher degree of customized services and personal attention, since credence-based services involve competence (the possession of the required skills and knowledge to
perform the service) and security (freedom from danger, risk, or doubt) (Guiltinan 1987). Credence-based services often consist of high individual specific information and a high degree of customer interaction between service providers and customers. The variability and the non-standardized nature of credence-based services lead to a greater level of uncertainty about the actual cost and service performance (Mitra, Reiss, and Capella 1999; Murray and Schalater 1990). Thus, service providers of credence-based services need to provide highly customized service with high security. However, it is difficult for customers to evaluate alternative services before they select a credence-based service provider. Thus, customers face higher risk with credence-based services than with experience-based services when they make purchasing decisions and even after they evaluate the purchased services (Ostrom and Iacobucci 1995). In summary, the following hypothesis is proposed:

**H2:** Credence-based services will have a higher level of expectations of (a) reliability, (b) security than experience-based services; however, experience-based services will have a lower level of expectations of (c) tangibility (d) responsiveness, (e) convenience, and (f) perceived risk than credence-based services.

It is unknown what customers expect from service providers with nationally-known franchised brands. It has not been determined whether customer evaluation on service quality is based on service providers, brands, or both. Customers may perceive less risk when they encounter familiar atmosphere in franchised locations and recognize a familiar brand, even with complex service demands (Murray 1991). However, it is uncertain under what conditions customers choose to purchase services from nationally-known franchised brands as opposed to locally-grown neighborhood ones.

Even though service providers with nationally-known franchised brands benefit from brand recognition and brand familiarity, many small and independent credence-based service providers (e.g., attorneys, physicians, and accountants) may benefit by developing neighborhood brands. Person-based brands, which use the names of owners, partners, or key individuals, create positive affectation and trust (Moorthi 2002). Since a high level of customization with expertise is expected from credence-based service providers, service providers with locally-grown neighborhood brands may be more favored for customers. By contrast, customers may view credence-based service providers with nationally-known franchised brands as service providers whose practices are secured by franchisors. This may lead to the development of a stereotype that credence-based service providers with franchised brands can only provide the average level of standard and uniformed services, rather than the customized services provided by locals. For example, a customer who seeks an accountant to file his federal income tax return may purchase a service from a service provider with a franchised brand. The customer may believe that any tax consultant would be able to do the standard income tax return. However, a customer who is charged with tax fraud may look for a tax consultant with locally grown trustworthy person-based brand.

Furthermore, customers may feel less secure about franchisees because service providers with nationally-known franchised brands are able to keep their anonymity under franchised brands. In nationally-known franchised brands, service firms (franchisors) manage their brands by supporting and monitoring service providers who encounter customers in operating outlets (franchisees). Since franchisors want to standardize the quality of services to provide uniform services throughout various outlets under their brand names, franchisors provide training and on-going support for franchisees to be more responsible (Justis and Chan 1991; Kaufmann 1999). In experience-based service industries where the expectation of customization is relatively low, service providers’ responsiveness would easily meet expectations of customers. This is because the success of maintaining nationally-known franchising brands signals customers to get more reasonable expectation on uniform services. However, franchisees may be viewed as less qualified to provide highly customized services in credence-based service industries because of the perception that successful service providers with locally-grown neighborhood
brands could not have survived when they earned their reputations to sustain their independent businesses while franchisees simply pay the fees to use nationally-known franchised brands.

Credence-based service consists of high individual-specific information and a high degree of customer interaction between service providers and customers. Moreover, service providers need to provide highly customized service with high security. Security is considered an important dimension to evaluate the service quality in credence-based service industries, and trustworthy service providers, who use their names as brands and have maintained a good reputation in the local market, are perceived as safe. Customers’ preference on service convenience in credence-based service industries would be relatively low, because convenience would not be considered as important of a factor for their credence service purchases. Because customers lack the knowledge to evaluate highly customized services that are uniquely different, the opportunity costs for not purchasing services from a particular service provider would be high. In summary, the following hypothesis is proposed:

H3: The brand effect is greater for experience-based services as compared to credence-based services.

METHODOLOGY

Experiment

Study used MANOVA and a 2 (service brand) \( \times \) 2 (service category) repeated measures ANOVA. Service brand and service category are used as a within-subject factor. For the service brand factor nationally-known franchised brands and locally-grown neighborhood brands were compared, and two subjects in service categories were developed for hair care service and tax preparation service.

In this study experience-based service industries are defined as those for which customers can collect service information by way of experience and make judgments after purchase or experience. Credence-based service industries refers to those for which customers have difficulties in collecting service information by way of experience and cannot make confident evaluations even after purchase or experience. Table 2 summarizes the examples of experience-based services and credence-based services, and the selection of service category is based on previously employed types of experience-based and credence-based services. Four out of ten studies used hair salon as an example of experience-based services in empirical studies (i.e., Galetzka, Verhoeven, & Pruyn 2006; Krishnan & Hartline 2001; Mitra, Reiss, and Capella1999; Ostrom and Iacobucci 1995; Powpaka 1996) and two out of ten studies employed tax preparation service as an example of credence-based services in their surveys (i.e., Mitra, Reiss, and Capella1999; Ostrom and Iacobucci 1995). Additionally, selected service category should have nationally-known franchised brands as well as locally-grown neighborhood brands that can be easily recognized by participants. Thus, hair care service and tax preparation service are selected to represent experience and credence services, respectively.
Table 2
Summary of Previously Employed Types of Experience and Credence Services

<table>
<thead>
<tr>
<th>Author</th>
<th>Nature of Study</th>
<th>Selection Frame</th>
<th>Experience Services</th>
<th>Credence Services</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ostrom &amp; Iacobucci (1995)</td>
<td>Experiments; 98 MBA students; MANOVA &amp; Conjoint analysis</td>
<td>Iacobucci (1992)</td>
<td>Hotels; Fast Food Outlets; Hair Salons; Checking Accounts</td>
<td>Tax Consultant; Psychotherapy; Physicians; Financial Investments</td>
<td>The Authors arbitrarily selected services belonging to each category.</td>
</tr>
<tr>
<td>Powpaka (1996)</td>
<td>Empirical (Primary data); 480 customers; Structural equation model</td>
<td>Darbi and Karni (1973); Nelson (1970)</td>
<td>Train/Subway; Hair Salons</td>
<td>Banks</td>
<td>The author arbitrarily selected services industry in each category. The author chose two firms in each industry with the largest sales volume in Hong Kong, and asked customers to evaluate the performed services based on SERVQUAL scales.</td>
</tr>
<tr>
<td>Brush &amp; Artz (1999)</td>
<td>Empirical (Secondary); 193 independent veterinary practices that are members of AAHA⁴;</td>
<td>Darbi and Karni (1973); Nelson (1970); Reichheld &amp; Sasser (1990)</td>
<td>Client Relations; Practice Capabilities</td>
<td>Core Medical Activities; Professional Resources; Professional Norms</td>
<td>The authors identified the different natures of service categories that are determined by the different degrees of information asymmetry. As Carman (1990) argued a single service industry (i.e. hospital) multiple categories of services can be identified, the authors employed different categories of services from the single service, veterinary service.</td>
</tr>
<tr>
<td>Mitra, Reiss, &amp; Capella (1999)³</td>
<td>Empirical (Primary data); 343 undergraduate marketing students; MANOVA</td>
<td>Darbi and Karni (1973); Nelson (1970); Ostrom &amp; Iacobucci (1995)</td>
<td>Waiter/Waitress at a restaurant; Theaters (seeing a play or an opera); Hair Salons;</td>
<td>Attorney; Therapist; Tax Consultant; Market Research Service</td>
<td>The Authors asked respondents to identify service categories for various industries. Justification of using student sample of credence services is made.</td>
</tr>
<tr>
<td>Krishnan &amp; Hartline (2001)</td>
<td>Empirical (Primary data); 184 undergraduate students; ANOVA</td>
<td>Darbi and Karni (1973); Zeithaml (1988)</td>
<td>Hair Salon</td>
<td>Pest Control</td>
<td>The Authors pretested whether customers perceive differences in the experience and credence characteristics of services. 65 undergraduate students answered for the difficulties of evaluating services before &amp; after purchasing services for a list of 25 services. Three experts judges selected one service for each category.</td>
</tr>
</tbody>
</table>

⁴ AAHA: American Animal Hospital Association
³ Mitra, Reiss, & Capella (1999) study was conducted in veterinary medicine industry.
<table>
<thead>
<tr>
<th>Author</th>
<th>Nature of Study</th>
<th>Selection Frame</th>
<th>Experience Services</th>
<th>Credence Services</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>McColl-Kennedy &amp; Fetter (2001)</td>
<td>Empirical (Primary data); 331 participants; Factor analysis &amp; Regression</td>
<td>Iacobucci (1992); OStrom &amp; Iacobucci (1995); Zeithaml (1981)</td>
<td>Exercise Club; Caribbean Vacation</td>
<td>Life Insurance; Furnace Overhaul</td>
<td>The authors borrowed a pool of already-used services and the categories of experience and credence services from the previous literature.</td>
</tr>
<tr>
<td>Hsieh &amp; Hiang (2004)</td>
<td>Empirical (Primary data); 181 respondents answered for services in banks &amp; 172 respondents answered for services in hospitals</td>
<td>Klein (1998); Lovelock (2001); Ostrom &amp; Iacobucci (1995); Krishnan &amp; Hartline (2001)</td>
<td>Bank</td>
<td>Hospital</td>
<td>The authors selected such industries to represent a broad section of information asymmetry between services providers and customers.</td>
</tr>
<tr>
<td>Hsieh, Chiu, &amp; Chiang (2005)</td>
<td>Empirical (Primary data); 153 customers with online shopping experience in various service industries; Regression</td>
<td>Bruch &amp; Artz (1999); Klein (1998); Lovelock (2001)</td>
<td>Hotel; Information Services</td>
<td>Health Foods; Legal Services; Real Estate Agencies; Insurance</td>
<td>The authors empirically investigated how online customers’ commitments in such services industry differ from each category.</td>
</tr>
<tr>
<td>Galetzka, Verhoeven, &amp; Pruyn (2006)</td>
<td>Experiments; 118 participants; ANOVA</td>
<td>Darbi and Karni (1973); Zeithaml (1981)</td>
<td>Hair Salons; Amusement Parks</td>
<td>A Firms Specialized in Soil Remediation; A Charity Fundraising</td>
<td>The authors composed a list of 37 services and asked a panel of ten experts on customer behaviors to categorize experience-credence services.</td>
</tr>
<tr>
<td>Eisingerich &amp; Bell (2007)</td>
<td>Empirical (Primary data); 1125 clients from a global financial services firm; Regression</td>
<td>Crosby et al (1990); Lovelock (1983); Zeithaml (1981)</td>
<td>Financial Services</td>
<td></td>
<td>The authors used the high-credence service to examine customer trust, loyalty, and repurchase intentions since financial services industry has to provide highly customized services according to the value of the client.</td>
</tr>
</tbody>
</table>

3 Even though some of studies have used the search-experience-credence services framework, only examples for experience-credence services are summarized in the Table 2 for the purpose of this study.

4 AAHA stands for the American Animal Hospital Association

5 Mitra, Reiss, and Capella (1999) selected two services industries from each category of services (i.e., searching services, experience services, and credence services). They used market research firms and therapists in their empirical study. They justified that student subjects are qualified to answer related to these services since the typical business students are aware of the function of market research firms and a variety of individuals has used therapists in today’s social environment.
The study manipulated service brand by having two different brands. In the hair care service experiments nationally-known franchised brands borrowed Regis Hair Salon and Supercuts as an example and Glow salon and David’s Barber shop are used for locally-grown neighborhood brands. In the tax service experiments H&R Block Tax Service is used as an example of nationally known franchising brands and John Trust CPA is used an example of locally grown neighborhood brands (see Appendix A).

**Samples**

The experiment was operated in an on-line survey site, and participants were recruited by students in a Midwestern University in in the U.S. Students received extra points for recruiting participants for the experiments in a marketing class. Students have to provide age, gender, and email addresses of participants after students confirmed the prospective participants were invited in the experiment. The half of students in the class was assigned to recruit subjects for an experiment to purchase services in low criticality, and the rest of students were assigned to recruit subjects for an experiment to purchase services in high criticality. The final sample comprised 162 subjects, 46% of whom were male. In terms of age, participants’ age is ranged from 19 to 70, and the average age of the participants is 35.

**Procedure**

Participants, who are invited for the experiments, received a recruiting email and directed to go to online survey site. The online experiment consisted of experiment instructions, four service scenarios, measures for hypotheses testing, and demographic questions to identify participants from the students’ lists. In the experiment, participants read a scenario that manipulated service brand (national, local) and service category (experience, credence) for service purchasing. The participants were asked to evaluate service reliability, security, tangibles, responsiveness, convenience, and perceived risk after they read each service scenario. The experiment took the average of twenty minutes.

**Measures.** Four SERVQUAL dimensions (i.e., reliability, security, tangibles, and responsiveness) were adopted from Parasurman, Zeithaml, and Berry (2001). Each construct has a three-item five-point “agree/disagree” likert scale. Four-items in a five-point “agree/disagree” likert scale on service convenience measurement is used (Seiders, et al. 2007), which includes. The overall perceived risk is adopted from Stone and Gronhaug (1993), and a three-item five-point “agree/disagree” likert scale is used. One out of three items is reverse coded (see Appendix B).

**Results**

**Manipulation**

The manipulation was checked by performing MANOVA. Service reliability, security, tangibility, responsiveness, convenience, and perceived risk using were used as dependent variables and brand and service category were used as a fixed factor. Customers’ perceptions on service quality between nationally-known franchised brand and locally-grown neighborhood brand are significantly different (F(6,647) = 12.74, p < .001, ηp² = .11). Depending on services categories between experience-based services and credence-based services, customers’ perceptions on service quality vary (F(6,647) = 7.28, p < .001, ηp² = .06). After the statistically significant differences on perceived service quality affected by brand and service category are proven, the repeated measure ANOVA for each service quality dimensions were run to examine the main and interactive effect of each service quality dimensions on two within-subject factors. Table 3 present the statistical results of the main effects of brand and service category as well as interactive effect between brand and service category.

**Main Effect of Brand**

Three out of six main effects of brand between nationally-known franchised brands and locally-grown neighborhood brands were supported. The main effect of brand on service reliability is statistically
significant ($F(1,163) = 14.84, p < .001, \eta^2_p = .24$). The perceived service reliability of nationally-known franchised brands ($X_{\text{national}} = 3.78$) is higher than the perceived service reliability of locally-grown neighborhood brands ($X_{\text{local}} = 3.48$). H1(a) is supported. Customers’ perceptions on service security between two brands significantly vary ($F(1,163) = 36.91, p < .001, \eta^2_p = .19$); however, customers value service security of nationally-known franchised brands ($X_{\text{national}} = 3.61$) lower than service security of locally-grown neighborhood brands ($X_{\text{local}} = 3.92$). This result shows that customers feel more secured when service providers with neighborhood brands deliver services compared to service providers with franchised brands; thus, H1(b) is not supported. H1(d) investigates whether service brands make customers’ perceptions on service responsiveness differ. It was found to be significant ($F(1,163) = 22.42, p < .001, \eta^2_p = .12$), and customers’ perception on service responsiveness of nationally-known franchised brands ($X_{\text{national}} = 3.63$) is significantly higher than service responsiveness of locally-grown neighborhood brands ($X_{\text{local}} = 3.39$). H1(d) is supported. Moreover, customers perceived that it is more convenient for them to purchase services from nationally-known franchised brands ($X_{\text{national}} = 3.66$) than from locally-grown neighborhood brands ($X_{\text{local}} = 3.58$) ($F(1,163) = 4.35, p < .05, \eta^2_p = .03$). Thus, H1(e) is supported. However, customers’ perceptions on service tangibility ($F(1,163) = .753, \text{ns}$) and perceived risk ($F(1,163) = .75, \text{ns}$) do not vary affected by service brands. H1(c) and H1(f) is not supported. Customers did not find a significant difference on service tangibility between service providers with nationally-known franchised services and service providers with locally-grown neighborhood brands. The interesting finding from the main effect of brand is customers’ perception on perceived risk, H1(f). The result shows that the level of perceived risk does not vary only if service brand is considered when customers select service providers.

**Main Effect of Service Category**

Five out of six main effects of service category between experience-based services and credence-based services are found to be significant. The main effect of service category on both service reliability ($F(1,163) = 4.36, p < .05, \eta^2_p = .03$) and security ($F(1,163) = 4.83, p < .05, \eta^2_p = .03$) are statistically significant. In experience-based services customers value service reliability ($X_{\text{experience}} = 3.58$) and security ($X_{\text{experience}} = 3.82$) higher than service reliability ($X_{\text{credence}} = 3.67$) and security ($X_{\text{credence}} = 3.71$) in credence-based services, respectively. Customers believe that service providers in experience-based services have to have their expertise to deliver services while services providers in experience-based services are less likely to have special skills to serve their customers. Service security is higher for credence-based services since the nature of credence-based services requires service providers to perform highly customized services. Thus, H2(a) and H2(b) are supported. Depending on service category, customers’ perspectives on service tangibility ($F(1,163) = 16.35, p < .001, \eta^2_p = .09$), responsiveness ($F(1,163) = 8.92, p < .05, \eta^2_p = .05$), and convenience ($F(1,163) = 19.42, \eta^2_p = .05, p < .001$) vary. First, customers’ perception on service tangibility of experience-based services ($X_{\text{experience}} = 3.57$) is higher than their perception on tangibility of credence-based services ($X_{\text{credence}} = 3.38$). Second, customers view service providers in experience-based services industries ($X_{\text{experience}} = 3.56$) are more responsive than service providers in credence-based services ($X_{\text{credence}} = 3.45$). Third, service convenience in experience-based service industries ($X_{\text{experience}} = 3.70$) were considered more important than service convenience in credence-based service industries ($X_{\text{credence}} = 3.54$). These results show that service quality such as tangibility, responsiveness, and convenience in experience-based services is considered to be high, which means that customers’ expectations on service providers in experience-based services for these service quality dimensions would be high. However, customers have relatively lower expectation on those service quality dimensions when they purchase credence-based services. So H2(c), H2(d), and H2(e) are all supported. However, the main effect of service category on perceived risk, H2(f), is not supported like the main effect of brand on perceived risk was rejected. This shows that customers’ perceptions on perceived risk of experience-based service industries and credence service industries do not vary when other variables are ignored ($F(1,163) = .30, \text{ns}$).
Interactive Effect of Brand and Category.

Two out of six interactive effects between brand and category are found to be significant. The interactive effect of brand and category for service reliability is significant (F(1,163) = 40.37, p < .001, \( \eta_p^2 = .20 \)). However, the brand effect of nationally-known brand is greater than locally-grown neighborhood brand for credence-based services as compared to experience-based services. Figure 1 demonstrates the interactive effect between brand and category on service reliability. In terms of perceived service reliability, the brand effect in experience-based service industries has changed .05, while the brand effect in credence-based service industries has changed .55 (\( \bar{X}_{\text{national}*\text{experience}} = 3.70, \bar{X}_{\text{national}*\text{credence}} = 3.31, \bar{X}_{\text{local}*\text{experience}} = 3.65, \bar{X}_{\text{local}*\text{credence}} = 3.86 \)). Customers’ perspectives change on reliability affected by brand effect appeared to be greater for credence-based services than for experience-based services. This result shows that franchised brands in credence-based services would have disadvantages to attract more customers who value service reliability as an important service quality dimension than what franchisees in experience-based services can gain benefits from their brands. The interactive effect between brand and category on service convenience is found to be supported (F(1,163) = 12.34, p < .001, \( \eta_p^2 = .11 \)). Depending on service brands customers’ perceptions on service convenience in experience-based services have changed for .21 while customers’ perceptions on service convenience in credence-based services industries have changed for .09 (\( \bar{X}_{\text{national}*\text{experience}} = 3.81, \bar{X}_{\text{national}*\text{credence}} = 3.51, \bar{X}_{\text{local}*\text{experience}} = 3.60, \bar{X}_{\text{local}*\text{credence}} = 3.60 \)). The brand effect in experience-based services tends to be higher than the brand effects in credence-based services, and figure 2 demonstrates this effect. On the one hand, franchisees in experience-based service industries need to promote service convenience when they compete with service providers with locally-grown neighborhood brands. On the other hand, in credence-based service industries, services providers with locally-grown neighborhood brands should recognize that perceived convenience between brands do not vary much. Lastly, perceived risk in different service category have a different effect on service brands (F(1,163) = 5.67, p < .05, \( \eta_p^2 = .03 \)). In figure 3, the interactive effect on perceived risk is greater in experience-based services than one in credence-based services (\( \bar{X}_{\text{national}*\text{experience}} = 2.52, \bar{X}_{\text{national}*\text{credence}} = 2.64, \bar{X}_{\text{local}*\text{experience}} = 2.65, \bar{X}_{\text{local}*\text{credence}} = 2.58 \)). This finding signal that perceived risk on service providers have significant differences when there are various factors influence when customers select service providers. Thus, H3 (e) and H3 (f) are supported.
Figure 1
The Interactive Effect between Service Brand and Service Category on Service Reliability

Figure 2
The Interactive Effect between Service Brand and Service Criticality on Service Convenience
DISCUSSION

The study investigates the service brand effect, the service category effect, and the interactive effect between brand and category. Two main effects provide how customers’ perceptions on service quality vary affected by the service brand and the service category, and the interactive effect between brand and category shows how one effect change the variation of customers’ perceptives on the other effect. Customers’ perceptions on service reliability, responsiveness, and convenience of nationally-known franchised brands are higher than these of locally-grown neighborhood brands while customers perceive service security of locally-grown neighborhood brands higher than service security of nationally-known franchised brands. In other word, nationally-known franchised brands need to manage these service quality dimensions (i.e., reliability, responsiveness, and convenience) superior than their competitors with locally-grown neighborhood brands, because customers expected services from nationally-known franchised brands to be highly reliable, responsive, and convenient. However, customers view service providers with locally-grown neighborhood brands to provide higher security of services than what service providers with nationally-known franchised brands can do. Thus, franchisors need to implement a program in their systems to increase service security of service performance by running franchise system wide customer service call center to directly handle customers’ complains or support franchisees to efficiently handle customers’ complains in local outlets.

Customers’ perceptions on service quality dimensions vary by service categories. Customers expect to see service providers in credence-based services to perform higher service reliability and security since credence-based services such as legal, financial, medical services are highly personal and should be customized to each customer. However, customers value service tangibility, responsiveness, and convenience when they select service providers in experience-based services. These findings strengthen the argument over the problems with generalization with SERVQUAL since the important service quality dimensions vary depending on services industries. In management perspectives, service providers in each services category would gain insights on how to increase customers’ satisfaction on delivered services. For instance, service providers in credence-based services must satisfy customers’ expected service reliability and security to obtain market competitiveness.
The brand effect amplifies customers’ expectation on service quality dimensions in experience-based services. Customers can differentiate the service quality between franchised brands and local brands, and the differences that are identified in experience-based services are greater than what are identified in credence-based services. Since customers develop their own experts to evaluate the quality of services after they experience, customers’ brand preferences in experience-based services can be easily developed. However, customers would have difficulties to establish brand preference in experience-based services, because the perception differences between brands are smaller in credence-based services. In other word, if service providers in experience-based services with locally-grown neighborhood brands expand their businesses through franchising or switch their brands to nationally-known franchised brands by becoming a franchisee, the impact would be greater than if service providers in credence-based services with locally-grown neighborhood brands change their brands.

CONCLUSION

Contribution

The understanding of brands in service industries lacks even though the consumer markets in the service industry has been dramatically changed. Like retailing industries in the U.S. many service firms now grow their businesses through franchising, and the numbers of service providers join franchise systems to gain benefits from nationally-known brands. In addition, the competitive market environments have encouraged many service providers with locally-grown neighborhood brands to become a franchisee. Unlike retailing industries, however, franchisees in service industries play an important role to create service experiences with the end customers. Franchisees, who make personal contacts with customers in various service encounters, contribute to develop customers’ perceptions on service quality of nationally-known franchised brands.

One of the main contributions of this research relates to the use of two service categories (hair salon services and tax preparation services) that limit economic exchange of any tangible product components as distribution mechanisms for service provision but only transfer knowledge and skills. This study provides psychological implications of customers’ purchasing decisions with respect to nationally-known franchised brands versus locally-grown neighborhood brands in the service industry. This study can certainly shed lights on-going discussion over whether customers’ decision making processes to consume goods and services differ. Because the research over national brands and store (generic) brands focus on customer psychology for tangible products, this can contribute the theoretical development of brand effects in service industry. It will help to clarify whether customers’ assessment of service quality varies depending on brand equity of service firms and different types of service industries including experience-based service and credence-based service. By elaborating on the experiments, the measurements to test service quality of franchise systems can be developed to assess customers’ assessment of service quality, which is modified as an extension from previous measurements of service quality (e.g., SERVQUAL) (Parasuraman, Zeithaml, and Berry 1988).

Limitations and Further Research

The study has a limitation that could benefit from further research. The method of this study is based on the experiment. Because the setting of the experiments is restricted, the external factors that might influence customers’ purchase of a service are not considered. It is possible that different dimensions on service quality that are not tested in this experiment can influence customers’ perception on service quality of service providers with franchised brands versus local brands. Although the measurements and the employed dimensions in the experiment are based on previous literature on SERVQUAL, the exploratory measurement study on service providers and brands can be tested to clarify how customers evaluate franchisees, franchisors, and brands when they purchase a service. Through the experiment the brand equity in service industries will provide interesting avenues for further research in the field of franchising since the roles of brand equity in customer level studies has not been investigated.
(Dant 2008). In addition, it will shed light on the question of how customers evaluate service quality, develop relationships with service providers, and continue purchasing services from the previous service providers.
### Table 3
Summary of Analysis Results

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Dependent Variables</th>
<th>Statistics</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F (df)</td>
<td>P-Value</td>
</tr>
<tr>
<td>H1 Main Effect of Service Brand</td>
<td>Reliability</td>
<td>F(1,163) = 14.84</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Security</td>
<td>F(1,163) = 36.91</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Tangibility</td>
<td>F(1,163) = .75</td>
<td>ns.</td>
</tr>
<tr>
<td></td>
<td>Responsiveness</td>
<td>F(1,163) = 22.42</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Convenience</td>
<td>F(1,163) = 4.35</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td></td>
<td>Perceived Risk</td>
<td>F(1,163) = .75</td>
<td>ns.</td>
</tr>
<tr>
<td>H2 Main Effect of Service Category</td>
<td>Reliability</td>
<td>F(1,163) = 4.36</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td></td>
<td>Security</td>
<td>F(1,163) = 4.83</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td></td>
<td>Tangibility</td>
<td>F(1,163) = 16.35</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Responsiveness</td>
<td>F(1,163) = 8.92</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td></td>
<td>Convenience</td>
<td>F(1,163) = 19.42</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Perceived Risk</td>
<td>F(1,163) = .30</td>
<td>ns.</td>
</tr>
</tbody>
</table>
Table 3 (Continued)

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Dependent Variables</th>
<th>Statistics</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3 Interactive Effect of Brand X Category</td>
<td>Reliability</td>
<td>F(1,163) = 40.37</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td></td>
<td>Security</td>
<td>F(1,163) = .50</td>
<td>ns.</td>
</tr>
<tr>
<td></td>
<td>Tangibility</td>
<td>F(1,163) = 2.76</td>
<td>ns.</td>
</tr>
<tr>
<td></td>
<td>Responsiveness</td>
<td>F(1,163) = .01</td>
<td>ns.</td>
</tr>
<tr>
<td></td>
<td>Convenience</td>
<td>F(1,163) = 12.34</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td></td>
<td>Perceived Risk</td>
<td>F(1,163) = 5.67</td>
<td>p &lt; .05</td>
</tr>
</tbody>
</table>
## Appendix A
Experimental Scenarios

<table>
<thead>
<tr>
<th>Service Category</th>
<th>Experience Service</th>
<th>Credence Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[Hair Care Service]</td>
<td>[Tax Consulting Service]</td>
</tr>
<tr>
<td>Brand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nationally Known Franchised Brand</td>
<td>You have noticed that your hair has grown and you need a haircut. You would like to try a <strong>Nationally-Known Franchised Hair Salon</strong> (e.g., Regis Hair Salon or Supercuts) to have your hair cut and styled in the next couple of days.</td>
<td>You have filled out your own tax forms in the past. However, this year you would like to get help from a tax consultant at a <strong>Nationally-Known Franchised Tax Consulting Service</strong> (e.g., H&amp;R Block) because you are hoping to receive a larger tax refund.</td>
</tr>
<tr>
<td>Locally Grown Neighborhood Brand</td>
<td>You have noticed that your hair has grown and you need a haircut. You would like to try a <strong>Locally-Grown Neighborhood Hair Salon</strong> (e.g., Glow Salon or David’s Barber Shop) to have your hair cut and styled in the next couple of days.</td>
<td>You have filled out your own tax forms in the past. However, this year you would like to get help from a tax consultant at a <strong>Locally-Grown Neighborhood Tax Consulting Service</strong> (e.g., John Trust CPA) because you are hoping to receive a larger tax refund.</td>
</tr>
</tbody>
</table>
## Appendix B
### Construct Descriptions and Measurements

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Item Descriptions</th>
<th>Reliability</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>When customers have a problem, <em>Nationally-Known Hair Salon</em> will show a sincere interest in solving it.</td>
<td>0.769&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em> will provide their services at the time they promise to do so.</td>
<td>0.710&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em> will insist on error-free records.</td>
<td>0.740&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The behavior of employees of the <em>Nationally-Known Hair Salon</em> will instill confidence in customers.</td>
<td>0.707&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers of the <em>Nationally-Known Hair Salon</em> will feel safe in their transactions.</td>
<td>0.817&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employees at the <em>Nationally-Known Hair Salon</em> will have the knowledge to answer a customer question.</td>
<td>0.818&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em> will have modern-looking equipment.</td>
<td>0.748&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em>’s physical facilities will be visually appealing.</td>
<td>0.744&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em>’s employees will be neat-appearing.</td>
<td>0.806&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employees of the <em>Nationally-Known Hair Salon</em> tell you exactly when services will be performed.</td>
<td>0.703&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employees of the <em>Nationally-Known Hair Salon</em> will give you prompt service.</td>
<td>0.723&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employees of the <em>Nationally-Known Hair Salon</em> will never be too busy to respond to your requests.</td>
<td>0.811&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I can easily determine prior to shopping whether the <em>Nationally-Known Hair Salon</em> will offer what I need.</td>
<td>0.794&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am able to get to the <em>Nationally-Known Hair Salon</em> quickly and easily.</td>
<td>0.797&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The merchandise I want at the <em>Nationally-Known Hair Salon</em> can be located quickly.</td>
<td>0.739&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The <em>Nationally-Known Hair Salon</em> makes it easy for me to conclude my transaction.</td>
<td>0.852&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If there is a possible service failure, <em>Nationally-Known Hair Salon</em> will likely take care of you by offering free compensation with alternative services (-).</td>
<td>0.748&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overall, the thought of getting a hair cut from <em>Nationally-Known Hair Salon</em> causes you some losses to concern.</td>
<td>0.828&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When all is said and done, you really feel that getting a hair cut from the <em>Nationally-Known Hair Salon</em> poses problems for you that you just don’t need.</td>
<td>0.861&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

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- a Nationally-known franchised brands in experience-based service industries
- b Nationally-known franchised brands in credence-based service industries
- c Locally-grown neighborhood brands in experience-based service industries
- d Locally-grown neighborhood brands in credence-based service industries

*Adopted from Parasurman, Zeithaml, and Berry (2001)*

*Adopted from Seiders, Voss, Godfrey, & Grewal (2007)*

*Adopted from Stone and Gronhaug (1993)*
REFERENCES


RESPONSIVENESS INCREASES MNC’S PERFORMANCE. REALLY?  

Xiaodan Dong, Christian Hinsch, & Shaoming Zou, University of Missouri

ABSTRACT

This paper examined the moderation effect of decision making structure on the impact of MNC’s responsiveness on its performance. Survey data were gathered from 126 international operations executives managing multinational subsidiaries, and analyzed using a 2-step confirmatory approach. The relationship between responsiveness and performance is not always positive as indicated by previous studies, but subject to the condition of organizational structure. The results indicated that when the decision structure is highly centralized, responsiveness had a negative impact on performance. Additionally, considering the external knowledge and internal capability that are important to responsiveness, we investigated customer knowledge acquisition and flexibility. It was found that responsiveness partially mediated the effect of customer knowledge acquisition and fully mediated the effect of flexibility on MNC’s performance.

INTRODUCTION

Intense competition, rapid technological change, shorter product life-cycles, and fast changing customer needs are characteristics of contemporary global markets. These global characteristics increasingly require firms to be responsive to dynamic changes in the market (Bower and Hout 1988; Stalk 1989). To succeed in the face of global competition, multinational corporations (MNCs) must respond to shifting customer needs, competitive dynamics, and technological changes. In fact, it has been argued that an MNC’s dynamic capability – the ability to respond quickly and effectively to fast changing market conditions – is the ultimate determinant of its competitive advantage (Teece et al. 1997). Not surprisingly, responsiveness has become an important research issue in strategic management and international business (e.g. Holweg 2005; Meehan and Dawson 2002; Reichhart and Holweg 2007). Yet the extant literature (e.g., Tsai, Huang, Ma 2009; Sousa, Ruzo, and Losada 2010) offers only limited insight into the factors that influence a firm’s responsiveness. We believe external information and internal organizational characteristics are important antecedents to cultivate responsiveness.

Few studies have addressed the impact of organizational structure on the relationship between responsiveness and performance in an international context. We consider decision making structure to be an important contingent factor, as it has been shown to play an important role in business success (Huber and McDaniel 1986). Prior studies had focused on the importance of a firm’s responsiveness, but did not address structural properties of the firm which may moderate the impact of responsiveness on performance. When the decision making structure is taken into account, the effect of responsiveness on performance may not vary under different organization structures. In other words, if a firm is not properly structured, responsiveness can even impair a firm’s performance. Also, most prior studies on responsiveness and dynamic capability in the international context are conceptual in nature and draw only anecdotal support from case studies. Empirical studies are needed to investigate why different outcomes can result from the cultivation of responsiveness based on a firm’s decision making structure. In addition, in order to be responsive to the changing market, capability to acquire knowledge about customers and the flexibility of resources are necessary to facilitate an MNCs’ responsiveness. Specifically, the importance of customer information acquisition and MNC’s resource flexibility as antecedents of a firm’s responsiveness behavior needs to be studied.

The purpose of this research is to empirically investigate how an MNC’s decision-making structure moderates the impact of responsiveness on strategic performance, and how customer knowledge acquisition and resource flexibility cultivate MNC’s responsiveness. Our main finding is that, depending on an MNC’s decision making structure, fostering responsiveness may either help or harm the firm’s
overall level of strategic performance. We conduct an empirical study of multinational corporations to test
the proposed theoretical model. The remainder of the article is structured as follows: after introducing the
theoretical background, we develop a theoretical model of MNC’s responsiveness. We then describe our
research methodology and analysis and present the findings of our study. We conclude by discussing the
implications of our research and its findings.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Responsiveness and Centralized Decision Making Structure

Responsiveness has become one of the most important dynamic capabilities needed for firms to
achieve a competitive advantage (Matson and McFarlane 1999; Meehan and Dawson 2002). In particular,
responsiveness enables companies to quickly detect market changes, reconfigure their processes to meet
new market requirements, share information across organizational borders, take maximum advantage of
information processing systems, and adopt new product and process technologies ahead of their
competition (Hoyt et al. 2007). Given the increasing amount of dynamism and uncertainty in many
operating environments, it is not surprising that responsiveness has been found to be a key factor in

In the management literature, researchers link responsiveness to external events, where
responsiveness is the ability to modify organizational strategies to match environmental threats or
opportunities (e.g., Weick 1979). This stream of literature focuses on organizational adaptation to the
external environment. However, the strategy literature presents a broader range of conceptual definitions
and applications of the responsiveness construct. Barclay and Dann (1996) recognized that organizations
not only react passively to environmental changes, but also attempt to change external constraints to bring
or maintain competitive advantage. Zaheer and Zaheer (1997) related their notion of responsiveness to the
speed of strategic decision making and suggested that responsiveness is a critical capability in fast-
paced environments. Meehan and Dawson (2002) further concluded from fieldwork that managers regard
responsiveness as the ability to concomitantly meet customer needs, and the organization should
consistently do so more quickly than anyone else and rapidly enough to retain the value of the decision or
idea for customers. In the marketing literature, responsiveness refers to the action taken in response to the
relevant market information generated and subsequently filtered (Kohli et al. 1993). This construct has
been shown to be related to performance (Kirca et al. 2005) and reflects the speed and coordination with
which the actions are implemented and periodically reviewed.

In general, the definitions of responsiveness in the literature revealed traits in aspects of external
stimuli, time and the notion of awareness. Building on these, we define responsiveness as actions or
behaviors taken by an MNC to react quickly and purposefully to changes in the global market. Responsiveness is a behavior that is reflective of an MNC’s dynamic capability. All firms display some
degree of responsiveness from time to time. The key difference lies in the speed and effectiveness with
which some firms are able to adjust their behaviors. We focus on the behavioral aspect of responsiveness
because behaviors are quickly adaptable and are observable manifestations of capabilities.

In fast-moving global industries, the requirement of rapid decision-making in response to changes
in customer needs and environmental forces applies not only to strategic decisions, but also to day-to-day
and even minute-to-minute. Responsiveness in the form of a dynamic capability has been argued to
contribute to firm success in dynamic environments (Judge and Miller 1991). Verdú and Gómez-Gras
(2009) demonstrated that firms most sensitive to the demands of the environment show better results in
overall performance. Jayachandran and colleagues (Jayachandran et al. 2004) showed a relationship
between customer response capability and performance. Other research that solidified this relationship
includes meta analyses on both market orientation (Kirca et al. 2005) and the marketing function
(Krasnikov and Jayachandran 2008) that show a positive relationship between responsiveness and firm
performance. This is salient because responsiveness is a critical component of both the marketing function and the market orientation paradigm.

However, the strategic relationship between responsiveness and firm success may not hold in all situations. As responsiveness requires prompt reaction of personnel in decision making, it is important to look at both decision making structure and responsiveness simultaneously. Specifically, responsiveness is subject to the constraint of organizational decision making structure (i.e. centralization) which involves the locus of authority to make decisions in organizations (Dalton et al. 1980). If, for instance, the power to make decisions is exercised by one or relatively few individuals at the top level of the organization, the structure is considered centralized. Some evidence (Andrews et al. 2009) has shown that centralization is negatively associated with performance in fast-changing environments. Thus, this study will further investigate the impact of centralization on the relationship between responsiveness and strategic performance with a specific focus on MNCs that are competing in global markets.

One of the core functions for managers is the creation of an appropriate organizational structure that can provide system stability and institutional support for a host of other internal organizational capabilities. The degree to which decision making is centralized or decentralized is a key indicator of the manner in which an organization allocates resources. Centralization has been defined as the distribution of decision-making authority through the hierarchy (Holdaway et al. 1975). This construct focuses on the locus of authority to make decisions affecting the organization. A centralized organization will typically have a high degree of hierarchical authority and low levels of participation from subsidiaries located in other countries, whereas a decentralized organization will be characterized by low hierarchical authority and highly participative decision making (Dalton et al. 1980). When only one or few individuals make decisions, an organizational structure may be described as highly centralized. In contrast, the least centralized organizational structure possible is one in which all organization members are responsible for and involved in decision making. The organizational decision making structure is assumed to provide a foundation for achieving coordination and control within an organization, as it constrains and prescribes the behavior of organization members (Andrews et al. 2009). Therefore, it may reasonably be expected that the degree of centralization will have a significant effect on how an MNC’s responsiveness behind impacts organizational performance.

Centralization may harm the effectiveness of responsiveness on an MNC’s strategic performance by preventing middle managers and lower-level employees from making independent decisions, as well as preventing them from applying tacit cultural knowledge to changing environmental circumstances. Success in the marketplace is driven directly by behaviors. A capable firm that cannot act on their capabilities generates no competitive advantage.

Prior research has emphasized the importance of decentralized organizational structures as a means for delivering responsive and effective services (Batley and Larbi 2004; Pollitt and Bouckaert 2004). Therefore, MNC’s responsiveness is anticipated to increase strategic performance in a decentralized organization. Decision participation can maximize the points of contact between managers and customers, leading to more responsiveness to customer needs. Middle managers and lower-level employees are also more likely to acquire valuable information about competitors through their interaction with customers. Empowering these lower level managers to have control over resources and make prompt decisions will result in a stronger positive impact on performance.

**H1a.** MNC’s responsiveness is positively related to its strategic performance in the global market.

**H1b.** The effect of MNC’s responsiveness on its strategic performance is stronger when the MNC’s centralization is low than when it is high.
Customer Knowledge Acquisition

In the current research we investigate the impact of customer knowledge acquisition on an MNC’s responsiveness. Extant research has shown that acquiring knowledge about customers is a key indicator of a competitive firm (Souchon et al. 2004). Generally, knowledge acquisition refers to a firm’s capability to identify and acquire critical knowledge from an external source (i.e. the customer) (Szulanski 1996). In this study, we focus on customer knowledge acquisition as a necessary precursor to an MNC’s engagement in responsive behaviors in the global market. Managers of organizations desiring to become truly customer-oriented must recognize that the process of getting close to the customer begins with an understanding of the customer.

Adapted from Liao, Welsch and Stoica’s (2003) definition about external (i.e. customer) knowledge acquisition, we defined customer knowledge acquisition as an MNC’s action to identify and acquire knowledge about customers from internal and external sources. In an increasingly dynamic global marketplace, understanding customers may be a necessary first step towards a firm’s success. The goal of knowledge acquisition activities is maximizing customer value creation. This understanding, combined with internal organizational resources, provides a starting-point from which successful marketing activities can evolve (Gordon et al. 1993). Requisite to this understanding is an appreciation of the importance of viewing the world from the customer's perspective. This entails gaining an acute sense of how the customer defines value. For example, in Gordon et al.’s study (1993), discussions with and comments from vendors revealed that, overwhelmingly, the specific telecommunications equipment vendors whom they considered to be above average and among the best in the industry were those who undertook more frequent and varied customer knowledge acquisition activities. More importantly, the firms who engaged in customer knowledge acquisition sold products that were more likely to be adopted by customers. By placing themselves in the role of the end customer, vendor organizations are able to gain a greater appreciation of how their products either directly or indirectly impact end customer satisfaction. MNCs that better understand customer needs and wants are more able to respond to this information and generate more value for the customers. When MNCs are active in collecting information about customers, they will be both more responsive to customer needs and more alert to competitors’ movements (through info acquired from customers). Therefore, it is expected that increases in an MNC’s customer knowledge acquisition will be positively related to its responsiveness.

H2. MNCs customer knowledge acquisition is positively related to its responsiveness.

The totality of customer knowledge acquisition’s impact on MNC’s performance will not just be fully captured by its impact on the MNC’s responsiveness. The ability to acquire customer knowledge is also an important indicator of MNC’s strategic performance. This ability provides MNCs with valuable information about new opportunities to exploit, and can also help neutralize some potential threats from competition. More importantly, the acquired knowledge usually has a strong tacit dimension. The resource-based view asserts that tacit knowledge is particularly difficult to imitate because it is hard to codify. Thus, customer knowledge acquisition, as a valuable but inimitable resource, can highly contribute to an MNC’s competitive advantage (Barney 1991). The impact of customer knowledge acquisition on MNC’s performance is expected to be partially mediated by MNC’s responsiveness. Customer knowledge allows MNCs to sense the pulse of its markets and provides a means for continual evolution of the process of defining performance requirement. For example, AT&T surveyed customers and found that it was providing too many transmission equipment options for customers, thus causing mass confusion. As a result of this finding, AT&T cut back the number of options offered and increased sales and customer satisfaction, while simultaneously reducing costs. Therefore, we expect a main effect of customer knowledge acquisition on MNC’s performance.

H3. MNC’s customer knowledge acquisition is positively related to its strategic performance.
MNCs’ Resource Flexibility

The flexibility of an MNC’s resources is a factor that is likely to impact its ability to respond. Management must learn to cope with uncertainty whether it is based in product markets, or manufacturing processes. Firms are not solely a passive reactor to environmental changes; proactive changes initiated by the firm can impact both customers and competitors (Bernardes and Hanna 2009), and resource flexibility is required whether the game plan is defensive or proactive. Resource flexibility has been shown to be a key factor in an organization’s ability to adapt and compete (Davenport and Short 1990). Increased resource flexibility can give an MNC a competitive advantage through faster response to global customer needs and environmental change (Harrington 1991).

According to Verdú et al. (2009), flexibility is the primary characteristic that enables companies to face environmental fluctuations. As a capability nurtured and grown over time, resource flexibility allows a firm to be responsive to environmental changes (Wright and Snell 1998). Organizations that are sensitive to changes in the environment and are flexible enough to change quickly have a strategic organizational capability that is becoming more important in an increasingly dynamic world. Responsiveness is based on the combination of flexibility and an understanding of the market (Verdú and Gómez-Gras 2009). A number of articles concerning resource flexibility and responsiveness have been written at the conceptual level (e.g. Bernardes and Hanna 2009; Sanchez 1995), with a few adding empirical data (Hoyt et al. 2007; Verdú and Gómez-Gras 2009). In some studies, flexibility and responsiveness are even used interchangeably (Bernardes and Hanna 2009). The lack of empirical clarification between the two constructs may lead to different conclusions, and thereby inhibit the effective application of the findings. Flexibility is a broad construct relevant to different areas of a firm. As resources are regarded as the primary strategic assets in MNCs, the flexibility of resource setup is a critical organizational characteristic that enables responsiveness.

Thus, resource flexibility is a source of an MNC’s responsiveness. A literature review on flexibility in the operations management literature shows that scholars and practitioners commonly perceive flexibility as a buffer to environmental variability and an adaptive response to environmental uncertainty (Gupta and Goyal 1989). For example, Cox (1989) defined flexibility as the quickness and ease with which plants can respond to changes in market conditions. Sethi and Sethi (1990) defined it as the adaptability of a system to a wide range of possible environments that it may encounter. Firms can build capabilities which allow the organization to switch between products, respond to customer demands, and react to any market signals effortlessly and quickly, avoiding overhead costs such as inventory and storage (Upton 1995). This internalized form of flexibility is the subject of this study. We define MNC’s resource flexibility as the ability to quickly and easily change the resources to cope with changes caused by global market conditions.

The dynamic nature of global markets requires many MNCs to relocate or redeploy resources to meet a dynamic set of customer needs. In the global market, key resources of an MNC include its physical plants, technologies, and human resources. The decreasing length of product life cycles leaves firms with the challenge of planning for facilities whose useful lives should be much longer than the life cycle of any individual product generation. As a consequence, the importance of an MNC’s ability to rapidly allocate its resources from the manufacture of one product generation to the next has been heightened (Franza and Gaimon 1998). Specifically, Nelson et al. (1997) argued that flexibility that supports business processes and can greatly influence the organization’s capacity for change. This is especially true in new product development where the project using flexible design technologies will out-perform the project using inflexible technologies (Thomke 1997). Flexibility of technological resources reduces the incremental cost and time required to incorporate design modification in the product. Flexible employees can be assigned to work on different tasks and under diverse circumstances, such as in different country markets, and the costs and time needed to mobilize employees into new duties or jobs are low (van den Berg and van der Velde 2005). Some researchers (Wright and Snell 1998) argued that firms demonstrating
managerial flexibility demonstrate a wide repertoire of competences such as leadership, problem-solving skills or cross-cultural expertise. These managerial skills are complementary attributes that facilitate an MNC’s responsiveness. Thus, flexibility allows organizations to respond to new market conditions while providing for future integration with relatively lower cost.

**H4.** Resource flexibility will be positively related to MNC’s responsiveness.

Burgelman’s (Burgelman 1996) study of Intel’s resource allocation process illustrates the importance of an MNC’s resource flexibility. At a time of extreme volatility in which Asian manufacturers disrupted world markets with severe price cutting and accelerated technological improvements, Intel redeployed its technological and physical resources to develop new products. Accordingly, as margins for memory chips decreased and margins for microprocessors increased, Intel began producing proportionally more microprocessors. Intel flexibly allocated physical, managerial and technical resources and ultimately transformed into a microprocessor company. When a companies’ technology and facilities can be easily mobilized in a global environment, managers can strategically redeploy production capacity to respond changes in the environment.

To sum up, decision making structure is playing an important role in moderating the effect of MNC’s responsiveness on performance. MNC’s customer knowledge acquisition and resource flexibility are proposed to be the antecedents of responsiveness (see figure 1).

![Figure 1. Hypothesized Model](image-url)
METHODOLOGY

Research Design and Sampling Frame
To test the theoretical model of responsiveness in a multinational context, primary data was collected using a cross-sectional mail survey of business units (BUs) competing in global industries. Here, business unit is defined as a division of an MNC designed to sell a distinct set of products to an identifiable set of customers, and to compete with a well-defined set of competitors across the globe (Jacobson and Aaker 1985). Each business unit acts as an autonomous operating multinational organization, even though it is technically under the umbrella of the MNC. For example, to consider a firm like General Electric at the corporate level would be meaningless. It is only by breaking the firm down into the diverse business units (i.e. light bulbs, appliances, jet engines, power generation equipment, etc.) that meaningful conclusions can be drawn. These business units often act as distinct multinational businesses in the global marketplace, with distinctive resources and strategies and little direction from the enterprise as a whole. Global industries were selected as the context of the study because of their fast changing and dynamic nature (Roth, Schweiger, Morrison 1991). Since global industries are characterized by a high level of intra-industry trade (Porter 1986), using a trade ratio of 30:70 (that is, 30% intra-industry and 70% inter-industry) as the minimum limit to control for the global nature of industries, we identified 23 global industries. These include consumer goods industries such as pharmaceutical preparations, soap and other detergents, perfumes, cosmetics and other toilet preparations, as well as industrial goods industries such as oil and gas field machinery & equipment, textile machinery, and ball and roller bearings.

Within these 23 industries, BUs were identified through Dun and Bradstreet's America's Corporate Families and The Directory of Corporate Affiliations. Three criteria were used to select the BUs. First, to facilitate data collection, the BU (that is, a multinational division of firm) had to be based in the United States, although the parent company could be based in elsewhere. Second, the BU had to have at least 200 employees. Third, total annual sales of the BU had to total at least $20 million. Overall, 434 BUs qualified for the study.

Questionnaire and Measures
A structured survey questionnaire was developed in two stages. First, the relevant literature was searched for existing scale items that measure MNC’s global strategic performance, responsiveness to market changes, centralization of decision making, customer information acquisition, and resource flexibility. New items were developed based on extant literature when existing measures were not available. Second, personal interviews were conducted with three MNC executives responsible for international operations and with four academicians familiar with research in global business strategy. All were asked to evaluate whether the items were meaningful, understandable, and valid measures of the proposed constructs in the study. Based on their feedback, some changes were made to the questionnaire items.

Measures

Strategic Performance
Zou and Cavusgil (2002) defined strategic performance as a firm’s competitive position with respect to other firms including their relative global market share, Competitiveness, and strategic position. Strategic performance is a useful metric because it takes fluctuations and trends at the industry level into consideration. Studies have shown that the components of strategic performance lead to financial performance as well (i.e. Buzzell and Gale 1987; Szymanski et al. 1993).

To measure strategic performance we adopted the measure used by Zou and Cavusgil (2002). Three of the four items in this scale focus on the firm’s position with respect to competitors in the global
marketplace. The fourth item addresses the position of the business in terms of the global market share. This scale displayed a high degree of reliability with a Cronbach’s alpha of .919.

**Customer Knowledge Acquisition**

Understanding what customers want in terms of product attributes and supplementary services is a fundamental marketing practice. Gordon and colleagues (1993) contended that the most direct avenue towards understanding the customer comes from simply asking them. To measure customer knowledge acquisition we adapted three items from the market orientation scale (Jaworski and Kohli 1993) that were focused on interaction with the customer to the global market context (i.e., “We often meet with customers worldwide to find out what products and services they will need in the future.”). This scale displayed an acceptable level of reliability with a Cronbach’s alpha of .709.

**Centralization**

Centralization can best be described as the opposite of the delegation of decision making power throughout the organization (Aiken and Hage 1968; Jaworski and Kohli 1993). Centralization was assessed through the adaptation of the scale developed by Aiken and Hage (1968) to the global context of the current study. The three item scale focuses on approval authority and the ability of employees to make decisions without input from top management (e.g., “There can be little action here until top management approves a decision”). Reliability for this scale was good (Cronbach’s alpha = .811).

**Resource Flexibilities**

We found no empirical works that measure the flexibility of a firm’s resource setup. Theorists have conceptually discussed the impact of flexibility on the firm (e.g., Slack 1987), though examples of measurement in this context are scarce. As such, we had to develop new measures for the construct of resource flexibility. Because flexibility is applied to a diverse set of resources, such as physical assets, technologies, and human resources, it is clear that this construct may best be measured through the use of a formative second-order scale with reflective first order factors (Jarvis et al. 2003). Since the inclusion of a single formative measure in a structural equation model can have serious negative consequences on the conclusions drawn from that model (Jarvis et al. 2003), the formative scale for flexibility is not included in the confirmatory factor analysis measurement model to follow.

MNCs’ flexibility was measured formatively with nine items. Each item was recorded on a 7 point scale to tap the extent to which an aspect of a resource can be changed or redeployed when needed. Due to the formative nature of these scales, no Cronbach’s alphas are reported.

**Data Collection**

The data collection involved two phases. In the first phase, a personalized cover letter, a questionnaire, and a postage-paid business reply envelope were sent to the CEO/president or vice-president (VP) for international operations or for global strategic planning of each BU in the sampling frame. Three weeks after the initial mailing, completed questionnaires had been returned by 72 BUs. Another 15 questionnaires were returned as undeliverable due to the wrong mailing address, because the addressee had retired, or because the addressee was no longer with the BU. A number of phone calls and letters were also received stating that participation was not possible due to company policy, time constraint, or lack of interest.

The second phase started three weeks after the initial mailing. A personalized cover letter, a replacement copy of the questionnaire, and a postage-paid business reply envelope were sent to those who had not responded. Four weeks later, completed questionnaires had been returned by another 54 BUs. Overall, 126 BUs returned the completed questionnaires, for a response rate of about 29 percent.
The assessment of potential nonresponse bias was done by comparing the responding BUs with the nonresponding BUs, and the early-responding BUs with the late-responding BUs (see Armstrong and Overton 1977). Based on average annual sales and average number of employees, there was no statistically significant difference between the responding BUs and the nonresponding BUs. In addition, there was no statistically significant difference in the mean of measured items between the early-responding BUs and the late-responding BUs. Thus, it can be concluded that there is no evidence to suggest the existence of nonresponse bias.

RESULTS

Our approach to analyzing the data in this research followed the recommendations of Anderson and Gerbing (1988) in utilizing two-step confirmatory approach. A measurement model was utilized to assess the convergent and discriminant validity of those constructs measured by reflective scales, while a structural path model was applied to test the proposed hypotheses. The two-step modeling procedure is used to eliminate the possibility of interpretational confounding, and eliminate the possibility that a good fit on one dimension (structural or measurement) will compensate for a poor fit on the other dimension (Anderson and Gerbing 1988). Multiple indicator measurement models were used for all reflective constructs to reduce potential ambiguity (Anderson and Gerbing 1982), and since none of our constructs met the requirements for acceptable single item measures (Bergkvist and Rossiter 2007).

To test for potential common method variance bias we applied the Harman’s one-factor test to the data. Items for all four reflective constructs were subject to an exploratory factor analysis. The unrotated factor analysis extracted four principal components and showed that the items were not loading on a single, common methods factor (Podsakoff and Organ 1986). Further, the most prominent factor accounted for less than one-third of the variance present. As an additional test, we ran the partial correlation test by partialing out the first principal components. The results indicated that many significant partial correlations remain between the variables. Based on these tests, we conclude that common method variance bias is not a concern in this research.

To construct our measurement model, we entered the four reflective constructs into an EQS 6.1 confirmatory factor analysis (Bentler 1995). Factors, items, and reliabilities are listed in Table 1. All factors meet the accepted reliability requirements (Nunnally and Bernstein 1994).
<table>
<thead>
<tr>
<th>Factor</th>
<th>Item Name</th>
<th>Item</th>
<th>Cronbach's Alpha</th>
<th>Standardized Factor Loading</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Performance</td>
<td>SP1</td>
<td>The strategic position of our business unit in the global market is very strong.</td>
<td>.92</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP2</td>
<td>Relative to our major competitors, our business unit is very competitive in the global market.</td>
<td></td>
<td>0.86</td>
<td>10.06</td>
</tr>
<tr>
<td></td>
<td>SP3</td>
<td>Our global market share is very high relative to our major competitors.</td>
<td></td>
<td>0.87</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>SP4</td>
<td>We have been able to build a global leadership position in our industry.</td>
<td></td>
<td>0.93</td>
<td>11.1</td>
</tr>
<tr>
<td>Customer Knowledge Acquisition</td>
<td>CKA1</td>
<td>We often meet with customers worldwide to find out what products and services they will need in the future.</td>
<td>.71</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CKA2</td>
<td>We do a lot of in-house market research.</td>
<td></td>
<td>0.62</td>
<td>4.88</td>
</tr>
<tr>
<td></td>
<td>CKA3</td>
<td>We frequently poll worldwide end users to assess the quality of our products and services.</td>
<td></td>
<td>0.79</td>
<td>5.32</td>
</tr>
<tr>
<td>Centralization</td>
<td>CE1</td>
<td>There can be little action here until top management approves a decision.</td>
<td>.81</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE2</td>
<td>Even small matters have to be referred to top management for an answer.</td>
<td></td>
<td>0.83</td>
<td>8.07</td>
</tr>
<tr>
<td></td>
<td>CE3</td>
<td>Any course of action a country subsidiary takes has to have top management's approval.</td>
<td></td>
<td>0.62</td>
<td>6.39</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>RE1</td>
<td>It takes us a long time to decide how to respond to our major competitors' new campaign.</td>
<td>.76</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RE2</td>
<td>Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.</td>
<td></td>
<td>0.78</td>
<td>5.99</td>
</tr>
<tr>
<td></td>
<td>RE3</td>
<td>When we find that a competitor has a new campaign, we will not respond until we feel its impact on our global competitive position.</td>
<td></td>
<td>0.48</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>RE4</td>
<td>For one reason or another, we tend to ignore changes in our customers' product or service needs.</td>
<td></td>
<td>0.63</td>
<td>5.23</td>
</tr>
<tr>
<td></td>
<td>RE5</td>
<td>The product lines we sell depend more on internal politics than on real market needs.</td>
<td></td>
<td>0.59</td>
<td>4.98</td>
</tr>
<tr>
<td>Chi-Square</td>
<td>108.559</td>
<td>NFI</td>
<td>0.910</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>84</td>
<td>NNFI</td>
<td>0.972</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>CFI</td>
<td>0.978</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>RMSEA</td>
<td>0.048</td>
<td></td>
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We followed the recommendations of Bagozzi and Yi (1988) in assessing the fit of the measurement model. The model converged in fewer than 30 iterations without reporting any condition codes or other anomalies. The Chi-Square test was significant in this model \( \chi^2 (84) = 108, p < .05 \), but because problems have been identified with the Chi-Square statistic (Fornell and Larker 1981), we evaluated other model fit statistics in accordance with Bagozzi and Yi (1988).

Fit indices indicate that model fit was very good (BBNFI = .910, BBNNFI = .972, CFI = .978, RMSEA = .048). The variances for all items and factors was statistically significant indicating convergent validity (Anderson and Gerbing 1988). This finding was reinforced by the fact that all standardized factor loadings were positive, high in magnitude and statistically significant. A test of discriminant validity was run in accordance with the criteria enumerated by Baggozi and Yi (1988). The model with all parameters freed displayed a Chi-Square statistic of 108.559 with 84 degrees of freedom. Constraining the factors to unity results in a Chi-Square statistic of 116.358 with 87 degrees of freedom. The Chi-Square difference test on these two values results in significance at the .05 level indicating that these factors do display an adequate level of discriminant validity. Table one displays the items, standardized factor loadings, t-values and the alphas for the factors. It is clear from the fit indices at the bottom of table one that the fit of our measurement model is acceptable.

Path Model and Hypotheses Tests

A structural path model in EQS 6.1 was utilized to test the hypotheses of main effects. In the path model, a formative composite score was computed for MNCs’ resource flexibility. For customer knowledge acquisition, MNC responsiveness, and strategic performance, which were measured by reflective scales, the weighted sum of their items with standardized loadings of individual items as weights were obtained. The structural path model showed acceptable levels of fit to the data \( \chi^2 (1) = 5.037, p = .025, \text{CFI} = .936, \text{CFI} = .944, \text{Standardized RMR} = .055 \). Figure 2 displays the overall path model with standardized factor loadings and their corresponding t-values.

For the overall model, H1a expected a positive relationship between MNC’s responsiveness and strategic performance. This hypothesis is directionally supported, but it is not significant in the overall model at .05 level. This lack of significance will be addressed later when we incorporate centralization as a moderator.

H2 predicted a positive relationship between customer knowledge acquisition and MNC strategic performance. Figure 2 shows that this hypothesized relationship is strongly significant. For H3 which predicted a positive relationship between customer knowledge acquisition and responsiveness, the results show that this relationship is positive and significant as predicted.

H4 predicted that MNCs’ flexibility would be positively related to firm responsiveness. The results showed that a strongly significant relationship confirming H4.
H1b predicted that a firm’s level of centralization would moderate the underlying relationship between responsiveness and performance. When a firm is low on centralization, responsiveness will be positively associated with strategic performance. To test the moderating impact of centralization, we median-split the dataset on the centralization factor and ran a two-group path model in EQS 6.1. Specifically, we first ran the two-group path model on samples with low and high centralization, respectively, without any constraint. We then ran the two-group path model by constraining the path from MNC’s responsiveness to strategic performance to be equal. The chi-square difference between the unconstrained mode and the constrained model is xxx, which is significant at .05 level, suggesting that the unconstrained model fits significantly better than the constrained model. Thus, the path coefficient from MNC’s responsiveness to strategic performance should be different, supporting a significant moderating effect of centralization.

The path from responsiveness to strategic performance stands out as a significant finding. The coefficient flips from highly positive and significant in the low-centralization group to negative in the high-centralization group. Constraining this path between the groups results in a significant Chi-Square change at the .025 level. This is clear evidence that the level of centralization moderates the relationship between responsiveness and strategic performance, when centralization is low, responsiveness leads to greater strategic performance, when centralization is high. Therefore, H1b is supported.
DISCUSSION

Responsiveness has been shown to be an important dynamic capability to achieve success in a variety of industries. In order to cope with the intense foreign competition, rapid technological change, and shorter product life cycles, MNCs must be able to respond to markets quickly and flexibly. In this study, we investigate the relationship between responsiveness and strategic performance in a multinational context, and reveal the moderating impact of decision making structure on this relationship. We also identify two antecedents of responsiveness – customer knowledge acquisition and MNC’s flexibility. This study offers empirical evidence to support our framework. The findings present several important theoretical implications.

First, in the full model, the results show that, in a multinational context, responsiveness is directionally positively related to strategic performance, but this relationship is not significant. When the organizational decision structure has been taken into account, we find a significant and positive relationship for decentralized firms. The results also show that this relationship is negative for centralized firms, though the relationship is not significant. This finding suggests that decision making structure is a key factor that can impact an MNC’s strategic performance through the responsiveness/performance relationship. Intuitively, and in line with extant research (Jayachandran et al. 2004; Kirca et al. 2005; Krasnikov and Jayachandran 2008), we have the belief that responsiveness and strategic performance should have a positive relationship. In the present study, the impact of responsiveness is contingent on the structure of the firm (i.e. level of centralization). Previous studies suggested that centralization is inversely related to a firm’s information utilization (Deshpande and Zaltman 1982). In a centralized multinational organization, restricted downstream employee participation in decision making may result in responsive behaviors that do not lead to increases in strategic performance. Acquired customer knowledge can be filtered away when it is processed through a firm hierarchy. This appears to be especially true in an international setting where a cultural gap likely exists between a firm’s home culture and the culture of the firm’s customers. A centralized decision making process can eliminate the value of this information and slow down response speed (Jaworski and Kohli 1993), especially when a cultural gap exists between a firm and its customers. In this research, we found that in an international setting, the responsiveness/performance relationship is contingent on an MNC’s decision making structure. Ignoring structural characteristics can lead to partial or incomplete explanations of the relationship between responsiveness and strategic performance. We show that responsiveness matters for decentralized firms, but the results also suggest that efforts applied to responsiveness cultivation in more centralized firms may be wasted. Furthermore, the cultivation of responsiveness as a capability may be siphoning resources that would result in increased strategic performance if applied elsewhere. Thus, this finding

Table 2
Constrained Paths for the Split Centralization Model

<table>
<thead>
<tr>
<th>Path</th>
<th>Low Centralization</th>
<th>High Centralization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t stat</td>
</tr>
<tr>
<td>CKA → SP</td>
<td>0.646</td>
<td>2.996</td>
</tr>
<tr>
<td>Resp → SP</td>
<td>0.464</td>
<td>2.409</td>
</tr>
<tr>
<td>CKA → Resp</td>
<td>0.174</td>
<td>1.045</td>
</tr>
<tr>
<td>Flex → Resp</td>
<td>0.141</td>
<td>1.427</td>
</tr>
</tbody>
</table>
improves our understanding about the relationship between responsiveness and strategic performance in an MNC by taking decision making structure into account.

In addition, we empirically link responsiveness and performance in a multinational context. The results suggest that responsiveness is a critical dynamic capability in the fast-changing global market. Building on prior conceptual research about responsiveness, this study empirically demonstrates its strategic role in MNCs. We do not just emphasize its importance on performance, but also investigate its antecedents, the indicators that fertilize the ground for responsiveness. This broader view expands existing theory about responsiveness and advances our understanding about dynamic capabilities.

Second, customer knowledge acquisition is found to have a significant relationship with both responsiveness and strategic performance. This means that responsiveness partially mediates the effect of customer knowledge acquisition on strategic performance. Customer knowledge acquisition enables MNCs to better understand customer needs and wants, so that they can respond to the markets quickly. This finding empirically supplements previous studies about the relationship between marketing intelligence generation, marketing responsiveness, and firm performance.

Third, the present study contributes to the literature by identifying the capability of flexibility and empirically measuring how this measure predicts responsiveness. To the best of our knowledge, this study is the first to empirically measure flexibility from the perspective of the resource based view. Our findings suggest that more attention to developing the capability of flexibility is likely to increase an MNCs’ responsiveness, and potentially increase performance.

Our study also provides several implications for managers. In the hyper competitive and fast-changing global market, being responsive to customer needs and competition is crucial for the performance of MNCs. However, just being responsive cannot guarantee an increase in performance. Our findings suggest that global managers need to decentralize the hierarchy of authority when making decisions, because the effect of responsiveness on firms’ performance is undermined in centralized firms. Usually, middle or lower level employees are closer to customers and more aware of critical cultural, competitor and market changes. Encouraging the participation of these groups in decision making can translate responsiveness into increased performance. As noted above, previous studies have shown that centralization is negatively correlated with performance. Thus, from the results of this and previous studies, centralization in MNCs appears to be an important factor in suppressing performance in an increasingly dynamic business climate.

As responsiveness is an increasingly important dynamic capability, it is imperative for MNC managers to pay attention to factors that enable this capability, and accordingly, increase the behavior of responsiveness. Customer knowledge acquisition and flexibility are proposed to be two factors that can lead to responsiveness. Our findings suggest that customer knowledge acquisition and flexibility play major roles in determining responsiveness. Therefore, managers should allocate more resources to acquire these determinants of firm performance if they operated in a decentralized decision making structure.

There are several limitations in this study. First, the sample size of 126 may have reduced the statistical power necessary to generate more significant findings. Future research may be conducted to replicate the findings of this research. Second, we consider flexibility of resources and customer knowledge acquisition as antecedents of responsiveness. There might be other antecedents worth probing that were not addressed in the current research. Future research may investigate other types of flexibility, such as strategic flexibility and infrastructure flexibility.

In addition to addressing the limitations, future research could extend the model by investigating the influence of other organizational characteristics, such as risk preference, industry volatility, or
organizational culture. The impact of responsiveness on performance might also be contingent on these characteristics as well. Future research may explore the consequences of responsiveness, such as firms’ innovativeness or marketing dynamic capability. The importance of responsiveness for MNCs implies that further research about its antecedents and consequences will be worthwhile.

CONCLUSION

This research contributes to our understanding of responsiveness behaviors by identifying the antecedents of customer knowledge acquisition and flexibility. More importantly, it makes a contribution by identifying situations where the cultivation of responsiveness may actually lead to a negative outcome for the firm. Extant literature that addresses the responsiveness/performance relationship is uniformly positive about the outcomes of responsiveness cultivation. This research shows that, in a multinational context, the positive link between responsiveness and performance only exists with a decentralized decision making structure. Both communication factors and cultural factors may magnify the impact of decision making structure in the multinational context. Multinational firms would be wise to decentralize their decision making structures before they attempt to cultivate responsiveness behaviors.
REFERENCES


BRAND COMMUNITY RITUALIZATION

Darrell Bartholomew, Oklahoma State University

ABSTRACT

Brand community research has largely focused on a firm perspective of brand communities as a form of strategy that can be used to promote the firm’s brand. New research is needed to better understand the role rituals play in brand communities in creating community consciousness, culture, and history. This research focuses on applying structural ritualization theory as a means for better understanding of rituals within brand communities. Specific examples involving brand communities are given using structural ritualization theory and ritualized social practices to determine the nature and importance of these daily ritualized behaviors to community members. Structural ritualization theory is then applied to the web brand community of Facebook, which is a relatively new area within brand community research. The article concludes with a discussion of the Facebook findings using the ritualized structural framework and future areas of research that may benefit from application of structural ritualization theory.

INTRODUCTION

Muñiz and O’Guinn (2001) stated that rituals are an important part of brand communities because rituals perpetuate the community’s consciousness, culture, and history (p. 413). A brand community is “a group of ardent consumers organized around the lifestyle, activities, and ethos of the brand” (Fournier and Lee 2009, p. 105). These communities have many rituals and expressions of behavior that are important to the community and its members, and also have important implications to marketers because these ritualized social practices involve brand consumption and brand meanings that are valuable in understanding consumers and their behavior (Rook 1985).

Since rituals tell consumers “the right way to do things,” the consumption that takes place during the performance of rituals, i.e. ritualized practices, helps consumers to understand the values that are important to the community as well as the rules through which these values are conveyed (Lévi-Strauss, 1966). These ritualized practices are social in nature and are organic. For example, once a community such as Facebook begins to become involved in these ritualizations, the members of this social community through their ritualized practices begin to be invested in and create valuable content and experiences through their social interactions on the site. We begin to see a circular growth spiral that can occur within the brand community:

1. As the membership of the community, content, and offerings on the site grow, so too does the value, frequency of ritualized practices, and use of the site within and between the community members.
2. As these ritualizations grow in importance, frequency, and value, the community becomes more important to the members and more valuable to the companies that are fostering and supporting these communities.

Indeed this is the goal of a brand community strategy for an organization, to create an organic growing community that competitors cannot copy because the community has its own unique culture, consciousness, and history. Brand communities are so attractive to companies because they take on a life of their own, i.e. they are organic - they are alive.

Experiences in brand communities as well as socialization within the community are vital for community vibrancy, vitality, and growth. The social interaction of the brand community together with the rich experiences found in brand communities help to create sacred experiences for community
members. The importance and frequency of these experiences within a brand community can be better understood by applying ritual theory to this type of consumer research.

More research has been called for in order to understand these communities and ritual practices, as well as the outcomes from such experiences (Schouten, McAlexander, and Koenig 2007). Many diverse theories have been used in ritual research, with the emphasis on the importance of rituals and their outcomes, but still the literature lacks an overarching theory of rituals that can be used in daily consumer interactions. A theoretical understanding of how consumers come to ritualize specific aspects of their daily behavior is still needed (Rook 1985). Similarly, there is a need for new methods to analyze ritual practices (Stanfield Tetreault 1990). Recent theory in social psychology involving rituals can be used to understand the role and importance of rituals in brand communities. The purpose of this research is to extend the work on rituals by Rook (1985) to the consumer rituals experienced in brand communities. The two main research questions that are of interest are:

1. How do we understand theoretically, what the roles of rituals are in communities?
2. From the members’ perspectives, how do rituals create valuable experiences and affect outcomes of loyalty and satisfaction?

In order to address these questions, first, an overview will be given on ritual research and the importance of rituals and ritualization. Past research in brand communities that deals with the role and importance of rituals to building community among members will also be reviewed. Second, a theory of structural ritualization will be applied to the study of consumption rituals in brand community research. This theory helps to show the critical role that rituals play in brand communities. Finally, a conceptual model will be put forth based on structural ritualization theory that can be used to understand daily ritualized social practices of brand communities. Discussion of the model as well as future research methods of testing rituals in brand communities will be presented.

CONCEPTUAL FRAMEWORK

Rituals and Ritualization

What exactly are rituals? Rituals are constructed of multiple behaviors that have expressive and symbolic qualities. These behaviors occur in a fixed, episodic sequence, and that tend to be repeated over time (Rook 1985).

Early work on the importance of rituals in daily life and the role of rituals in social experiences associated with rituals originated with the theoretical work of sociologists such as Durkheim (1964) and Goffman (1967). Durkheim (1964) noted the important role of rituals in understanding human behavior. The importance of emotional enjoyment of the social experience was part of the emotional forces in social groups and such emotional forces were necessary for true group membership. Through social group rituals, individuals could unleash these forces of ecstasy and emotional experiences (Durkheim 1964). Goffman (1967) looked at the role rituals played in individual relationships and social interactions. Through daily contact, people are in each other’s presence most of their lives. These social situations may be formal or less formal. People in these groupings rely on “contact” rituals as a system or set of ground rules of how to interact with others socially in these situations (Goffman 1983; Goffman 1967; Goffman 1983).

Although much of the consumer research on rituals has traditionally focused on the internal psychological aspects of search and purchase behavior, recent scholarship in this area has focused on the symbolic function of goods and services in order to bring understanding to the ritualistic consumption behaviors of consumers (Otnes 2004). Much of the work on rituals in consumer research has focused on the individual consumer and their families’ involvement with ritual traditions such as holidays, religious rites, and rites of passage (i.e., a major role transitions such as a wedding or birth of a child) (Collins
In consumer studies, these types of rituals that occur during important ritual occasions are called consumption rituals. Consumption rituals are defined as “holidays, special occasions, and other sacred events characterized by the intensive (and sometimes excessive) consumption of goods, services, and experiences” (Otnes 2007). Following this definition, consumption rituals seem more closely aligned with ritual transitions and rites of passage described in sociological fields. Ritual transitions are events/celebrations that mark a change in one's life in terms of role or status that can occur as an individual or part of a group (Stanfield 1990).

How do rituals compare to ritualization? One can think of the term ritual as a noun and the action of ritual (i.e. ritualization) as a verb. All behavior is ritualized to some degree. Ritualization refers to activities involving rituals performed as part of routinized interaction and social behaviors that occur in everyday life (Knottnerus 1997). The term ritualization is used in this theory since it has a broader meaning than rituals, which normally refer to ceremonial or religious activities. We can look at the degree ritualization increases when the number and intensity of these behaviors increases (Grimes 2004). Hence, ritualizations are forms of behavioral action that have meaning for the performer. Ritualizations are elaborations upon simpler behaviors that are already known (Driver 2001 p. 15 and 19).

The focus of this research is on the daily rituals that occur in brand communities rather than on ritual transitions. Rook (1985) suggests that the daily ritualize behaviors rather than the major rites of passage are more important since these everyday ritualizations help to reinforce and complete the transitions that the rites or consumption rituals celebrate. Examples of daily rituals include activities that are usually social in nature and involve forms of expression that allow us to make social connections with others. Rook (1985) mentions several activities as examples of daily ritualized behaviors such as media usage, household chores, religious observations, business behaviors, eating, athletic participation/events, gaming, dating, socializing, grooming, gift giving, greetings, leave taking, and shopping, are all forms of daily ritualized behaviors that. Researchers have largely failed to focus on these daily ritualizations, despite their importance to marketing given that the actors’ are involved in extensive consumption of goods and services during these ritualizations (Rook 1985).

**Rituals in Brand Communities**

What role do rituals have in brand community? Within brand communities we see three dimensions that are important to organizations that wish to foster brand community growth: the social structure of the community, the ritual experience, and the outcomes of the ritual enactments. Not all brand communities have the same social structure. In order to understand the social structure within the communities we first need to understand the structure of different types of brand communities.

**Structure of Brand Communities**

Fornier and Lee (2009) state that communities usually fall within three different categories or types: pools, hubs, and web. Pool communities involve individuals that are more brand identified. Hubs are communities that are united by an individual hero such as Steve Jobs, Hanna Montana, or Michael Jordan. Web brand communities do not refer to the internet. Web brand communities are a type of brand community that involve one-to-one relationships with others in the community. Due to the social nature focus of these web brand communities, these communities can be said to be made up of individuals that are more socially identified.

Recent research shows differences between brand identified and socially identified members of brand communities (Bartholomew, Arnold and Mason 2011). Brand identified members are united in their strong connections with the brand and enjoyment of the activity, but only have a loose association with other community members. Brand identification describes the cumulative orientation of a consumer toward the product, the brand, and the marketer (McAlexander, Schouten and Koenig 2002). Socially identified customers on the other hand are more devoted to the community and its activities because of
their relationships with other community members. Social identification refers to an individual’s self-concept derived from one’s self-awareness of his or her membership in a social group and the value and significance attached to that membership (Hogg 1988).

Although the company owns the brand, the community is owned by the members within the community. As a result of the community members’ social identification, the web brand communities are the strongest and most stable form of brand community (Fornier and Lee 2009). McAlexander et al. (2002) first referred to the web of relationships that are involved in brand communities. These relationships include relationships between consumers, as well as the relationships that individual consumers have with the brand and the marketing agents and institutions that manage the brand. The web brand communities are so strong because these communities tend to be build on an existing web of one-to-one social relationships that individual consumers already have in their personal lives. Indeed, web brand communities are often made up of a “friendship group of consumers with a shared enthusiasm for the brand and a well-developed social identity, whose members engage jointly in group actions to accomplish collective goals and/or to express mutual sentiments and commitments” (Bagozzi and Dholakia 2006, p. 45).

Social networking sites such as Twitter, Facebook, YouTube, MySpace, and Blogger are examples of companies who have realized the great potential of creating web brand communities using this approach. Such networking websites build and foster community first and then create marketable products and services second to profit from these communities. These brand communities allow consumers to connect with and build their own social networks. Through the brands’ online communities, consumers create an online web of relationships using their existing relationship webs as well as tapping into cohorts webs, which overlay onto the online designed community webs. Additional examples of the web approach to building brand communities involves the use of technology such as email and smart phones. Companies such as Apple with their applications an iphone/ipad devices and Google with its Blogger, MySpace, Gmail, and YouTube sites have created communities that utilize the companies tools/applications and the internet to use existing social networks as a structure to create strong web brand communities. Studying these web brand communities can help marketers to understand these new long-term strategies for building web brand communities.

It is important to note that because these groups are often participating in the consumption of products or brands, this association also leads to increased involvement with the brand. Group social involvement leads to the public and private adoption of group norms that help to reinforce current and future involvement with the group due to social pressures. This social reinforcement leads to increased identification with the brand that can enhance a brand relationship where one exists (Bagozzi and Dholakia 2006). Brand communities help customers to integrate into new relationships through participation with a product and with other customers (McAlexander, Schouten, and Koenig 2002).

Ritual Experience

Rituals are evident in consumer communities such as brand communities. “Rituals and traditions represent vital social processes by which the meaning of the community is reproduced and transmitted within and beyond the community. Some of these are widespread and understood by all members of the community, while others are more localized in their origins and applications. These rituals and traditions typically center on shared consumption experiences with the brand” (Muñiz and O’Guinn 2001 p. 421). For example, in their study of Jeep events McAlexander et al. (2002) found that experiences became internalized and were cumulative in nature. As a result, the more the owners interacted within the communities and experience the communities rituals, the greater the meaning of the relationship with the community was in their ‘nexus’ or synergistic consumer experience.
Once communities have started to create meaningful ritualizations, the ritualizations begin to create a community’s consciousness, culture, and history. Schouten et al. (2007) state that these ritualization experiences help build on new experiences with the communities’ rituals to form a halo affect that endures long after the experience is over. In other words, these experiences that are created through the communities’ rituals, stories, and traditions help to transform the individual members’ beliefs and attitudes about the group and the meaning of the group membership. The meanings of the brands that are used by the group are also transformed from their utilitarian function to take on more elevated status and are endowed with sacred meanings. If marketers can begin to understand the types of ritualizations that are more meaningful to the individuals and groups within the brand community, then the marketer can do a better job of supporting these practices with the firm’s resources and strategies. This increased knowledge should help to strengthen the web of relationships that the firm’s employees and brands have within the community – resulting in a stronger community. “The strength of a brand community and an individual customer’s integration therein lie in a web of relationships that customers perceive themselves to have with a brand, a company, its products, and its other customers” (Schouten et al. 2007 p. 359).

Outcomes of Ritual Enactments

The third area focuses on the consequences of ritual enactments on the outcomes of brand community. Consumption rituals help to describe order, transformation, and “communitas” outcomes (Driver 1991) of brand communities. Order refers to the social structure that rituals provide consumers and the ritual enactments or chains that consumers often participate in using ordered activities within the ritual enactments. Transformation refers to the ability that consumption rituals have to create flow and or peak experiences for the consumers involved in the ritual. Communitas refers to a term from anthropologist Victor Turner which describes how consumption rituals strengthen social bonds within the community and the peripheral social networks as well (Otnes 2007). The outcomes of brand communities lead to self-transformation and communitas.

Research on the transformation in the community has looked at the enjoyment outcomes from social activities based on the opportunities that these activities provide. Flow is a common experiential state found in play, and is something that is sought in an experience (Csikszentmihalyi 2000). Such transformational experiences have been expressed in the descriptions of communities involving river rafters (Arnould and Price 1993), sky divers (Celsi et al. 1993), and jeep owners (Schouten et al. 2007). For example, Arnould and Price (1993) discuss the feelings of flow from their river rafting excursion and how they were able to connect not only with the outdoors and nature but also to others in their rafting community. This became a transformational experience that they could look back on and recall these same feelings that they had as part of the experience. Schouten et. al (2007) explain how Jeep owners attending brandfests were able to gain greater personal mastery and personal discovery and empathy towards the brand and other brand owners.

The events and interactions that occur within the social group help to provide the needed interaction that can make for a truly meaningful social engagement rather than just a social encounter that is soon forgotten. This social structure can help to create the environment in which transcendence or ‘conversion’ to the group can occur. Schouten et al. (2007) describe this focus on the importance of social structure for brand communities as follows: “A person experiencing transcendence in the context of a consumption event may develop strong emotional ties to the individuals, products, and/or institutions that facilitate the experience” (p. 365).

Brand communities have been found to be beneficial for introducing new products and retaining highly involved members, rather than for attracting new members into the community (Algesheimer et al. 2005). Customers who are introduced to products through brand communities are likely to convert to the community despite demonstrating little initial commitment or being new to the activity (Schouten et al. 2007). In their study of European car club members, Algesheimer et al. (2005) suggest that community
members who are already loyal to a brand will benefit more from membership in a community with other like-minded members having mutual interests in the brand prior to the formation of the community, rather than joining a community consisting of new members who are unfamiliar with the brand and its meanings. Existing brand loyalty and meanings associated with a brand by a loyal brand owner would be much different then the experiences and engagement entered into by a novice owner. Socially, these more experienced members would have more in common in terms of brand awareness, authority or knowledge of the brand, and ability to relate to others who are at a similar level.

Organizations that sponsor brand communities are aware of the strategic benefits that result from strong communities. Increased customer loyalty, brand advocacy, sales of additional services and products, and word of mouth are associated with brand community members that express an interest in continued participation within the community (Algesheimer et al. 2005; Bagozzi and Dholakia 2006; Carlson et al. 2005; Schouten et al. 2007). This translates well into the long-term relationships that have been a focus of marketing’s efforts to build relationships with a company’s customers. Organizations that can create a communal interaction with its members have the potential to become more than just a product or service provider. These companies are able to create a more dynamic environment that competitors cannot replicate because of the intangibles that such environments offer the community members.

Structure Ritualization Theory

Structural ritualization theory (SRT) focuses on the central role that rituals play in social groups through the experiences created during enactment of ritualized symbolic practices (RSPs) that both form/transform and reproduce social structure and occur in social settings (Knottnerus 2007). There are five basic assumptions of SRT are given in figure 1, which shows how important rituals are in providing a common framework for studying the workings of rituals at the micro level between two individuals on up to the larger societal or macro level (Knottnerus 2010).

**Assumptions of SRT**

1. Rituals are a fundamental component of human behavior and social processes and have always been present in society.
2. Rituals occur in both secular and sacred context.
3. Rituals are dynamic in nature and subject to change.
4. Rituals are important to social agency and social life.
5. Rituals have great explanatory value.

SRT focuses on RSPs of social actors in their daily social lives. Daily rituals are made up of both personal and social rituals. These rituals help to create stability in social life and have symbolic meanings that give significance to individual actions of the actors. These RSPs can be individualized or collectively shared. The theory also takes into account how rituals at the macro levels can influence interpersonal behaviors if individual actors and vice versa (Knottnerus 2010, p. 10). Knottnerus (2010) notes that “although the theory addresses both personal and social rituals and recognizes that in certain situations some rituals may be carried out individually, SRT has emphasized the social nature of rituals” (p. 10).

The social setting/environment in which rituals occur involves two or more actors using communication interactions at least part of the time and is referred to as a “domain of interaction”. Knottnerus (1997) notes that individuals have a delimited sphere or region of social activity which he refers to as one’s social arena where the individual actor has power to produce effects that involve both
the actor’s cognition and behaviors (p. 261). The idea of the “domain of interaction” is simply a scope condition of the theory used to help clarify the nature of the social environment.

Individual actors may have single or multiple “domains of interactions” (social environments) which is important to brand community researchers as the web of relationships and interactions in the brand community environment involve interactions between consumers, the marketer, the firm and the brand (McAlexander et al. 2002). There may be single or multiple social environments other than the brand community that can significantly influence the development of ritualized symbolic practices in the brand community (Knottnerus 1997 p. 261).

The ritual experience can be broken down into four tangible components or elements as shown in figure 2 (Rook 1985 p. 253).

![Figure 2](Ritual Elements)

<table>
<thead>
<tr>
<th>Ritual Elements</th>
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<tbody>
<tr>
<td>1. Ritual Artifacts</td>
<td></td>
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<tr>
<td>2. Ritual Script</td>
<td></td>
</tr>
<tr>
<td>3. Ritual Performance</td>
<td>Role(s)</td>
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<tr>
<td>4. Ritual Audience</td>
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</table>

Ritual artifacts are non-human resources that accompany or are consumed in a ritual setting (Rook 1985). Examples of ritual artifacts include work by Belk (1988) and Ahuvia (2005). Ritual objects have been shown to reflect the consumers’ self-identity, where the object becomes an extension of the actor’s self (Belk 1988). Ritual artifacts have been referred to as “loved objects” and tend to be invested in by actors with large amounts of work, time, and dedication. The term “loved objects” refers to the increased importance and meaning that individual actors give to objects that are enduring. Loved objects can be part of the actor’s internal meaning as an extension of one’s self-identity. They can also be part of one’s external meaning as an extension of one’s group identity through shared meaning (Ahuvia 2005).

Ritual scripts are synonymous with ritualized behaviors or ritualization. Social practices that are regularly engaged in as part of the actors’ cognitive schemas or structures are also referred to as ritualized symbolic practices (RSPs) (Mitra and Knottnerus 2008). RSPs refer to practices that are regularly engage in standardized social practices of the group, and are action repertoires that are schema driven. Socially standardized refers to a social practice that is regularly engaged in. Action repertoire is a set of behaviors, the elements of which are socially standardized practices. Schema can be thought of as a cognitive structure involved with situations, events, objects, and sequences of actions (for further discussion of these terms and social psychology literature, see Knottnerus 2010 p. 18-20). Research in this area has focused on enactment of ritualized practices in communities and reproduction of ritualized behaviors and social structure within groups. It has also been used to look at collective ritual events and emotions (Knottnerus 1997).

Ritualization involves dramatic enactments, so dramaturgical metaphors have been applied to the social practices (Driver 1991; Goffman 1967). Ritual performance roles involve the individual actors and the actor’s performance of ritual roles. These roles can be extensive to non-existent, and are either active or passive (Rook 1985). In the brand community setting roles are performed by members of the brand community as well as by the firm and the brand. Knottnerus (2002) gives several examples of ritualized activities such as traditions, social customs, athletic or hobby pursuits, entertainers or music groups who regularly perform, and standardized ceremonial or non-ceremonial practices of political, social or religious groups to name a few. These ritualizations contain symbolic meaning or themes. In a similar
vein, Rook (1985) suggested a ritual “may be aimed a larger audience beyond those individuals who have a specified ritual performance role” (p. 253). Rituals that take place within brand communities may be interacted as a community and be seen by the community as well as by others outside of the community. In the case of web brand communities it is frequently the case that the actors performance of RSPs are viewed by an audience do to the social nature of these types of communities and their visibility society.

Four factors determine the degree that RSPs are important to group members as shown in figure 3 (Knottnerus 2007). RSPs help us to measure the importance and value that the individual community member places in the ritual and can help use to gauge the importance of the ritualizations that occur within the social group. The concept of RSPs is a way to operationalize the study of and importance of ritual practices within brand communities. This addresses Rook’s (1985) desire for methods that can begin to empirically operationalize the study of “symbolic consumption” and to “decode symbolic meanings” (p. 262).

<table>
<thead>
<tr>
<th>Ritualized Symbolic Practices</th>
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<tbody>
<tr>
<td>1. Salience</td>
</tr>
<tr>
<td>2. Repetitiveness</td>
</tr>
<tr>
<td>3. Homologousness</td>
</tr>
<tr>
<td>4. Resources</td>
</tr>
</tbody>
</table>

First, salience is the degree to which a ritualized symbolic practice within a domain of interaction is noticeable. More frequent reference to certain ritual practices within a group as well as the length of time that ritualized actions take has been suggested as ways to measure the salience of an RSP within a group (Knottnerus 1997).

Second, repetitiveness refers to the “frequency with which a RSP is performed” (Knottnerus 1997 p. 262). A range of occurrence can be used to determine if RSPs are practiced rarely or are engaged in frequently within a social setting or domain (Knottnerus 2007 p. 5).

Third, homologousness is the degree of perceived similarity “sameness” (in meaning and form) among RSPs (Mitra and Knottnerus 2008). The more homologous are the RSPs, the greater the likelihood that they will reinforce each other and enhance the impact of the RSPs on the actors in the social setting (Knottnerus 2007).

Fourth, resources refer ritual artifacts which have already been mentioned. Ritual artifacts are needed to engage in RSPs which are available to actors (Knottnerus 1997). The ownership or availability of ritual artifacts needed for engaging in the RSP the more likely the actor will engage in the RSP. Resources can also be human resources as well. Human resources refer to the abilities and characteristics of actors as perceived by the group members that have value for the individual actor or the group. Some examples of human resources include physical, emotional, social, and mental resources that allow one to actor to interact more easily with other actors (Knottnerus 2007). Human resources also involve attributes or abilities of individuals such as knowledge, status, positions of authority, etc. (Knottnerus, 2010). Non-human resources are defined as other resources that are not human but are perceived to have value for the individual actor or the group. Examples of non-human resources could be those provided by the firm such as a brand, computer resources, marketing, or by the individual or group such as pictures, equipment, money and so forth.

These four factors of RSPs give us a measure of the overall rank or strength of the RSPs. This allows for the theory to test the importance of the ritualized practices within the social domain of
interaction. Rank is defined as the relative dominance or standing of an RSP (Knottnerus, 2010). By focusing on RSPs using SRT it is possible to understand how rituals create brand community culture.

In order to demonstrate this, I will first illustrate these concepts with examples from the brand community literature, and then with an example from a web brand community using RSPs to explore the culture in the Facebook brand community.

**Applying SRT to Past Brand Community Research**

By reviewing past work on brand communities it is possible to analyze this research through the framework of ritualization theory. In table 1, two past studies involving a product or service related brand community are analyzed using SRT. The four factors of RSPs - salience, repetitiveness, homologousness, and resources - are used to illustrate their role in the ritualization process. SRT argues that the greater the degree of these four factors, the greater the rank or standing of the RSPs. The same holds true for the community as well. If the rank of the RSPs is greater in the community’s social environment, then RSPs will be similar among group members within that brand community (Mitra and Knottnerus 2008).

<table>
<thead>
<tr>
<th>Brand Community</th>
<th>Salience</th>
<th>Repetitiveness</th>
<th>Homologousness</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casino (McAlexander, Kim, and Roberts 2003)</td>
<td>Casino offerings such as gaming offerings, food/beverage specials, special events such as concerts. Interactions with casino staff and other gamers.</td>
<td>Club members were shown to play more, as were more experienced players, and payers who had integrated into the community.</td>
<td>Gamers were similar based on their amount of experience and type of games played - blackjack, poker, bingo, and slots.</td>
<td>Ritual artifacts such as storytelling, documenting winners, good luck tokens. Human resources included gaming expertise, close relationships with other customers, competitive environment, and staff interaction.</td>
</tr>
</tbody>
</table>
Both of these brand communities rank high in RSPs which are shared among the members involved in these communities. As the rank of the RSPs in brand communities increases, new related practices will also begin to emerge among actors in the brand community. Schouten and McAlexander (1995) stated that the different subgroups of riders created customized clothing and mannerisms that lead them to be distinctly different from other HOGS while at the same time creating greater homogeneity among the clubs members. McAlexander et al. 2003 also found that the RSPs were cumulative and created more loyalty towards future brand community activities as a result of these experiences.

Although there are several articles on brand communities, there have not been as many on virtual brand communities that are considered to be the web brand community that Fornier and Lee (2009) describe as the strongest type of brand community. Virtual communities are mediated social spaces within a digital environment that allow communities to form and be sustained through social participation (Bagozzi and Dholakia 2002). I wish to look at this type of brand community that is commonly referred to as a social network in more detail by looking at the types of RSPs that are being created in the Facebook brand community.

EXPLORATORY WORK

In this section I will be using a qualitative approach to explore the types of RSPs being created in the Facebook brand community. Facebook was selected for this research since the users on Facebook are form into communities based the actors existing social ties and social networks. The goal of the Facebook company is to map all of these relationships for all of humanity. By overlaying the community on top of an existing social network, this type of community can realize rapid growth and has the potential to become valuable to the actor as his or her rank of the RSPs increases. The value of Facebook to the communities on Facebook will also increase within the community in like manner as the rank of the RSPs increases in the community. As the network grows, it also becomes more valuable to the organization as well as the actors and for the communities within the Facebook site. This is based on a principle from networks called Metcalfe’s Law. Metcalf’s Law states that a network becomes more valuable as it reaches more users (Metcalf 1995).

Facebook, developed in 2004, was based on the concept of an online site where high school and college students could chat and post photos without having other adults on their sites (Loten 2008). In 2010, Facebook’s earnings were estimated at $1.9 billion the company was valued at $50 billion (Fullick 2011). Facebook is the largest display advertiser on the internet, accounting for nearly 1 in 4 online display ads in the U.S. (Triggs 2010). According to the Facebook website, Facebook has over 500 million active users, and comScore reports that 71% of internet users are on Facebook (Triggs 2010).

Rituals are an important part of the Facebook community use. Members on Facebook are involved with daily ritualizations involving text-based discussions, photo sharing, and email. During initial exploratory research, I circulated a questionnaire to a group of students who were active on Facebook. Initial analysis revealed that the ritualizations revolved around both daily rituals and ritual transitions. Daily ritualizations in the Facebook brand community involve personal sharing and interacting about current and personal events as well as activities. These are shared through the sites features including the actor’s personal profile, web page or wall, and the sites of other friends and family members that are linked in to the actor’s community as friends. The actor has control of their personal access and can include or exclude individuals from his or her community.

Students commented on the questionnaire that they shared personal events in their daily lives including sharing their emotions and feelings. Many students said that they used Facebook as a way to keep in touch with friends and family, update their network on what they were doing, and to comment on what their friends and family were also doing. A summary of the daily ritualizations and ritual transitions that were mentioned by the students are shown in table 2. The ritualizations that were mentioned most often
revolve around daily social interactions dealing with connecting and reconnecting as well as sharing. Current events and entertainment were also prominent themes within the daily ritualizations. Many of the important ritual transitions were also mentioned. These involved both positive and negative transitions that individuals experienced or shared.

Table 2

<table>
<thead>
<tr>
<th>Daily Ritualizations</th>
<th>Daily Activities</th>
<th>Games</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Friends</td>
<td>Work</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
<td>Clubs</td>
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<tr>
<td></td>
<td>Family</td>
<td>Sports</td>
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<tr>
<td></td>
<td>Shopping</td>
<td>Community</td>
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<tr>
<td></td>
<td>Food</td>
<td>Weather</td>
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<tr>
<td></td>
<td>Media</td>
<td>Church</td>
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<tr>
<td></td>
<td>Travel</td>
<td>Politics</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ritual Transitions</th>
<th>Birth of a child</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celebrations</td>
<td>Misfortunes</td>
<td>Holidays</td>
</tr>
<tr>
<td>Graduation</td>
<td>Birthdays</td>
<td>Gift giving</td>
</tr>
<tr>
<td>Work Transitions</td>
<td>Birthdays</td>
<td>Gift giving</td>
</tr>
<tr>
<td>Celebrations</td>
<td>Anniversaries</td>
<td>Work Transitions</td>
</tr>
<tr>
<td>Birth of a child</td>
<td>Vacation</td>
<td>Death</td>
</tr>
</tbody>
</table>

Personal discussion of these activities along with the individual’s location were often mentioned. This type of ritualization is enacted through the use of the individuals posts and comments involving the wall (page). These walls are similar to diary or journal keeping except that it is more closely related to blogging where the information is more open to all those in the community who have access to their own and other members’ walls within the community. Community members could write comments, post pictures, or express themselves through music or videos. Aside from daily activities, students also discussed work related issues, school, current events, and leisurely activities that are also part of their ritualizations within their Facebook communities. Facebook offers games, shopping, and applications created by third party companies that were also frequently referred to. The details of my current research and future research in this area along with the importance of applying SRT to consumer research involving rituals will be discussed in the concluding section.

DISCUSSION AND FUTURE RESEARCH

The Facebook brand community is a good example of how SRT and RSPs can be applied to brand community research to demonstrate how daily ritualizations help to form community consciousness, culture, and history. By looking at the four elements of the ritual experience one can come to an understanding of these ritualizations that are occurring within the Facebook brand community. The four elements are listed in table 1, and will each be addressed in regards to the Facebook brand community in the following discussion.

Four factors determine the degree that RSPs are important to group members are salience, repetitiveness, homologousness, and resources (ritual artifacts). First, the ritual scripts or RSPs (see
In the Facebook community are salient. The individual member has to consciously be involved with Facebook in order to have access/membership on the site. As the individual member creates his or her site, an embedded group or community is being formed within the larger Facebook community. SRT focuses on “the role ritualization plays in the formation, reproduction, and transformation of social structure in groups embedded or nested within a larger social environment. Embedded groups are bounded groups located within a more encompassing organized collectivity” (Mitra and Knottnerus 2008, p. 250). The actor’s community has news feeds, wall posts, email, and phone messages that remind the user of the Facebook site and new information that has been posted to the site. These reminders occur in real time as new content is posted to the site.

Second, repetitiveness - Facebook use and participation in these RSPs within the members own community occur with great frequency. Over half of Facebook users are online each day (Triggs 2010). The average Facebook user has about 130 friends and creates more than 90 pieces of content each month (2011). Members who access their Facebook community using their cell phones, spend twice the amount of time and provide more content on Facebook than users who access the community using a computer (Triggs 2010). According to SRT if the repetitiveness of the ritualization increases the rank of the RSPs will also increase.

Third, there is a high degree of similarity or homologousness among ritualized practices that occur in the Facebook brand community. The fact that the ritualizations of relationships, activities, entertainment, work and community were discussed together by respondents as well as how these ritualizations where shared and communicated in a similar fashion demonstrates the similarity of the tools and resources on the site that allow for the sharing of RSPs and interactions socially with others as part of the RSPs.

Fourth, the resources (ritual artifacts) experienced in the Facebook Brand community consists of music, video, pictures, web pages, emails, chat histories, and stories that make up the non-human resources. The human resources include the relationship of the actor to the others in the community as well as the expertise, and artistic skills of the actor in interacting/performing for others in the community that the actor has created for himself or herself.

Future research will allow for a more complete picture of the different types of RSPs that take place within Facebook. I wish to conduct semi-structured interviews using students as insiders to conduct the interviews with their family members or friends who are current users of Facebook. Semi-structured interviews were selected for this research as it will allow the student to first view the friend or family members own site first and then enter into what is referred to as a ‘guided conversation’ with the informant (Zaltman and Coulter 1995). It will also allow for the interviews to take place where the consumption occurs (Martin et al. 2006). Martin, Schouten, and McAleander (2006) argue that “the importance of the venue cannot be overstated. By conducting the research in the places where consumption occurs we are able to ground the informants’ narratives in the sensory and symbolic fullness of their lives as lived and displayed through their own possessions (Martin et al. 2006 p. 367).

Using the findings from this qualitative approach, I hope to have a richer narrative and more solid understanding of the types of RSPs that exploratory work in this area cannot provide on its own. In addition to understanding the RSPs, I hope to learn how members became acculturated to the Facebook brand community. This will help me to understand more about how these communities spread throughout the larger social environment. Given the diversity of brand community members who use Facebook, survey research could also show related groups or clusters of similar users/communities within the larger Facebook community. By using quantitative data it would be possible to identify groups that have different forms of RSPs in common with each other.
This is a new and exciting area for research in brand communities and rituals as well. Current research suggests that there is a lack of research within these web brand communities, and a need for a better understanding of the drivers of consumer participation and motivation (Casaló et al. 2008). Also from a managers perspective, these communities are useful in order to involve their consumers in a marketing dialogue, which has been noted as a key factor to achieving greater brand involvement and loyalty (Andersen 2005). SRT has been applied to several different research areas in the field of social psychology, but this is the first study to apply this theory in the marketing domain. Research in consumer behavior, especially in work regarding behaviors that are ritualized could greatly benefit from applying this new theory to areas of consumption and ritual behaviors.
REFERENCES


MODELING THE DETERMINANTS OF THE SATISFACTION-LOYALTY RELATIONSHIP: THEORY AND EMPIRICAL EVIDENCE

Younghan Bae, Gary J. Russell, & Lopo Rego, University of Iowa

ABSTRACT

Customer satisfaction and loyalty are central constructs to marketing research and practice since they reflect how effectively firms deliver value to their customers, and because they are important determinants of current and future product-marketplace and financial performance. In this study, we develop a comprehensive and flexible theoretical framework for analyzing the association between customer satisfaction and customer loyalty, which also incorporates competitive setting differences. This theoretical framework is grounded in more than 40 years of academic and practitioner research on the association between these two constructs and allows us to more precisely examine the true nature of the association between satisfaction and loyalty. Additionally, we test our theoretical framework by estimating an empirical hierarchical linear model, using American Customer Satisfaction Index data and several customer, firm and industry characteristics. Our findings indicate that the true nature of the association between satisfaction and loyalty is significantly influenced by context. Controlling for such differences allows firms and managers to significantly increase their ability to effectively convert satisfaction investments into loyalty. Additionally, we identify significant decreasing marginal returns for customer satisfaction investments, as well as important trade-offs between intercept and slope on the association between the two metrics. Our study provides important theoretical, managerial and regulatory insights, and broadens our understanding of the essential features of the satisfaction-loyalty association.

INTRODUCTION

The association between customer satisfaction and customer loyalty is one of the most vital relationships for marketing theory and practice, because of its implications for firm profitability (Anderson and Mittal 2000; Gupta, Lehmann, and Stuart 2004; Reichheld and Sasser 1990; Reinartz, Thomas and Kumar 2005; Thomas, Reinartz, and Kumar 2004). In summary, the extant literature posits customer satisfaction – generally posited as an attitude – summarizes customer perceptions regarding their overall consumption experiences (Anderson and Salisbury 2003), as the primary driver of customer loyalty – usually conjectured as a behavioral measure of future intentions to repurchase (Reinartz and Kumar 2003). To this purpose, firms invest billions of dollars developing customer satisfaction monitoring systems, in order to gather customer intelligence and to better predict how satisfaction translates into customer loyalty (Ittner and Larcker 2003; Reichheld 2003). In fact, these customer satisfaction investments represent the number one marketing research expenditure item for the vast majority of firms, amounting to roughly $14B annual expenditures in marketing research.

However, and despite the magnitude of these expenditures and investments, paired with more than 40 years of academic and practitioner research on the association between customer satisfaction and loyalty, customer satisfaction commands a relatively modest predictive power over loyalty. Although several studies have clearly established a positive association between customer satisfaction and customer loyalty (Anderson 1996; Fornell 1992; Fornell et al 1996), numerous issues remain unresolved with regards to the linearity, symmetry, magnitude and stability of the marginal returns of this association (Deming 1986; Finkelman et al. 1992; Heskett et al. 1994; Jones and Sasser 1995; Kamakura et al. 2002; Oliva et al. 1992; Oliver 1999; Seiders et al. 2005; Woodruff et al. 1983), resulting in a relatively modest overall coefficient of association (i.e., $R^2$), typically measured at around or below 45%. This is obviously frustrating for marketing practitioners and academics, in light of the magnitude of the investments made.

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in customer satisfaction, as well as the extant academic research developed on this topic over more than four decades.

The primary reason advanced in justifying the modest magnitude of the association between customer satisfaction and customers loyalty, has typically focused on differences in competitive settings facing customers, firms and competitors, leading to a variety of diverse settings under which customer satisfaction translates – or not – into customer loyalty. Several studies have highlighted that customer, firm and industry (i.e., the competitive setting) differences results in varying levels of customer satisfaction, customer loyalty and therefore, variations on the strength of the association between these two constructs (Anderson 1994; Anderson and Sullivan 1993; Bryant and Cha 1996; Gronhaldt et al. 2000; Homburg and Giering 2001; Mittal and Kamakura 2001). Failure to account for these is likely the primary reason for the relatively modest predictive power of customer satisfaction onto customer loyalty.

In this study, we develop an extensive, yet simple and flexible, theoretical framework that incorporates differences in competitive settings facing customer and firms, to examine the association between customer satisfaction and customer loyalty. This theoretical framework is solidly grounded in more than 40 years of existing marketing theory on the association between these two constructs, and by directly addressing differences in competitive settings, allows us to more precisely examine the true nature of the association between satisfaction and loyalty, using demographic information to proxy for customer differences, business characteristics such as size, advertising and R&D expenditures, brand portfolio and segment strategies to measure firm differences, and market concentration, type and dynamism to capture industry differences. We also develop and estimate a hierarchical empirical model to test the theoretical framework developed, using 2004 American Customer Satisfaction Index (ACSI) data, representing 15,188 customers, from 66 firms, in 13 different industries.

This study contributes to the marketing literature in three ways. First, we extend our understanding of the seminal association between customer satisfaction and customer loyalty. In doing so, we expand our comprehension of how marketing investments in market-based assets (Srivastava et al. 1998) such as customer satisfaction, translate into customer loyalty, enhance profitability, the level and stability of future cash flow, and create firm value. Second, we provide a set of important managerial insights regarding the true drivers of customer loyalty and how these can significantly impact (or hinder) manager’s ability to directly influence customer loyalty and firm profitability. Third, the hierarchical and multi-level framework developed, allows us to benchmark the relative importance each level/factor has in determining the levels of customer loyalty, and also how effectively the firm can map customer satisfaction onto loyalty. These findings are rather significant for benchmarking purposes and also for all stakeholders trying to assess businesses capabilities and skills.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The primary goal of the theoretical framework we develop next is to incorporate customer, firm, and industry differences as potential determinants of the relationship between customer satisfaction and loyalty to examine the precise magnitude of the impact of customer satisfaction on customer loyalty.

Differences in customer, firm and industry characteristics can result in dramatically different competitive settings which are likely to cause significant variations in the levels of customer satisfaction and customer loyalty, as well as on the strength of the satisfaction-loyalty association. In our theoretical framework we seek to understand and incorporate which customer, firm and industry factors are likely influence variations in the levels of customer satisfaction, customer loyalty and variations in the satisfaction-loyalty association.

The extant marketing literature identifies a positive relationship between customer satisfaction and customer loyalty (e.g., Anderson 1996; Bolton, Lemon, and Bramlett 2006; Cooil et al. 2007; Fornell
et al 1996; Mittal and Kamakura 2001) unless specific settings or conditions exist regarding customers’ choices. However, it is likely that constraints or circumstances can exist such that customer choice (i.e., purchases) behavior can be influenced and/or limited. For instance, extreme and significant departures from positive satisfaction-loyalty association have been demonstrated under monopolistic settings (Agustin and Singh 2005; Deming 1986; Kamakura et al. 2002; Oliver 1999; Seiders et al. 2005; Verhoef 2003). This extant literature also identifies several customer, firm, and industry characteristics that can significantly impact the level and strength of satisfaction-loyalty association.

In summary, existing research has studied the effects of a variety of these customer, firm and industry factors on the satisfaction-loyalty association. Below we summarize and detail how these moderating customer, firm, and industry characteristics have been demonstrated to impact the levels of customer satisfaction and customer loyalty, as well as the strength of the satisfaction-loyalty association.

Customer Characteristics

The extant literature identifies several customer-level characteristics that influence the satisfaction-loyalty association. For the purpose of this study, we focus on five primary customer-level covariates. These customer-level covariates are customer demographics such as age, gender, income, and education. Marketing theory indicates that these covariates can influence the levels of customer satisfaction and customer loyalty, and the strength of the satisfaction-loyalty association. Peterson and Wilson (1992), indicate that the level of customer satisfaction is likely to vary with customer characteristics. Customers evaluate goods or services with standards of judgment that are based on different thresholds, and which are dependent on different customer experiences or characteristics, suggesting that indeed, some customers are more difficult to please than others.

Such threshold differences result in varying levels of customer satisfaction (Mittal and Kamakura 2001). More specifically, the impact of customer-level demographics such as age has been shown to positively influence customer satisfaction levels (Bryant and Cha 1996; John and Cole 1986; Gilly and Zeithaml 1985; Mittal and Kamakura 2001). Research suggests that information processing abilities declines with age and hence the perceived value, degree of discrepancy between actual and expected (perceived) quality, could be higher for older customers, leading a higher satisfaction.

Regarding gender differences, females tend to exhibit higher levels of customer satisfaction. Researchers have suggested that females’ evaluations of their consumption experiences are higher than males’ (Bryant and Cha 1996). Female customers typically give more positive judgments than male customers. Additionally, since females also tend to do more shopping than men, their experience in comparing quality and value is better developed than males, resulting in better evaluations and possibly higher levels of satisfaction (Mittal and Kamakura 2001).

Household Income has been demonstrated to negatively impact the level of satisfaction (Bryant and Cha 1996). Value perceptions and customer’s sense of what they can afford affect judgments of satisfaction. Customers with higher household incomes likely have higher expectation thresholds and hence are likely to a higher degree of disconfirmation of quality. In short, the level of satisfaction is likely to be smaller for higher levels of household income. Similarly, the association between education levels and customer satisfaction is likely to be negative, because customers with higher education are also likely to have higher thresholds.

Additionally, the level of customer loyalty has also been demonstrated to vary on the basis of customer demographics. Age and loyalty have been shown to be positively associated. Purchasing involvement decreases with age (information processing abilities declines with age), indicating that older customers spend less time in their search behavior (Slama and Tashchian 1985). Similarly, purchasing involvement is generally negatively associated with the level of customer loyalty (McDonald 1993),
because customers with a greater purchasing involvement level tend to engage in higher information gathering and usage, and hence tend to have greater awareness of available alternatives (Capon and Burke 1980). Furthermore, older customers’ purchasing decisions are mainly based on older experiences (Phillips and Sternthal 1977). Therefore, older customers tend to be more loyal.

Regarding gender, it has been empirically shown that female customers exhibit higher levels of loyalty (Verhoef and Donkers 2005; Petterson 2007). Since female customers generally place a higher value on long-term relationships, they also tend to be more brand loyal than male (Petterson 2007).

Household income is believed to positively influence the level of customer loyalty. On one hand, customers that are more concerned with prices tend to be less loyal (i.e., lower household incomes lead to increased price comparisons and lower loyal), and similarly, higher income customers tend to be more loyal (East et al. 1995; Shankar et al. 2003).

Existing research has also consistent with the fact that higher levels of education are associated with lower levels of loyalty. As education levels increase, so does customers’ need for information related to their purchase decision, thereby increasing purchasing involvement (Slama and Tashchian 1985). This association between education levels and purchasing involvement suggests that education levels should be negative associated with loyalty.

Finally, the strength of the association between customer satisfaction and loyalty is also known to vary significantly as customer characteristics vary. Differences in customer characteristics lead to differences in their thresholds or tolerance levels toward repurchase, resulting in varying levels of customer loyalty for the same level of customer satisfaction (i.e., customers with the same level of satisfaction may have different levels of repurchase behavior due to their own idiosyncratic differences).

Customers with lower thresholds or higher tolerances are more likely to repurchase and hence are more likely to be loyal (Mittal and Kamakura 2001). Regarding customers’ age, a positive association between age and the strength of the satisfaction-loyalty association has been advanced (Mittal and Kamakura 2001; Homburg and Giering 2001; Cooil et al. 2007; Serenko et al. 2006; Floh and Treiblmaier 2006). Older customers tend to have lower thresholds or be more tolerant than younger customers, and are also likely to have more stable preferences. Therefore, older customers tend to exhibit higher levels of loyalty for the same level of satisfaction.

Gender differences have also been shown to impact the strength of the satisfaction-loyalty association (Mittal and Kamakura 2001; Homburg and Giering 2001; Serenko et al. 2006; Floh and Treiblmaier 2006). Females are more likely to have lower thresholds or be more tolerant than males. Therefore, females tend to exhibit higher levels of loyalty given the same level of satisfaction.

Researchers have also suggested that income levels are negatively associated with the strength of the satisfaction-loyalty association (Homburg and Giering 2001; Cooil et al. 2007; Serenko et al. 2006; Hallowell 1996). For a given level of customer satisfaction, higher household income customers tend to display lower levels of loyalty than lower income customers, primarily based on how their threshold and tolerance levels vary with education. On the contrary, we expect that education levels increase the strength of the association between satisfaction and loyalty.

**Firm Characteristics**

In order to better understand how the effects of different circumstances facing firms impact the customer satisfaction-loyalty association, we examine several firm-level characteristics. While existing marketing research is much more limited in explaining the influence firm-level covariates may have on the levels of customer satisfaction and customer loyalty, or the strength of the satisfaction-loyalty
association, we expect that firm differences are likely play a significant role in determining both the level of customer satisfaction (Bryant and Cha 1996). We also expect that systematic variations across firms are likely to influence both the antecedents and the consequences of customer satisfaction, therefore impacting on the strength of the satisfaction-loyalty association (Anderson and Sullivan 1993).

We identify five firm-level covariates including firm size, advertising expenditures, R&D expenditure, number of brands offered and the number of segments a firm operates as the primary firm-level covariates. Morgan and Rego (2006) included firm size, advertising intensity, R&D intensity, and number of brands in exploring the relationship between different customer metrics (satisfaction/loyalty) and several short- and long-term firm financial performance measures. Similarly, Gruca and Rego (2005) used firm-level covariates such as advertising intensity, R&D intensity, number of brands, and the number of segments to investigate the impact of customer satisfaction on firm profitability and shareholder value.

Several arguments have been advanced in justifying the influence these firm-level covariates may have on the level and strength of the satisfaction-loyalty association. For instance, the number of brands in a firm’s portfolio may signal superior brand image and promote increased marketing effectiveness (Kapferer 1992). Similarly, the number of distinct business segments in which a firm operates and firm size (measured by a firm’s assets) control for any economics of scope and scale that may affect business performance (McGahan and Porter 1997; Morgan and Rego 2006). Finally, high(er) advertising intensity firms (i.e., advertising-to-sales ratio) and R&D intensities (i.e., R&D-to-sales ratio) may bring superior (at least perceived) products to market and increase brand image of their products by communicating more effectively.

Industry Characteristics

In our examination of the customer satisfaction-loyalty association, we also include industry-level covariates to control for the impact different competitive settings can have on the satisfaction-loyalty association. We identify five primary industry-level covariates: Hirschmann-Herfindahl Index (HHI), industry type: goods vs. services, and short- vs. long-inter-purchase cycle, 3-year industry demand growth and 3-year industry demand variability. The extant marketing literature indicates that these covariates influence the level of satisfaction and loyalty, and the strength of the satisfaction-loyalty association.

Several studies (Anderson 1994; Bryant and Cha 1996; Fornell and Johnson 1993) have demonstrated that the level of satisfaction varies on the basis of industry-level characteristics. Differences in industry conditions result in varying levels of customer satisfaction (i.e., customer satisfaction differs across industries). Industry concentration, as measured via Hirschmann-Herfindhal Index (HHI) has been shown to be negatively associated with the level of customer satisfaction (Anderson 1994; Anderson and Sullivan 1993; Fornell and Johnson 1993; Fornell and Robinson 1983; Johnson and Fornell 1991; Fornell 1992). HHI is defined as the sum of square of all firms’ market shares in an industry (Hirschman 1964):

Industries characterized with increased competition (i.e., lower concentration) tend to also be more differentiated. In such industries, competitors recognize and embrace that customers have different preferences (i.e., perceived expectations and quality) and attempt to provide a variety of product and service offerings to satisfy the different preferences of these heterogeneous customers (Gronroos 1983; Fornell and Johnson 1993). Additionally, in more competitive settings, firms need to deliver higher quality levels to their customers (Fornell and Robinson 1983). Accordingly, more competitive industries tend to exhibit higher levels of perceived performance of products or services and thereby higher levels of customer satisfaction. In order words, firms in more concentrated industries can get by with providing lower levels of perceived performance, and thus will display lower levels of satisfaction.
Service oriented industries tend to have a lower level of customer satisfaction (Anderson 1994; Fornell and Johnson 1993; Bryant and Cha 1996; Fornell et al. 1996). The levels of intangibility in the offerings affect customer behavior (Anderson, Fornell and Rust 1997). In order to meet the different needs and wants of customers, firms that offer more tangible products tend to be able to better standardize the quality of their offerings, thus resulting in higher levels of customer satisfaction. Likewise, firms that operate in services industries, have to rely more frequently on intangible resources which are also more difficult to be standardized, leading to higher uncertainty in the production of services compared to goods (Gronroos 1983; Zeithaml et al. 1988). Therefore, goods oriented industries are usually characterized with more varied offerings and thereby enjoy higher levels of customer satisfaction (Fornell and Johnson 1993).

Regarding inter-purchase cycles, Anderson (1994), Anderson and Sullivan (1993), and Johnson and Fornell (1991) suggest that there is a negative relationship between inter-purchase cycle length and the level of customer satisfaction. In industries characterized with a shorter inter-purchase cycle, the frequency of usage for products or services will increase. This increased frequency of usage can increase a customer’s accumulated experiences and relatively accurate priors on quality of products or services, leading to less disconfirmation (or higher perceived quality) and in turns higher levels of satisfaction (Anderson 1994). As a result, industries with a longer inter-purchase cycle will have lower levels of customer satisfaction.

Additionally, the levels of customer loyalty also tend to vary on the basis of industry-level characteristics. As the level of customer satisfaction differs across industries, so does the level of purchasing involvement. These differences also result in differences in the levels of customer loyalty. For instance, a positive association between industry concentration and loyalty has been advanced by Anderson (1994). Besides the lack of alternatives and bargaining power that firms in more concentrated industries command, these firms also tend to offer fewer products or services. Therefore, customers do not spend significant amounts of time in their purchase involvement behavior, resulting in higher levels of customer loyalty. Service oriented industries have also been shown to exhibit higher levels of customer loyalty (Anderson 1994). It is easier for customers to compare price and attributes levels for goods than it is for them to do so for services. As customers spend additional time in price-comparisons of goods than they do for services, service-oriented industries face less purchase involvement and hence may also exhibit higher level of customer loyalty. Similarly, industries characterized with a longer inter-purchase cycle tend to also exhibit lower levels of customer loyalty (Anderson 1994). In industries with longer inter-purchase cycles, customers use products or services for a long time, which in turn influences customer reliance on the offerings (Gupta 1988). In these circumstances, customer can more easily evaluate and compare price and other product attribute levels, leading to higher purchase involvement and lowered levels of customer loyalty.

The strength of the association between customer satisfaction and loyalty has also been demonstrated to vary on the basis of industry conditions. In terms of industry concentration, the more concentrated an industry is, the lower the strength of the customer satisfaction-loyalty association is (Anderson 1994; Gronhaldt et al. 2000; Voss et al. 2010). Additionally, the degree of differentiation and purchase involvement is lower (higher threshold or less tolerance levels toward repurchase likelihood) in more concentrated industries. Therefore, levels of customer loyalty will be higher for these industries, for the same level of customer satisfaction.

Service oriented industries also tend to exhibit reduced strength of the satisfaction-loyalty association (Anderson 1994; Edvardsson et al 2000; Gronhaldt et al 2000). Regarding inter-purchase cycle, researchers have found no significant relationship between industry type and the strength of the satisfaction-loyalty association (Anderson 1994). However, we expect that levels of loyalty will be higher
for the same satisfaction level in longer inter-purchase-cycle industries, as longer cycle impacts customers’ experience and reliance on products and services.

In addition to these industry-level covariates, we identified two additional industry-level covariates: Demand growth (measured by the average 3-year industry sales growth), and demand variability (measured by the standard deviation of the 3-year industry sales growth), based on research by Gruca and Rego (2005) and Morgan and Rego (2006). Based on their work, we expect that these two additional covariates will further explain variations in the levels of customer satisfaction and loyalty and the strength of the satisfaction-loyalty association.

**MODEL AND HYPOTHESES**

The primary objective of this study is to examine the impact of customer satisfaction on customer loyalty while controlling for the different competitive settings faced by customers and firms. We do so by incorporating customer, firm, and industry characteristics described above in our empirical formulation. We next detail our sampling framework and describe the dataset assembled.

Our sampling framework is provided by a subset of the ACSI data. This dataset is hierarchical in nature – i.e., customers within firms, and firms nested into industries. Our initial sample contains 15,188 customers, from 66 firms, in 13 different industries (food processing, beer, soft drink, tobacco, apparel, athletic shoes, personal care product, personal computer, household appliance, automobile, parcel delivery, express, scheduled passenger air transportation, and hotels). The ACSI used in this study is reported at the national level in the United States. The ACSI data is cross-sectional (i.e., multiple firms, across different industries). The information on variables in the ACSI corresponds to the time from January 2004 to December 2004. The ACSI data reports information on individual customers’ loyalty, satisfaction, various demographics including age, gender, income, and education. We supplemented this dataset by collecting firm-level data on firm size, advertising expenditures, R&D expenditures, number of brands offered by each firm and the number of segments a firm operates. These additional variables were obtained from COMPUSTAT and Hoovers.com databases. Finally, also using COMPUSTAT data, we calculated industry concentration (HHI), 3-year industry demand growth, and 3-year industry demand variability, using sales revenue data for all firms in the same industry as those reported in the ACSI data. Below we describe all variables in additional detail.

**Outcome Variable**

Customer loyalty scores obtained from the ACSI database provides our dependent variable. The loyalty score is a continuous variable that measures the repurchase likelihood of a customer. This score lies on between 0 and 100 (for additional details see Fornell et al. 1996).

**Independent Variables**

The ACSI database also supplies customer satisfaction scores, the focal covariate on our empirical model. The satisfaction score is a continuous variable that measures the overall and cumulative customer satisfaction at the customer level. These scores range between 0 and 100, and are constructed as a latent variable, based on three indicators summarizing overall satisfaction, expectations and ideal point (for additional details see Fornell et al. 1996).

All additional customer level characteristics (i.e., demographics) that affect loyalty were also supplied by the ACSI database. More specifically, age is a continuous variable whose range is between 18 and 84. Gender is a binary variable indicating 0 for male and 1 for female. Income is an ordered categorical variable (i.e., taking the value of 1 for household incomes below $20,000; 2 for income between $20,000 but less than $30,000; 3 for income between $30,000 and $40,000; 4 for income levels between $40,000 and $60,000; 5 for incomes between $60,000 and $80,000; 6 for $80,000-$100,000;
and 7 indicating incomes above $100,000). Education is also an ordered categorical variable, ranging from 1 (i.e., less than high school) through 5 (i.e., post-graduate education).

**Moderating Variables**

*Customer Characteristics*

As we indicate in the literature review section above, the four primary customer-level covariates (i.e., age, gender, income and education) are posited to influence the strength of the satisfaction-loyalty, as well as the level of customer loyalty. Therefore, we include the interaction terms between satisfaction and these four customer-level covariates into the customer-level of our hierarchical model.

*Firm Characteristics*

As suggested in our theoretical framework, different circumstances facing firms are likely to influence the customer satisfaction-loyalty association (i.e., loyalty and the strength of the satisfaction-loyalty link). We include the following firm-level covariates in our model: firm size, advertising expenditures, R&D expenditures, the number of brands, and the number of segments. We used the natural log of a firm’s assets to proxy firm size (we performed this transformation as the original variable – assets – exhibited severe skewness). Advertising-to-sales ratios were computed as each firm’s advertising expenditures to revenues; R&D-to-sales ratios were computed similarly, by dividing each firm’s R&D expenditures by revenues (Morgan and Rego 2006). We parsed the Hoovers.com database to compute the number of brands offered by each firm. Finally, we gathered the number of distinct business segments from the COMPUSTAT database. We performed a natural log transformation to this variable, as it displayed substantial skewness.

*Industry Characteristics*

To control for the impact of different competitive settings on the customer satisfaction-loyalty association (i.e., loyalty and the strength of the satisfaction-loyalty link), we include in our empirical model the five industry-level covariates mentioned earlier. These include HHI, industry type (goods vs. services), inter-purchase cycle (short vs. long), 3-year industry demand growth and 3-year industry demand variability. In order to compute the concentration metric, we first collected sales revenue data from COMPUSTAT for all publicly traded firms on each of the 13 industries for which we have data. Next, we calculated HHI as the sum of square of all firms’ market shares in an industry. HHI is a commonly accepted measure of industry concentration, with higher HHI indicates increased concentration. The average 3-year industry demand growth and 3-year industry demand variability (i.e., standard deviation of the 3-year industry growth rate), were also computed using sales revenue data for all publicly traded firm on each of the 13 industries. Finally, we created an industry type dummy using 0 for goods oriented industries, and 1 for services oriented industries. Last, our inter-purchase cycle dummy was defined as 0 for short inter-purchase cycles (i.e., less than 3 months on average) and 1 for long inter-purchase cycles.

**Descriptive Statistics and Correlations**

Our empirical model incorporates customer-, firm-, and industry-level covariates. Inspection of the correlation table, paired with the fact that our empirical model includes interaction terms, raises the concern for multicolinearity. In order to minimize this impact, we standardized the customer-level covariates of age, income, education, as well as the customer satisfaction scores (Aiken and West 1991). We excluded the gender covariate as it is a dummy variable. We used these standardized variables to generate the interactions we include in our empirical model (i.e., interactions are calculated between the z-score of satisfaction and the z-scores of age, income and education). At the firm-level, we utilized all original covariates for our empirical model estimation. Finally, at the industry-level, we computed a median split dummies for HHI, 3-year industry demand growth and 3-year industry demand variability. In
this process, these industry-level covariates are 0 if their value is lower than the median and 1 if their value is higher than the median. Although we understand that dichotomizing leads to loss of information, the estimates obtained are substantively the same compared to those obtained using continuous version of the variables. However, dichotomization significantly alleviated model convergence concerns.

**Table 1A: Customer-Level Descriptive Statistics (No. Observations: 15,188)**

<table>
<thead>
<tr>
<th>Customer-Level Variables</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loyalty</td>
<td>74.252</td>
<td>0.218</td>
<td>26.885</td>
<td>0.000</td>
<td>82.856</td>
<td>100.000</td>
</tr>
<tr>
<td>Age</td>
<td>0.000</td>
<td>0.008</td>
<td>1.000</td>
<td>-1.993</td>
<td>-0.005</td>
<td>2.381</td>
</tr>
<tr>
<td>Gender</td>
<td>0.600</td>
<td>0.004</td>
<td>0.490</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Income</td>
<td>0.000</td>
<td>0.008</td>
<td>1.000</td>
<td>-1.741</td>
<td>-0.211</td>
<td>1.319</td>
</tr>
<tr>
<td>Education</td>
<td>0.000</td>
<td>0.008</td>
<td>1.000</td>
<td>-2.144</td>
<td>-0.340</td>
<td>1.463</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.000</td>
<td>0.008</td>
<td>1.000</td>
<td>-4.186</td>
<td>0.194</td>
<td>8.345</td>
</tr>
<tr>
<td>Satisfaction*Age</td>
<td>0.177</td>
<td>0.008</td>
<td>0.980</td>
<td>-8.241</td>
<td>0.048</td>
<td>8.114</td>
</tr>
<tr>
<td>Satisfaction*Gender</td>
<td>0.049</td>
<td>0.006</td>
<td>0.768</td>
<td>-4.186</td>
<td>0.000</td>
<td>1.114</td>
</tr>
<tr>
<td>Satisfaction*Income</td>
<td>-0.110</td>
<td>0.008</td>
<td>1.030</td>
<td>-5.523</td>
<td>-0.051</td>
<td>7.290</td>
</tr>
<tr>
<td>Satisfaction*Education</td>
<td>-0.144</td>
<td>0.008</td>
<td>0.998</td>
<td>-6.126</td>
<td>-0.097</td>
<td>8.976</td>
</tr>
</tbody>
</table>

**Table 1B: Firm-Level Descriptive Statistics (No. Observations: 66)**

<table>
<thead>
<tr>
<th>Firm-Level Variables</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Size (natural log)</td>
<td>9.647</td>
<td>0.182</td>
<td>1.481</td>
<td>6.886</td>
<td>9.437</td>
<td>13.529</td>
</tr>
<tr>
<td>Advertising-Sales Ratio</td>
<td>0.040</td>
<td>0.005</td>
<td>0.043</td>
<td>0.003</td>
<td>0.026</td>
<td>0.257</td>
</tr>
<tr>
<td>R&amp;D-Sales Ratio</td>
<td>0.015</td>
<td>0.002</td>
<td>0.017</td>
<td>0.000</td>
<td>0.009</td>
<td>0.059</td>
</tr>
<tr>
<td>No. Brands</td>
<td>17.773</td>
<td>2.538</td>
<td>20.617</td>
<td>1.000</td>
<td>9.000</td>
<td>79.000</td>
</tr>
<tr>
<td>No. Segments (natural log)</td>
<td>1.133</td>
<td>0.123</td>
<td>0.998</td>
<td>0.000</td>
<td>0.896</td>
<td>4.159</td>
</tr>
</tbody>
</table>

**Table 1C: Industry-Level Descriptive Statistics (No. Observations: 13)**

<table>
<thead>
<tr>
<th>Industry-Level Variables</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration (HHI)</td>
<td>0.206</td>
<td>0.045</td>
<td>0.160</td>
<td>0.063</td>
<td>0.161</td>
<td>0.626</td>
</tr>
<tr>
<td>Goods-Service Dummy</td>
<td>0.231</td>
<td>0.122</td>
<td>0.439</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Short-Long Cycle Dummy</td>
<td>0.462</td>
<td>0.144</td>
<td>0.519</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>3-Year Demand Growth</td>
<td>0.074</td>
<td>0.008</td>
<td>0.029</td>
<td>-0.006</td>
<td>0.078</td>
<td>0.118</td>
</tr>
<tr>
<td>3-Year Demand Instability</td>
<td>0.046</td>
<td>0.010</td>
<td>0.037</td>
<td>0.014</td>
<td>0.033</td>
<td>0.129</td>
</tr>
</tbody>
</table>
### Table 2A: Customer-Level Correlations (No. Observation: 15,188)

<table>
<thead>
<tr>
<th></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>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loyalty</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>0.122**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gender</td>
<td>0.067**</td>
<td>0.007</td>
<td>1.000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Income</td>
<td>-0.105**</td>
<td>-0.055**</td>
<td>-0.149**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Education</td>
<td>-0.117**</td>
<td>-0.041**</td>
<td>-0.067</td>
<td>0.452**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Satisfaction</td>
<td>0.607**</td>
<td>0.177**</td>
<td>0.099**</td>
<td>-0.110**</td>
<td>-0.144**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Satisfaction * Age</td>
<td>-0.047**</td>
<td>0.077**</td>
<td>0.001</td>
<td>-0.099**</td>
<td>-0.071**</td>
<td>-0.083**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Satisfaction * Female</td>
<td>0.483**</td>
<td>0.138**</td>
<td>0.052**</td>
<td>-0.093**</td>
<td>-0.121**</td>
<td>0.771**</td>
<td>-0.058**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Satisfaction * Income</td>
<td>0.005</td>
<td>-0.095**</td>
<td>-0.011</td>
<td>0.026**</td>
<td>0.026**</td>
<td>-0.005</td>
<td>0.020**</td>
<td>-0.097**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>10. Satisfaction * Education</td>
<td>0.015**</td>
<td>-0.070**</td>
<td>-0.013</td>
<td>0.027**</td>
<td>0.033**</td>
<td>-0.008</td>
<td>0.020**</td>
<td>-0.023**</td>
<td>0.473**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### Table 2B: Firm-Level Correlations (No. Observation: 66)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm Size (natural log)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Advertising-Sales Ratio</td>
<td>-0.167</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. R&amp;D-Sales Ratio</td>
<td>0.432**</td>
<td>0.045</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. No. Brand</td>
<td>0.072</td>
<td>0.282**</td>
<td>0.041</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>5. No. Segments (natural log)</td>
<td>0.045</td>
<td>0.068</td>
<td>-0.057</td>
<td>0.623**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### Table 2C: Industry-Level Correlations (No. Observation: 13)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Concentration (HHI)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Goods-Service Dummy</td>
<td>-0.286</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Short- Long Cycle Dummy</td>
<td>0.025</td>
<td>0.592**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 3-Year Demand Growth</td>
<td>0.031</td>
<td>-0.429</td>
<td>-0.348</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>5. 3-Year Demand Instability</td>
<td>0.214</td>
<td>-0.293</td>
<td>-0.068</td>
<td>-0.187</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Tables 1 and 2 summarize descriptive statistics and correlations for all customers, firm and industry-level metrics described above. As it can be observed, and a consequence of the transformations performed, all correlations reported are relatively small suggesting that multicollinearity is likely to be of no concern.

**Hypotheses**

We now briefly summarize our hypotheses, based on our review of the extant literature. We report our hypotheses separating by customer-, firm- and industry-levels.

**Customer Characteristics influence on Loyalty level and Strength of the Satisfaction-Loyalty Association**

- **H1a:** Older customers are expected to be more loyal.
- **H1b:** The strength of the satisfaction-loyalty association is expected to be higher for older customers.

- **H2a:** Female customers are expected to be more loyal (than male customers).
- **H2b:** The strength of the satisfaction-loyalty association is expected to be higher for female customers.

- **H3a:** More affluent customers are expected to be more loyal.
- **H3b:** The strength of the satisfaction-loyalty association is expected to be lower for affluent customers.

- **H4a:** More educated customers are expected to be less loyal.
- **H4b:** The strength of the satisfaction-loyalty association expected to be higher for educated customers.

**Effect of Firm Characteristics on Loyalty and the Strength of the Satisfaction-Loyalty**

- **H5a:** Firm size is expected to be positively associated with loyalty levels.
- **H5b:** The strength of the satisfaction-loyalty association should weaken with firm size.

- **H6a:** Advertising expenditures are expected to be negatively associated with loyalty levels.
- **H6b:** The strength of the satisfaction-loyalty association should strengthen with advertising.

- **H7a:** R&D expenditures are expected to be positively associated with loyalty levels.
- **H7b:** The strength of the satisfaction-loyalty association should weaken with R&D expenses.

- **H8a:** The number of brands offered is expected to be positively associated with loyalty levels.
- **H8b:** The strength of the satisfaction-loyalty association should weaken with number of brands offered.

- **H9a:** The number of brands offered is expected to be negatively associated with loyalty levels.
- **H9b:** The strength of the satisfaction-loyalty association should strengthen with number of segments.

**Effect of Industry Characteristics on Loyalty and the Strength of the Satisfaction-Loyalty**

- **H10a:** Loyalty is expected to be higher in more concentrated industries.
H10b: The strength of the satisfaction-loyalty association should be weaker in concentrated industries.

H11a: Loyalty is expected to be higher in services oriented industries.
H11b: The strength of the satisfaction-loyalty association should be weaker in services industries.

H12a: Loyalty is expected to be lower in long inter-purchase cycle industries.
H12b: The strength of the satisfaction-loyalty association should be stronger for long purchase cycles.

H13a: Loyalty is expected to be higher for higher average demand growth industries.
H13b: The strength of the satisfaction-loyalty association should be weaker for growth industries.

H14a: Loyalty is expected to be higher for higher demand instability industries.
H14b: The strength of the satisfaction-loyalty association should be weaker with demand instability.

**METHOD AND FINDINGS**

To test the hypotheses summarized above, that customer-, firm-, and industry-level characteristics influence the level of customer loyalty and the strength of the customer satisfaction-customer loyalty association, we estimate a three-level hierarchical linear model (HLM) formulation. Our empirical HLM formulation incorporates firm- and industry-level moderators in a nested structure. Please see Anderson et al. (2004) and Gruca and Rego (2005), for examples of HLM applications in marketing. As stated, our empirical model includes customer, firm and industry levels. More specifically, the 1st level or customer level is modeled using the following equation:

\[
\text{Loy}_{ijk} = a_{jk} \text{Demographics}_{ijk} + b_{jk} \text{Sat}_{ijk} \times \text{Demographics}_{ijk} + \epsilon_{ijk}
\]

\[
= \left( \alpha_{0jk} + \alpha_{1jk} \text{Age}_{ijk} + \alpha_{2jk} \text{Gender}_{ijk} + \alpha_{3jk} \text{Income}_{ijk} + \alpha_{4jk} \text{Education}_{ijk} \right) +
\left( \beta_{0jk} + \beta_{1jk} \text{Age}_{ijk} + \beta_{2jk} \text{Gender}_{ijk} + \beta_{3jk} \text{Income}_{ijk} + \beta_{4jk} \text{Education}_{ijk} \right) \times \text{Sat}_{ijk} + \epsilon_{ijk},
\]

where customer i’s loyalty for firm j in industry k is a function of demographics and the association between demographics and satisfaction. The moderating effects of customer characteristics are operationalized in the regression as interaction terms between satisfaction and the demographics variables.

Following the hierarchy in the data and theoretical framework, we next model the baseline loyalty and the strength of the association between satisfaction and loyalty as a function of the firm covariates. We incorporate the previously detailed five firm-level covariates into the 2nd level – or firm level – of our HLM model via.
Finally, to capture the impact of industry characteristics in the examination of the satisfaction-loyalty relationship, we also model the baseline loyalty and the strength of the satisfaction-loyalty association as a function of the five previously summarized industry characteristics. We incorporate these industry-level covariates into the 3rd level – or industry level – of our HLM model via:

\[
\begin{align*}
\pi_{00k} &= \gamma_{00} + \gamma_{01} HH_{k} + \gamma_{02} Service_{k} + \gamma_{03} Long_{k} + \gamma_{04} Growth_{k} + \gamma_{05} Instability_{k} + \nu_{00k}, \\
\pi_{01k} &= \gamma_{01} + \nu_{01k}, \\
\pi_{02k} &= \gamma_{02} + \nu_{02k}, \\
\pi_{03k} &= \gamma_{03} + \nu_{03k}, \\
\pi_{04k} &= \gamma_{04} + \nu_{04k}, \\
\pi_{05k} &= \gamma_{05} + \nu_{05k}, \\
\pi_{10k} &= \gamma_{10} + \nu_{10k}, \\
\pi_{20k} &= \gamma_{20} + \nu_{20k}, \\
\pi_{30k} &= \gamma_{30} + \nu_{30k}, \\
\pi_{40k} &= \gamma_{40} + \nu_{40k}, \\
\pi_{51k} &= \gamma_{51} + \nu_{51k}, \\
\pi_{52k} &= \gamma_{52} + \nu_{52k}, \\
\pi_{53k} &= \gamma_{53} + \nu_{53k}, \\
\pi_{54k} &= \gamma_{54} + \nu_{54k}, \\
\pi_{55k} &= \gamma_{55} + \nu_{55k}, \\
\pi_{60k} &= \gamma_{60} + \nu_{60k}, \\
\pi_{70k} &= \gamma_{70} + \nu_{70k}, \\
\pi_{80k} &= \gamma_{80} + \nu_{80k}, \text{ and} \\
\pi_{90k} &= \gamma_{90} + \nu_{90k}.
\end{align*}
\]
We estimate our empirical hierarchical model – equations (1) through (3) above – using the HLM software package and methodology. The HLM method adopts various estimation methods including empirical Bayes method for estimating within-industry coefficients, generalized least squares estimating between-industry coefficients, and a maximum likelihood algorithm for estimating the components of the variance-covariance matrix (Raudenbush and Bryk 2002). We report our results as a series of nested models, from a simpler customer-level covariates only, to a more complex customer and firm-level covariates formulation, to the full model specification, including customer, firm and industry covariates. In doing so, we reassure the stability of our findings and gain insights on the variance partitioning across the three different levels of covariates.

Table 3 summarizes the results of our empirical analyses, as well as the degree of fit and variance partitioning across the different levels of our hierarchical linear model. Figures 1 and 2 summarize the differences on the levels of customer loyalty and on the strength of the association between customer satisfaction and customer loyalty across the 13 different industries for which we estimated our empirical model formulation. Similarly, Figures 3 and 4 display the impact that education – the only statistically significant customer-level covariate examined – has on the levels of customer loyalty and on the strength of the association between customer satisfaction and customer loyalty across the same 13 different industries.
Table 3: Hierarchical Linear Model Estimates

<table>
<thead>
<tr>
<th>Estimates</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level-1 (Customer)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept Effects</td>
<td>$a_0$</td>
<td>75.305</td>
<td>69.987**</td>
</tr>
<tr>
<td>Age</td>
<td>$a_1$</td>
<td>0.394</td>
<td>0.445*</td>
</tr>
<tr>
<td>Gender</td>
<td>$a_2$</td>
<td>0.631</td>
<td>0.604</td>
</tr>
<tr>
<td>Income</td>
<td>$a_3$</td>
<td>0.530*</td>
<td>0.497*</td>
</tr>
<tr>
<td>Education</td>
<td>$a_4$</td>
<td>-0.511*</td>
<td>-0.544**</td>
</tr>
<tr>
<td><strong>Satisfaction Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>$b_0$</td>
<td>14.954</td>
<td>17.158**</td>
</tr>
<tr>
<td>Satisfaction*Age</td>
<td>$b_1$</td>
<td>0.269</td>
<td>0.149</td>
</tr>
<tr>
<td>Satisfaction*Gender</td>
<td>$b_2$</td>
<td>0.855*</td>
<td>0.723</td>
</tr>
<tr>
<td>Satisfaction*Income</td>
<td>$b_3$</td>
<td>-0.268</td>
<td>-0.130</td>
</tr>
<tr>
<td>Satisfaction*Education</td>
<td>$b_4$</td>
<td>0.851**</td>
<td>0.830**</td>
</tr>
<tr>
<td><strong>Level-2 (Firm)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$a_0$ Firm Size (natural log)</td>
<td>$p_{i01}$</td>
<td>0.551</td>
<td>0.809</td>
</tr>
<tr>
<td>Advertising-Sales Ratio</td>
<td>$p_{i02}$</td>
<td>-16.202</td>
<td>-39.459</td>
</tr>
<tr>
<td>R&amp;D-Sales Ratio</td>
<td>$p_{i03}$</td>
<td>3.823</td>
<td>5.938</td>
</tr>
<tr>
<td>No. Brands</td>
<td>$p_{i04}$</td>
<td>0.114**</td>
<td>0.156**</td>
</tr>
<tr>
<td>No. Segments (natural log)</td>
<td>$p_{i05}$</td>
<td>-0.687</td>
<td>-1.314*</td>
</tr>
<tr>
<td>$b_0$ Firm size (natural log)</td>
<td>$p_{i51}$</td>
<td>-0.275</td>
<td>-0.400</td>
</tr>
<tr>
<td>Advertising-Sales Ratio</td>
<td>$p_{i52}$</td>
<td>33.984**</td>
<td>41.048**</td>
</tr>
<tr>
<td>R&amp;D-Sales Ratio</td>
<td>$p_{i53}$</td>
<td>-39.935</td>
<td>-89.798**</td>
</tr>
<tr>
<td>No. Brands</td>
<td>$p_{i54}$</td>
<td>-0.089**</td>
<td>-0.097**</td>
</tr>
<tr>
<td>No. Segments (natural log)</td>
<td>$p_{i55}$</td>
<td>1.022**</td>
<td>0.979**</td>
</tr>
<tr>
<td><strong>Level-3 (Industry)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$p_{i00}$ Concentration (HHI)</td>
<td>$g_{001}$</td>
<td>5.546**</td>
<td></td>
</tr>
<tr>
<td>Goods-Services Dummy</td>
<td>$g_{002}$</td>
<td>3.755</td>
<td></td>
</tr>
<tr>
<td>Short- Long Cycle Dummy</td>
<td>$g_{003}$</td>
<td>-4.399*</td>
<td></td>
</tr>
<tr>
<td>3-Year Demand Growth</td>
<td>$g_{004}$</td>
<td>1.526</td>
<td></td>
</tr>
<tr>
<td>3-Year Demand Instability</td>
<td>$g_{005}$</td>
<td>4.102**</td>
<td></td>
</tr>
<tr>
<td>$p_{i50}$ Concentration (HHI)</td>
<td>$g_{501}$</td>
<td>-1.980</td>
<td></td>
</tr>
<tr>
<td>Goods-Services Dummy</td>
<td>$g_{502}$</td>
<td>-6.376**</td>
<td></td>
</tr>
<tr>
<td>Short- Long Cycle Dummy</td>
<td>$g_{503}$</td>
<td>5.184**</td>
<td></td>
</tr>
<tr>
<td>3-Year Demand Growth</td>
<td>$g_{504}$</td>
<td>-0.012</td>
<td></td>
</tr>
<tr>
<td>3-Year Demand Instability</td>
<td>$g_{505}$</td>
<td>-3.300**</td>
<td></td>
</tr>
<tr>
<td><strong>Variance Partitioning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level-1 (%)</td>
<td></td>
<td>47.265</td>
<td>42.658</td>
</tr>
<tr>
<td>Level-2 (%)</td>
<td></td>
<td>16.101</td>
<td>10.723</td>
</tr>
<tr>
<td>Level-3 (%)</td>
<td></td>
<td>36.634</td>
<td>46.620</td>
</tr>
<tr>
<td><strong>Log-Likelihood Value</strong></td>
<td>$lnL$</td>
<td>-67,316.4</td>
<td>-67,294.1</td>
</tr>
<tr>
<td><strong>AIC</strong></td>
<td>$2k-2lnL$</td>
<td>134,874.9</td>
<td>135,160.1</td>
</tr>
</tbody>
</table>

Note: ** - significant at $p<0.05$; * - significant at $p<0.10$;
Figure 1: Baseline Customer Loyalty Differences by Industry

\[
\text{Loyalty} = B_0 + B_1 \cdot \text{Satisfaction}
\]

Figure 2: Differences in Strength of the Satisfaction-Loyalty by Industry

\[
\text{Loyalty} = B_0 + B_1 \cdot \text{Satisfaction}
\]
Figure 3: Impact of Education Levels in Baseline Loyalty by Industry

\[ \text{Loyalty} = (B_0 + \text{Education}) + B_1 \cdot \text{Satisfaction} \]

Figure 4: Impact of Education Levels in Satisfaction-Loyalty Association by Industry

\[ \text{Loyalty} = B_0 + (B_1 + \text{Education}) \cdot \text{Satisfaction} \]
DISCUSSION AND IMPLICATIONS

Model Comparison and Model Fit

From the perspective of the goodness of fit of our three empirical models, Model 1 (customer-level covariates only, although variance is partitioned across customer, firm, and industry) fits very well, as it yields the smallest AIC. Between Model 2 (incorporating customer- and firm-level covariates) and Model 3 (incorporating customer-, firm-, and industry-level covariates), model 3 fits the data slightly better, at least based on the AIC criteria. It is important to note that the number of parameters for Model 3 is 296 while the number of parameters that need to be estimated for Model 1 is 121. However, examination of the log-likelihood function (a measure of fit not penalized for the number of additional parameters estimated), Model 3 exhibits a better fit than Model 1, suggesting that the inclusion of the additional parameters significantly improves the fit over Model 1. We believe that these results provide us with a reasonable assumption to test our hypotheses based on the coefficient estimates obtained from the full three-level hierarchical model.

Results

Effect of Customer Characteristics on Loyalty and the Strength of the Satisfaction-Loyalty

As shown in Table 3, the sign of the coefficient estimates for the customer-level covariates is exactly consistent with our theoretical framework. However, only the education parameters are statistically significant. Education indeed reduces loyalty while increasing the strength of the association between customer satisfaction and customer loyalty, indicating that more educated customers tend to be less loyal. However, the strength of the satisfaction-loyalty association tends to increase with customers’ education levels.

Effect of Firm Characteristics on Loyalty and the Strength of the Satisfaction-Loyalty

At the firm-level covariates, the sign of the firm-level coefficient estimates corresponds to the expectations delineated in our theoretical framework. The number of brands positively impacts baseline loyalty, whereas the number of segments significantly reduces baseline loyalty. Regarding the strength of the association, advertising expenditures and the number of segments significantly strengthen the satisfaction-loyalty association, whereas R&D expenditures and the number of brands contribute to significantly weaken the strength of that association.

Effect of Industry Characteristics on Loyalty and the Strength of the Satisfaction-Loyalty

At the industry-level covariates, the sign of the industry-level coefficient estimates also correspond to those highlighted in our hypotheses. Industry concentration and demand instability significantly raise baseline loyalty, whereas industries characterized by longer inter-purchase cycles exhibit significantly lower baseline loyalty levels.

Regarding the strength of the satisfaction-loyalty association, it is significantly weaker for more concentrated, services oriented and instable demand industries, and stronger for longer inter-purchase cycle industries.

Estimated Heterogeneity

As reported in Table 3, industry characteristics adjust for a significant amount of the variance (37%) in our three-level hierarchical model. In order to explore how the levels of baseline customer loyalty ($a_0$) and the strength of the customer satisfaction-loyalty association ($b_0$) are impacted by other structural differences (i.e., how the levels vary across 13 different industries), we computed $a_0$ and $b_0$ across the 13 industries. The HLM method generates firm- and industry-level empirical Bayes residuals for the $a_0$ and $b_0$ estimates for the three-level hierarchical model. We computed $a_{0k}$ and $b_{0k}$, industry $k=1$, ..., 13 by adding the industry-level empirical Bayes residuals for the $a_0$ and $b_0$ estimates to $a_0$ and $b_0$ estimates (Please see Anderson et al. 2004 and Gruca and Rego 2005 for details). These estimates for $a_{0k}$
and $b_{0k}$ for the 13 industries are displayed in Figures 1 and 2 respectively. Figure 1 summarizes differences in the levels of baseline loyalty and Figure 2 summarizes differences in the strength of the satisfaction-loyalty association over industry. The baseline level of customer loyalty is relatively higher for airlines, express delivery, household appliances, personal care, soft drinks, beer, and food processing industries than the industry average baseline loyalty. However, compared to the industry average, baseline loyalty levels are relatively smaller for hotels, automobiles, personal computers, athletic shoes, apparel, and tobacco industries. With regards to industry differences on the strength of the customer satisfaction-loyalty association, customer satisfaction translates onto customer loyalty more easily for hotels, automobiles, personal computers, athletic shoes, apparel, tobacco categories and more difficulty for airlines, express delivery, personal care, soft drink, beer, and food processing categories. We identify an interesting pattern in the association between customer satisfaction and customer loyalty via this analysis. We identify significant decreasing marginal returns for customer satisfaction investments, as well as important trade-offs between intercept and slope on the association between the two metrics (i.e., if the baseline loyalty grows, the satisfaction-loyalty association decreases for a category). This is – however – not totally surprising, given the potential and significant floor and ceiling effects that may regulate the satisfaction-loyalty association, both in terms of level and strength.

In addition, we performed similar analyses based on education levels. We did so by computing $a_{4k}$ and $b_{4k}$ by adding the industry-level empirical Bayes residuals for the $a_4$ and $b_4$ estimates to $a_4$ and $b_4$ estimates. Figure 3 summarizes differences in the impact of education levels on the baseline loyalty and Figure 4 summarizes differences in the impact of education levels on the strength of the satisfaction-loyalty association over industry. We also identify significant decreasing marginal returns as well as trade-off for the impact of education levels except athletic shoes, tobacco, and soft drinks categories.

### Managerial Implications

As discussed above, customer characteristics play the most significant role (51%) in the association between customer satisfaction and customer loyalty. However, our analyses reveal that firm and industry characteristics influence the baseline loyalty and the strength of the satisfaction and loyalty association and in turn affect the satisfaction-loyalty association. Also, industry characteristics (37%) significantly impact the association. Besides, we identified the trade-offs between intercept and slope on the satisfaction-loyalty association.

Managers of firms can utilize these findings. Managers can identify which customer, firm, and industry characteristics influence the transformation between customer satisfaction and customer loyalty, the ultimate goal of managers and how they can formulate their marketing strategies on the formulation of brand and segment portfolios. For example, a large brand portfolio strategy can increase the baseline loyalty but reduces the strength of the satisfaction-loyalty association in the end. On the contrary, a high investment on advertising can influence the satisfaction-loyalty association by fortifying the strength of the association although it does not impact the baseline loyalty.

### LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

In spite of several contributions of our study, this paper has a few limitations. One important limitation is associated with the fact that dataset utilized in our analyses covers a single year. Similarly, the cross-section covered is limited to 13 industries. Other studies using ACSI have utilized broader cross-section and time-series datasets. We expect to be able to address this limitation in future studies, in order to be able to verify the generalizability of the findings in the current study.

Additionally, while the current study broadens our understanding of the association between customer satisfaction and customer loyalty and the influence that customer, firm, and industry characteristics exert over that association, it would be interesting to also deploy a similar method to the determinants of customer satisfaction: one would expect that customer expectations, quality perceptions,
and perceived value will translate into different levels of customer satisfaction based on customer, firm, and industry differences. We also hope to be able to address this question in a future study.

CONCLUSION

The marketing literature identifies that customer loyalty is one of the most important customer metrics because it is one of the most important drivers of firm profitability and customer satisfaction is the primary driver of customer loyalty. The focus lies on how customer satisfaction is converted to customer loyalty, and in turn firm profitability. Therefore, the association between customer satisfaction and loyalty is one of the most vital relationships for marketing theory and practice. Indeed, firms invest billions of dollars developing customer satisfaction monitoring systems to better predict how satisfaction translates into customer loyalty.

However, the predictive power of customer satisfaction to customer loyalty is still relatively modest despite the magnitude of these expenditures and investments. Although many studies have clearly established a positive association between these metrics, several issues remain unresolved, resulting in a relatively modest overall coefficient of association. This is obviously frustrating for marketing practitioners and academics. The primary reason typically offered in justifying such findings has to do with failure to account for differences in customer and firm characteristics and industry competitive settings facing customers and firms, which leads to many possible different settings under which customer satisfaction translates into customer loyalty.

In this study, we develop an extensive, yet simple and flexible, theoretical framework that incorporates these differences to explore the association between customer satisfaction and loyalty. This theoretical framework is solidly grounded in more than 40 years of existing marketing theory on the association between these two constructs, and allows us to more precisely examine the true nature of the association between satisfaction and loyalty by directly addressing differences in customers, firms, and competitive settings. We also propose a three-level hierarchical model to test our theoretical framework. We estimate this model using the HLM approach. Our empirical results indicate that the moderating effects of customer, firm, and industry characteristics are significant. Among these characteristics, customer characteristics play the most significant role (51%) in the association between customer satisfaction and customer loyalty. However, our analyses reveal that firm and industry characteristics influence the baseline loyalty and the strength of the satisfaction and loyalty association and in turn affect the satisfaction-loyalty association. Also, industry characteristics (37%) significantly impact the association. Furthermore, we identify significant decreasing marginal returns for customer satisfaction investments, as well as important trade-offs between intercept and slope on the association between the satisfaction and loyalty metrics. Our study provides important theoretical, managerial and regulatory insights, and helps broaden our understanding of the critical features of the satisfaction-loyalty association.
REFERENCES


SLEIGHT OF MIND: THE INTERACTION OF CONSCIOUS AND NONCONSCIOUS CONSUMPTION GOALS

James A. Mourey & Carolyn Yoon, University of Michigan

ABSTRACT

Goals guide our choices and behaviors, and life is full of conflicting goals. Further complicating this conflict is the finding that goals need not even be conscious to motivate and affect behavior. Building on the consumption and goal literatures, the present work explores the differential effects of nonconscious goal influence when individuals face conflicting conscious goals, a phenomenon dubbed “sleight of mind.” The authors suggest that this relationship between conscious and nonconscious goals may also give rise to what is commonly referred to as a “gut feeling” or “intuition.” In a series of studies, the authors explore a proposed model of conscious and nonconscious consumption goals positing that nonconscious cues provide an adaptive, facilitative role in decision-making in the presence of conscious goal conflict. In the first study, evidence is provided supporting the hypothesized moderating role that conflicting conscious goals have on the relationship between nonconscious goals and behavior. In the second study, the importance of relevance between the conscious and nonconscious goals is tested with evidence suggesting that relevant context boosts the effectiveness of nonconscious cues while irrelevant context mitigates their effectiveness, even producing contrasting behavioral effects.

INTRODUCTION

Goals are desired end states that, once activated, guide our choices and behaviors (Custers and Aarts 2005). Life, however, is full of conflicting goals. Whether it is a goal of saving money competing with a goal of spending, a goal of environmental preservation via recycling versus a goal of convenience via disposable paper products, or even a goal to be the best employee up against a goal of being the best parent when time is limited, each day brings more goals and, as a result, more opportunity for conflicts.

A reasonable question to consider then is how individuals ultimately make a tough decision when their goals are in conflict with one another. Further complicating this decision is the finding that goals need not even be conscious to motivate us and to affect our behavior (Bargh 2002). Indeed, studies in marketing and consumer behavior have found that nonconscious goals both emerge and influence behavior beyond the conscious awareness of human beings, such as the finding that incidental exposure to brands like Nordstrom or Wal-Mart make consumers spend more or less money, respectively (Chartrand et al. 2008). Although research suggests that these nonconscious goals operate comparably to their conscious counterparts (Chartrand and Bargh 1996), it remains to be understood how conscious and nonconscious goals influence each other, particularly when goals are in conflict. The present paper attempts to fill this gap by exploring this interaction between conscious and nonconscious goals, and to a greater extent, how humans make decisions and behave when goals are in conflict.

Specifically, the present paper introduces and tests a model of goal development, pursuit, and conflict resolution incorporating both conscious and nonconscious goals in consumption contexts. The model suggests that when encumbered with a conflict between two conscious goals consumers become more susceptible to the influence of underlying nonconscious goals, as well as the behaviors activated by these nonconscious goals, yet remain unaware of this influence. We refer to this phenomenon as a “sleight of mind,” as it is comparable to how a magician deliberately misdirects an audience’s attention while covertly setting up his illusion in a sleight of hand trick. Taken together, the misdirection and the subtle setup create the illusion. In this context, conscious goal and nonconscious goals work together to produce a behavioral outcome in a similar manner to a magician’s obvious misdirection and subtle setup. This interplay between the conscious and nonconscious may provide insight on what is commonly referred to as a “gut feeling” or “intuition” in decision-making.
In the following sections, we present a brief literature review that provides the foundation upon which this research is built, introduce the specific hypotheses addressed in this paper, and present studies designed to test these proposed hypotheses. Theoretical and practical implications are then discussed.

THEORETICAL BACKGROUND

Three decades of research suggest that consumer behavior is largely goal-directed; that is, goals motivate the behaviors in which consumers engage (Bettman, Luce, and Payne 1998; Bettman 1979). Consumption, however, extends well beyond the purchasing of consumer packaged goods. Indeed, consumption can involve consuming concepts, expectancies, fluency, and goals (Ariely and Norton 2009). Taking these two ideas together – the influence of goals on consumer behavior and the wide variety of consumption activities – the importance of understanding exactly how goals operate and influence behavior becomes evident, as goals guide most of our daily actions and behaviors.

Nonconscious Goals and Consumer Behavior

Although many researchers have studied goals and goal-directed behavior, most of this research has focused on goals that consumers are consciously aware they possess. Fortunately, some researchers – Bargh, Dijksterhuis, Chartrand, and others – have explored the domain of nonconscious phenomena and automaticity. However, a gap in the literature exists with respect to the relationship of conscious and nonconscious consumption goals and how these goals interact, a gap the current paper addresses.

That nonconscious goals can cue or motivate behavior has been well established. Consider one study in which participants subtly primed with rudeness were significantly more likely to interrupt a conversation with the researcher than others primed with politeness (Bargh et al. 1996). Another study showed that the mere mention of a library led participants to speak more quietly during an experiment (Aarts and Dijksterhuis 2003). Moving the phenomenon into the domain of consumer research, Chartrand and colleagues (2008) showed how priming prestige and thrift led consumers to make systematically different purchases aligned with either prestige or thrift despite being unaware of the priming and its influence. Thus, researchers have established the foundation for the influence of nonconscious cues by showing that such subtle cues can have an overwhelming influence on the actions of participants. Although these experimental findings are important for providing insights regarding nonconscious influence, they are only first steps on path of understanding just how influential nonconscious cues can be.

What is less clear is how or why these nonconscious cues affect behavior, particular with respect to their conscious counterparts. To date, only one notable study (Légal et al. 2007) has explored what happens when a nonconscious goal conflicts or is compatible with a conscious goal. The researchers found that a nonconscious goal compatible with a conscious goal has an additive effect on behavior while a nonconscious goal conflicting with a conscious goal has a subtractive effect on subsequent behavior and performance on a task. This finding makes intuitive sense, but what is unclear is the underlying process of this interaction, potential exceptions or boundary conditions for this effect, and, most important to the present research, how other conflict/compatibility among conscious and/or nonconscious goals influence one another. For example, when two conscious goals are in conflict, how does the influence of a nonconscious goal change? Questions like this, which have not been addressed to date, are addressed by the present paper.

The importance of addressing this relationship between conscious and nonconscious goals is best illustrated via examples in which conscious and nonconscious goals interact. Take, for example, a patient’s conflicting conscious goals both to eliminate her cancer and to avoid the side effects of chemotherapy. Consider a juror’s conflicting conscious goals both to provide justice and to be forgiving. These are consumption decisions, and, at some point, one decision must be made. The notion that nonconscious cues in one’s environment can determine an individual’s decision regarding significant
medical treatment or a juror’s decision regarding the fate of a fellow human being suggests that this research question is one with far-reaching implications. Can something like the words a doctor uses to describe one’s treatment options subtly tip the scales in favor of one treatment over another? Can a lawyer’s nonverbal mannerisms lead a juror to send a criminal to jail instead of giving the perpetrator a second chance? Having a clearer understanding of how conscious and nonconscious goals interact is essential for understanding human behavior and, perhaps more importantly, for helping individuals make better decisions.

Although humans engage in several types of consumption – ideas, goals, fluency – illustrating the robustness and importance of this research, it is possible to consider the significance of the current research in a more traditional consumption setting: the marketplace. While one may argue that the previous examples of medical treatment and jury decision-making are extreme examples, less extreme, common examples include decisions like choosing paper or plastic bags at the grocery store, paying by cash or credit, or choosing between a safe car or a sexy car. In each example, different goals may motivate consumer choice, and if the alternatives are equally attractive, one can imagine conflict arising. Thus, it would seem that any context in which consumers must make choices involving tradeoffs between appealing options, each satisfying or fulfilling a different goal, would elicit this potential interaction between conscious and nonconscious goals.

Semantic and Goal Activation

A common question in the domain of priming involves whether the content cued is activating semantic content, goals, or both. Prior research (Sela and Shiv 2009) argues that the extent to which primes activate semantic content or instill goals depends on how self-consistent or self-discrepant those primes are. In their model, content that is self-consistent (i.e., the “actual self” and the “ought self” relevant to the cue are identical or similar) cues associated semantic content. Content that is self-discrepant (i.e., the “actual self” and the “ought self” relevant to the cue are different) cues motivation and goal-relevant behavior. While this formulation is useful for disentangling the semantic- or goal-activating role of primes, it is also useful in the way that it questions when or why nonconscious primes differentially influence behavior.

Using this prior research as inspiration, the present work employs a “thinking is for doing” (James 1890/1983), situated cognition approach, contending that primes are useful insofar as they are relevant or irrelevant for the decision-making task at hand. In our formulation, self-consistency/self-discrepancy is but one example of how primes differentially affect behavior. Instead of implicating the self, whether “actual” or “ought,” the present paper suggests an even more gist-level explanation for how nonconscious primes motivate behavior. Specifically, if nonconscious primes are useful for or relevant to resolving goals that are consciously conflicting, they will motivate behavior in the direction corresponding to the nonconscious prime. If, however, nonconscious primes are useless or irrelevant to resolving goals that are consciously conflicting, they will have the opposite effect: motivating behavior in the direction opposite to the nonconscious prime. In this model, nonconscious primes provide an adaptive role in that they are incorporated into decision making when relevant and contrasted away from when irrelevant.

Considering the current approach in light of the Sela and Shiv (2009) work while keeping in mind the tacit, heuristic, and subtle nature of primes, it may be that a relatively deeper self-reflection regarding consistency or discrepancy between “actual” and “ought” self is not the only way to explain the motivation or effect of nonconscious primes. Instead, it might be possible that self-consistency/discrepancy is merely a proxy for the usefulness of the primes in a given context. If thinking is, in fact, for doing, and conscious and nonconscious goals operate in a similar manner (Chartrand and Bargh 1996), then it should be the case that “not thinking” might also be for doing in this context. That is, relevant nonconscious primes, being helpful, should logically influence and motivate behavior, whereas
irrelevant nonconscious primes, being unhelpful, should be avoided or contrasted away from with respect to behavior.

HYPOTHESES

We hypothesize that the behavioral influence of nonconscious primes is moderated by the degree to which consciously-held goals are in conflict with one another. Two conflicting conscious goals should bolster the effect of nonconscious goal primes compared to the same two conscious goals presented as compatible. We argue that this moderating effect of consciously conflicting goals will only take place when the conscious and nonconscious goals are of the same type (e.g., conscious spending v. saving goals and nonconscious spending v. saving goals), however, as the nonconscious goals “tip the scales” potentially serving an adaptive, facilitative role at reducing or eliminating conscious conflict.

If, on the other hand, the conscious and nonconscious goals are not of the same type (e.g. conscious indulging v. fitness goals and nonconscious spending v. saving goals), then we expect that conflicting conscious goals will have a moderating effect in the opposite direction. That is, rather than bolster the effects of nonconscious goal primes on behavior, conflicting conscious goals that are different from the nonconscious goals will produce a contrasting effect such that nonconscious goals will exert behavioral consequences opposite to those intended. Given the predicted directional differences, all statistical tests are one-sided throughout unless otherwise noted.

STUDY 1: TO SAVE OR TO SPEND

To provide initial evidence for the proposed interactive relationship between conscious and nonconscious goals, the first study was designed to test the relationship when nonconscious goals were relevant to the conscious goals. Specifically, in the first study participants were asked to consider spending goals and saving goals. These goals were either presented as conflicting or compatible (consciously). Participants were then subtly exposed to nonconscious cues related to spending or saving and then given a situation in which they could choose to spend or to save. If, as predicated, nonconscious goal primes serve a facilitative role when people face conscious goal conflict, then we expect to see an interaction such that the nonconscious primes exert a stronger effect in a prime-consistent direction (i.e., spending cues leading to more spending, saving cues leading to more saving) when participants face conflicting conscious goals and less or no movement when conscious goals are presented as compatible.

Participants and Procedure

Undergraduate students (n = 196) participating in a subject pool for course credit completed a series of ostensibly unrelated consumer surveys broken up by a “mental break” activity. The three components were designed to elicit conscious goal conflict/compatibility, to instill a nonconscious goal, and to test the interaction between conscious and nonconscious goals, in that order. First, participants were told that a consumer research organization was interested in understanding the goals people had with respect to spending and saving money. In one condition – the “conflicting conscious goals” condition – participants were told the following:

“People often have the goal to save money for a rainy day as well as the goal to spend money on necessities or items they like to buy to enjoy life in the present. Often, trying to both save money and spend money at the same time is extremely difficult. Below, please write a bit about a SPECIFIC EXAMPLE from your life where the goal to save money and the goal to spend money CONFLICT with one another (i.e., where doing one makes the other one harder, both cannot be done at the same time). Be as detailed as possible.”

In the other condition – the “compatible conscious goals” condition – participants read an identical prompt, but instead of being presented as conflicting, spending and saving goals were presented as being “compatible,” where “doing one helped you do the other more easily” and it was noted that
doing both was “extremely easy” to do. Participants were again asked to elaborate on a specific example in their life in which their spending and saving goals were compatible with one another. In a third condition – the control condition – participants were simply told that the consumer research firm was interested in knowing what their average day was like and, as such, were asked to describe their typical day.

Following this first survey, participants moved on to what they were told was a “mental break” from completing surveys. This “mental break,” a word search puzzle, served as the nonconscious priming manipulation. Following a prior nonconscious priming paradigm (Bargh et al. 2001), the word search puzzles contained a mix of control words (e.g., building, lamp, staple) and either words that were related spending (e.g., consume, indulge, immediate) or words that were related to saving (e.g., defer, delay, future). The reasoning behind the word search’s use to instill nonconscious goals is that participants, so focused on searching for words and letters, pay only little attention to the words themselves. Thus, although the words activate associations related to semantic content or goals, it does so at a level of processing so subtle that participants are unaware of the relationship.

After completing the word search puzzle participants were presented with one last consumer survey. This survey, identical for all participants, contained our dependent variable measures. The survey was presented as a research study from the company Groupon. In the survey, participants were told that Groupon was planning to start a new program in which they would provide “Groupie points” that could be spent immediately on purchases or saved and accumulated over time for future purchases and rewards. Following a series of questions involving their knowledge of Groupon and experience with the company, participants were asked to indicate whether they would be more likely to spend or save Groupie points (10-point scale: 0 = spend, 10 = save). Following this task, participants were asked a series of manipulation checks, demographic questions, thanked, debriefed, and permitted to leave.

Results and Discussion

As predicted, the hypothesized interaction was marginally significant ($F(2, 190) = 1.935, p < .07$); although all participants were more likely to save points, in general, we see differences in the predicted direction such that participants in the conflicting conscious goals condition saw more movement in the nonconscious-prime consistent direction (i.e., saving primes led to more saving, spending primes led to more spending) than those in the compatible conscious goals condition. In fact, the nonconscious goal primes exerted little to no influence on the subsequent decision to spend or save Groupie points when conscious spending and saving goals were presented as compatible.

Manipulation checks revealed that the conflict/compatibility manipulation worked such that those participants randomly assigned to the conflicting conscious goals condition, when asked to identify how compatible/conflicting spending and saving goals were on a 9-point scale (1 = extremely compatible, 9 = extremely conflicting), reported significantly more conflicting ($M = 5.68, SD = 1.90$) relative to participants randomly assigned to the compatible condition ($M = 4.56, SD = 2.00$; $t(74) = 2.48, p < .02$, two-sided). A funnel debrief confirmed that no participants has any suspicion regarding the nature of the word search task, and no participant suggested any link among any of the study’s three components.

This initial study supports our hypothesis that nonconscious goal primes exert a stronger influence on behavioral intentions when individuals face conscious goals that are in conflict. However, in the first study participants were given conscious and nonconscious goals of the same type: spending and saving. Our prediction was that relevance matters such that the influence of nonconscious primes is only stronger when they are relevant to the goals that are in conflict. Thus, if we were to present participants with conflicting or compatible conscious goals that have nothing to do with the nonconscious goal primes, we would not expect the same results obtained in this first study. Instead, we expect to see a contrast effect such that irrelevant nonconscious goals, useless in the context of resolving the conflict
between consciously conflicting goals, produce the opposite result of their intended effect. Thus, a nonconscious save goal yields more saving, while a nonconscious spend goal yields more saving. Study 2 is designed to explore this idea.

**STUDY 2: HAVE YOUR CAKE AND DIET, TOO**

In study 1, we saw how nonconscious cues had stronger, prime-consistent effects on behavior in situations when related consciously held goals were in conflict with one another. The purpose of study 2 is to see what happens when the conscious goals and the nonconscious goals are not of the same variety. That is, when the nonconscious goals are irrelevant or useless with respect to the conscious goals, what effect will the nonconscious goals then have on subsequent behavior?

Our prediction is that unrelated nonconscious goal primes, irrelevant in helping resolve potential conflict between consciously held goals, will produce the opposite results of their intended effect. The second study tests this by presenting participants with conscious goals (indulging in delicious food and maintaining a healthy, fit body) and unrelated nonconscious goals (spending or saving) and then observing effects on subsequent behavior (spending or saving). If “(not) thinking is for doing,” as predicted, then the nonconscious information, seemingly irrelevant, will likely be contrasted away from such that participants primed with “save” primes spend more, while participants primed with “spend primes save more but only in the conflicting conscious goals condition. Obtaining a significant interaction of conscious goal conflict/compatibility and nonconscious prime type would suggest both 1) primes do serve a facilitative role in resolving conscious conflict, and 2) relevance between conscious and nonconscious goals matters.

**Participants and Procedure**

Undergraduate students (n = 90) participating in a subject pool for course credit completed a series of ostensibly unrelated consumer surveys broken up by a “mental break” activity. As in study 1, three components were designed to elicit conscious goal conflict/compatibility, to instill a nonconscious goal, and to test the interaction between conscious and nonconscious goals. However, the critical difference in study 2 is that the conscious goals and the nonconscious goals differed in type. The conscious goals presented as compatible or conflicting in this case consisted of a goal to indulge in delicious foods and/or to maintain a healthy/fit body. The nonconscious goals primed consisted of saving or spending goals as before. Also, to provide evidence that the behavioral context in which the nonconscious goals could exert their influence did not matter, the dependent variable was also slightly changed, as explained in detail below.

In the first survey, participants were told that a consumer research organization was interested in understanding the goals people had with respect to indulging in delicious food and maintaining a healthy/fit body. In one condition – the “conflicting conscious goals” condition – participants were told the following:

“People often have the goal to maintain a healthy body and the goal to eat delicious, tasty food. Trying to maintain a healthy body while also trying to enjoy what you eat is extremely difficult for many people. We are interested in understanding how trying to maintain a healthy body while also trying to enjoy what you eat can be difficult for you, specifically. Below, please elaborate, in detail, about this conflict between trying to keep a healthy body while also being able to eat whatever you want. How can doing one make the other harder to do? How does having these two goals make you feel? Be as detailed as possible.”

In the other condition – the “compatible conscious goals” condition – participants read an identical prompt, but instead of being presented as conflicting, indulging in delicious food and maintaining a healthy/fit body were presented as being “compatible,” where “doing one helped you do the other more easily.” Participants were again asked to elaborate on a specific instance in their life in which
their food indulgence and fitness goals were compatible with one another. In the third condition – the control condition – participants were simply told that the consumer research firm was interested in knowing what their average day was like and, as such, were asked to describe their typical day.

Following this first survey, participants moved on to what they believed to be a “mental break” from completing surveys. This “mental break,” consisted of the same word search puzzles used in the first study, with one version containing words associated with “saving,” the other version containing words associated with “spending,” and a mix of control words included in both studies.

After completing the word search puzzle participants were presented with one last consumer survey. In this survey, participants were told to imagine that their bank had made an error in their favor resulting an extra $100 being deposited into their bank account. The bank, recognizing the error and apologizing for the inconvenience, allowed the participants to keep the $100 as a token of appreciation for their business, as well as for their understanding of the bank’s error. As such, participants were asked to indicate how much of this $100 they would save and keep in the bank and how much of the $100 they would spend. Following this task, participants were asked a series of manipulation checks, demographic questions, thanked, debriefed, and permitted to leave.

Results and Discussion

As predicted, the hypothesized interaction was significant (F(2, 84) = 2.35, p < .05); when presented with conflicting conscious goals and nonconscious goal primes that were irrelevant for resolving the conscious conflict, participants contrasted away from the nonconscious primes such that participants presented “save” primes were likely to spend more of their extra $100 whereas participants presented “spend” primes were likely to save more of their extra $100.

The manipulation check for the conflicting/compatible nature of the conscious goals suggests that, as expected, participants randomly assigned to describe an example in the life in which the two goals conflicted found it more difficult to both be healthy and eat delicious food (M = 3.83, SD = 2.08) compared to participants who described how the same goals were compatible (M = 5.5, SD = 2.00; t(54) = 3.05, p < .004, two-sided) on a 9-point scale (1 = extremely difficult to 9 = extremely easy). Also as predicted, a funnel debrief indicated that no participants suspected anything unusual about the word search puzzle and none suggested a link between the word search puzzle and the following survey.

The results from study 2 provide further support for our hypotheses and their underlying logic. In a situation in which the conscious goals are unrelated to the nonconscious goal primes that are subsequently presented, there is little reason the latter can help reduce or eliminate conflict in the former. As such, when conscious goals conflict in this context, participants contrast away from the nonconscious goal primes. As such, these nonconscious goal primes, seemingly useless or unnecessary, produce the opposite of their intended effect. When conscious goals are compatible but unrelated to the nonconscious goal primes, then participants have no reason to contrast away from or to ignore the nonconscious goal primes. There is no conflict to be resolved, no need to question the nonconscious goal primes’ usefulness. As such, the primes are more likely to have their intended effects in this scenario, which is what is observed in the data.

An interesting finding between study 1 and study 2 is the effectiveness of nonconscious goal primes in the compatible conscious goals condition. When conscious goals and nonconscious goals are of the same type (study 1), nonconscious goal primes produce little to no effect on behavior. However, when conscious goals and nonconscious goals are not of the same type (study 2), nonconscious goal primes exert an influence on behavior in prime-consistent directions. To explain this finding we return to our core hypotheses. If “not thinking” is also for doing, then in the compatible conscious goal condition in study 1, nonconscious goal primes associated with spending and saving are not needed: there is no
conflict to be resolved in that domain, spending and saving goals are in harmony such that any spending/saving cues encountered are ignored. In the compatible conscious goal condition of study 2, nonconscious goal primes associated with spending and saving are more important: although there is no conflict among conscious goals (in this case indulging or keeping healthy/fit), there is no reason to ignore the nonconscious goal primes related to spending and saving that are encountered.

**GENERAL DISCUSSION**

Two studies demonstrate initial support for the idea that nonconscious goal primes can exert varying levels of influence contingent on their conscious counterparts. Indeed, results suggest that, in situations when an individual faces conscious goal conflict, subtle nonconscious goal primes are useful in resolving conflict and guiding behavior but only when the nonconscious goal primes are relevant to the conflict at hand. It is as if individuals facing conscious conflict become more sensitive to nonconscious goal primes that can help resolve the conflict. In situations of conscious goal conflict in which the nonconscious goal primes are irrelevant to the conscious goal conflict, the opposite occurs: these extraneous primes are irrelevant to present decision making and, as such, are rejected. Data suggests the nonconscious goal primes are still registered, but given that these primes are irrelevant to reducing or eliminating the conscious goal conflict, they wind up having the opposite of their intended effect on subsequent behavior.

With respect to theory, the discovery that nonconscious goal primes can be assimilated towards or contrasted away from with respect to behavior is a novel finding and an important contribution. Indeed, the paradigm presented herein suggests a new way of thinking about the interaction between conscious and nonconscious goals in that the latter serves a facilitative or adaptive role for the former, particularly when the former are in conflict. Thus, rather than relying on a self-oriented notion of goal priming in the style of Sela and Shiv (2009), the current approach proposes a more practical model: nonconscious primes motivate goal-directed behavior when it is contextually relevant to do so. In that sense, the present model incorporates Sela and Shiv’s approach, as it is appropriate to consider nonconscious goal primes when the “actual self” is inconsistent with the “ought self.” However, the present framing goes beyond this previous model in that actual and ought selves need not be implicated to create relevant contexts for nonconscious cues to operate. Furthermore, the evidence from study 2 suggesting a contrasting away from nonconscious goal primes when they are irrelevant in a specific decision-making contexts provides support for the approach presented herein.

The practical contributions of the present work extend beyond marketplace consumption and into consumption, in general. The operationalization of the studies in the present work considered goals in common consumer contexts: spending and saving money, eating delicious food, dieting and exercising. Effects obtained, which suggests the interaction of conscious and nonconscious goals and the resulting effects on behavior generalize to most common consumption settings. However, as previously mentioned, consumption can extend beyond products and services into ideas, experiences, and other, less tangible constructs. Thus, prior examples regarding medical treatment, jury decision making, and even policy making decisions may also be susceptible to interactions of this sort. Patients deciding between two equally attractive alternatives pitted against one another might be more tempted to try one rather than the other based on subtle contextual cues. Likewise, a juror, presented with two conflicting decisions from the prosecution and defense, may become swayed more easily by peripheral cues without realizing the influence of these subtle primes. Examples of how primes in the environment could influence decision-making are aplenty, and the present research provides a framework with which those specific scenarios can now be tested.

As we proceed with this research, the next study (currently running) is designed to rule out alternative explanations, specifically addressing the self and ought self of the Sela and Shiv (2009) model, as well as a potential cognitive load explanation (i.e., that conscious conflict results in a greater cognitive
load which leaves fewer resources to block nonconscious information). We have already discussed how this former alternative explanation is unlikely, and with respect to the second, it is unlikely that cognitive load explains the results as we would have expected similar results in the conscious conflict conditions of both studies. These additional studies also cue nonconscious goal primes using a different methodology to show that the results herein are not due to the specific methodology employed. Moving beyond these studies, we plan to employ fMRI methodology to show greater activation of the anterior cingulate cortex (ACC) in situations of conscious conflict (Botvinick et al. 2001), as well as potential activation in the left interior prefrontal cortex, an area implicated in inhibitory priming (Cardillo et al.). Taken together, this collection of studies should provide robust support for our proposed idea that “not thinking” can also be for doing, illustrating how nonconscious goal primes serve a helpful role in resolving or eliminating conscious conflict.

![FIGURE 1](image)

Study 1: To save or to spend (Groupon)
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THE EFFECTS OF EGO-DEPLETION ON VIEWER BRAND RECOGNITION AND BRAND ATTITUDES FOLLOWING EXPOSURE TO PRODUCT PLACEMENTS IN TELEVISION PROGRAMS

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The majority of television shows watched are “primetime” television shows (Nielsen Media Research 2009a), defined as programming that airs during evening hours. Despite the growing availability of digital video recorders, approximately 95% of all television shows are watched live (Nielsen Media Research 2009b, Nielsen Media Research 2009c), suggesting that the majority of television is watched during the evening hours. It is becoming increasingly likely that when viewers watch these primetime shows, they will be exposed to product placements, or brands and products included in shows with marketers’ intent to influence their attitudes or behavior (Newell, Salmon and Chang 2006). Importantly, prior to watching their favorite evening shows, most people spend their day regulating their behavior (Baumeister et al. 1998; Baumeister 2002). Examples of this regulation include working when golfing would be more enjoyable, politely responding to unruly customers when it would be more satisfying to retaliate, or struggling to put kids to bed when it would be easier to let them stay up. Past research suggests that engaging in such tasks is likely to lead to a state known as ego-depletion (Baumeister et al. 1998; Baumeister 2002; Baumeister and Heatherton 1996; Baumeister, Muraven and Tice 2000; Muraven, Baumeister and Tice 1999; Muraven, Collins and Neinhuis 2002; Vohs and Faber 2007; Schmeichel, Vohs and Baumeister 2003; Zyphur et al. 2007). Relevant to our focus on product placement, ego-depletion has been shown to decrease intellectual performance on complex tasks (Schmeichel, Vohs and Baumeister 2003; Zyphur et al. 2007) and increase susceptibility to weaker persuasive messages (Wheeler, Briñol and Hermann 2006). These findings suggest that ego-depletion may well affect viewer responses to product placements in primetime television shows. Specifically, theory and research suggest the intriguing possibility that ego-depletion will exert paradoxical effects on viewer responses to product placement, increasing attitudes toward placed products while simultaneously decreasing recognition of those same placed products. We pursue this line of thinking by integrating theory and research on product placement and ego-depletion.

By exploring how viewers respond to product placements under conditions of ego-depletion, the present paper addresses two limitations in the product placement literature. First, while the literature on product placement is increasing (e.g. Gupta and Lord 1998; La Ferle and Edwards 2006; Russell 2002; Balasubramanian 1994; Russell and Stern 2006; Cowley and Barron 2008; Homer 2009; Newell, Salmon and Chang 2006; Lee and Faber 2007; Balasubramanian, Karrh and Patwardhan 2006; Wiles and Danielova 2008; Lehu and Bressoud 2007; Law and Braun 2000; Russell and Belch 2005), the majority of product placement research has focused on the impact of features of the placement—such as brand-plot connectedness (Russell 2002; Gupta and Lord 1998) or repeated exposure to product placements (Homer 2009; Lehu and Bressoud 2007)—or viewer characteristics—such as viewer-character connectedness (Russell and Stern 2006) or viewer program liking (Cowley and Barron 2008). To date, there has been virtually no work exploring whether individual viewers can be manipulated to increase the effectiveness of product placement. This leaves important gaps in our understanding of how to enhance the effectiveness of product placements. Second, there has been little consideration given to viewers’ state of mind when exposed to product placements. In traditional product placement research laboratory settings, participants are likely exposed to product placement in an active state of mind. However, given that most viewers in the real world are exposed to product placements during the evening hours, it is plausible that they are responding to those placements in a depleted state of mind. Thus, from a generalizability perspective, it is valuable to explore how viewers respond to product placements under conditions of ego-depletion.
Below, we offer a review of current product placement and relevant ego-depletion literatures. Based on this review, we advance three hypotheses and then report an empirical laboratory study designed to test those hypotheses. Lastly, we outline managerial implications, limitations and future research directions.

PRODUCT PLACEMENT: CURRENT RESEARCH

Product placement is defined as the inclusion of products in mass media streams with intent to influence consumer attitudes or behavior (Newell, Salmon and Chang 2006). As a marketing tool, product placement is developing rapidly in television and film (Newell, Salmon and Chang 2006) as another medium for advertisers to incorporate their products into the mainstream and attract consumers (Tiwsakul and Hackley 2005). Concomitantly, research exploring viewer response to product placement is expanding (for examples, see: Gupta and Gould 1997; Gupta and Lord 1998; Law and Braun 2000; Russell 2002; McKechnie and Zhou 2003; Gupta, Gould and Grabner-Kräuter 2000; Homer 2009; Cowley and Barron 2008; Russell and Stern 2006; Lehu and Bressoud 2007). As summarized in table 1, the majority of this research has focused on features of the product placement, per se, while a smaller stream of research has explored the role of pre-existing viewer characteristics.
Table 1
A Summary of Product Placement Literature

<table>
<thead>
<tr>
<th>Research Focusing on the Placement</th>
<th>Research Focusing on the Viewer</th>
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<tbody>
<tr>
<td><strong>Placement Manipulation Research</strong></td>
<td><strong>Viewer-Characteristics Research</strong></td>
</tr>
<tr>
<td>When prompted, viewers were able to recognize and distinguish between product placements they were and were not exposed to.</td>
<td>Individuals with high program liking were more likely to have persuasion knowledge triggered when exposed to product placements.</td>
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<tr>
<td>Blatant placements increased brand recognition compared to subtle placements. Exposure time had a positive effect on brand recognition for blatant placements, but not for subtle placements.</td>
<td>Males accepted ethically charged products (e.g., tobacco and alcohol) more than females. Frequent movie watchers accepted ethically charged products more than less frequent movie watchers.</td>
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<tr>
<td>Recognition was increased for audiovisual placements compared to exclusively visual placements.</td>
<td>Males were more likely to accept ethically charged products than females.</td>
</tr>
<tr>
<td>The higher the integration of a placement into the plot, the higher the liking, but the lower the recall.</td>
<td>U.S. males accepted ethically charged products more than U.S. females. There was no difference in China.</td>
</tr>
<tr>
<td>Product placements in mini-series and drama television shows were perceived as most negative. Placements that had little integration with the show were perceived as most unethical.</td>
<td>The viewer’s perceived relationship between him or herself, the character and the character’s relationship with the product work in balance to influence the viewer’s attitude toward the product, in either a positive or negative direction.</td>
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<tr>
<td>Homer (2009)</td>
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<tr>
<td>Higher frequency of exposure for more prominent placements resulted in less favorable brand attitudes. There was no difference for subtle placements.</td>
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<tr>
<td>Law and Braun (2000)</td>
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<tr>
<td>Placement modality impacted recall and choice such that visual placements increased choice but were least recalled.</td>
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<tr>
<td>Le Ferle and Edwards (2006)</td>
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<tr>
<td>Half of all brands placed in television were placed in scripted programming. Visual placements were more frequent than audio or audiovisual placements.</td>
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<tr>
<td>Lefu and Bressoud (2007)</td>
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<tr>
<td>For viewers first exposed to a placement in a movie theatre, viewers’ ability to spontaneously recall a placed brand was significantly increased after watching the same movie at home.</td>
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<tr>
<td>Roehm, Roehm and Boone (2004)</td>
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<tr>
<td>Plugs found in non-scripted programming were more easily recalled by viewers than product placements in scripted programming.</td>
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<tr>
<td>Russell (2002)</td>
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<tr>
<td>Lower plot connection visual placements and higher plot connection audio placements were considered congruent, resulting in increased brand attitudes.</td>
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</table>

Many of the studies in the former category have studied the role of placement prominence, or how the product is placed in the show. For example, it has been shown that the more prominent the placement, the more likely the viewer will be able to recognize being exposed to the brand (Gupta and Lord 1998). Typically, prominence is operationalized through the modality of the placement (i.e., whether
it is visual, auditory or a combination of both). An exclusively visual placement is less likely to be recognized by viewers than an auditory placement or a placement with both visual and auditory components (Law and Braun 2000). A further extension of placement prominence incorporates modality with the strength of the connection between product placements and the plot (Russell 2002). Specifically, lower plot connection placements that are visual and higher plot connection placements that are auditory are perceived by the viewer as more congruent or natural (Russell 2002). Viewers consider congruent placements as more appropriate, and they subsequently report more favorable brand attitudes toward products placed in a congruent manner (Russell 2002).

While the majority of research has focused on aspects of the placement, per se, a handful of studies have also explored the role of pre-existing viewer characteristics. For example, several studies in this area indicate that males are more likely to accept ethically charged product placements (e.g., cigarettes, alcohol and guns) than females (McKechnie and Zhou 2003; Gupta, Gould and Grabner-Krauter 2000; Gupta and Gould 1997). Research has also shown that attitudes toward products placed in a show depend on the valence of the relationships between the viewer and the character, and between the character and the product (Russell and Stern 2006). Most recently, research has shown that the more a viewer likes a show, the more likely they are to report less favorable attitudes toward products blatantly placed in the same show (Cowley and Barron 2008).

The preceding research has provided valuable insights into viewer response to product placement. Yet to be explored is the question of whether viewers can be directly manipulated (apart from elements of the placement, per se) to enhance the effectiveness of product placement. Also lacking is an understanding of how viewers respond to product placement under conditions resembling those they are likely to be experiencing when watching primetime television (i.e., when viewers are depleted). To advance our understanding in these areas, we draw on theory and research on the topic of ego-depletion.

EGO-DEPLETION: CURRENT RESEARCH ON SELF-REGULATION AND THE LIMITED RESOURCE VIEW

Ego-depletion theory extends from the concept that every individual possesses a single, limited resource from which activities involving self-regulation are drawn (Baumeister and Heatherton 1996). Self-regulation is defined as an individual’s ability to discipline and control their self (Baumeister and Heatherton 1996). When individuals are asked to self-regulate, they are met with competing internal desires (Baumeister, Muraven and Tice 2000). These internal desires cause individuals to exert their “willpower,” and their self-regulatory abilities become depleted. This state of ego-depletion remains through an extended period of time, until a recovery period returns the individual to their original full functioning ability (Muraven, Baumeister and Tice 1999; Muraven and Baumeister 2000; Baumeister 2002).

Ego-depletion is most often demonstrated in the lab by requiring individuals to engage in a series of self-regulation tasks. In the first (depletion) task, participants are typically required to engage emotion suppression, thought suppression, or attention regulation. Once depleted, participants are required to complete a second task requiring self-regulation (e.g., solving challenging puzzles). Results of many studies show a decrease in performance on the second task, ultimately resulting from the self-regulation required in the first task (cf. Dewitte, Bruyneel and Geyskens 2009). For example, ego-depleted individuals are more likely to seek immediate gratification (Muraven, Collins and Neinhaus 2002), yield to temptation (Baumeister 2002), purchase impulsively (Vohs and Faber 2007), and display aggression (Stucke and Baumeister 2006). More relevant to the present study, ego-depletion has also been shown to increase selective exposure for confirmatory information processing (Fisher, Greitemeyer and Frey 2008), decrease intellectual performance on complex tasks (Schmeichel, Vohs and Baumeister 2003; Zyphur et al. 2007), and increase susceptibility to weaker persuasive messages (Wheeler, Briñol and Herrmann 2008).
In the following section, we outline how these findings lead to the prediction that ego-depletion will have a paradoxical effect on recognition of and attitudes toward products placed in television shows.

**EGO-DEPLETION AND PRODUCT PLACEMENT: THE PRESENT RESEARCH**

We begin by considering cognitive and motivational explanations for why ego-depletion should reduce recognition of products placed in a show. As just mentioned, ego-depletion has been shown to decrease intellectual performance on complex intellectual tasks. It could be argued that recognizing product placements is, depending on the nature of the placement, a complex intellectual task. Some placements are quite blatant, and easy to recognize, while others are more subtle and difficult to recognize (Gupta and Lord 1998; Law and Braun 2000; Russell 2002; Homer 2009). If recognizing and recalling product placements is viewed as an intellectual task, it follows that ego-depletion should reduce post-hoc recognition of subtly (but not blatantly) placed products. Complementing this more cognitive account, other research suggests that ego depletion reduces motivation to process information that is counter to one’s goals or expectations (i.e., ego-depletion encourages people to engage in confirmatory information processing; Fischer, Greitemeyer and Frey 2008). This is relevant to product placement, in that the main goal of television viewers is to enjoy their selected show (Vorderer, Klimmt and Ritterfeld 2004). It could be argued that seeking and processing information extraneous to a viewer’s goal of enjoying a show (i.e., regarding placed products) would be laborious, effortful, and joyless (Fischer, Greitemeyer and Frey 2008). If true, ego-depleted individuals should be less motivated to search for or process such extraneous information. Because subtle placements are, by definition, lower in involvement with both a show’s characters and narrative (Gupta and Lord 1998), depleted individuals should have less motivation and cognitive ability to process them, when compared to non-depleted individuals. In contrast, blatant placements are, by definition, involved with a show’s characters and narrative, so depleted individuals should have the same motivation and ability to process blatant placements as non-depleted individuals.

This line of reasoning led to the following two hypotheses:

**H1a:** For subtle product placements, individuals in an ego-depleted state will have significantly lower levels of brand recognition, compared to individuals who are not in an ego-depleted state.

**H1b:** For blatant product placements, there will be no difference in recognition between individuals in an ego-depleted state and individuals who are not in an ego-depleted state.

We now turn to the effect of ego-depletion on attitudes toward placed products. Two streams of research offer potential foundations for a hypothesis. First, Wheeler, Briñol and Hermann (2006) found that individuals in an ego-depleted state showed greater susceptibility to weak persuasive arguments than those in a non-depleted state, while the depleted and non-depleted groups did not differ in their response to strong persuasive arguments. This suggests that ego-depletion should enhance susceptibility (attitudes) toward subtly placed products (as a “weak argument”), whereas ego-depletion should have no effect on susceptibility toward blatantly placed products (as a “strong argument”). While intuitively appealing, it is important to note that subtle vs. blatant placement prominence is not, by definition, directly tied with argument strength, but rather entails different levels of involvement (Gupta and Lord 1998; Law and Braun 2000; Russell 2002; Homer 2009). Accordingly, a second stream of research focusing on argument involvement is proposed as the foundation for a brand attitude hypothesis.

The Elaboration Likelihood Model suggests dual routes to persuasion through higher (central route) and lower (peripheral route) elaboration likelihood (Petty, Cacioppo and Schumann 1983; Petty and Cacioppo 1984). Elaboration likelihood is defined as the probability an individual will devote higher order cognitive processing to a message. Petty, Cacioppo and Schumann (1983) discovered individuals with low elaboration likelihood are more susceptible to messages with low individual involvement. This is relevant to the current paper for two reasons. First, ego-depletion impairs higher-order cognitive
processing, while low order cognitive processing remains intact (Schmeichel, Vohs and Baumeister 2003), so depleted individuals are less likely to expend cognitive resources processing messages, and therefore have lower elaboration likelihood. Second, as noted before, subtle placements are lower in involvement with a show’s characters and narrative (Gupta and Lord 1998). This combination of a viewer’s lower elaboration likelihood and the low involvement of subtle placements should increase the persuasiveness of subtle placements for depleted individuals (as measured by brand attitudes). This should not be the case for blatant placements because blatant placements are highly involved with a show’s characters and narrative. The motivation to process blatant placements should then be the same for both depleted and non-depleted individuals. This line of reasoning led to the following hypotheses:

H2a: For subtle product placements, individuals in an ego-depleted state will hold significantly more favorable brand attitudes, compared to individuals who are not in an ego-depleted state.

H2b: For blatant product placements, there will be no difference in brand attitudes between individuals in an ego-depleted state and individuals who are not in an ego-depleted state.

Simultaneously considering the simple effects hypotheses 1 and 2, we suspect that an interaction between brand recognition and attitudes will exist such that:

H3: Compared to individuals not in a state of ego-depletion, individuals in a state of ego-depletion will report lower levels of brand recognition but hold more favorable evaluations of the same subtly placed products. This will not, however, be the case for blatantly placed products.

**METHOD**

**Pilot Study**

An extensive pilot study was conducted to determine an appropriate primetime television program for the main study. Undergraduate students (N = 78, 59% male, 85% indicated English as their primary language) participated in exchange for partial course credit. Participants were exposed to one of four different episodes from major network primetime television shows. After watching one of the four episodes, participants reported their attitudes toward both the show and episode, brand attitudes toward placed and not placed products, and which brands they recognized seeing in the show. Pre-testing allowed us to select a show for the main study that controlled for three different factors. First, we maximized the likelihood that participants would give their attention to the show by selecting an episode that was considered enjoyable. This also helped mimic viewers’ experience in the real world, considering viewers most commonly watch shows they enjoy (Vorderer, Klimmt and Ritterfeld 2004). Second, pre-testing allowed us to verify the existence of proper subtle and blatant placements for brand recognition: products we categorized as “blatant placements” were recognized by the majority (86%) of participants, while products we categorized as “subtle placements” were recognized by a minority (24%) of the participants. Finally, we were able to select a show containing brands that elicited relatively neutral brand attitudes which provided for sufficient variability in brand attitudes in the main study. The episode selected was entitled “The Client” from the television show The Office (originally aired Nov. 8, 2005) and the products used in the television show were organized based on the well-established definitions of subtle and blatant placements (Gupta and Lord 1998; Law and Braun 2000; Russell 2002; Cowley and Barron 2008; Homer 2009). Specifically, to be considered subtly placed, the products had to be placed through a visual modality (Russell 2002), and not be integrated into the plot (Gupta and Lord 1998; Russell 2002). In contrast, to be considered blatantly placed, placements had to be placed through both the visual and auditory modality (Homer 2009) and have a high integration into the plot (Gupta and Lord 1998; Russell 2002). Based on these criteria, we selected two subtly placed products (Cisco and BMW) and two blatantly placed products (Levi’s and Chili’s) for analysis. Prior to analysis in the main study, participants’ brand attitude scores for each placement type were averaged (Russell 2002;
Cowley and Barron 2008). Similarly, prior to analysis, participants’ recognition scores for each placement type were averaged. Important to note, we did not compare brand recognition and brand attitudes across the not placed vs. subtle vs. blatant placement types, as the products within each placement type differed and would not have provided an equivalent basis for comparison. A description of the show, episode and product placements can be found in the appendix.

Main Study

A separate sample of undergraduate students (N = 50; 58% male, 66% indicated English as their primary language) participated in the main study in exchange for partial course credit. One participant’s responses were removed for failure to follow directions. To control for potential group interactions (Fisher and Dube 2003), participants arrived and participated in the study individually. The experimenter was blind to participants’ condition. Upon arrival, half of the participants were given instructions designed to result in ego-depletion. A standard attention regulation-based ego-depletion manipulation was used to deplete individuals (Schmeichel, Vohs and Baumeister 2003). Participants were exposed to a five-minute video of a woman being interviewed with no audio accompaniment. During the video, random words (e.g. “watermelon”) appeared in a bright color for 45-second intervals across the bottom of the screen. Participants in the ego-depletion condition were asked to ignore the words, and to immediately redirect their attention back to the woman being interviewed if they happened to notice the words. Participants in the control condition were exposed to the same film and words, but were given no instructions requesting them to redirect their attention if they noticed the words. Immediately after watching the video, participants rated the difficulty of performing the video-viewing task using a 7-point likert scale (1 = extremely easy to 7 = extremely hard). Participants also completed the Positive and Negative Affect Schedule (PANAS) (Watson, Clark and Tellegen 1988), designed to measure mood.

Following the PANAS, participants watched the show selected from the pilot study. They then reported responses toward different dimensions of the show (familiarity, entertainment level, etc…) on a 7-point likert scale (1 = strongly disagree to 7 = strongly agree). This was done to help mask the true purpose of the study and to measure for the potential confound of show enjoyment based on conditions of ego-depletion. Participants then reported their attitudes toward 15 different brands—both placed and not placed in the show and arranged in random order—using a single (Bergkvist and Rossiter 2007), 7-point bipolar scale (1 = strongly dislike to 7 = strongly like). The rating of brands not placed in the show provided a brand attitude control condition and helped disguise the purpose of the study (Russell 2002). After participants evaluated the brands, two distracter tasks lasting approximately two minutes were administered to again help mask the purpose of the study. Participants then completed a brand recognition task. Participants were given a list of brands, both placed and not placed in the show, and were asked to indicate which brands they recognized seeing in the show. The recognition task was administered after the brand attitude task to prevent invoking participants’ persuasion knowledge (Russell 2002). Again, the inclusion of brands not placed in the show provided a control condition and helped disguise the purpose of the study. This is a standard product placement brand recognition measure (Russell 2002).

Participants were then dismissed. Because of the length of time required to run all participants individually, and to protect against participants learning the purpose of the study before participating, participants were debriefed as a group after the study was completed.

RESULTS

Manipulation Checks

After completing the ego-depletion manipulation, participants rated the difficulty of the video-viewing task as a standard ego-depletion manipulation check. As expected, participants in the ego-depletion condition reported the task as significantly more difficult (M = 4.54, SD = 1.77) than participants in the control condition (M = 2.58, SD = 1.84), t (47) = 3.76, p < .001. The PANAS was
administered to rule out mood as an alternative explanation. As expected, results showed no significant difference between conditions for negative or positive mood (both ps > .33). In a similar fashion, liking of, and familiarity with the show and the show’s actors were also tested as a potential confound. However, as expected, there was no difference between the control and ego-depletion groups for show enjoyment, show familiarity or actor familiarity (all ps > .37). These results suggest that our manipulation of ego-depletion was successful, and was not confounded with mood, liking of or familiarity with the show or the show’s actors.

**Hypothesis Tests**

To begin the analysis, participants’ reported brand attitudes and recognition scores were standardized using z-scores. This was done for two reasons. First, in standardizing the data, brand recognition and brand attitudes were able to be compared on the same scale. Second, in standardizing the data, previous participant attitudes toward products were controlled for.

To test the hypotheses, the control—not placed—condition was first examined. Because there were no main or interaction effects, ps > .73, it could be assumed that any results in the subtle or blatant conditions were due to the effect of product placement and ego-depletion, and not random error. Next, an examination of interactions inside each placement condition using 2(Control vs. Ego-depletion) × 2(Attitudes vs. Recognition) mixed model ANOVAs was conducted.

Exploring the subtle condition, two one-way, within-subject ANOVAs revealed significant differences for brand recognition, $F(1,47) = 4.68$, $p < .05$ (one-tailed), and brand attitudes $F(1,47) = 3.27$, $p < .05$ (one-tailed), offering support for hypotheses 1a and 2a, respectively. Second, two one-way, within-subject ANOVAs revealed no significant differences for brand recognition, $F(1,47) = .094$, $p > .05$ (one-tailed) and brand attitudes $F(1,47) = 1.02$, $p > .05$ (one-tailed), offering support for hypotheses 1b and 2b. Finally, a 2 (Control vs. Ego-depletion) × 2(Attitudes vs. Recognition) × 2(Subtle vs. Blatant) mixed model ANOVA was conducted. Results revealed a significant three-way interaction, $F(1,47) = 2.96$, $p < .05$ (one-tailed), indicating a significant interaction between recognition and attitude inside the subtle placement condition, $F(1,47) = 8.04$, $p < .01$, but not inside the blatant placement condition, $F(1,47) = .21$, $p = .65$, offering support for hypothesis 3. The results are described in Figure 1.
Figure 1
Three Way Interaction Placement, Attitudes and Recognition, and Ego-Depletion Conditions

DISCUSSION

This study supported the hypothesis that individuals in an ego-depleted state would simultaneously display decreased recognition and increased attitudes toward the same placed brands, but only when those brands had been subtly placed in a show. As expected, there was no difference in responses between depleted and non-depleted individuals for brand recognition and brand attitudes toward products blatantly placed in a show. These results are important for several reasons. First, the majority of television is watched during the evening. Second, it is generally accepted that self-regulation of limited resources leads to a state of ego-depletion (Baumeister and Heatherton 1996; Baumeister 2002; Schmeichel, Vohs and Baumeister 2003). And third, the self-regulation of limited resources is a daily task (Baumeister et al. 1998; Baumeister 2002). Thus, individuals are more likely to be depleted in the evening when watching television and should be more susceptible to the effects of subtle product placements at this time.

To this point, product placement research has examined either a manipulation of the placement itself (e.g. plot connection, placement frequency), or recognition of previously established viewer qualities (e.g. program liking, character liking). The current paper extends product placement research by offering results in which the individual—not the placement—is manipulated with results favorable toward the effectiveness of product placement. The manipulation of the viewer is distinctly different than previous works that considered different inherent viewer qualities as an independent variable in that the manipulation can be controlled. Moreover, the results reject the previously accepted paradox of product placement: “If you notice it, it’s bad. But if you don’t notice it, it’s worthless,” (Ephron 2003, p. 20), by displaying a scenario in which viewers failed to notice a product placement, yet the placement resulted in more favorable brand attitudes.
The most obvious implication of this study is that subtle placements should be used during evening television hours because viewers are more likely to be depleted after a full day of self-regulating tasks. Other implications, however, exist. This work can be extended to further segmenting of target markets based on the probability of depletion beyond time of day. For example, considering decision making has been shown to be depleting (Vohs et al. 2008), increasing subtle placements in shows that air when other similarly appealing shows air will increase the probability that viewers will be depleted through the necessity to choose between multiple shows that they expect to enjoy equally.

A second implication of the current study involves consumer persuasion knowledge—defined as an individual’s recognition that a message is intended to influence them (Friestad and Wright 1994). It has been previously shown that viewers’ persuasion knowledge is often increased due to exposure to product placements (Cowley and Barron 2008). The current study suggests a method to prevent viewer persuasion knowledge from becoming salient due to exposure to product placements. Specifically, using subtle placements in television shows will help prohibit viewer persuasion knowledge through decreased recognition of placed products, while still increasing viewer attitudes toward the same products. Furthermore, the cost of placing a product traditionally increases dependent on the prominence of the placement where the more prominent the placement, the greater the placement costs the marketer (Bhatnagar, Aksoy and Malkoc 2004). The positive impact of subtle placements provides an opportunity for marketing managers to receive an impactful positive response from subtle placements at a lower cost.

LIMITATIONS AND FUTURE DIRECTIONS

While the present results are promising, several limitations of the study should be noted. First, individuals watched the show alone. Though this helped control for potential group interaction effects (Fisher and Dube 2003), it is common for viewers to be exposed to product placements while they are in a group setting. Thus, running the study again in a group setting would allow for more generalized results. Second, while there were differences found within placement conditions for brand attitudes, these attitudes were not compared between placement conditions because the brands were different. Designing a between-subjects study in which the same brands are used for both the subtle and blatant conditions would allow for brand attitude comparison between subtle and blatant conditions and offer greater insight into the impact of ego-depletion on brand attitudes based on placement type. Finally, using a previously developed show introduces potential confounds, specifically the duration of placement exposure and product involvement. The brands used in the blatant placement condition remained on screen for a greater amount of time than those in the subtle placement condition. Though a variation in placement time can be expected when considering the nature of subtle and blatant placements, designing a study to limit variation in placement timing would strengthen the results found in this study. Also, brands used for the subtle placements require greater product involvement (Zaichkowsky 1985) than the brands used for the subtle conditions. These potential confounding limitations would also be resolved through the creation of a show by an experimenter controlling for these issues.

Several expansions of this study should be examined. First, the robustness of these findings could be examined using a different depletion method, television show, or brand attitude measurement. Another extension of this work could be considering the effects of time of day on depletion. Testing individuals in the morning compared to at night after a day of self-regulation could show further support for the managerial implication of increasing subtle placements during evening programming. A final expansion of this study could be the practical implications of the results. Emotion suppression is a common cause of ego-depletion. With this in mind, there are several situations where consumers may be actively depleting themselves while watching television. Examples could be individuals trying to suppress fear while watching a thrilling scene or suppress tears while watching a dramatic moment. Testing the simultaneous effects of ego-depletion on product placement should provide further insight into the ego-depletion process itself, while having a direct impact on marketing and product placement research.
REFERENCES


APPENDIX
Episode Guide: *The Office*, “The Client”, Season 2, Episode 7, originally aired Nov. 8, 2005

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Corporate employee of Dunder Mifflin and Michael’s direct supervisor.</td>
</tr>
<tr>
<td>Christian</td>
<td>Representative of Lackawanna county, responsible for finding a paper supplier for the county.</td>
</tr>
<tr>
<td>Jim</td>
<td>Salesman for Dunder Mifflin, Scranton branch and in love with Pam. Enjoys playing practical jokes with Pam.</td>
</tr>
<tr>
<td>Pam</td>
<td>Receptionist for Dunder Mifflin, Scranton branch and engaged.</td>
</tr>
<tr>
<td>Dwight</td>
<td>Salesman for Dunder Mifflin, Scranton branch, Michael’s “right hand man,” and constantly picked on by Jim.</td>
</tr>
</tbody>
</table>

**Setting**

**Situation**
A group of coworkers, working for a paper company branch office. The branch is managed by Michael, who is constantly trying avoid working through a childlike personality.

Pam describes Michael’s attitude when he puts on a specific pair of LEVI’S JEANS. Michael is shown wearing his “fun jeans,” and acting crazy in the office. Jan and Michael meet to discuss the agenda for an upcoming sales meeting with the Lackawanna county representative, Christian. Michael tells Jan he changed the location of the meeting to CHILI’S RESTAURANT because, “Chili’s is the new golf course, it’s where business gets done.” Michael and Jan meet Christian at CHILI’S and order several popular items off the menu during their meeting. In the office, Pam discovers a screenplay written by Michael. She sets the screenplay down on Jim’s desk where there is a CISCO telephone, and shares the screenplay with Jim. The employees decide to read the screenplay together, with each employee taking a role. Dwight is hurt when he finds out a moronic character in the screenplay was originally named after him. This ends the reading of the screenplay. Jan, Michael and Christian are still at Chili’s when Michael convinces Christian to use Dunder Mifflin as the county’s paper supplier, much to Jan’s delight. At the office, Pam and Jim are on the roof of the building eating grilled cheese sandwiches watching a fireworks show put on by Dwight. Michael and Jan are in the Parking lot of CHILI’S discussing the success of the meeting as a BMW drives in front of them. They embrace and kiss. Jan tells Michael to take her to her hotel. The next morning, Dwight learns of Michael and Jan’s tryst, and confronts Michael. Michael is in the process of explaining their new relationship when Jan calls to tell him it was a mistake.

*Source*: Web site: www.imdb.com
THINKING TOO SMALL? PREDICTING INTENTIONS TO CONSUME NANOFOODS: A PILOT STUDY

Anastasia E. Thyroff, University of Arkansas

INTRODUCTION

Nanotechnology refers to a field of applied sciences whose theme is the control of matter on an atomic and molecular scale. By manipulating matter at such a small level, materials often have unique properties (Buzby 2010). Businesses are now beginning to not only understand the value, but also begin to invest in this novel technology. Consumers will soon encounter nanotechnology in the form of food containers that kill bacteria, stain-resistant clothing, high-performance sporting goods, faster and smaller computers, and more effective skin care products. Nanotechnology also has the potential to provide new and better ways to treat disease, clean up the environment, enhance national security, and provide cheaper energy (Baker and Aston 2005).

Nanotechnology also has tremendous potential in the areas of food production (Bouwmeester, et al. 2009). Nanotechnology may keep food fresher for a longer time, create foods with enhanced flavor, and make foods with superior nutritional benefits. Nanofoods can also induce better absorption of essential vitamins, antioxidants, and minerals. At the same time, these foods may facilitate organic farming because pesticides are not necessary (Waltze 2009). Food and nutritional products containing, or processed, using nanoscale materials are already available to consumers and many others are under development. The nanofood market has been predicted to nearly triple, from $7 billion in 2006 to $20.4 billion in 2010 (Allianz and OECD 2005). It is predicted that nanotechnology will be used in 40% of the world’s food production by 2015 (Helmut Kaiser 2009).

Although the novel nanotechnology products may be available and exciting, there is much trepidation over the legal, ethical and health issues associated with nanotechnologies. According to Friends of the Earth (2008) there are risks posed by nanotechnology: (1) nanoparticles are more chemically reactive than larger particles (2) nanoparticles have easier access to human organs than larger particles (3) greater bioavailability and bioactivity may present new toxicity risks (4) nanoparticles can comprise immune system responses, and (5) nanoparticles may have longer term (and yet unidentified) pathological effects. Nanomaterials may also cause harm to the environment. There also are concerns that invisible, nanotechnology-based monitoring tools could pose a threat to national security and personal privacy.

The success of these products dependent not only on the development of the technologies, but also on consumer acceptance of the products (Macoubrerie 2006; Costa-Font, Gil and Traill 2008); consumer acceptance of nanotechnology is a key marketing concern. Unlike most other food products, because most consumers know nothing about it, it is literally unknown right now whether consumers will accept nanofood (Buzby 2010). Half of American adults say they have heard nothing at all about nanotechnology, 26% of American adults had heard just a little about nanotechnology, 17% have heard some, and only 7% of American adults had heard a lot about nanotechnology (Project on Emerging Nanotechnologies 2009).

Consumer attitudes toward the use of nanotechnology in food products should be taken into account at an early stage of technology development, as these attitudes are related to behavioral intentions (Renn and Roco 2006; Roco 2009). The purpose of this paper is to present a pilot study that examines factors that may play a role in widespread consumer acceptance of nanofoods, and therefore willingness to try nanofoods. We develop constructs based on the theory of planned behavior, or TPB, applied to the context of nanotechnology and nanofood products in order to assess the importance of attitudes and
beliefs in consumers’ willingness to consume nanofoods. After describing some specific issues related to nanotechnology, we present the study and follow that with implications of the results. Consumers’ evaluations about nanofoods may raise questions about what consumers know about nanotechnologies and to what extent this knowledge manifests into their acceptance and purchase intentions.

**NANOTECHNOLOGY AND NANOFOODS**

**Nanomaterials**

Generally, nanotechnology applies to materials or devices that are approximately 100 nanometers or smaller. A “nanometer” is one one-billionth of a meter, or one one-thousandth of a millimeter. Materials at the nanoscale have very different properties than the same material at the “bulk” (normal size) scale. For example, gold is normally inert at the bulk scale, but gold nanoparticles are a very good catalyst and can facilitate chemical reactions. Carbon can be transferred into nanotubes that are lighter but 10 times stronger than steel. At the nanoscale, graphite (carbon) becomes magnetic.

Because of the unique characteristics of nanomaterials, they are very attractive for use in many product categories (e.g., computer hard-drives, sunscreens and cosmetics, sporting goods, medical technologies, food and food packaging). There has been considerable effort around the world to develop the technologies and there are hundreds of “nano”-based products that have been introduced (Project on Emerging Nanotechnologies 2009; Helmut Kaiser 2009). Thirteen U.S. government entities collectively requested $1.78 billion to fund nanoscale science for 2011 (Roco 2010); this does not include private investment or that of foreign governments. The hope is that nanotechnology represents “The New Industrial Revolution,” changing many facets of everyday life for consumers, much of which mayoccur without their knowledge (NNCO 2010).

**Nanofoods**

Nanotechnology is being developed and applied at every level of the food chain. Nanofoods refer to foods that have been cultivated, produced, or processed using nanotechnology techniques or tools, or food to which manufactured nanomaterials have been added (Joseph and Morrison 2006). In terms of consumed foods, there is considerable effort invested to create nanoparticles and modify them to enhance the food products. Recent research has included functional foods and nutraceuticals among the product categories to which nanotechnology has been applied (Bouwmeester et al. 2009; Chaudhry et al. 2008).

**CONSUMER ACCEPTANCE OF NEW TECHNOLOGIES**

As with any new technology, several factors may influence the consumer acceptance or use of that technology. Research to assess consumer’s perceptions toward a variety of novel food technologies has included irradiated foods, bioengineered (genetically modified) foods, foods containing pesticides, and foods processed using laser light sources (Bredahl 1999; Costa-Font, Gil, & Traill 2008; Frewer, Howard, Shepherd 1997; Frewer, Howards, Hedderley, and Shepherd 1997; Grunert et al. 2001; Hinson, Harrison, Andrews 1998; Miles, Frewer 2001; Mucci, Hough 2003; Sapp, Harrod, Zhao 1995; Wilcock et al. 2003). All of these food production technologies held both promise and risk, but experienced varying levels of consumer acceptance.

For example, genetically modified (GM) food products were first introduced in the early 1990s. GM includes crop plants, created for human or animal consumption, whose genes have been modified in the laboratory to enhance desired traits or improve nutritional content (Whitman 2000). A majority of scientists consider genetic modification a natural extension of traditional breeding techniques, but safer (Bredhal 1999). GM food can provide many advantages to crop production; there are some disadvantages, including the fact that the effects of GM foods on human health are unknown.
Consumers’ perceptions of risk have negatively affected acceptance of this technology. Some attributes of GM foods were found to be more desirable (e.g. reduction of microorganisms) than others (better flavor) (Frewer, Howards, Hedderley, and Shepherd 1997). Consumers also consider the potential risks and benefits of GM foods in light of perceived consequences for themselves, for other people and for the environment (Bredahl 1999). Additionally, consumers associate more risk with GM foods than benefits (Mucci and Hough 2003). Consumer acceptance of GM foods has depended on both desirable and unacceptable attributes. Thus, even a technology with great potential has struggled for acceptance dependent on consumer attitudes.

CONCEPTUAL BACKGROUND AND HYPOTHESES

The Theory of Planned Behavior (Ajzen 1985, 1987) has been used to predict and explain human behavior in various contexts, from election participation (Netemeyer, Burton and Johnston 1990) to volunteer intentions and behavior (Warburton and Terry 2000). The Theory of Planned Behavior (TPB) extended the Theory of Reasoned Action (Fishbein and Ajzen 1981) by including measures of perceived behavioral control. The perceived behavioral control construct was added to the model to help explain behavior where individuals may feel that they cannot exercise complete volitional control (Ajzen 1991). According to the TPB, intention serves as an antecedent to behavioral achievement. Intentions are assumed to capture the motivational factors that eventually influence behavior; subsequently, the stronger the intention to engage in a behavior, the greater the probability that a certain behavior will be carried out.

The TPB posits that there are three determinants of intention: attitude toward the behavior, subjective norms and perceived behavioral control (Ajzen 1991). *Attitude toward the behavior* looks at the extent to which a consumer has a favorable or unfavorable outlook of the behavior in question. *Subjective Norms* explain the individual’s perception of social pressure of whether to perform a behavior. *Perceived behavioral control* deals with the perceived ease or difficulty in performing the behavior (Ajzen 1991).

Empirical studies have shown strong links between attitudes and intention, although support for subjective norms has been weak (Ajzen 1991; Terry and Hogg 1996; White, Terry and Hogg 1994; Trafimow and Fishbein 1995; Armitage and Conner 2001). Nanotechnology is unique and is just starting to excel in the marketplace. American’s acceptance of nanotechnology has not been studied yet through the TPB framework. Therefore, the following study will examine the predictive power of each construct in the TPB in the context of consuming nanofoods. In addition to the four variables TPB posits (i.e., attitude toward the behavior, subjective norms, perceived behavioral control, and behavioral intention), attitudes toward nanotechnology and attitude toward nanofoods were also included in this study as antecedents to attitude toward the behavior.

Willingness to Consume Nanofoods

Whether to consume food that has been processed using a novel technology is a unique decision task. The following sections propose variables that are thought to be important to the attitude formation processes of whether to consume nanofoods (see figure 1).
Attitude Toward Nanotechnology & Nanofoods – Attitude Toward Consuming Nanofoods

The acceptance of food technologies reflects public attitudes toward technology in general, as well as perceptions of specific technologies (Henson et al. 2008, Frewer et al. 1998). To predict how consumers are likely to respond to a novel technology in the future, and therefore provide guidance to the developers and commercialized of these technologies, it is imperative to look at both the attitude toward the technology and the specific application (Henson et al. 2008). Therefore, the measures of attitude toward nanotechnology (i.e., the technology in general) and attitude toward nanofoods (i.e., nanotechnology applied specifically to nanofoods) are included. We postulate that both attitude toward nanotechnology and attitude toward nanofoods will both positively affect attitude toward behavior. That is, the more positive the consumer attitudes are toward nanotechnologies and nanofoods, the more positive their attitudes will be toward consuming nanofoods. Additionally, following the TPB, we postulate that attitude toward the behavior will positively affects behavioral intention. Therefore we hypothesize that:

H1a: The effects of attitude toward nanotechnology on behavioral intention will be positively mediated by attitude toward the behavior.

H1b: The effects of attitude toward nanofoods on behavioral intention will be positively mediated by attitude toward the behavior.

Subjective Norms

Most consumers are not yet familiar with the term nanotechnology (Boyce 2009). One way individuals cope with a lack of knowledge of a new technology is to employ social trust when assessing the risks (Siegrist and Cvetkovich 2000). Further, it has been suggested that people have trust in people who share the values they believe are important in given situations (Siegrist and Cvetkovich 2000). Therefore, it is important to look at a consumer’s subjective social norms in the context of intentions to consume nanofoods. Borrowing from TPB, we postulate that subjective norms directly and positively affect consumer’s intentions to consume nanofoods. That is:

H2: There is a positive relationship between perceived subjective norms and intention to consume nanofoods.
Perceived Behavioral Control

Like many other consumer items, a decision of whether to consume nanofoods may be subject to control factors such as time, money, and convenience. For instance, some consumers on a tight grocery budget may find money to be a large barrier in trying a novel food. The model thus includes a measure that captures the degree of control an individual perceives that he or she has in consuming nanofoods. Following the original TPB model we propose the following hypothesis regarding our model:

H3: There is a positive relationship between control and intention to consume nanofoods.

Thus, this model to predict intentions to consume nanofoods proposes that variables such as attitude toward nanotechnology, attitude toward nanofoods, attitude toward consuming nanofoods, subjective norms and perceived behavioral control all impact an individual’s overall intention to consume nanofoods. The next section describes the study used to test the hypotheses.

METHODOLOGY

Sample

A total of 193 undergraduate students at a southern university took part in this research; 56% of respondents were male and 44% were female. The sample was recruited through class lectures; students received extra credit for participating in the study. A pre-tested, unbiased, written conversation in which two people discuss various aspects of nanotechnologies was first provided to the respondents in order to provide some basic information. Survey items related to nanofoods were then presented to respondents.

Assumptions in the SEM

Using the ranked Mahalanobis distance ($d^2$) distances given by AMOS, we checked for outliers and one observation was deleted (see appendix figure 1 and figure 2 for before and after). To detect univariate non-normal distributions, both skew and kurtosis were looked at; both of which can be examined in AMOS. All skew values were <2, and all kurtosis values were <7; therefore, we assume normality (West, et al. 1995).

Multivariate non-normality is often detected through inspection of univariate distributions (Kline 2005). However, normality of all univariate distributions does not guarantee multivariate normality. Therefore, we check for multivariate normality using Mardia’s coefficient of Multivariate kurtosis. Any value greater than 5 suggests non-normal multivariate data and a value of 36.401 was found for our data; therefore, we determine that our data is multivariate non-normal.

Additionally, the bootstrapped model shows improvement (Bootstrapped $X^2 = 597.440$, Bootstrapped p-value= .0002, correction factor = 4.05) and therefore gives further support of the dataset being multivariate non-normal. A correction factor of 4.05 indicates that the unadjusted $X^2$ is about 3 times larger, indicating multivariate non-normality. Additionally, the $X^2$ value decreased and the p-value increased slightly, which are two other indications of improvement. Therefore, bootstrapping is used for the rest of the analysis.
Initially, the model fit was not satisfactory ($X^2 = 2419.819$, $p$-value=.000, CIF=.663, RMSEA=.145, Bootstrapped $X^2$=597.440, Bootstrapped $p$-value=.0002). Both the standardized residual covariance matrix and the modification indices of cross loadings were used to determine which variables were causing the poor fit$^4$. Using these tools, one obscured latent variable was removed at a time. The model was rerun after each variable was removed; model fit showed improvement each time (see “exploratory cleansing analysis” in Appendix). Overall, 18 observed variables were deleted and the model fit was much improved ($X^2 = 104.512$, $p$-value=.014, CIF=.986, RMSEA=.045). Although 18 variables may seem like a lot to remove, this is expected since the TPB scales were originally developed for a different methodology.

To check for outliers one final time, the Mahalanobis Distance determined that one observation (observation 172) was a candidate for deletion (see Figure #3). However, responses raised no concern upon inspection; therefore, it was determined to keep the observation. Additionally, because normality was a potential concern earlier, we bootstrap our new model, and again see improvement (Bootstrapped $X^2$=86.048, Bootstrapped $p$-value=.180). Therefore, for the remainder of the paper, the bootstrapped version was used (see Table 1).

Table 1: Original and New Model fit and their Implied $X^2$ Values

<table>
<thead>
<tr>
<th>Model Tested</th>
<th>$X^2$</th>
<th>Df</th>
<th>p-value</th>
<th>CFI</th>
<th>RMSEA</th>
<th>Bootstrapped $X^2$</th>
<th>Bootstrapped p-value</th>
<th>Correction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Model</td>
<td>2419.819</td>
<td>480</td>
<td>.00000</td>
<td>.663</td>
<td>.145</td>
<td>597.440</td>
<td>.0002</td>
<td>4.05</td>
</tr>
<tr>
<td>New Model</td>
<td>104.512</td>
<td>75</td>
<td>.014</td>
<td>.986</td>
<td>.045</td>
<td>86.048</td>
<td>.180</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Measures

Behavioral Intention to Consume (BITOT) is defined in this study as how much effort the consumer is planning to exert in order to consume nanofoods. This construct was measured using two items “I intend on consuming nanofoods in the next two years” and “I will try to consume nanofoods in the next two years.” A seven-point Likert scale anchored by “very unlikely” and “very likely,” was used for respondents to indicate their level of agreement.

Subjective norms (NORM) are social variables that reflect the perceived social pressure to perform or not to perform the behavior (Ajzen 1991). For this study, subjective norms are defined as the perceived social pressure to consume or not to consume nanofoods. Two 7-point likert scales supplied a measure of subjective norms. The two statements used were “most people who are important to me approve of me consuming nanofoods” and “most people who are important in my life think I should consume nanofoods.”

Perceived behavioral control (PBC) is defined as the perceived ease or difficulty of consuming nanofoods. Behavioral measures were developed by asking respondents to rate a set of 4 statements (e.g., “I believe I have a great deal of control in consuming nanofoods”). Statements were presented on a 7-point likert scale (1-strongly disagree to 7-strongly agree).

$^4$ The standardized residual covariance matrix looks at problems across multiple variables simultaneously. Any residual values greater than 2.00, indicates a problem between two observed variables with regard their covariation. A value exceeding 2.00 is considered significant. Modification indices provide estimates for the changes that will be seen in the X2 estimates when certain paths are added (i.e., Lagrange Multiplier). The larger the modification index, the more the predicted improvement in model fit.
Attitude toward the behavior (ATB) address the extent to which a person has a favorable or unfavorable appraisal of the behavior in question (Ajzen 1991). In context of nanofoods, we define Attitude Toward Nanofoods as the degree to which the consumer has a favorable or unfavorable evaluation of consuming nanofoods. A total of 20 7-point semantic differential items were used to measure the attitude. Respondents were asked to rate each pair of behaviors. The set of 20 included the original 12 adjective pairs seen in Ajzen (1991), plus an additional 8 that we found appropriate for measuring attitudes toward nanotechnology.

Attitude toward nanofoods (Afood) as well as general attitude toward nanotechnologies (Anano) were also measured. A three item scale was used to measure attitude toward nanofoods (e.g., “my attitude toward nanotechnology is”). Respondents were asked to express positive or negative dispositions toward nanofoods, all on 7-point Likert scales (e.g., 1-very unfavorable to 7-very favorable, 1-very bad to 7-very good, 1-very negative to 7-very positive). The same items were then used, with appropriate wording changes, to assess general attitudes toward nanotechnologies. Respondents were also asked gender and a direct “knowledge” question intended to assess whether the respondents had heard of nanotechnology prior to the current survey.

RESULTS
Measurement Model
The measurement model had adequate fit ($X^2 = 104.512$, p-value=.014, CIF=.986, RMSEA=.045, Bootstrapped $X^2= 86.048$, Bootstrapped p-value=.180). Convergent validity, discriminant validity, and composite reliability were then examined. To test for convergent validity, standardized lambda values, along with the average variance extracted, were calculated for each latent variable. An examination of the standardized lambda values revealed that all of the loadings were significant (p-value=.05) and exceeded the .5 threshold as recommended by Hair et al. (2006). In addition, the average variance extracted for each construct exceeded the recommended rule of thumb of .5 (Hair et al. 2006), as shown in Table 2. This is a signal that the variance captured by the construct is greater than the variance due to measurement error.

To assess discriminant validity The Fornell-Larker test (1981) was performed. The average variances extracted between each construct are greater than the squared multiple correlations for each construct pair; indicating that discriminant validity exists (see Table 2).

Table 2: Average Variance extracted and Squared Correlations

<table>
<thead>
<tr>
<th></th>
<th>ANANO</th>
<th>AFOOD</th>
<th>ATB</th>
<th>NORM</th>
<th>PBC</th>
<th>BITOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANANO</td>
<td>0.896</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFOOD</td>
<td>.330</td>
<td>0.868</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATB</td>
<td>.197</td>
<td>.313</td>
<td>0.533</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORM</td>
<td>.102</td>
<td>.382</td>
<td>.101</td>
<td>0.845</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>.098</td>
<td>.040</td>
<td>.014</td>
<td>.149</td>
<td>.588</td>
<td></td>
</tr>
<tr>
<td>BITOT</td>
<td>.211</td>
<td>.519</td>
<td>.232</td>
<td>.544</td>
<td>.146</td>
<td>0.869</td>
</tr>
</tbody>
</table>

Note: Average variance extracted is shown in boldface.

All measures exemplified acceptable reliability and therefore we determine internal consistency for each construct (See Table 3). The results from the analyses follow.
Using bootstrapping the fit for the structural model was satisfactory \((X^2= 126.004, \ p-value=.000, \ CFI=.977, \ RMSEA=.056, \ Bootstrapped \ X^2= 99.017, \ Bootstrapped \ p-value=.063)\). To test hypotheses \(H_{1a}\) and \(H_{1b}\), we first examined a simple direct test of the relationship between predictor and criterion (found in the covariance matrix) confirmed significance. A chi-square difference test determined whether the mediated effect was “full” or “partial.” Finally, we tested three relationships (i.e., predictor to mediator, mediator to criterion, and the indirect effect between predictor and criterion) for significance to confirm the mediation proposed in each hypothesis (as suggested by Barron and Kenny 1986).

For both \(H_{1a}\) and \(H_{1b}\), the chi-square difference tests were significant, indicating that partial mediation exists (see Table 4). Keeping the new direct predictor to criterion line in for each mediation term (because it was shown to be significant), the direct and indirect effects were tested and mediation was confirmed (see Table 5). Therefore, both \(H_{1a}\) and \(H_{1b}\) in modified form are accepted. That is, there is positive partial mediation.

### Table 3: Composite Reliability

<table>
<thead>
<tr>
<th>Composite Rho</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ANANO</td>
<td>.945</td>
</tr>
<tr>
<td>AFOOD</td>
<td>.929</td>
</tr>
<tr>
<td>ATB</td>
<td>.834</td>
</tr>
<tr>
<td>NORM</td>
<td>.916</td>
</tr>
<tr>
<td>PBC</td>
<td>.739</td>
</tr>
<tr>
<td>BITOT</td>
<td>.930</td>
</tr>
</tbody>
</table>

### Structural Model

\(H_2\) predicted a positive relationship between perceived social norms and an individual’s intention to consume nanofoods. This relationship was supported \((\beta=.729, \ SE=.08, \ t=9.314, \ p-value<.001)\). \(H_3\) predicted a positive relationship between perceived behavioral control and intention to consume nanofoods. This relationship is not supported \((\beta=.126, \ SE=.084, \ t-value=1.504, \ p-value=.066)\)

### Table 4: Test for “fully” versus “partially” mediated effect

<table>
<thead>
<tr>
<th>Model Tested</th>
<th>Bootstrapped X^2 Value</th>
<th>DF</th>
<th>Bootstrapped p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: ANano → ATB → BITOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unconstrained</td>
<td>94.938</td>
<td>78</td>
<td>.093</td>
</tr>
<tr>
<td>Constrained</td>
<td>99.017</td>
<td>79</td>
<td>.063</td>
</tr>
<tr>
<td>Difference</td>
<td>4.089</td>
<td>1</td>
<td>.043</td>
</tr>
<tr>
<td>H1b: AFood → ATB → BITOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unconstrained</td>
<td>86.787</td>
<td>78</td>
<td>.232</td>
</tr>
<tr>
<td>Constrained</td>
<td>99.017</td>
<td>79</td>
<td>.063</td>
</tr>
<tr>
<td>Difference</td>
<td>12.230</td>
<td>1</td>
<td>.001</td>
</tr>
<tr>
<td>Both H1a and H1b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both Unconstrained</td>
<td>86.406</td>
<td>77</td>
<td>.217</td>
</tr>
<tr>
<td>Constrained</td>
<td>99.017</td>
<td>79</td>
<td>.063</td>
</tr>
<tr>
<td>Difference</td>
<td>12.611</td>
<td>2</td>
<td>.001</td>
</tr>
</tbody>
</table>

H2 predicted a positive relationship between perceived social norms and an individual’s intention to consume nanofoods. This relationship was supported \((\beta=.729, \ SE=.08, \ t=9.314, \ p-value<.001)\). H3 predicted a positive relationship between perceived behavioral control and intention to consume nanofoods. This relationship is not supported \((\beta=.126, \ SE=.084, \ t-value=1.504, \ p-value=.066)\)
### Table 5: Tests of Direct and Indirect Effects

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficient</th>
<th>Standard Error</th>
<th>t-value</th>
<th>p-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1a:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANano → ATB</td>
<td>.193 (DE)</td>
<td>.088</td>
<td>2.197</td>
<td>.028</td>
<td>Significant</td>
</tr>
<tr>
<td>ATB → BITOT</td>
<td>.229 (DE)</td>
<td>.067</td>
<td>3.434</td>
<td>&lt;.001</td>
<td>Significant</td>
</tr>
<tr>
<td>ANano → ATB → BITOT</td>
<td>.044 (IE)</td>
<td>.024</td>
<td>1.850</td>
<td>.033*</td>
<td>Significant</td>
</tr>
<tr>
<td>(using Sobel Test)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H1b:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFood → ATB → BITOT</td>
<td>.485 (DE)</td>
<td>.091</td>
<td>5.352</td>
<td>&lt;.001</td>
<td>Significant</td>
</tr>
<tr>
<td>ATB → BITOT</td>
<td>.142 (DE)</td>
<td>.068</td>
<td>2.092</td>
<td>.036</td>
<td>Significant</td>
</tr>
<tr>
<td>AFood → ATB → BITOT</td>
<td>.069 (IE)</td>
<td>.035</td>
<td>1.951</td>
<td>.026*</td>
<td>Significant</td>
</tr>
<tr>
<td>(using Sobel Test)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H2:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norms → BITOT</td>
<td>.729 (DE)</td>
<td>.078</td>
<td>9.314</td>
<td>&lt;.001*</td>
<td>Significant</td>
</tr>
<tr>
<td><strong>H3:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC → BITOT</td>
<td>.126 (DE)</td>
<td>.084</td>
<td>1.504</td>
<td>.066*</td>
<td>Significant</td>
</tr>
</tbody>
</table>

* Indicates 1-tail p-value based on the hypothesis

### DISCUSSION

Consumer acceptance has been shown to be a critical aspect to the commercial success of a new food technology. We conducted a pilot study to look at the factors that play a role in consumer acceptance of nanofoods, including several constructs adapted from the theory of planned behavior. In addition to factors incorporated in the original model, including attitude toward behavior, subjective norms, perceived behavioral control and behavioral intention, we integrated two additional constructs: attitude toward nanotechnology and attitude toward nanofood.

With respect to new technologies, results of the pilot study suggest that attitude toward nanotechnology, attitude toward nanofoods and subjective norms all play a significant role in considering an individual’s intention to consume nanofoods. We found that attitude toward the consumption behavior mediates the relationship between attitude toward nanotechnology and behavioral intention. We also found that attitude toward the behavior mediates the relationship between attitude towards nanofoods and behavioral intention. Further, we find evidence to suggest that subjective norms also play a significant role in behavioral intention.

Both the two new constructs; attitude toward nanotechnology and attitude toward nanofood were also found to play a significant role in predicting the consumer’s attitude toward consuming nanofoods, supporting a conclusion offered by Henson et al. 2008, it is imperative to consider the attitude toward the technology and the specific application. Future applications of the TPB should consider antecedent factors that may be playing a role in the attitude toward the behavior.

Results did not indicate that perceived behavioral control plays a role in a consumer’s behavioral intention. This maybe is due to the novel aspect of nanotechnologies and the lack of scientific (or other) information about them. In the absence of information, consumers may not be able to formulate perceptions on how much control they have. Therefore, the must rely on their own attitudes and social norms.
MANAGERIAL AND POLICY IMPLICATIONS

Both public and private entities continue to invest in nanotechnology. Foods produced or otherwise presented to consumers through nanotechnologies may soon be available to consumers on a large scale. Whether these considerable investments provide some return, financially or otherwise is dependent on a number of factors, (Buzby 2010). From a consumer protection standpoint, the results of our study are consistent with earlier reports: consumers are not aware or informed of nanotechnologies in general. Questions would certainly be raised as to the materiality (i.e., salience) of knowledge of nanotechnology and its impact on consumer decision making. Because the technology is “unknown” to consumers, it is of more general interest to determine how consumers make decisions about very new technologies that may or may not present health or environmental concerns. It is also suggested by this research that other individual traits (perceptions of social norms, consumer attitudes toward not just the technology itself, but also the product category for which the technology is applied) are significant antecedents.

Limitations and Future Research

This pilot assesses relationships among several variables and consumers’ intentions to consume nanofoods products. As a pilot study, we used student respondents, a market segment not usually representative of the characteristics of the general population. More generalizable results should be derived using non-student consumer respondents with more diverse demographic characteristics. Further research should also include variables related to individual traits (e.g., tolerance for risk, knowledge of the specific product category or technology).
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fruits-and-veggies-927843.html

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## Exploratory Cleansing Analysis

<table>
<thead>
<tr>
<th>Model Tested</th>
<th>$X^2$</th>
<th>Df</th>
<th>p-value</th>
<th>CFI</th>
<th>RMSEA</th>
<th>Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Model</td>
<td>2419.819</td>
<td>480</td>
<td>.000</td>
<td>.663</td>
<td>.145</td>
<td>-</td>
</tr>
<tr>
<td>Full Model</td>
<td>2263.711</td>
<td>449</td>
<td>.000</td>
<td>.675</td>
<td>.145</td>
<td>Q16_6R</td>
</tr>
<tr>
<td>Full Model</td>
<td>1987.236</td>
<td>419</td>
<td>.000</td>
<td>.703</td>
<td>.140</td>
<td>Q16_6R, Q15_5R</td>
</tr>
<tr>
<td>Full Model</td>
<td>1721.936</td>
<td>390</td>
<td>.000</td>
<td>.734</td>
<td>.134</td>
<td>Q16_6R, Q15_5R, Q15_4R</td>
</tr>
<tr>
<td>Full Model</td>
<td>1399.664</td>
<td>362</td>
<td>.000</td>
<td>.779</td>
<td>.123</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R</td>
</tr>
<tr>
<td>Full Model</td>
<td>1165.048</td>
<td>335</td>
<td>.000</td>
<td>.812</td>
<td>.114</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R</td>
</tr>
<tr>
<td>Full Model</td>
<td>1010.773</td>
<td>309</td>
<td>.000</td>
<td>.836</td>
<td>.109</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R</td>
</tr>
<tr>
<td>Full Model</td>
<td>812.989</td>
<td>284</td>
<td>.000</td>
<td>.870</td>
<td>.093</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q17_5R</td>
</tr>
<tr>
<td>Full Model</td>
<td>675.866</td>
<td>260</td>
<td>.000</td>
<td>.894</td>
<td>.092</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_9R, Q16_2R</td>
</tr>
<tr>
<td>Full Model</td>
<td>567.491</td>
<td>237</td>
<td>.000</td>
<td>.913</td>
<td>.085</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R</td>
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<tr>
<td>Full Model</td>
<td>491.836</td>
<td>215</td>
<td>.000</td>
<td>.924</td>
<td>.082</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R, Q17_1</td>
</tr>
<tr>
<td>Full Model</td>
<td>397.888</td>
<td>194</td>
<td>.000</td>
<td>.938</td>
<td>.074</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R, Q17_1, Q16_8</td>
</tr>
<tr>
<td>Full Model</td>
<td>346.387</td>
<td>174</td>
<td>.000</td>
<td>.945</td>
<td>.072</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_6R, Q16_2R, Q15_2R, Q17_1, Q16_8, Q17_3</td>
</tr>
<tr>
<td>Full Model</td>
<td>277.404</td>
<td>155</td>
<td>.000</td>
<td>.959</td>
<td>.064</td>
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</tr>
<tr>
<td>Full Model</td>
<td>229.095</td>
<td>137</td>
<td>.000</td>
<td>.969</td>
<td>.059</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R, Q17_1, Q16_8, Q17_3, Q16_3, Q15_3R</td>
</tr>
<tr>
<td>Full Model</td>
<td>198.344</td>
<td>120</td>
<td>.000</td>
<td>.971</td>
<td>.058</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R, Q17_1, Q16_8, Q17_3, Q16_3, Q15_3R, Q21_1</td>
</tr>
<tr>
<td>Full Model</td>
<td>160.933</td>
<td>104</td>
<td>.000</td>
<td>.978</td>
<td>.054</td>
<td>Q16_6R, Q15_5R, Q15_4R, Q15_1R, Q17_4R, Q15_7R, Q15_2R, Q17_1, Q16_8, Q17_3, Q16_3, Q15_3R, Q21_1, Q13_3</td>
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<tr>
<td>Full Model</td>
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<td>89</td>
<td>.008</td>
<td>.985</td>
<td>.045</td>
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REEXAMINING THE ROLE OF AFFECT IN FLUENCY BASED JUDGMENTS OF RISK

Jesse King, University of Oregon

ABSTRACT

Previous research has shown that fluency experiences – the difficulty associated with processing information – can influence a variety of judgments. Recently, Song and Schwarz (2009) investigated the relationship between differences in fluency and perceptions of risk. Their results suggested that fluency experiences affect risk perception through differences in familiarity and not as the result of fluency elicited-affect. The present research re-examines those results in an effort to clarify the role of affect as a basis for perceptions of risk. The inclusion of additional measures into the methodology used by Song and Schwarz (2009) reveals a previously unreported reversal in preference for less fluent stimuli. The analysis further suggests that fluency elicited-affect can explain the previously observed relationship between processing experiences and perceptions of risk. The reported results do not contradict those of Song and Schwarz (2009) but the additional measures make it possible to reach different conclusions. The results have important theoretical implications for our understanding of the way in which people derive meaning from fluency experiences and to the role fluency elicited-affect as a basis for judgments of risk and benefit.

INTRODUCTION

A growing body of literature has provided evidence that experiences of fluency—the subjective ease or difficulty associated with processing information—can serve as a distinct input for a wide variety of judgments. For example, greater subjective ease of processing (fluent processing) has been found to be associated with more favorable evaluations (positive affect), feelings of greater confidence, and judgments of increased frequency and truthfulness (Alter and Oppenheimer 2009; Reber et al. 1998). Fluency has been suggested to operate as a heuristic source of information (Schwarz and Vaughn 2002), underlying many of the decisions and intuitive judgments people make on a daily basis. While several different types of fluency have been described within the literature, they have each been shown to provide remarkably similar influences on judgment and decision making.

The usefulness of fluency experiences as an input to decision making has been shown to vary across situations. When the source of the processing difficulty is called into question, people tend to discount the information provided by their processing experience and rely instead, upon the content retrieved (Schwarz et al. 1991). A number of different process theories have been put forth to explain these effects. Some authors have proposed that more fluent processing elicits a positive affective response (Reber et al. 2004; Reber et al. 1998; Winkielman and Cacioppo 2001) that is then referenced as a basis for other judgments. Others have suggested that these judgments stem from the relationship between fluent processing and increased estimates of frequency or familiarity (Johnston et al. 1985; Schwarz et al. 2007; Song and Schwarz 2009). From this perspective, increased fluency leads to favorable judgments partly because familiarity is inferred to signal a more trustworthy source. More complicated models have also been proposed, suggesting that fluent processing experiences have both a direct relationship with positive affect as well as an indirect relationship that is dependent upon the inferences drawn from the experience (Fang et al. 2007).

Recently, Song and Schwarz (2009) published a series of studies investigating the relationship between fluency experiences and perceptions of risk. Their findings demonstrated that difficult to process stimuli were perceived as more risky relative to easier to process stimuli. The differences in perceived risk were considered as evidence that processing experiences influence perceptions of risk primarily as a result of differences in perceived novelty (familiarity) and not because of affect associated with the
processing experience. However, methodological limitations preclude such conclusions from the reported data and leave room for alternative interpretations. The present research reexamines the studies reported by Song and Schwarz (2009) and offers evidence that fluency-elicited affect is related to perceptions of risk. Interestingly, the results of the current research do not contradict those reported by Song and Schwarz (2009) but the inclusion of additional measures help to clarify the processes that underlie the relationship between fluency experiences and the perception of risk. The purpose of this research is not to refute the role of feelings of familiarity in influencing perceptions of risk, but rather to explore if affective reactions to processing experiences might also be related to perceptions of risk.

This work offers contributions both to fluency research and to work investigating the role of affect in perceptions of risk. The results of the current research demonstrate that the effects of fluency on judgments are often relative, based upon comparative processing difficulty rather than absolute differences in ease of processing. Further, differences in the interpretation of fluency experiences are shown to help explain the results reported by Song and Schwarz (2009). The reported reversals in the meaning derived from processing experiences supports other recent research (Labroo and Kim 2009) which has found that individuals selectively apply different naïve theories to interpret fluency experiences depending upon salient goals. The application of different naïve theories can trigger divergent affective evaluations from similar processing experiences. Further, the results of this research demonstrate that the relationship between affective evaluations and perceptions of risk varies as a function of both goals and processing difficulty.

The sections that follow summarize past research exploring affect as a basis for perceptions of risk, the role of naïve theories in understanding processing experiences, and the methodology used by Song and Schwarz (2009). Then, three studies are presented which explore the influence of affective evaluations, goals and fluency on judgments of risk and benefit. This paper then concludes by discussing the implications of the results both from theoretical and applied perspectives.

**Naïve Theories and the interpretation of fluency experiences**

To at least some extent, the effect of processing difficulty on different types of judgments is likely to be dependent upon the naïve theories that are applied. Naïve theories are assumptions about what a metacognitive experience means. People apply different naïve theories to different contexts depending on their experience with similar situations. These theories explain many of the effects associated with fluency experiences. For example, the availability heuristic has been shown to occur because people make assumption that instances that occur with a higher frequency are more easily recalled from memory than instances that occur with a lower frequency (Schwarz 2004). In most situations, this assumption is valid however, it can lead to incorrect judgments when people make the reverse inference that ease of processing is a signal of familiarity or frequency (Schwarz et al. 1991). Similarly, people assume that familiar stimuli will be easier to process than novel stimuli. Supporting this idea, Whittlesea et al. (1990), found that words that were presented with greater visual clarity were more likely to be incorrectly recognized as having been presented on an earlier list. Manipulations that make participants aware of the biasing influence of visual clarity eliminated the effect. Thus, naïve theories provide an interpretive lens through which people infer meaning from processing experiences.

While familiarity judgments are common, depending on the situation, fluency experiences may lead to a number of other inferences about the attributes of a particular stimulus. For instance, a common finding is that more fluent processing leads to increasing favorability evaluations (Reber et al. 2004; Reber et al. 1998; Winkielman and Cacioppo 2001). Zajonc (1968) popularized the mere exposure effect, which has since spurred a great amount of research. Research has demonstrated that mere exposure effect can be explained by differences in fluency, as people tend to prefer recurring stimuli because they are perceptually easier to recognize, creating a sense of fluency (see: Bornstein and D'Agostino 1994; Bornstein and D'Agostino 1992; Fang et al. 2007; Whittlesea 1993).
Psychophysiological studies have also provided evidence of a relationship between processing fluency and positive affect. Winkielman and Cacioppo (2001) used two different fluency manipulations (matched / mismatched contour primes and increased duration) to present stimuli in two experiments while participants were monitored by facial electromyography (EMG) sensors. Stimuli that were easier to process (fluent) were found to correspond with increased activation of muscles related to smiling (zygomaticus major) as well as increasingly positive affective evaluations in self-reports.

Most naïve theories lead decision makers to draw favorable inferences from fluent processing experiences and less favorable inferences from experiences that are less fluent. However, in some circumstances consumers may interpret disfluent processing experiences favorably. Alter and Oppenheimer (2009) have suggested that such a pattern might also exist:

“Whereas one naïve theory might imply that a complex – and therefore disfluent – artwork is novel and interesting, a second naïve theory might classify complex, disfluent written prose as clumsy and awkward. Thus, naïve theories bridge the gap between the experience of fluency and its implications for a particular judgment. (pg. 220)”

Recent studies have begun to map boundary conditions regarding fluency effects and have begun to document the contexts under which naïve theories lead decision makers to make favorable inferences from disfluent processing experiences. In one example, Briñol et al. (2006) directly manipulated the naïve theories that participants applied to their fluency experiences. In their studies, participants were told that ease of processing was either good (e.g. because intelligent people generally have more complex thinking and more neuronal connections, so they often experience a feeling of difficulty when generating thoughts about a new issue – pg. 202), or that ease of processing was bad by reversing the instructions arguing that intelligence was linked with fluent processing. The results revealed an interaction between fluency and the type of naïve theory that study participants applied, such that greater processing ease was associated with higher evaluations in the fluency-is-good condition, but was associated with lower evaluations in the fluency-is-bad condition. These findings provide compelling evidence that while fluency experiences serve as a ubiquitous input to decision making, the actual conclusions drawn from fluent processing may be open to interpretation and dependent upon the naïve theory that is applied.

In everyday life however, naïve theories are not made as salient, or defined as explicitly, as they were in the Briñol et al. (2006) studies. Rather, the specific naïve theory that is applied is inductively determined based upon the context, the type of judgment and the goals of the consumer. The matching of appropriate naïve theories to specific situations is learned through a lifetime of experience. For example, people learn to apply the naïve theory underlying the availability heuristic because the ease of recalling an instance is usually informative about the frequency with which that instance occurs. However, in some instances interpreting highly accessible information as signaling high rates of frequency may be inappropriate.

Nielsen and Escalas (2010), demonstrated that the effect of fluency can vary based upon the processing style used by consumers. Their results indicated that advertisements that are analytically processed produce the standard interpretation of subjective ease of processing as favorable. However, advertisements evaluated using a narrative processing style produced reversals in the interpretation of the processing experience whereby difficulty processing was perceived as more favorable due to the inference that processing difficulty signaled a more complex (thus better) story.

Another reversal in the interpretation of fluency was documented by Pocheptsova et al. (2010). They found that greater difficulty associated with processing products and services intended for use during special occasions increased purchase intent, willingness to pay, and evaluations. However, more
fluent processing was preferred among products and services intended for every-day use. This reversal was driven by naïve theories about the domain in which the product is consumed. Products intended for use on a special occasion are typically valued for being uncommon and distinctive. Greater processing difficulty associated with an object that is intended for a special occasion triggers the inference that the product is unique and special leading to increasing evaluations. When considering objects for everyday consumption, familiarity is desirable and ease of processing leads to improved evaluations.

Closely related to the current research, Labroo and Kim (2009) demonstrated another reversal in the interpretation of fluency by manipulating the goals held by consumers. They found that the effect of fluency on evaluations of an object is dependent upon whether the object is instrumental in achieving accessible goals. Objects perceived as being instrumental towards goal advancement were evaluated more favorably when they were presented in a difficult to process format as opposed to an easy to process format.

For example, chocolates presented with greater fluency in an advertisement were found to be preferred over those presented with less fluency if consumers held goals that could not be satisfied by consuming chocolates (e.g. goals of self-control). However, chocolates presented with less fluency were preferred if consumers held goals, such as feeling good, that could be satisfied by consuming chocolate. Again, differences in naïve theories explain this effect. People commonly associate goal advancement with the expenditure of effort. As a result, when trying to reach a goal and to assess how useful an object will be in helping to achieve that goal, greater effort associated with the object improves favorability evaluations because the object is seen as more instrumental towards achieving the goal. Greater difficulty was favored among those with feel-good goals because it increased the perceived instrumentality of chocolates in achieving the goal of feeling good. However, difficulty processing did not increase favorability of difficult to process chocolate advertisements among those with neutral or self-control goals because the achievement of those goals conflicted with the benefits offered by the chocolate.

Reversals in preference due to the application of different naïve theories are relatively new to the fluency literature. However, these studies have provided strong evidence that meaning derived from a processing experience is not fixed, but rather is dependent upon how it is interpreted. An interesting next question relates to how these reversals in preference might influence subsequent judgments based on those preferences.

The Affect Heuristic

Slovic et al. (2007) suggests that individuals often rely upon an “affect heuristic” when making judgments. The affect heuristic is based on the idea that when making a judgment, it is more efficient for people to rely upon their overall affective impression of an object than it is for them to account for all available information. Evidence for the affect heuristic has been provided by studies that demonstrate that both the perceived benefit and the perceived risk of some target can be explained, in particular contexts, as the result of an individual’s more general affect toward the target (Finucane et al. 2000). This reliance on affect causes perceptions of the risks and benefits associated with an object or situation to have an inverse relationship. Liking an object, therefore, tends to trigger assessments of high benefits and low risks associated with that object. In contrast, disliking produces the opposite pattern. Experimental manipulations that increase or decrease perceptions of risk or benefit have been shown to produce an inverse, affectively congruent change in the non-manipulated attribute. This pattern of results has been demonstrated under circumstances in which information about risks (benefits) is logically devoid of benefit (risk) information. A change in a participant’s affective evaluation (increased/decreased favorability) was implicated for this finding. The affect heuristic appears to be relevant to fluency research because the experience of processing information may provide a source of affect that influences subsequent judgments of risk and benefit.
Song and Schwarz (2009) recognized this possibility, acknowledging that positive affect should attenuate judgments of risk and increase judgments of benefits. However, their results did not find support for the role of fluency-elicited affect in these judgments. The experimental data presented to support their argument had limitations that leave room for the possibility that fluency-elicited affect underlies perceptions of risk and benefit. Below, this experimental evidence is explored in more detail and a plausible alternative interpretation that takes into account the affect heuristic and the role of naïve theories in determining the meaning of a fluency experience is presented.

Fluency-elicited Affect and Risk

Song and Schwarz (2009) reported three experiments all of which manipulated fluency by altering the ease with which words could be pronounced. In the first study participants were presented with a list of ten food additive (five easy to pronounce, five difficult to pronounce). It was reported that study participants perceived greater potential harm (risk) from food additives with difficult to pronounce names as compared to easy to pronounce names. The second study replicated this finding, but study participants also evaluated the novelty of the food additives. The results indicated that participants evaluated additives that were difficult to pronounce as being more novel than substances that were easy to pronounce. The results also revealed a significant interaction between the question order and fluency such that fluency was found to produce a greater effect on perceived novelty when the novelty question preceded the question about risk than when the question about risk preceded the novelty question. A mediational analysis indicated that novelty partially mediated the relationship between fluency and judgments of hazard. However, because the study did not manipulate either novelty or hazardousness, the causal order of the relationship is difficult to establish.

In a third study, Song and Schwarz (2009) examined the effects of fluency on perceptions of risk and benefit in an amusement park context. This context is interesting because the desirability of risk is ambiguous. Amusement parks can offer the benefits of adventure and excitement but also present risks including the possibility of making a person sick. In their study, all participants were told to imagine that they were visiting an amusement park and were handed a brochure with the names of the rides offered. Next, study participants were assigned to one of two groups. Those assigned to the desirable-risk condition received further instructions to imagine that they wanted to identify “very exciting and adventurous rides” on the basis of the brochure so that they “would not waste time on the dull ones.” In contrast, those participants assigned to the undesirable-risk condition received instructions to imagine that they were visiting the amusement park on “a day when you were not feeling very well” and that they wanted to avoid the rides that are “too risky and adventurous” and guess which “ones are the most risky and hence most likely to make you sick.” In other words, participants in the undesirable-risk condition were given the goal of avoiding risk when evaluating the ride names whereas those in the desirable risk condition were given the goal of being risk seeking when making their evaluations. Participants in both conditions were then presented with three-easy to pronounce ride names (Chunta, Ohanzee and Tihkoosue) and three-difficult to pronounce ride names (Vaiveahtoishi, Tsiischili, and Heammawihio) in one of two random orders.

Surprisingly, participants in each goal condition evaluated the ride names on different dependent measures. Participants in the undesirable-risk condition evaluated the ride names on a 7-point scale risk scale with endpoints of (1) very safe to (7) very risky. Whereas participants in the desirable-risk condition evaluated the same ride names on a 7-point scale measuring how adventurous the rides were with endpoints of (1) very dull and (7) very adventurous. This adventurous scale was then re-labeled as “desirable risk” but may be better conceptualized as a scale measuring the benefits expected from participants who were told to imagine that they wanted to identify “very exciting and adventurous rides” on the basis of the brochure so that they would not “waste time on the dull ones.”
The researchers predicted that if fluency-elicited affect underlies perceptions of risk, then fluent names should produce judgments of less risk and greater benefits (mirroring the affect heuristic). However, if familiarity drives fluency-based risk perception, then risk and benefit judgments should be the same for each fluency condition. Despite these predictions, neither affective evaluations of the ride names nor evaluations of novelty were reported for each condition. However, a pre-test was conducted that indicated that easy to pronounce names were perceived as more pleasant than hard to pronounce names. The remaining results from the third study are shown below in table 1.

Table 1: Original Results from Song and Schwarz (2009), study 3

<table>
<thead>
<tr>
<th>Difficulty of name</th>
<th>Benefit* (Risk seeking: dull to adventurous)</th>
<th>Risk* (Risk avoidance: safe to risky)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to pronounce</td>
<td>3.06 (1.02)</td>
<td>3.02 (0.98)</td>
</tr>
<tr>
<td>Hard to pronounce</td>
<td>4.04 (1.47)</td>
<td>4.35 (1.46)</td>
</tr>
</tbody>
</table>

*These variables were originally labeled as desirable and undesirable risk.

Song and Schwarz (2009) analyzed their data with a 2 x 2 ANOVA with risk type (desirable vs. undesirable instructions) as one independent variable and fluency as a second independent variable (easy vs. hard to pronounce). However, the results leave room for alternative interpretations because the dependent variable was different for each of the risk conditions. Those participants who were given the desirable risk instructions (risk seeking) evaluated the ride names on a scale with endpoints of (1) very dull and (7) very adventurous whereas those participants who were assigned to the undesirable risk condition (risk avoidance) evaluated the ride names on a scale with endpoints of (1) very safe and (7) very risky.

The analysis revealed a main effect of fluency on perceptions of desirable risks (i.e. benefits) and undesirable risks (risks) such that easy to pronounce names were found to be less risky (more safe) and less adventurous (more dull) than difficult to pronounce names. No interaction between fluency and risk type was observed. However, the absence of a significant interaction may be the result measuring different dependent variables for each risk condition.

Two conclusions can be made from the reported data, neither of which supports the primacy of familiarity or of affect in explaining the relationship between fluency and risk perception. First, more difficult to pronounce ride names were judged as being more adventurous when participants were instructed to imagine that they should identify the most exciting and adventurous rides so as to not waste their time with the dull rides (risk seeking goal). Second, difficult to pronounce ride names were perceived as more risky than ride names that were easy to pronounce when participants were instructed to imagine that they were not feeling very well and that they should try to identify which rides were too risk and adventurous as to avoid them (risk avoidance goal).

Despite these methodological concerns, Song and Schwarz (2009) concluded that because low processing fluency (i.e. difficult to pronounce ride names) increased perceptions of desirable (measured using very dull—very adventurous and better characterized as benefits) and undesirable (measured using very safe—very risky, and better characterized as risks) risk, the “pattern [of results] is compatible with the assumption that fluency influences risk perception through its effects on perceived novelty of the stimuli and is difficult to reconcile with the assumption that fluency-elicited affect plays a major role in the observed results” (pg. 138). Making this conclusion however, relies on the critical assumption that
less fluent processing inherently produces negative affect even when participants are assigned to different goal conditions. To their credit, Song and Schwarz (2009) did pre-test their stimuli and found that difficult to pronounce names were less pleasant (indicating affectively negative evaluations) than names that were easier to pronounce. However, the results of this pre-test were not separated by risk instruction (goal) type. Therefore, it is possible that participants who were asked to identify very exciting and adventurous rides so as to not waste any time on the dull rides may have selectively applied a naïve theory which caused them to interpret difficult to pronounce ride names (less fluent) favorably compared to easy to pronounce ride names (more fluent). Conversely, participants who were asked to imagine visiting an amusement park on a day when they were not feeling well to avoid the rides that are too risky and adventurous may have selectively applied a naïve theory which led them to interpret difficult to pronounce ride names (less fluent) less favorably compared to easy to pronounce ride names (more fluent). If this were the case, then an explanation of the results based upon the affect heuristic would be plausible. Song and Schwarz’s (2009) study, however, was not designed to test for a reversal in affective evaluations based on the selective application of different naïve theories. The studies presented below explore this possibility.

The affect heuristic predicts that people consult their feelings to construct judgments of risk and benefit. This consultation of affect explains the frequent observation that risks and benefits typically are perceived as being inversely related (Alhakami and Slovic 1994; Finucane et al. 2000), despite objectively weak or even positive relationships in the real world. Because risk typically has negative connotations, decreasing favorability (negative affective evaluations) usually leads to inflated perceptions of risk and deflated perceptions of benefit. In circumstances in which risk is a desirable attribute, the relationship between affect and risk should be attenuated, while the positive relationship between affective evaluations and perceptions of benefit should persist.

Three studies are presented below which further explore the paradigm described by Song and Schwarz (2009). Each of the studies explores the relationship between consumer goals and interpretations of fluency experiences while addressing several of the limitations of Song and Schwarz (2009) discussed above. Chief among these, both risk and benefit assessments are measured for participants in each of the goal conditions. In addition, affective evaluations (favorability) are also recorded for each condition. These additional measures make it possible to determine if the differences in benefit and risk perception recorded by Song and Schwarz (2009) correspond with differences in affect caused by the selection of different naïve theories. Studies 1 and 2 explore these relationships in the amusement park context used by Song and Schwarz (2009). Study 3 attempts to replicate the results using generic versus brand name medications while maintaining the assignment to risk seeking or risk avoidance goals.

**STUDY 1**

Study 1 follows Song and Schwarz (2009) closely. Participants were assigned to either a risk seeking goal or a risk avoidance goal. However, fluency in this study was manipulated between subjects rather than within. That is, each participant was presented with either with three easy to pronounce ride names (more fluent) or three difficult to pronounce ride names (less fluent). The between subjects manipulation was employed to further understand the nature of fluency judgments.

**METHOD**

Eighty-seven undergraduate students from a large northwestern university were recruited in exchange for partial course credit. Participants were told that the purpose of the study was to better understand how people evaluate amusement park rides. The study design was a 2 (goal: risk seeking / risk avoidance) by 2 (fluency: fluent/disfluent) between subjects design. All participants were told to imagine that they were visiting an amusement park and had been handed a brochure with the names of the rides offered. Participants were further instructed to read and sound out each name in their head.
Independent Variables

Goal
Participants were randomly assigned to one of two goal conditions from Song and Schwarz (2009) study 3. Participants in the risk seeking-goal condition were told to imagine that they want to identify very exciting and adventurous rides on the basis of the brochure so that they would not waste time on dull rides. Participants assigned to the risk-avoidance goal condition were told to imagine that their amusement-park visit fell on a day when they were not feeling well and that they wanted to avoid rides that were too risky and adventurous on the basis of the brochure. They were further instructed that they should try to guess which rides were the most risky and hence the most likely to make them sick.

Fluency
Fluency was manipulated by varying the ease of pronunciation of the ride names participants were given. Participants were presented with a list of either easy to pronounce roller-coaster ride names (Chunta, Ohanzee, and Tihkoosue) or a list of difficult to pronounce names (Vaiveahtosishi, Tsiichili, and Heammawihio) in a random order. A pre-test confirmed that the two lists of ride names differed on the basis of how easy they were to pronounce ($t(21) = 9.70, p < .01$).

Dependent Measures

Affect
Affective evaluations of the ride names were collected using three 9-point semantic differential scales with the following anchors: favorable-unfavorable, good-bad, like-dislike. Responses were averaged to form an overall measure of affective evaluation ($\alpha = .90$).

Risk and Benefit
Evaluations of the risk and benefit associated with each ride were collected using two 9-point semantic differential scales anchored by very risky-not at all risky and very beneficial–not at all beneficial.

RESULTS
Means and standard deviations for the dependent measures are shown in table 2 and correlations between the variables are shown in table 3. A hierarchical linear regression was conducted to determine the effects of goal condition and fluency on affective evaluations. The regression of affective evaluation onto goal condition and fluency was not statistically significant ($F(2,84) = .66, n.s., R^2 = .01$) and the addition of the interaction term representing the interaction between goal condition and fluency on affective evaluation did not significantly improve the model as evidenced by a non-significant increase in $R^2$ ($F_{change}(1,83) < .01, n.s., R^2_{change} < .01$).

A similar analysis was conducted to test for the effects of goal condition, fluency and affective evaluations on benefit perceptions. A regression equation with the main effects was significant ($F(3,83) = 23.67, p < .01, R^2 = .46$). Affective evaluation was found to be the only significant predictor of benefit perception ($b = .81, t(86) = 8.11, p < .01$). None of the interaction terms representing the interactions between goals, fluency or affective evaluations on perceptions of benefit were found to be significant as evidenced by non-significant improvements in $R^2$ among those models that included the interaction terms.

A final regression analysis was conducted to evaluate the influence of goal condition, fluency and affective evaluations on risk perceptions. The regression of risk perception onto goal condition, fluency and affective evaluations was not significant ($F(3,83) = .52, n.s., R^2 = .02$). No interactions between goals, fluency or affective evaluations on perceptions of risk were significant as evidenced by non-significant improvements in $R^2$ among those models that included the interaction terms.
Table 2: Mean Values on Dependent Measures by Goal Condition and Fluency – Study 1

<table>
<thead>
<tr>
<th>DV</th>
<th>Fluency</th>
<th>Goal</th>
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<tr>
<td></td>
<td></td>
<td>Risk Seeking</td>
<td>Risk Avoidance</td>
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<tr>
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<td>Difficult to pronounce</td>
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</tbody>
</table>

Note: Standard deviations are given in parentheses.

Bold indicates values reported by Song and Schwarz (2009)

Increasing values indicate increasing favorability, risk or benefit respectively.
Table 3: Correlations Among Measured Variables - Study 1

<table>
<thead>
<tr>
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<tr>
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<td><strong>Risk Avoidance</strong></td>
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<tr>
<td>3. Benefit</td>
<td>.67**</td>
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</table>

**p ≤ .01
*p ≤ .05
STUDY 1 DISCUSSION

Using a between subjects manipulation of fluency, study 1 failed to replicate the findings of Song and Schwarz (2009). The only significant finding from the regression analysis was a strong positive relationship between affective evaluations and judgments of benefit. As expected, increasing favorability corresponded with increases in perceptions of benefit associated with ride names. Unexpectedly, the analysis found no significant main effect of affective evaluations on judgments of risk. Further, no significant relationships between judgments of risk and benefit or between risk and affective evaluations across, or within, any of the conditions were found. The single exception was a positive relationship that was observed between affective evaluations and perceptions of risk among those assigned risk seeking goals and presented with easy to pronounce ride names. However, the lack of other significant correlations preclude an interpretation of this effect within the larger theoretical framework. The absence of variation in affective evaluations as well as judgments of benefit or risk as a function of either manipulated variable suggest that the effects of fluency may be comparative rather than absolute in nature. Therefore, study 2 incorporated a within subjects manipulation of fluency in which all participants were presented with both easy to pronounce and difficult to pronounce ride names.

STUDY 2

Study 2 again closely followed the design of Song and Schwarz (2009) study 3. However, as in study 1, affective evaluations as well as perceptions of risk and benefit for each ride name were collected. In this study, participants were assigned to either a risk seeking or a risk avoidance goal, then were presented with both easy and difficult to pronounce ride names.

METHOD

Sixty-six undergraduate students from a large northwestern university participated in exchange for partial course credit. Instructions informed participants that the purpose of the study was to better understand how people evaluate amusement park rides. The study design was a 2 (goal: risk seeking / risk avoidance) by 2 (fluency: fluent / disfluent) mixed design with the first factor between subjects and the second factor within subjects. All Participants received instructions asking them to imagine that they were visiting an amusement park and had been handed a brochure with the names of the rides offered. Participants were further instructed to read and sound out each name in their head.

Independent Variables

Goal

Participants were randomly assigned to one of two goal conditions from Song and Schwarz (2009) study 3. Participants in the risk seeking goal condition were told to imagine that they want to identify very exciting and adventurous rides on the basis of the brochure so that they would not waste time on dull rides. Participants assigned to the risk-avoidance goal condition were told to imagine that their amusement-park visit fell on a day when they were not feeling well and that they wanted to avoid rides that were too risky and adventurous on the basis of the brochure. They were further instructed that they should try to guess which rides were the most risky and hence the most likely to make them sick.

Fluency

All participants received a list of supposed ride names that includes 3 fluent, easy to pronounce names (Chunta, Ohanzee, and Tihkoosue) and 3 disfluent, difficult to pronounce names (Vaiveahosishi, Tsichili, and Heammawihio) ride names in a randomized order.
Dependent Measures

Affect
Affective evaluations of the ride names were collected using three 9-point semantic differential scales with the following anchors: favorable-unfavorable, good-bad, like-dislike. Responses were averaged to form an overall measure of affective evaluation ($\alpha = .95$).

Risk and Benefit
Evaluations of the risk and benefit associated with each ride were collected using two 9-point semantic differential scales anchored by very risky–not at all risky and very beneficial–not at all beneficial.

RESULTS
Means and standard deviations for the dependent measures are shown in table 4 and correlations between the variables are shown in table 5. A mixed model hierarchical linear regression analysis was conducted following the within-subject contrast approach for repeated measures models outlined by Judd (2000). This approach allows for continuous variables measured at each level of the within subjects factor to be included into the regression models along with potential interactions between those variables and other manipulated variables of interest.

Table 4: Mean Values on Dependent Measures by Goal Condition and Fluency – Study 2

<table>
<thead>
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<th>Fluency</th>
<th>Goal</th>
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<tbody>
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<td></td>
<td></td>
<td>Risk Seeking</td>
<td>Risk Avoidance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Easy to pronounce</td>
<td>Difficult to pronounce</td>
</tr>
<tr>
<td>Favorability</td>
<td></td>
<td>4.96 (1.13)</td>
<td>5.30 (.87)</td>
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<td>Risk</td>
<td>Easy to pronounce</td>
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<td><strong>4.89</strong> (1.20)</td>
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<tr>
<td>Easy to pronounce</td>
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<td>5.20 (.91)</td>
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<tr>
<td>Difficult to pronounce</td>
<td><strong>5.01</strong> (1.43)</td>
<td>4.31 (.94)</td>
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Note: Standard deviations are given in parentheses.

Bold indicates values reported by Song and Schwarz (2009)

Increasing values indicate increasing favorability, risk or benefit respectively.
Table 5: Correlations Among Measured Variables - Study 2

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<td>.08</td>
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**Overall**

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<tr>
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<tr>
<td>3. Benefit</td>
<td>.83**</td>
<td>-.26**</td>
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**p ≤ .01**

*p ≤ .05
Affective Evaluations

To test for the effect of goals and processing difficulty on affective evaluations W variables were calculated following Judd (2000). W0 represents the average affective evaluation (favorability) of the ride names for each participant across fluency conditions. W1i represents the difference in affective evaluations between the easy to pronounce and difficult to pronounce ride names. These W scores were regressed onto the contrast-coded variable representing the goal condition to which participants were assigned (Xi; 1 risk seeking, -1 risk avoidance) creating the regression equations shown below:

\[ W0_i = b_{00} + b_{01}X_i \]

\[ W1_i = b_{10} + b_{11}X_i \]

The results indicate the absence of significant main effects for both goals (b01) and fluency (b10) on affective evaluations. However, the fluency by goals interaction was significant (b11 = -.53, SE=.19, t(65) = 2.71, p < .01). This interaction indicates that those participants who held risk-seeking goals evaluated rides with disfluent, difficult to pronounce names more favorably (M = 5.25) than rides with fluent, easy to pronounce names (M = 4.96). In the risk-avoidance goal condition, the opposite pattern of results emerged, with participants evaluating fluent, easy to pronounce ride names more favorably (M =5.30) than disfluent, difficult to pronounce ride names (M = 4.54). This preference reversal demonstrates that different goals can produce different interpretations of fluency experiences. Those with risk seeking goals preferred less fluent ride names, whereas those with risk avoidance goals favored more fluent ride names. It is reasonable to assume that participants in Song and Schwarz (2009) may have experienced a similar change in preferences based on goals.

Benefit Perceptions

Tests for effect of goals and processing difficulty on perceptions of benefit also followed the regression analysis described by Judd (2000). W0 represents the average benefit perception for each participant across fluency conditions. W1i represents the difference in benefit perceptions between easy to pronounce and difficult to pronounce ride names. In addition, two within subjects variables were calculated to account for the influence of affective evaluations on benefit perceptions. WS0i represented the mean affective evaluation across fluency conditions for each participant. WS1i represented the difference in affective evaluations between easy and difficult to pronounce ride names. In addition, two interaction terms (XWS0i and XWS1i) were also calculated to evaluate the interaction between average affective evaluations and goals (b02) and the interaction between differences in affective evaluations between easy and difficult to pronounce ride names and goals (b12). Each of the benefit perception W scores were regressed onto the contrast-coded goal condition variable (Xi) and the matching within subjects affective measures (WS0i and WS1i). The regression equations are shown below:

\[ W0_i = b_{00} + b_{01}X_i + b_{02}WS0_i + b_{03}X_i * WS0_i \]

\[ W1_i = b_{10} + b_{11}X_i + b_{12}WS1_i + b_{13}X_i * WS1_i \]

The main effect of goal on benefit perceptions (b02) was not significant. However, a significant main effect of affective evaluation on perceptions of benefits was found (b03=.72, SE=.10, t(65)=7.39, p<.01). Across fluency conditions, more favorable evaluations correspond with increasing perceptions of benefits among each goal condition as predicted by the affect heuristic. The main effect of fluency on benefit perceptions was also found to be significant (b10 = .28, SE = .12, t(65) = 2.44, p = .02), indicating that the perceived benefits of easy to pronounce ride names were greater than difficult to pronounce ride names after controlling for differences in affective evaluations.
These main effects were also characterized by a significant interaction between affective evaluations and fluency \((b_{13} = .85, SE = .07, t(65) = 11.96, p < .01)\). The coefficient for WS1 \((b_{12})\) represents the extent to which differences in benefit perceptions between fluency conditions are dependent upon differences in affective evaluations between fluency conditions. The positive regression coefficient indicates that as perceptions of benefits associated with easy to pronounce ride names increase relative to difficult to pronounce ride names, easy to pronounce ride names were favored over more difficult to pronounce ride names. An examination of the correlations between affective evaluations and benefit perceptions clarifies this relationship (see table 5). The correlation between affective evaluations and perceptions of benefit was weaker \((r = .81, p < .01)\) among easy to pronounce ride names than among difficult to pronounce ride names \((r = .84, p < .01)\).

Additionally, the interaction between fluency and goal condition approached significance \((b_{11} = -.20, SE = .12, t(65) = 1.73, p = .09)\). This trend indicated that, controlling for differences in affective evaluations between fluency conditions, participants assigned risk seeking goals tended to evaluate difficult to pronounce rides as being more beneficial than easy to pronounce ride names. In contrast, those assigned risk avoidance goals tended to evaluate easy to pronounce ride names as more beneficial than difficult to pronounce ride names. Finally, the term \((b_{13})\) representing the interaction between differences in affective evaluations between easy and difficult to pronounce ride names (WS1) with goals \((X_i)\) on differences in perceptions of benefit between easy and difficult to pronounce names \((W_i)\) was not significant. This indicates that the effect of differences in affect between easy and difficult to pronounce names on differences in perceptions of benefit between easy and difficult to pronounce names does not vary as a function of the goals held by participants.

**Risk Perceptions**

A similar within-subject contrast approach for repeated measures models was used to evaluate risk perceptions. \(W_0\), represents the average risk perception for each participant across fluency conditions. \(W_1\) represents the difference in risk perceptions between the easy to pronounce and difficult to pronounce ride names. In addition, two within subjects variables were calculated to account for the influence of affective evaluations on risk perceptions. \(W_0\), represented the mean affective evaluation across fluency conditions for each participant. \(W_1\), represented the difference in affective evaluation between the fluency conditions for each participant. Two interaction terms \((X_iW_0\) and \(X_iW_1\)) were also calculated to evaluate the interaction between average affective evaluations and goals \((b_{03})\) and the interaction between differences in affective evaluations between easy and difficult to pronounce ride names and goals \((b_{13})\). Then each of the risk perception W scores were regressed onto goals \((X_i)\) and the matching within subjects measures of affect \((W_0\) and \(W_1\)). The regression equations were the same as those used to evaluate benefit perceptions.

The main effect of goal on risk perceptions was not found to be significant. However, as predicted by the affect heuristic, a significant main effect of affective evaluation on perceptions of risk was found \((b_{02} = -.41, SE = .14, t(65) = 2.84, p < .01)\). Across fluency conditions, more favorable evaluations correspond with reduced perceptions of risk among each goal condition. The main effect of fluency on risk perceptions was also found to be significant \((b_{10} = -.55, SE = .21, t(65) = 2.65, p = .01)\), indicating that there were fewer perceived risks among easy to pronounce ride names compared to difficult to pronounce ride names after controlling for differences in affective evaluations.

These main effects were also characterized by a significant interaction between fluency and affective evaluation \((b_{13} = -.36, SE = .13, t(65) = 2.77, p < .01)\). The coefficient for WS1 \((b_{12})\) represents the extent to which differences in risk perceptions between fluency conditions are dependent upon differences in affective evaluations between fluency conditions within goal conditions. The negative regression coefficient indicates that as perceptions of risk associated with easy to pronounce ride names increased, relative to difficult to pronounce ride names, more difficult to pronounce ride names were
favored over easier to pronounce ride names. An examination of the correlations between affective evaluations and risk perceptions clarifies this relationship. Affective evaluations were found to be more strongly predictive of risk perceptions among easier to pronounce ride names ($r = -.35, p < .01$) than among more difficult to pronounce ride names ($r = -.31, p = .01$).

The interaction between fluency and goal condition ($b_{11}$) on risk evaluations was not significant indicating that after controlling for differences in affective evaluations, the effect of fluency on risk perception was not dependent upon the goals held by participants.

Finally, the term representing the interaction between differences in affective evaluations and goals on differences in perceptions of risk was found to be significant ($b_{13} = .40, SE = .13, t(65) = 3.15, p < .01$). The significance of this interaction indicates that the ability of differences in affect between fluency conditions to predict differences in risk between fluency conditions is dependent upon the goals held by participants. The positive relationship indicates that the difference in affect between fluency conditions was more predictive of differences in risk between fluency conditions among those assigned avoidance goals than among those assigned risk seeking goals. This interaction is graphically depicted following the procedures outlined in Aiken and West (1991) in figure 1. Among those assigned to risk avoidance goals, the relationship between WS1 and W1 was negative. This negative relationship indicates that as the favorability of easy to pronounce ride names increased relative to difficult to pronounce ride names (WS1 Low to WS1 High), the perceived risks associated with easy pronounce ride names decreased relative to difficult to pronounce ride names. However, among those assigned to risk seeking goals, the relationship between WS1 and W1 was weak. The relative lack of slope indicates that as favorability of easy to pronounce ride names increased relative to difficult to pronounce ride names (WS1 Low to WS1 High), the risks associated with difficult to pronounce ride names did not change relative to easy to pronounce ride names.

To clearly illustrate this interaction, the correlations between affective evaluations and perceptions of risk were considered for each goal by fluency condition (see table 5). Among those assigned risk avoidance goals, the correlation between affective evaluations and perceptions of risk when evaluating easy to pronounce ride names was $r = -.65 (p < .01)$ and $r = -.35 (p = .04)$ among difficult to pronounce ride names. The relationships between affective evaluations and perceptions of risk were weaker among those holding risk seeking goals. For those participants with risk seeking goals, the correlation between these two variables was $r = -.12$ (n.s.) for easy to pronounce ride names and $r = -.24$ (n.s.) among difficult to pronounce ride names.
STUDY 2 DISCUSSION

The results of study 2 stand in contrast to those of study 1. The within subjects manipulation of fluency used in study 2 produced a number of significant effects that were not present with the between subjects manipulation used in study 1. This difference in results does not appear to be attributable to the greater statistical power offered by the within subjects design of study 2. The second study included fewer participants than were used the first study (n = 66 versus n = 87). In addition, the differences that were observed in study one were relatively small compared those found in the second study. Instead, the differences in results between the two studies indicate that the influence of ease of processing on judgment may be best characterized as a comparative rather than an absolute process. In other words, it appears that the relative ease or difficulty of processing informs judgment to a greater extent than the absolute ease of processing. Participants who were able to compare easy to pronounce names to difficult to pronounce ride names (study 2) formed different judgments than those who were presented with only easy, or only difficult to pronounce ride names (study 1).

In addition, the results of study 2 replicated the findings reported by Song and Schwarz (2009). Those assigned risk seeking goals indicated greater benefits among difficult to pronounce ride names than among easy to pronounce ride names. In addition, those assigned risk avoidance goals found difficult to pronounce ride names to be more risky than easy to pronounce ride names (compare tables 1 and 4). However, study 2 also measured affective evaluations and perceptions of risk and benefit among all conditions. The analysis of these additional measures indicated that preferences for fluent versus disfluent ride names reversed as a function of the goals held by participants. Among those with risk seeking goals, difficult to pronounce ride names were preferred over easy to pronounce ride names. Those with risk avoidance goals preferred just the opposite and evaluated ride names that were easier to
pronounce more favorably than ride names that were more difficult to pronounce. This interaction between goals and fluency helps to color the interpretation of the remaining results.

As predicted by the affect heuristic, more favorable affective evaluations were found to correspond with increased perceptions of benefit and decreased perceptions of risk in all conditions. However, the strength of these relationships varied based upon differences in goals and processing difficulty. Differences in affect between fluency conditions (WS1) was found to predict differences in perceptions of benefit between fluency conditions regardless of the goals held by study participants. In contrast, the ability of differences in affect between fluency conditions to predict differences in risk between fluency conditions was found to depend upon the goals held by participants. This relationship was stronger among those with risk avoidance goals and weaker among those with risk seeking goals.

The results are compatible with the idea that risks, among those holding risk seeking goals, are desirable and match with the observed reversal in affective evaluations based upon the interaction between fluency and goals. As a whole, the results demonstrate that affective evaluations are predictive of risk and benefit perceptions but that the difference in affective evaluation between easy and difficult ride names is more predictive of differences in risk perceptions between easy and difficult ride names among those with risk avoidance goals than among those with risk seeking goals.

STUDY 3

Study 3 was designed to test if the findings from study 2 could be replicated in another context. In study 3, fluency was manipulated by altering the difficulty associated with pronouncing prescription drug names. Medications were selected because they often carry both a brand name that is easy to pronounce and a generic name that is more difficult to pronounce. In addition, the risks associated with medications may be desirable or undesirable depending on the goals of those who evaluate them. In many situations, patients may try to select safe medications with minimal side effects and minimal potential for interactions with other drugs. However, medications are also promoted based on strength along with claims that stronger medications are more effective or are faster to resolve symptoms. In study 3 participants were either told to imagine that they wanted to select the safest medication possible to treat an illness or to select the strongest medication possible to treat an illness. Following the instructions, all participants were presented with a randomized list of three different medications presented using both the generic and the brand name. Then, participants were asked to complete the same measures used in studies 1 and 2.

METHOD

Eighty-one undergraduate students from a large northwestern university participated in exchange for partial course credit. Instructions informed participants that the purpose of the study was to better understand how people evaluate prescription medications. The study design was a 2 (goal: risk seeking / risk avoidance) by 2 (fluency: fluent / disfluent) mixed design with the first factor between subjects and the second factor within subjects. All participants received instructions asking them to imagine that someone they knew had been diagnosed with a serious medical condition and that a physician had suggested several medications which could be taken to help treat the illness. Participants were further instructed to read and sound out the name of each medication in their head.
Independent Variables

Goal
Participants were randomly assigned to one of two goal conditions from Song and Schwarz (2009) study 3. Participants in the risk seeking-goal condition were told that the person who was sick wanted to get well as soon as possible and so they should try to identify the strongest and most effective medicines from the list. Participants assigned to the risk-avoidance goal condition were told that the person who was sick often had had complications when taking medications so they should choose the safest medication to treat their condition.

Fluency
All participants received a list of actual medications that includes three fluent, easy to pronounce medication names (Tegretol, Vasotec, Gleevec) and three disfluent, difficult to pronounce medication names (Carbamazepine, Enalapril Maleate, Imatinib Mesylate) in a random order. A pre-test confirmed that the fluent and disfluent medications differed on the basis of how easy they were to pronounce ($t(113) = 25.58, p < .01$). Both the easy and difficult to pronounce drug names were actually different names for identical medications. The difficult to pronounce medication names were the generic drug names, whereas the easy to pronounce medication names were the brand names of the drugs.

Dependent Measures

Affect
Affective evaluations of the medications were collected using three 9-point semantic differential scales with the following anchors: favorable-unfavorable, good-bad, like-dislike. Responses were averaged to form an overall measure of affective evaluation ($\alpha = .91$).

Risk and Benefit
Evaluations of the risk and benefit associated with each ride were collected using two 9-point semantic differential scales anchored by very risky-not at all risky and very beneficial–not at all beneficial.

RESULTS
Means and standard deviations for the dependent measures are shown in table 6 and correlations between the variables are shown in table 7. The analysis followed that of study 2.
<table>
<thead>
<tr>
<th>DV</th>
<th>Fluency</th>
<th>Risk Seeking</th>
<th>Risk Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorability</td>
<td>Easy to pronounce</td>
<td>5.59 (1.18)</td>
<td>5.55 (0.96)</td>
</tr>
<tr>
<td></td>
<td>Difficult to pronounce</td>
<td>5.08 (1.24)</td>
<td>4.11 (1.12)</td>
</tr>
<tr>
<td>Risk</td>
<td>Easy to pronounce</td>
<td>4.46 (1.13)</td>
<td><strong>4.64</strong> (0.96)</td>
</tr>
<tr>
<td></td>
<td>Difficult to pronounce</td>
<td>5.66 (1.13)</td>
<td><strong>6.20</strong> (1.14)</td>
</tr>
<tr>
<td>Benefit</td>
<td>Easy to pronounce</td>
<td><strong>5.06</strong> (1.25)</td>
<td>5.70 (0.76)</td>
</tr>
<tr>
<td></td>
<td>Difficult to pronounce</td>
<td><strong>5.42</strong> (1.27)</td>
<td>4.74 (1.46)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are given in parentheses.

Bold indicates values reported by Song and Schwarz (2009)

Increasing values indicate increasing favorability, risk or benefit respectively.
### Table 7: Correlations Among Measured Variables - Study 3

#### Risk Seeking

<table>
<thead>
<tr>
<th></th>
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<th>2</th>
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</thead>
<tbody>
<tr>
<td>Fluent</td>
<td>1. Favorability</td>
<td>- .43**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .43**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.73**</td>
</tr>
<tr>
<td>Disfluent</td>
<td>1. Favorability</td>
<td>- .11</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .11</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.73**</td>
</tr>
<tr>
<td>Overall</td>
<td>1. Favorability</td>
<td>- .33**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .33**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.67**</td>
</tr>
</tbody>
</table>

#### Risk Avoidance

<table>
<thead>
<tr>
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<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluent</td>
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<td>- .51**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .51**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.67**</td>
</tr>
<tr>
<td>Disfluent</td>
<td>1. Favorability</td>
<td>- .69**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .69**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.64**</td>
</tr>
<tr>
<td>Overall</td>
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<td>- .75**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .75**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.70**</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>2</th>
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</thead>
<tbody>
<tr>
<td>Fluent</td>
<td>1. Favorability</td>
<td>- .46**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .46**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.67**</td>
</tr>
<tr>
<td>Disfluent</td>
<td>1. Favorability</td>
<td>- .41**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .41**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.70**</td>
</tr>
<tr>
<td>Overall</td>
<td>1. Favorability</td>
<td>- .53**</td>
</tr>
<tr>
<td></td>
<td>2. Risk</td>
<td>- .53**</td>
</tr>
<tr>
<td></td>
<td>3. Benefit</td>
<td>.67**</td>
</tr>
</tbody>
</table>

**p ≤ .01
*p ≤ .05
Affective Evaluations

As in study 2, W0 and W1 were calculated to test the effect of goals and processing difficulty on affective evaluations. Each of these W scores were regressed onto a variable representing the goal condition to which participants were assigned.

The analysis indicated significant main effect for both goals ($b_{01} = -0.25, SE = 0.08, t(80) = 3.26, p < 0.01$) and fluency ($b_{10} = 0.98, SE = 0.20, t(80) = 4.85, p < 0.01$) on affective evaluations. On average, participants assigned holding risk seeking goals evaluated the medication names more favorably than participants holding risk avoidance goals. Further, easy to pronounce (brand name) medications were preferred over difficult to pronounce (generic) medications. These main effects were further characterized by a significant interaction between goals and fluency ($b_{11} = -0.46, SE = 0.20, t(80) = 2.30, p = 0.02$). Those holding risk-seeking goals evaluated medications with easy to pronounce names ($M = 5.59$) as being nearly equally favorable to those assigned risk-avoidance goals ($M = 5.55$). However, difficult to pronounce medication names were evaluated more favorably among those holding risk seeking goals ($M = 5.08$) relative to those holding risk avoidance goals ($M = 4.11$).

Benefit Perceptions

Tests for the effects of goals and processing difficulty on perceptions of benefit also followed the regression analysis described by Judd (2000) and conducted in study 2. The analysis indicated a significant main effect of goals on benefit perceptions ($b_{01} = -0.20, SE = 0.08, t(80) = 2.40, p = 0.02$). Participants holding risk seeking goals perceived all medications to be more beneficial on average than those holding risk avoidance goals. A significant main effect of affective evaluation on perceptions of benefits was also found ($b_{02} = 0.80, SE = 0.11, t(80) = 7.01, p < 0.01$). As predicted by the affect heuristic, across fluency conditions, more favorable evaluations of the medications correspond with increasing perceptions of benefits among each goal condition. The main effect of fluency on benefit perceptions was also found to be significant ($b_{10} = 0.313, SE = 0.13, t(80) = 2.40, p = 0.02$), indicating that the perceived benefits of easy to pronounce medications were greater than difficult to pronounce medications after controlling for differences in affective evaluations.

Paralleling the results of study 2, these main effects were also characterized by a significant interaction between fluency and affective evaluation ($b_{12} = 0.69, SE = 0.07, t(80) = 9.44, p < 0.01$). The coefficient for WS1 ($b_{12}$) represents the extent to which differences in benefit perceptions between fluency conditions are dependent upon differences in affective evaluations between fluency conditions. The positive regression coefficient indicates that as perceptions of benefits associated with relatively easy to pronounce medications increase, they become favored over more difficult to pronounce medications. An examination of the correlations between affective evaluations and benefit perceptions clarifies this relationship (see table 7). The correlation between affective evaluations and perceptions of benefit was weaker ($r = 0.67, p < 0.01$) among easy to pronounce medications than among difficult to pronounce medications ($r = 0.70, p < 0.01$). Additionally, the interaction between fluency and goal condition was significant ($b_{11} = -0.34, SE = 0.13, t(80) = 2.64, p = 0.01$). This interaction indicates that, controlling for differences in affective evaluations between fluency conditions, participants assigned risk seeking goals tended to evaluate medications that were difficult to pronounce as being more beneficial than easy-to-pronounce medications. In contrast, those assigned risk avoidance goals tended to evaluate easy-to-pronounce medications as more beneficial than difficult to pronounce medications. Finally, the term representing the interaction between differences in affective evaluations between fluency conditions and goals on differences in perceptions of benefit between fluency conditions ($b_{13}$) was not significant. This indicates that the effect of differences in affect between fluency conditions on differences in perceptions of benefit between fluency conditions does not vary as a function of the goals held by participants.
**Risk Perceptions**

A similar within-subject contrast approach for repeated measures models was used to evaluate risk perceptions. The main effect of goal on risk perceptions was not significant. However, a significant main effect of affective evaluation on perceptions of risk was found \( b_{02} = -.49, SE = .10, t(80) = 4.80, p < .01 \). Across fluency conditions, more favorable evaluations correspond with increasing perceptions of risk among each goal condition. The main effect of fluency on risk perceptions was also found to be significant \( b_{10} = -1.26, SE = .18, t(80) = 6.94, p < .01 \), indicating that there were fewer perceived risks of easy to pronounce medications compared to difficult-to-pronounce medications after controlling for differences in affective evaluations.

These main effects were also characterized by a significant interaction between fluency and affective evaluation \( b_{12} = -.41, SE = .10, t(80) = 4.02, p < .01 \). The coefficient for WS1 \( b_{12} \) represents the extent to which differences in risk perceptions between fluency conditions depend on differences in affective evaluations between fluency conditions. The negative regression coefficient indicates that as perceptions of risks associated with easy to pronounce medications increased relative to difficult to pronounce medications, difficult to pronounce medications were favored over easier to pronounce medications. An examination of the correlations between affective evaluations and risk perceptions clarifies this relationship. The correlation between affective evaluations and perceptions of risk was stronger \( r = -.46, p < .01 \) among easy to pronounce ride names than among difficult to pronounce ride names \( r = -.41, p < .01 \).

The interaction between fluency and goal condition \( b_{11} \) on risk evaluations was not significant indicating that after controlling for differences in affective evaluations, the effect of fluency on risk perception was not dependent upon the goals held by participants.

Finally, the term representing the interaction between differences in affective evaluations and goals on differences in perceptions of risk was found to be significant \( b_{13} = .21, SE = .10, t(80) = 2.08, p = .04 \). The significance of this interaction indicates that the ability of differences in affect between fluency conditions to predict differences in risk between fluency conditions is dependent upon the goals held by participants. The positive relationship indicates that the difference in affect between fluency conditions was more predictive of differences in risk between fluency conditions among those assigned avoidance goals than among those assigned risk seeking goals. This interaction is graphically depicted following procedures outlined in Aiken and West (1991) in figure 1. Among those assigned to risk avoidance goals, the relationship between WS1 and W1 was negative. This negative relationship indicates that as the favorability of easy to pronounce drug names increased relative to difficult to pronounce ride names (WS1 Low to WS1 High), the perceived risks associated with easy to pronounce drug names decreased relative to easy to pronounce drug names. Mirroring the results of study 2, among those assigned to risk seeking goals, the relationship between WS1 and W1 was weaker. The reduction of slope indicates that as favorability of easy to pronounce drug names increased, relative to difficult to pronounce drug names (WS1 Low to WS1 High), the risks associated with difficult to pronounce medication names did not change relative to easy to pronounce drug names to the same extent as those assigned risk avoidance goals.

To clearly illustrate this interaction, the correlations between affective evaluations and perceptions of risk were considered for each goal by fluency condition (see table 7). Among those assigned risk avoidance goals, the correlation between affective evaluations and perceptions of risk when evaluating easy to medication names was \( r = -.51 (p < .01) \) and \( r = -.69 (p = .04) \) among difficult to pronounce medications. As in study 2, the relationships between affective evaluations and perceptions of risk were weaker among those holding risk seeking goals. Risk seeking goals attenuated the strength of the relationship between affective evaluations and perceptions of risk. For those participants with risk
seeking goals, the correlation between these two variables was $r = -.43$ ($p < .01$) for easy to pronounce medications and $r = -.11$ (n.s.) among difficult to pronounce medications.

Figure 2
Interaction between goals and WS1 (differences in affective evaluations between fluency conditions) on W1 (differences in risk perceptions between fluency conditions) - Study 3

**Interaction Between Goal and Difference in Affective Evaluations**

<table>
<thead>
<tr>
<th>Affective Difference</th>
<th>Mean Affective Difference</th>
<th>Affective Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.855</td>
<td>0</td>
<td>1.855</td>
</tr>
<tr>
<td>-1 Standard Deviation</td>
<td>Mean Affective Difference</td>
<td>+1 Standard Deviation</td>
</tr>
</tbody>
</table>

STUDY 3 DISCUSSION

Study 3 replicated the principal results of the second study using a different context and with an alternative set of words to manipulate fluency. Again, a significant interaction was observed between goals and fluency on affective evaluations. However, unlike study 2, difficult to pronounce (generic) medications were not preferred over easy to pronounce (brand name) medications, even among those with risk seeking goals. Instead, evaluations of easy to pronounce medications remained consistently favorable in both goal conditions. Goals did produce a noticeable change in evaluations of difficult to pronounce medication names. Less fluent medication names were evaluated more favorably among those with risk seeking goals than among those with risk avoidance goals, matching the results from study 2.

Evidence was also found to support the role of affect in judgments of risk and benefit. As in study 2, affective evaluations were found to be negatively related to perceptions of risk and positively related to perceptions of benefit in all conditions. Also in line with the results of study 2, differences between fluency conditions in affective evaluations were found to predict differences in perceptions of benefit between fluency conditions equally well for participants with both risk seeking and risk avoidance goals. However, differences in affective evaluations between fluency conditions were more predictive of differences in perceptions of risk among those with risk avoidance goals than among those with risk seeking goals.

GENERAL DISCUSSION

Metacognitive experiences of fluency are known to influence a variety of judgments, yet the process underlying these effects has been debated. The recent research reported by Song and Schwarz
(2009) found no support for the hypothesis that fluency elicited-affect informs judgments of risk. Instead, their results suggested that fluency influences risk perception only through differences in familiarity. The present research re-examined the experimental paradigm used by Song and Schwarz (2009) in an effort to clarify the role of affect in explaining the relationship between fluency experiences and perceptions of risk. In the reported studies, affective evaluations and judgments of risk and benefit were measured for each experimental condition. The inclusion of these measures made apparent the previously overlooked reversal in affective evaluations due to differences in goals. A more detailed examination of the data revealed that the relationship between affective evaluations and risk and benefit perceptions in studies 2 and 3 were consistent with reliance on an affect heuristic (Finucane et al. 2000; Slovic et al. 2007). The results of these studies do not contradict those reported by Song and Schwarz (2009), however the additional measures make it possible to reach different conclusions and to demonstrate that fluency elicited-affect does influence perceptions of both risk and benefit.

This research makes a number of important theoretical contributions. In studies 2 and 3 less fluent processing was shown to increase perceptions of risk when manipulated within subjects. This effect did not emerge in study 1 using a between subjects manipulation of fluency. Between subjects manipulations of fluency are relatively common in the literature (Labroo and Kim 2009; Novemsky et al. 2007; Schwarz et al. 1991; etc.). However, studies which have manipulated fluency by varying the ease of pronunciation typically use within-subjects manipulations (Alter and Oppenheimer 2008; Alter and Oppenheimer 2006; Johnston et al. 1985; Song and Schwarz 2009; Whittlesea and Williams 1998). The contrasting results of study 1 to those of studies 2 and 3 suggest that feelings of difficulty derived from ease of pronunciation may be more evaluable when compared to other words. Words that are similarly difficult to pronounce appear to provide little in the way of value as a basis for judgment. However, when words which are relatively easy to pronounce are compared with words which are more difficult to pronounce, the relative difficulty of processing is meaningful and influences evaluations of those names. This result is consistent with other research (Whittlesea and Williams 1998) suggesting that the effects of fluency on judgments of familiarity is driven by the disconfirmation of expected processing difficulty. When a person encounters a level of processing difficulty that matches their expectations, it is uninformative and produces no feelings. However, when the difficulty of processing violates expectations, either by being easier or more difficult than expected, the relative difference between expected and experienced processing difficulty provides potentially useful information that is then used as a basis for judgments. In situations where no expectations exist, a uniform level of difficulty (as in study 1) is likely to be less informative than a comparison between high and low difficulties (as in studies 2 and 3).

The results of this research also provide initial insight into the role of fluency and affect in situations in which risk is desirable. Risk is commonly conceptualized as a negative attribute where it is something to be minimized or avoided. However, in many situations, people deliberately seek out risk. The risk seeking goals presented to participants in the current studies are examples of some of these situations. Other common situations include the risks associated with risk recreation (e.g. hang gliding, sky diving, etc.), gambling and certain types of drug use (Machlis and Rosa 1990). The results of the current research demonstrated that less fluent processing leads to increased perceptions of risk. However, less fluent ride and medication names were more favorably evaluated by those holding risk seeking goals than by those holding risk avoidance goals. Consequently, the relationship between affective evaluations and perceptions of risk was found to differ depending on whether participants held risk seeking or risk avoiding goals. When people held risk avoidance goals, affective evaluations and perceptions of risks were found to be negatively related (i.e. more favorable names were perceived as less risky), matching the results of previous investigations of the affect heuristic. However, this relationship was attenuated among those holding risk seeking goals. The pattern of results fits what would be expected if risks were viewed as more desirable among those with risk seeking goals relative to those with risk avoidance goals. The findings therefore, have implications to research on the affect heuristic. The affect heuristic is based on
the idea that people consult their overall affective impression of an object when making subsequent judgments. In situations in which risk is desirable, decision makers consulting their feelings to construct judgments of risk would not be expected to report the typical inverse relationship between affective evaluations and risk perceptions. Instead, this relationship is expected to be weak or even positive. Previous research has not investigated the role of affect as a basis for judgments in such contexts. Thus, further research is needed to better understand how affective evaluations may influence perceptions of risk in these situations. For example, future research may explore whether risks of a certain degree and nature are more desirable than others among those with risk seeking goals. It is likely that even in situations in which risk is desirable, unnecessary or especially harmful risks may remain objectionable. Future research may be able to clarify the nature of desired risk among those with risk seeking objectives.

This research also suggests that fluency may serve as one potential input to the affect heuristic. Affect used to inform judgments may come from many sources including moods and the content of information that is processed. However, fluency experiences can provide information distinct from the content of information that is processed (Schwarz et al. 1991). The understanding that subjective feelings of ease or difficulty produce affect that is then consulted as a basis for subsequent judgments helps to address the question of how affective evaluations arise in the absence of other potential sources.

In studies 2 and 3, the effect of fluency on affective evaluations was found to be dependent upon the goals held by participants. This finding is in line with other recent previous research which has found that objects that are more effortful to process are perceived as more instrumental towards achieving a goal, and thus favored (Labroo and Kim 2009). As previously discussed, this relationship was reported only among objects that were perceived as useful in achieving a goal. Labroo and Kim (2009) reported that advertisements for chocolates that were easier to process were preferred over more difficult to process advertisements when consumers held neutral or self-control goals. However, chocolates presented with less fluency were preferred if consumers held feel-good goals. Those advertisements requiring more effortful processing were desirable among those with feel-good goals because the chocolates were perceived as being more instrumental in achieving the goal of feeling good. However, greater processing difficulty did not lead to more favorable evaluations among those with neutral or self-control goals because the achievement of those goals conflicted with the benefits offered by the chocolates. In the current research, a similar finding was reported although perceived instrumentality of the stimuli was not measured. Difficult to pronounce ride names and medication names were preferred among those with risk seeking goals. The difficulty associated with pronouncing those names may have caused them to seem more instrumental in achieving the goals of identifying the most adventurous rides or the strongest medications. However, the same cannot be said about participants who were given risk avoidance goals. Among these individuals, easy to pronounce ride and medication names were preferred over difficult to pronounce names. It is not readily apparent why these participants would not prefer difficult to pronounce names if processing difficulty is used to infer instrumentality during goal pursuit. For example, participants in the risk avoidance goal condition in study 3 were instructed to identify the safest medications that would be the least likely to cause problems. If effort is associated with goal advancement, difficult to pronounce medications should be preferred. However, brand name medications were preferred over easy to pronounce medications. This pattern of results may imply that increased ease of processing (decreased effort) leads to increases in the perceived instrumentality of objects for achieving some types of goals, such as those that emphasize safety or avoidance of uncertainty. Additional research is needed to explore this possibility further.

The results of this research also have a number of practical implications. Because people approach similar situations with different goals, they may reach different conclusions from similar experiences. Goals appear to be capable of influencing which naïve theories are selected to make sense of fluency experiences. These naïve theories may have profound implications for the inferences that people draw from these experiences. For example, differences in the application of naïve theories may partially
explain why a complex, difficult climbing route or ski run may be desirable to an expert yet disliked by a novice. In some situations, goals lead to the selection of naïve theories that elicit favorable inferences from more effortful processing. In forming communications, it is important to understand how a specific audience might interpret this subjective feeling of effort. The goals held by that audience may be one indicator of the naïve theory that will be applied to interpret the experience.

Supporting the findings of Song and Schwarz (2009), Perceptions of risk were found to be influenced by differences in fluency. This result implies that practitioners should be aware that difficulty associated with processing information increases perceptions of risk. Knowledge of this relationship may be useful in conveying information about health risks. This application was further emphasized in study 3, as more difficult to pronounce (generic) medication names were judged as riskier than easy to pronounce (brand name) medications within each goal condition. This finding has significant public policy implications because objectively, the medications should have been evaluated similarly because they were different names for identical medications. This result implies that advertisements which feature easy to pronounce medication names almost certainly produce lower perceptions of risk relative to advertisements which feature more difficult to pronounce generic equivalents. Further, unlike the rollercoaster rides used in study 2, easy to pronounce medication names were preferred over more difficult to pronounce medication names in both goal conditions. This uniform preference for brand name medications occurred in the presence of a reversal in perceptions of benefit (difficult to pronounce medications were perceived as more beneficial than easy to pronounce medications among those with risk seeking goals, but easy to pronounce medications were perceived as more beneficial than difficult to pronounce medications among those with risk avoidance goals). While the role of fluency in risk perception of medications is deserving of further study, the current findings suggest that brand name medications may be preferred over generic equivalents even in situations in which generic drugs are perceived as more beneficial because they are processed with greater fluency.

As discussed previously, the findings of this research suggest that affect influences judgments of risk differently under risk seeking goal conditions than it does under risk avoidance goal conditions. When risk is a desirable attribute, risk estimates derived from overall affective evaluations may be inflated. For those communicating with participants who engage in activities for which risk is desirable, more detailed or intimidating wording may have the unintended effect of making those descriptions appear more desirable. Thus, caution is called for to ensure that communications about risk produce the appropriate behavioral response. Overall, the findings suggest that fluency-elicited affect can help to explain subsequent judgments of risk and benefit. However, the results do not preclude the influence that feelings of familiarity may have in shaping risk perceptions. The results reported from the current studies do not contradict those of Song and Schwarz (2009). Rather, additional measures make it possible to observe a previously unreported reversal in affective evaluations that led to a different conclusion from the data. It is possible that both affect and familiarity underlie the effects of fluency on perceptions of risk. As noted by Schwarz (2004), the relation between familiarity and affective response is best characterized as bidirectional. Thus, while fluency may trigger positive affect which influences feelings of familiarity (Monin 2003) the converse may also be true that feelings of familiarity trigger positive affective responses.

**CONCLUSIONS**

In sum, this research has shown that the effect of fluency experiences on judgments is dependent upon which naïve theories are brought to bear in an effort to make sense of the experience. Goals appear to be one way in which people decide what naïve theories are appropriate to apply to a given situation. In support of this idea, the results of the current research document a previously unreported reversal in preferences for less fluently processed stimuli due to differences in goals. Study 3 replicates these results using generic versus brand name medications a context. The results of these studies also demonstrate that affect elicited from fluency experiences may be used to explain how people form judgments of risk and
benefit, but that these relationships vary in association with the desirability of risk. Finally, the fluency effects observed in the current studies emerged only when participants were able to compare easy to pronounce names to those that were more difficult to pronounce. The relative nature of fluency judgments is deserving of additional study but the findings support the idea that processing experiences are not informative unless they are different than some reference expectation.
REFERENCES


---- (2009), "Uniting the Tribes of Fluency to Form a Metacognitive Nation," Personality and Social Psychology Review, 13 (3), 219-35.


INTRODUCTION

Retailer brands or store brands have prospered and evolved over the past decades. According to the PLMA’s 2010 Private Label Yearbook, over the past three years, retailer brand sales has increased by 14% to $86.4 billion in all retail outlets. It is estimated almost one out of four products bought in U.S. supermarkets was a retailer brand in 2009 (PLMA 2010). Traditionally, retailer brands are viewed as having lower quality with respect to manufacturer/national brands, and their market positions closely resemble those of the manufacturer brands. However, no clear evidence indicates that the quality of a retailer brand is indeed lower. In a 2010 GfK study for PLMA, nearly all of the shoppers who have switched to retailer brands in categories where they had previously bought only manufacturer brands were pleased with their decision: 97% compared retailer brands favorably to their previous manufacturer brand choice. Consumer Reports also gives a ringing endorsement to the quality and value of store brands. In a study, “It Pays to Buy Store Brands”, it is said that if concern about taste has kept consumers from trying store brand foods, they should hesitate no more. In blind tests, professional tasters compared a leading national brand with a store brand in 29 categories. The store brand tasted equally good or better than the national brand in 23 categories (Consumer Report Magazine, 2009).

What is more, with their increasing market power, many retailers have evolved from distributing “copycat” retailer brands to selling products that are differentiated from the manufacturer brands. By doing this, retailers are able to use retailer brands to increase business as well as to win the loyalty of their customers (Ailawadi2008, Sudhir2004; Sudhir and Talukdar 2004; Ailawadi, Pauwels and Steenkamp 2008; Seenvivasan, Sudhir and Talukdar 2009). As pointed out by Corstjens and Lal (2000), retailer brands can be used as a differentiation tool for competing retailers, and they can be of equal or even higher quality than the manufacturer brands. This implies that a retailer brand and a manufacturer brand may complement each other to target heterogeneous consumer needs. While the manufacturer brand aims to target the average consumer needs nationwide, the retailer brand can be tailored to satisfy needs arising from specific consumer segments. For instance, Sephora, the cosmetic retail chain store, sells many national brand cosmetics as well as the Sephora store brand. While national cosmetic brands offer eye shadow palettes with limited but popular colors (normally 2 to 8 colors), the Sephora brand complements them by offering eye shadow palettes consisting of 98 different colors including some unusual ones. Sephora understands that the majority of their customers are frequent users of cosmetics, and they are more demanding on the variety of colors. Thus offering eye shadow colors that complement other manufacturer brands satisfies the needs from those niche market consumers.

From consumers' perspectives, the introduction of a complementary retailer brand enriches the product variety offered in the store (Ailawadi et al., 2008) and motivates consumers to refine their purchase choices by finding out the better matched products. This is achieved by conducting consumer evaluation through which product information is collected, processed and evaluated by consumers in order to discover the exact value derived from the product upon purchase. By conducting product evaluation, consumers become more certain about their brand choice and their preferences become more heterogeneous. This evaluation is an endogenous choice of action by consumers and is not always costless (Guo and Zhang, 2010; Kuksov, 2004; Villas-Boas, 2009; Wathieu and Bertini, 2007). In many cases, consumers need to incur evaluation costs to get full information and resolve their product value uncertainties. Without this evaluation process, consumers hold only superficial information of products, such information includes product prices and relative brand popularities, and they can form only general preference beliefs based on the information. The action of purchase without evaluation is similar to impulse buying, where the ex post risk of preference mismatch associated with purchase is high, but the
economic loss is relatively low. In practice, whether consumers initiate product evaluation depends on the cost of evaluation, the expected match/mismatch of a product, as well as the ex post financial risk associated with purchase. Retailers can thus influence buyers' product evaluation and purchase decisions through strategically choosing the brands and the retail prices to offer.

Manufacturers' reactions to the retailer brand introduction are often mixed. Although a retailer brand may weaken the manufacturer's relative marketing power and intensify price competition in the product category, it may also expand the existing product variety and influences consumer evaluation behavior. In fact, manufacturers do not always act negatively toward retailer brands, and the introduction of a retailer brand may sometimes enhance the brand operations of manufacturer brands. As quoted by a category manager, the success of private-labels brand has caused major candy and snack suppliers to bring better programs to the table to grow their existing brands...bringing new customers to the category (Fleenor, 2010). This claim implies that a retailer brand may help draw more consumers to the product category and encourage consumer evaluation.

To study the interactions between manufacturers and retailers when consumers conduct product evaluation, we develop a model of one manufacturer and one retailer; here the manufacturer sells a manufacturer brand through the retailer. The retailer has the option to introduce a retailer brand that is, at least at first, less popular than the manufacturer brand. Consumers have heterogeneous preferences for the two brands, but must incur an evaluation cost to uncover their preference uncertainties. With greater product variety, consumers are more willing to conduct product evaluation in order to better match with the product purchased. This provides the retailer with an opportunity to better target different consumer segments and exploit consumer surpluses. However, to motivate product evaluation, the retailer also needs to compensate consumers for the evaluation cost, which is not always optimal when evaluation becomes costly. We summarize the main results in the following section.

Summary of Results
First, we show that in a decentralized channel, the manufacturer brand can, surprisingly, benefit from the introduction of a retailer brand. When the retailer introduces the retailer brand, it has a stronger incentive to induce consumer evaluation. This is because the retailer can then charge a high retail price to exploit consumers who match with the retailer brand after evaluation. Therefore, after the retailer introduces the retailer brand, the manufacturer can take advantage of the retailer's effort to induce consumer evaluation and raise the wholesale price charged for the manufacturer brand. As a result, the manufacturer enjoys a high wholesale price margin and benefits from consumer evaluation when a retailer brand is introduced. This benefitting mechanism is different from that described in the past literature, which claims that the manufacturer brand only indirectly benefits from a retailer brand when the retailer brand helps increase store traffic or create competition against other manufacturer brands (Pauwels and Srinivasan, 2004; Sudhir and Talukdar, 2004). We show that the benefit for the manufacturer happens only when the consumer evaluation cost is low. With high evaluation cost, the retailer has less incentive to induce consumer evaluation. Instead, it utilizes the retailer brand to create competition against the manufacturer brand. In response to the threat of competition, the manufacturer has to lower its wholesale price and no longer benefits from the retailer brand.

Second, under the low evaluation cost condition, the manufacturer may become better off when the retailer brand becomes more popular. At equilibrium, the retailer's brand introduction strategy is affected by the relative popularity of the retailer brand. With increasing retailer brand popularity, the retailer receives a higher profit by introducing the retailer brand, and may switch from its initial strategy of not introducing a retailer brand to introduce. This action leads to a higher product variety in the channel and may benefit the manufacturer.
Third, we show that either a centralized channel or a decentralized channel may offer a higher product variety. The retailer brand is more likely to be introduced in a centralized channel than in a decentralized one when consumer evaluation cost is low. At low consumer evaluation cost, the manufacturer in the decentralized channel can benefit from the retailer brand, as the manufacturer can take advantage of the retailer's strong incentive to induce consumer evaluation. The retailer decides on the introduction of the retailer brand solely for its own benefit, and does not take the manufacturer's benefit into consideration. Therefore, the retailer brand is more likely to be introduced in a centralized channel where both the manufacturer's and the retailer's benefits are taken into account. When consumer evaluation cost is high, the retailer brand is more likely to be introduced in a decentralized channel than in a centralized one. This is because the competition effect from a retailer brand becomes stronger with the increase in consumer evaluation cost. In this case, the retailer in a decentralized channel introduces the retailer brand for its own benefit, hurting the manufacturer. Consequently, a centralized channel which incorporates both the manufacturer and the retailer's profits is less likely to introduce a retailer brand.

Last, we study the welfare implications with different levels of product variety in either a centralized channel or a decentralized channel. Interestingly, we find that consumer welfare can be higher in a decentralized channel than in a centralized one. This happens when the retailer brand is introduced in a centralized channel but not in a decentralized one in equilibrium. In this case, consumer surpluses are more likely to be exploited when evaluation is induced with greater product variety.

Related Literature
This paper studies the interaction between a manufacturer brand and a retailer brand in a channel setting with the incorporation of consumer evaluation. Past literature has studied the impacts of retailer brand introduction to both the retailer and the manufacturer. For instance, a retailer may want to introduce a retailer brand if there is a higher unit margin to be drawn (Raju et al., 1995; Sayman et al., 2002; Yehezkel, 2008). The retailer can also rely on the retailer brand to strengthen its bargaining power (Mills, 1995; Narasimhan and Wilcox, 1998; Meza and Sudhir, 2006). Traditionally, retailer-branded products are viewed as the low-quality versions of manufacturer brands and are usually positioned to mimic their counterpart in manufacturer brands. In recent years, retailers have emphasized the “value” that can be derived from a retailer brand, and it is claimed that retailer brands may have high quality and can be used as differentiation tools by retailers (Corstjens and Lal, 2000). This motivates retailers to serve products to market segments which are not covered by the manufacturer brands. Although the existence of a retailer brand can mitigate the double marginalization in the prices of manufacturer brands and may help to increase overall channel profit (Yehezkel, 2008), manufacturers are usually negatively impacted by the retailer brands due to brand cannibalization and price competition. Therefore, it is suggested that manufacturers enforce exclusive dealing to prevent the introduction of retailer brands and to protect their own profits (Groznik and Heese, 2010; Yehezkel, 2008). Some researchers propose that a retailer brand might positively affect a manufacturer brand by attracting more one-stop shoppers (Geylani et al., 2009) or creating competition against other more susceptible manufacturer brands (Sudhir and Talukdar, 2004; Pauwels and Srinivasan, 2004). This only suggests that a manufacturer brand might indirectly benefit from the retailer brand introduction when there are other market externalities. The fact that retailer brands can enrich the in-store product varieties, and may affect consumer product evaluation behavior, has not been explored. In this paper, we propose a new mechanism through which a retailer brand introduction may benefit the manufacturer by inducing consumer evaluation. This conclusion draws from the thesis of consumer evaluation conditioning on product variety.

Researchers have long realized the fact that consumers need to incur a search cost or an evaluation cost to resolve purchase uncertainties when they lack product information (Anderson and Renault, 1999; Diamond, 1971; Kuksov, 2004). The search cost or evaluation cost can be interpreted as the travel cost to a store, or time and money spent by consumers to build their knowledge of the products. Firms can thus orchestrate product prices and offerings to affect consumer evaluation behavior. Wathieu
and Bertini (2007) consider the pricing of a product with an additional novel feature, and they demonstrate that with overpricing, consumers become more willing to think about the possible personal benefits from the new feature. It is also suggested that there is an optimal number of alternative products to induce consumer evaluation (Kuksov and Villas-Boas, 2010; Villas-Boas, 2009). Consequently, a firm may choose a long product line to take advantage of consumer evaluation or a short product line to prevent consumer evaluation (Guo and Zhang, 2010). However, these studies focus only on one firm's behavior of choosing product variety; none has considered the case of product offering in a channel structure where products are owned by different channel members. In this paper, we study the retailer's strategy to introduce a retailer brand when a manufacturer distributes the manufacturer brand through the retailer. When consumers can choose to evaluate products, the introduction of a retailer brand can help induce consumer evaluation, and this will have different impacts on the manufacturer and the retailer.

The results in this paper also contribute to the literature on product line design. It has been documented that the product line in a decentralized channel is shorter than in a centralized channel due to channel inefficiency (Villas-Boas, 1998). Liu and Cui (2010) show that a manufacturer can provide either a longer or shorter product line in a decentralized channel than in a centralized channel, depending on whether or not the market is fully covered. In this paper, we further show that whether there is greater product variety in a decentralized channel or a centralized channel depends on consumer evaluation cost.

CONCLUSIONS

It has become a common practice for retailers to introduce retailer brands in addition to selling manufacturer brands, leading to a new manufacturer-retailer dynamic in retailing. Not only can the appearance of a retailer brand impact the manufacturer brand, it can also affect consumers' decisions to evaluate products. With a retailer brand enriching the product variety in store, consumers are more motivated to evaluate products to resolve their preference uncertainties. Our results provide guidelines for retailers on how to adjust the retailer brand introduction strategy to account for consumer evaluation behavior. Our findings also have implications for manufacturers on how they should react in response to the retailer brand introduction.

Our results suggest that a manufacturer can earn a higher profit when the retailer introduces a retailer brand with low consumer evaluation cost. The presence of a retailer brand promotes the retailer's incentive to induce consumer evaluation, and the manufacturer can take advantage from this incentive and charge a higher wholesale price. This finding is different from what is in extant literature, which claims that without other marketing externalities, the manufacturer is always worse off with retailer brands. What is more, the manufacturer may be better off when the retailer brand becomes more popular. This is because the increasing retailer brand popularity further promotes the retailer's incentive to introduce a retailer brand, which provides additional profit margin for the manufacturer. Therefore, a manufacturer should not always resist the introduction of a retailer brand, especially in a product category where consumer evaluation is relatively easy.

We show that whether a retailer should introduce a retailer brand or not depends on the difficulty for consumers to evaluate and on the channel structure. In a decentralized channel, when product evaluation is relatively easy, a retailer can charge higher retail prices to exploit consumer surpluses, but is subject to exploitation by the manufacturer. When evaluation is difficult, the retailer can use a retailer brand to compete against the manufacturer brand. Such issues do not appear in a centralized channel, leading to greater product variety in a centralized channel than in a decentralized channel when evaluation is easy, and less product variety when evaluation becomes difficult.

Counterintuitively, consumers may prove better off in a decentralized channel than in a centralized one. The decentralized channel may provide less product variety than a centralized one. With high product variety, consumers are better matched with the products they purchase, but they suffer
welfare loss due to the high retail prices. On the other hand, with little product variety, consumers may be mismatched with what they purchase when they do not evaluate products, but they are subsidized with a lower retail price, and this results in higher welfare.
REFERENCES


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UNANTICIPATED MARKETING EFFECTS OF COLOR ON THE EFFICACY OF CHARITABLE APPEALS

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ABSTRACT

We show that warm and cold colors influence the effectiveness of specific types of charitable messages due to their uniquely discernable characteristics. Specifically, we contend that cold colors are more appropriate for uplifting messages because cold colors enhance positive moods, which in turn increase helping behavioral intentions. The relationship between positive moods and cold colors was well established by a numerous studies. On the other hand, warm colors are more suited for heartbreaking messages because it was assumed that warm colors affect pro-social behavior, and heartbreaking messages that make people feel colder make warmth from warm colors more receptive. We show that warm colors influence perception of personality warmth and could potentially induce pro-social behavioral intentions (Experiment 1). Also, heartbreaking messages are found to make people feel colder than uplifting messages (Experiment 2). Finally, we find that the influence of warm and cold colors on uplifting and heartbreaking charity appeals is mediated by two different process mechanisms as mentioned above (Experiment 3).

INTRODUCTION

Research on compliance or acquiescence to a solicitation for a charitable cause is a popular topic in social influence literature (Cialdini and Goldstein 2004). Charities today face shrinking resources vis-a-vis the growing need for their services. Giving USA in its 2010 annual report estimated that charitable giving in the United States dropped 3.6% to $303.75 billion in 2009 - the steepest decline in current dollar terms since Giving USA started its annual reports in 1956. According to the report, individual giving and charitable bequests, which constitute 83% to all charitable giving, dropped by 0.4% and 23.9% respectively. Tuck, Gregory, and Sable (2009) found 93% of charities were affected by the economic downfall in the survey from charity leaders in 2009. In a presentation in 2008, Light (as cited in Wasley 2008) indicated over 100,000 charities in the U.S. are expected to close their doors due to insufficient funding.

Donations are the lifeblood of charities and there is a significant body of literature that focuses on enhancing the effectiveness of donation requests (e.g., Cialdini and Goldstein 2004). For solicitation purposes, charities use either personal channels (e.g., in-person solicitations or telephone calls) or non-personal channels (e.g., direct mailers, direct-response television commercials) of communication and target potential donors with charitable appeals that are typically developed with a focus on discrete emotions (i.e., hope, guilt, empathy, etc.) to maximize the target audiences’ willingness to donate to the cause. Although the use of color is ubiquitous in persuasive messages such as charitable appeals, there is a paucity of knowledge about the process mechanisms through which colors influence persuasion. The identification of such factors that affect the process mechanisms, should they exist, will establish scientifically proven criteria for color selection that optimizes persuasion.

Prior research on charitable appeals has focused on the impact of the message factors on persuasion. Some factors that have been explored include the nature of the core message (heartbreaking/negative vs. uplifting/positive messages; Das, Kerkhof, and Kuiper 2008), narrative case histories (Green 2006), vividness (Burt and Strongman 2005), and statistical information (Allen and Preiss 1997). It is critical to explore other factors that could potentially maximize a target’s willingness to donate when exposed to a charitable-giving solicitation. Thus far, no study has investigated the interaction effect between the central message factor and a peripheral cue like color. Most managers and creative directors select and use colors by gut feel, experience, and personal preference rather than rules grounded
in scientific exploration (Gorn et al. 1997). Importantly, there is no study that provides relevant guidelines for color selection in the ambit of charitable appeals, specifically with reference to the nature of the message. In particular, research has not explored whether color could moderate the influence of the nature of the message on persuasion, which could potentially inform us about the ideal color choice for specific types of messages.

We fill this gap in research by investigating whether the type of color used in two types of appeals (i.e., positive/uplifting vs. negative/heartbreaking) moderates the effectiveness of the appeals. Prior studies have shown that the efficacy of uplifting appeals increases with positive moods (Cunningham, Steinberg and Grev 1980) while heartbreaking appeals are more effective with antecedent emotions of pro-social behavior such as empathy (Bagozzi and Moore 1994; Shen 2010). Specifically, feelings of warmth increase preference for heartbreaking messages (Oliver 2008). Based on prior research on the nexus between color and perceived temperature as well as color and emotion, we contend that uplifting appeals will be more effective when executed with cold colors, which tend to induce positive moods whereas heartbreaking appeals will be more effective when executed with warm colors, which are associated with pro-social attitudes presumed to be elicited by feelings of warmth triggered by the warm colors.

First, we discuss the literature pertaining to the relationship between different types of colors (i.e., warm vs. cold) and mood as well as the relationship between colors and temperature. In addition, we discuss the persuasive mechanisms that underpin two archetypal charity appeals (i.e., uplifting vs. heartbreaking), as well as the potential relationship between feelings of warmth and pro-social behavior. Following the literature review, we provide empirical evidence from three experiments that support our hypothesis. We conclude with a discussion of the theoretical and practical implications of this study, as well as the scope for future research.

THEORETICAL BACKGROUND AND LITERATURE REVIEW
Effects of Color on Mood and Perceived Temperature

Much research on the role of color in marketing has been established on the basis of anecdotal ideas rather than empirical evidence. Empirical research on color in marketing has explored (a) the specific colors used in magazine ads (Lee and Barnes 1990), (b) the comparison of the effectiveness of black-and-white versus color ads (Meyers-Levy and Peracchio 1995), (c) the specific effects of color on consumer response (Babin et al. 2003; Bellizzi and Hite 1992; Middlestadt 1990; Gorn et al., 2004), and (d) the effect of the symbolic association of specific colors on marketing communications (Mehta and Zhu 2009; Gerend and Sias 2009).

Color has three components: hue (wavelength), chroma (whiteness), and value (brightness). Based on hue, colors can be classified into two broad categories: cold colors (e.g., blue and green) and warm colors (e.g., red and orange) (Yildirim, Akalin-Baskaya, and Hidayetoglu 2007). Compared to warm colors, cold colors, not only enhance positive moods (Valdez and Mehrabian1994) and make a shopping experience more pleasant (Bellizzi and Hite 1992) but also influence people’s preference evaluations. Coursaris, Swierenga, and Watrall (2008) find that websites developed with predominantly cold (vs. warm) colors are deemed by participants to be more (less) pleasant to view and are perceived to be more (less) aesthetically appealing. Bellizi, Crowley and Hasty (1983) report that participants find retail environments and merchandise designed with cold (warm) colors to be more (less) attractive and more (less) pleasant, and rated the ambient atmosphere as being less (more) negative and tense.

Due to learnt associations, colors acquire ‘psychological relevance’ and prime cognition and behavior at a nonconscious level (Elliot et al. 2007). “From infancy onward, persons encounter both explicit and subtle pairings between colors and particular messages, concepts, and experiences in particular situations. With repetition, these pairings are posited to produce strong color associations, such
that the mere perception of a color in a particular situation activates its paired associate and influences affect, cognition, and behavior accordingly” (Elliot et al. 2007, 155-156). Many empirical studies confirm that there exists a relationship between color and perceived temperature, as a result of previously learnt associations (Berry 1961; Fenko, Schifferstein, and Hekkert 2010; Lewinski 1938; Morgan, Goodson, and Jones 1975; Ross 1938; Stone and English 1998; Yildirim et al. 2007). Blue is the primary color associated with cold or cool objects (e.g., ocean, sky), whereas orange is linked to hot or warm objects (e.g., fire, sun). Exposure to such paired associations gives rise to a strong cognitive relationship between a color and its perceived temperature over time (Morgan et al. 1975; Xin et al. 2004). Also, hue is the primary determinant of the warm-cold dimension in human’s emotional responses on colors (Gao and Xin 2006; Ou et al. 2004; Kobayashi 1981). People associate warmth with warm colors (e.g., red, orange) and coldness with cold colors (e.g., blue, green).

Support for the color-temperature association has been found in diverse fields of study. In a working environment, people feel physically colder in cold-colored workplaces than warm-colored ones (Stone and English 1998). Projected red colors from stage lights have been rated warmer than blue colors (Lewinski 1938; Ross 1938). In the fine arts, analyzing the relative warmth of different paintings, Itten (1961) finds that people rate warm-colored paintings as being warmer than cold-colored ones. Also, color preference variation in terms of ambient temperature has been reported. Kearney (1966) finds that people prefer cold colors when feeling hot/warm and warm colors when feeling cold/cool.

Color-temperature associations are also manifested in physical responses to color, such as nasal thermal sensations (Michael and Rolhion 2008; Michael, Galich, Relland, and Prudhon 2010). Michael and Rolhion (2008) report that participants who sniff one of four odorless distilled water bottles (colored either red, green, yellow, or colorless), feel a cooling sensation when sniffing the green solution and a warming sensation from the red solution. Color induced a nasal thermal sensation even in the absence of any thermal stimuli. Thus, it is clear that people can perceive different temperatures upon exposure to different colors regardless of actual ambient temperature variations.

The connection between physical warmth and feelings of warmth was found from the theory of embodied cognition. In particular, there is empirical evidence of the relationship between experiencing physical warmth and judging a personality of warmth toward oneself as well as others (Williams and Bargh 2008). On the basis of the relationship, presumably we say that the effect of perceived warmth from warm colors may correspond to the effect of physical warmth because of the same nature of warmth. In the next session of the literature review, we discuss how experiences of physical warmth from thermal stimuli interact with feelings of emotional warmth, in which consequently influence pro-social behavior as well as elaborates the theory of embodied cognition.

Embodied Cognition, Feeling of Warmth and Pro-social Behavior

Embodied cognition is established by associations between physical experiences and emotional states that occur simultaneously (Barsalou 2008; Crawford 2009; Glenberg 2010). According to the theory of embodied cognition, when a stimulus, either a physical experience or an emotional state, is aroused, it evokes the other stimulus because they are associated together in memory.

Indeed, investigations on embodied cognitions show that bodily sensations contributes to forming attitudes toward an object to which people are exposed while doing the body movement because of the aroused emotions linked to the body movement. For example, Wells and Petty (1980) found that the attitudes toward a message were different in terms of participants’ actions while hearing the message. They found participants who had nodded while hearing the message had favorable attitudes toward it than those who had shaken their heads. Nodding is associated with agreeableness or favorableness. Therefore, while doing this action, participants unconsciously produce agreeableness, which induce them to have agreeable attitudes toward the message. The similar results were found from such actions like
arm flexion (Cacioppo, Priester, and Berntson 1993) and smiling (Strack, Martin, and Stepper 1988). Action of sitting was found to evoke introspections of comfortableness and relaxation (Barsalou 2008). Feeling as well as bodily movement affects forming attitudes toward an object associated with the feeling. For example, feelings of easiness can increase judged familiarity of outcomes because people usually experience the association of easiness and familiarity (Lee and Labroo 2004; Schwarz 2004). In addition, the relationship between physical sensations such as perceived temperature and affective states was found on the basis of the embodied cognition theory (Zhong and Leonardelli 2008; Williams and Bargh 2008).

There is evidence that affective states influence perceived temperatures and subsequent behavior (Zhong and Leonardelli 2008) and vice versa (Molin et al. 1996; Williams and Bargh 2008). In particular, Zhong and Leonardelli (2008) report that individuals feeling emotional isolation also feel physically cold, leading to their choosing more of a warm beverage than those who do not feel lonely. Williams and Bargh (2008) demonstrated that the feelings of warmth from contacting with hot/warm objects might activate memories of other feelings related to warmth such as trust and comfort, because of early experiences with caregivers who provide warmth, comfort, shelter, and safety.

Specifically, Williams and Bargh (2008) suggest that just like warm physical contact with caregivers during infancy translates to healthy relationships in adulthood, experience of physical warmth should increase interpersonal warmth at a nonconscious level, and also induce more pro-social behavior. In the first experiment, the authors find that individuals who hold a cup of hot coffee (vs. iced coffee) judge a target person to have a warmer personality (e.g., generous, kind, caring). In the second experiment, they find that people exposed to a hot (vs. cold) pad become more pro-social toward others (e.g., gifting a friend) than self-centric (e.g., rewarding oneself). Thus, it seems likely that due to learnt associations, a stimulus associated with physical warmth could trigger feelings of emotional warmth which could, in turn, induce pro-social behavior. In the next section, we demonstrate helping behavior mechanisms in terms of charitable messages, and outline how the mechanisms can be interacted with the effects of color. Pro-social behavior and helping behavior are virtually interchangeable because both are performed to benefit or help another individual (Krebs 1982).

Charitable Messages for Helping

Helping behavior – ‘behavior that enhances the welfare of a needy other, by providing aid or benefit, usually with little or no commensurate reward in return’ (Bendapudi, Singh and Bendapudi 1996, p.34) – is a universal human value. Although there are many factors that affect helping behavior, mood is a significant factor that determines an individual’s involvement in a helping activity (Isen and Levin 1972; Cunningham, Steinberg and Grev 1980). It has been shown that both positive and negative moods induce helping behavior in people. In particular, positive moods such as elation (Aderman 1972), feelings driven by an unexpected gift receipt (Isen and Levin 1972), and happy thoughts (Moore, Underwood, and Rosenham 1973) have been found to enhance helping behavior and negative moods such as guilt elicit helping behavior (Basil, Ridgway, and Basil 2006).

However, Cunningham, Steinberg and Grev (1980) suggested that positive moods and negative moods trigger helping behavior only for certain types of charity appeals. Uplifting messages that depict hope and stress the desirability of helping have been found to be effective when people have a desire to attain or maintain a positive mood, whereas heartbreaking appeals that depict a terrible plight and stress the obligation to help have been found to be effective in inducing helping behavior when people want to avoid a negative mood such as guilt. In particular, they found that a positive mood induction increased the efficacy of uplifting messages and a negative mood induction increased the efficacy of heartbreaking messages.

Prior studies have shown that heartbreaking messages induce more reactance than uplifting messages (Pancer, Deforest, Rogers, and Schmirler 1979), and that reactance has a negative impact on the
efficacy of heartbreaking messages (Reinhard, Marshall, Freeley, and Tutzauer 2007). It has been found that negative moods in tandem with heartbreaking messages augment helping behavior when the messages successfully reduce reactance (Brehm 1966; Isen and Noonberg 1979). The specific psychological mechanisms identified by research that foster helping behavior under a negative mood include a sense of responsibility (Basil, Ridgway, and Basil 2006; Carlson and Miller 1987) and empathy (Bagozzi and Moore 1994). Also, empirical evidence shows that certain affective states increase the preference for heartbreaking messages (Oliver 2008; Shen 2010). In particular, feelings of warmth (tender affect) increase preference for sad and tragic heartbreaking messages (Oliver 2008), and empathy increases the effectiveness of heartbreaking messages via the mitigation of psychological reactance (Shen 2010). Therefore, it is likely that a heartbreaking message, which instigates a negative affect, should be especially effective if it can reduce psychological reactance by enhancing an antecedent affective state of helping behavior such as empathy and pro-social attitudes or by creating tender affect, which increases preference for the message.

In sum, if any cause that induces a positive mood will be effective in enhancing the efficacy of uplifting messages because the motivations to maintain or attain an induced positive mood fit the goal of the uplifting messages, it can be hypothesized that some types of colors, if those colors can induce more positive moods than others, will enhance the efficacy of uplifting messages. On the other hand, any cause that reduces psychological reactance or increases preference for heartbreaking messages is expected to increase the efficacy of heartbreaking messages. Therefore, also, it can be hypothesized that some types of colors, if those colors can induce more such a causal emotion that decreases reactance or increases preference for heartbreaking messages than others, will be more effective for heartbreaking messages. In the next section, we develop a hypothesis that potentially implicates color and the related physical and emotional ramifications of color with helping behavior in the context of charitable giving, and outline the studies that investigate the proposition.

**HYPOTHESES DEVELOPMENT AND EXPERIMENTAL DESIGN**

Based on color-temperature research, we contend that the perceived warmth from exposure to warm colors will have an effect that is similar to physical thermal stimuli, on feelings of interpersonal warmth and one’s own pro-social behavioral intentions. We expect that a target person will be judged to have a warmer personality when the target person’s description is featured against a warm color background rather than a cold color background (hypothesis 1). We investigate this in the first study.

The warmth from warm colors becomes more salient, especially when people feel physically cold (Kearney 1966). Also, research on the relationship between affective states and cutaneous temperature suggests that negative affective states (e.g., stress, anxiety etc.) decrease temperature, whereas positive affective states (e.g., relaxation, security etc.) increase it (Boudewyns 1976; Crawford, Friesen, and Tomlinson-Keasey 1977; Graham 1955; Mittelmann and Wolff 1939, 1943; Newton, Paul, and Bovard 1957). We posit that a heartbreaking appeal that induces negative affect should make people feel colder than an uplifting message which induces positive affect (hypothesis 2). This is explored in the second study.

Uplifting messages and heartbreaking messages are associated with different persuasion mechanisms, due to the induced mood. Also, warm and cold colors have a differential impact on mood states and behavioral intentions. We contend that an uplifting message designed with cold (vs. warm) colors will be more effective at increasing donation compliance because cold colors increase positive mood, and the enhanced mood state will encourage people to become more compliant to the donation request. Although it can be argued that warm colors could lead to perceived physical warmth and thereby induce pro-social behavioral intentions, we suggest that the use of warm colors with an uplifting message has an inherent limitation with regard to persuasiveness, as the central uplifting message induces warmth
(hypothesis 2), such that the warmth from the colors will have no significant additional impact on perceived warmth, and subsequently on persuasion.

On the other hand, we expect that a heartbreaking message designed with warm (vs. cold) colors will be more effective as the warm colors will induce pro-social behavioral intentions, which in turn will lead to an increased willingness to donate to the appeal. Specifically, heartbreaking messages make people feel colder (hypothesis 2), which in turn should make the warmth from the warm colors more salient to them (Kearney 1966), leading to an increased pro-social donation compliance. In contrast, a heartbreaking message designed with cold colors should be less persuasive as the message will induce a strong negative mood, which the cold color-induced positive mood is not sufficient to counteract. Also, color choice should influence the degree of attention (Bellizzi et al. 1983) that is paid to a particular type of appeal, which will be manifested in the level of perceived information accrued from the compliance message.

In sum, we posit that the interaction of color type (warm vs. cold) and appeal type (uplifting vs. heartbreaking) will determine the perception of message informativeness, which in turn is assumed to lead to a greater intention to donate to the charity (hypothesis 3). Further, we expect that positive mood will mediate the relationship between cold colors and intention to donate for uplifting messages (hypothesis 4), whereas pro-social attitude will mediate the relationship between warm colors and intention to donate for heartbreaking solicitation appeals (hypothesis 5).

**EXPERIMENT 1: THE EFFECT OF COLOR ON JUDGMENTS OF A PERSONALITY OF WARMTH**

Although people perceive warmth from warm colors, there is no evidence that this perception contributes to the development of interpersonal warmth like physical thermal stimuli (Williams and Bargh 2008). The purpose of the first experiment is to demonstrate that the warmth from warm colors also affects judgment for interpersonal warmth for another person akin to physical thermal stimuli. We predict that participants will evaluate a target person as having a warmer personality (e.g., generous and kind) when that person’s description is presented against a warm color background as opposed to other color backgrounds.

**Method**

We adopted the study of Asch (1946) except that we used an anonymous figure representing “Person A” against different background colors: orange for a warm color, blue for a cold color, and grey for a neutral color. “Person A” was described as intelligent, skillful, industrious, determined, practical, and cautious. We used a single-factor (type of background colors: orange, blue, and grey) between-subjects design. We controlled saturation and value and only differentiated hue for orange and blue (e.g., orange: hue = 10, saturation = 239, value = 128; blue: hue = 170, saturation = 239, value = 128). We used orange instead of red in order to reduce any potential confounding effects resulting from the color red’s strong association with negative images (e.g., danger, failure, blood etc.) which consequently increase an avoidance motivation (Elliot et al. 2007; Maier, Elliot, and Lichtenfeld, 2008; Elliot et al. 2009; Mehta and Zhu, 2009). Any aroused negative affective states due to an avoidance motivation may reduce or confound the perceived temperature effect of colors, which is why we used orange instead of red.

Red-green color blinds were disqualified. Forty-seven college students participated in the study for course credit. They were randomly assigned to one of three experimental settings. Participants were asked to look at a target’s personality description on a computer screen, and rate the personality of the target based on their impression. Warmth of “Person A” was measured using the same scale utilized by Asch (1946). Personality warmth was measured on a five-item seven-point scale (ungenerous/generous, unhappy/happy, irritable/good-natured, anti-social/sociable, selfish/caring; α = .75) as well as some other
personality trait variables (i.e., quietness, attractiveness, seriousness, strength, and honesty). At the end of the questionnaire the participants were asked to mention any factors that affected their impression of the target person in order to check whether anyone could recognize the purpose of the experiment. No one guessed at the purpose of the study.

Results and Discussion

Three participants did not complete all the questions, so they were excluded from the further analyses. A one-way ANOVA conducted on judgments for personality warmth (by averaging the five measures) revealed a marginally significant main effect of color ($F(2, 41) = 2.98, p > .06$). Contrasts showed that people perceived “Person A” as having more personality warmth against an orange background ($M_{orange} = 4.75$) rather than a blue background ($M_{blue} = 4.05; t(41) = 2.15, p < .05$) or a grey background ($M_{grey} = 4.07; t(41) = 2.06, p < .05$). In other words, people judged “Person A” as having more warmth when the target information was presented against an orange-colored background as opposed to a neutral or cold colored-background. The results confirm hypothesis 1 that judgments for interpersonal warmth are affected by warm colors quite like physical thermal stimuli and that this was caused by the inherent color-temperature associations. Other personality traits like quietness ($M_{orange} = 3.53$, vs. $M_{blue} = 4.47; t(41) = -1.65, p > .10$; vs. $M_{grey} = 3.71, t(41) < 1$), attractiveness ($M_{orange} = 4.67$, vs. $M_{blue} = 4.07, t(41) = 1.13, p > .26$; vs. $M_{grey} = 4.29, t(41) < 1$), seriousness ($M_{orange} = 2.60$ vs. $M_{blue} = 2.53, t(41) < 1$; vs. $M_{grey} = 2.14, t(41) < 1$), strength ($M_{orange} = 4.93$ vs. $M_{blue} = 4.53, t(41) < 1$; vs. $M_{grey} = 5.71, t(41) = -1.59, p > .11$), and honesty ($M_{orange} = 5.27$ vs. $M_{blue} = 4.73, t(41) = 1.04, p > .30$; vs. $M_{grey} = 5.07, t(41) < 1$) were not judged differently in the three color conditions.

The findings from this experiment are significant in the marketing context in that this is the first study that shows that color has the same effect as physical thermal stimuli on impressions of personality warmth. People judge a person presented against a warm color to have greater personality warmth than a person presented against a cold color background. Therefore, it is expected that similar visual thermal stimuli (i.e., color) will also influence pro-social attitudes in the context of helping behaviors.

**EXPERIMENT 2: THE EFFECT OF CHARITABLE MESSAGES ON PERCEIVED TEMPERATURE IN TERMS OF MESSAGE TYPE**

Although there is evidence that affective states influence cutaneous temperature, the assumption that readers of a heartbreaking message will be more sensitive to ambient temperature because they feel coldness is open to conjecture, because change in skin temperature might not necessarily affect perceived temperature. In other words, people need not perceive a temperature change due to an alteration in their skin temperature. The purpose of Experiment 2 is to investigate whether a heartbreaking message (compared to an uplifting message) will actually decrease a person’s perceived temperature. Previous studies have shown that negative moods such as fear, anxiety, and tension decrease skin temperature (Boudewyns 1976; Crawford et al. 1977; Graham 1955). It is surmised that a decrease in skin temperature will lead to a lower perceived temperature. Therefore, we hypothesize that a heartbreaking message that induces negative mood is more likely to decrease perceived temperature than an uplifting message.

**Method**

We used a single-factor (type of message: uplifting vs. heartbreaking messages) between-subjects design. We created two types of flyers for World Vision, an international non-profit organization: one designed with more uplifting features and contexts and the other designed with more heartbreaking features and contexts. A 3-page flyer was designed and presented on Power Point slides, and consisted of nine pictures (three pictures on each page) of children and contexts describing nutritional conditions (page 1), hygienic conditions (page 2), and educational conditions (page 3). Twenty-nine college students from a mid-western university participated in the study for course credit. Participants were randomly assigned...
them to one of the two experimental conditions. They were asked to look at the assigned flyer on a computer screen and respond on how they felt about described conditions in a paper-questionnaire. We measured how people felt about the described conditions on a four-item nine-point scale (i.e., tense, fearful, sad, pleasant; we reversed the order of the last item; \( \alpha = .84 \)). We also asked several irrelevant questions. Following this, toward the end of the session, participants were asked to estimate ambient room temperature on a separate page and were informed that this information would be utilized for another experiment. Participants could provide either the Fahrenheit or Celsius estimation. The actual room temperature was also taken at the end of each study session using a room thermometer, to ensure that there was minimal temporal delay between the registering of perceived and actual room temperature. The difference between the perceived and actual room temperature was obtained after conversion of all information to the Fahrenheit scale. For example, when an individual reported that the perceived room temperature was 74°F and the actual room temperature was 76°F, the difference was -2°F.

**Results and Discussion**

We found a significant difference in temperature perception between those who read the uplifting message and those who read the heartbreaking message (\( M_{\text{uplifting}} \text{ diff. in perceived and actual temp. } = -.94, \ M_{\text{heartbreaking}} \text{ diff. in perceived and actual temp. } = -4.54, t(27) = 2.74, p < .05 \)). The temperature discrepancy amongst the readers of the heartbreaking message was larger than those who read the uplifting message. Even after we removed one outlier, we obtained a robust result (\( M_{\text{uplifting}} \text{ diff. in perceived and actual temp. } = -.94, \ M_{\text{heartbreaking}} \text{ diff. in perceived and actual temp. } = -3.83, t(26) = 2.41, p < .05 \)). We followed the rule of Tukey (1977) to declare the outlier, which is an observation that lies outside of the interval \([Q1 - 1.5\times\text{IQR}; Q3 + 1.5\times\text{IQR}]\). The results confirm hypothesis 2 that heartbreaking (vs. uplifting) messages make people feel colder.

**Mediation Analysis**

The results show that people have more negative feelings from reading heartbreaking flyers than uplifting flyers (\( M_{\text{uplifting}} = 5.61 \text{ vs. } M_{\text{heartbreaking}} = 6.96, t(26) = -2.01, p = .05 \)). We investigated if the negative feelings mediated the relationship between message type and perceived temperature discrepancy. We followed the procedures of Baron and Kenny (1986) to conduct a mediation analysis. First, we found a significant effect of a message type on negative feelings (\( \beta = .37, p = .05 \)). Second, there was a significant effect of a message type on temperature difference (\( \beta = .43, p < .05 \)). Third, a significant effect of negative feelings was found on temperature discrepancy (\( \beta = -.59, p < .01 \)). The negative feelings induced by the heartbreaking message made people perceive the experimental room as being colder. Finally, we found that the effect of a message type drops significantly when we regressed the temperature discrepancy on both negative feelings and message type (\( \beta = .25, p > .15 \)). We confirm the mediation relationship by using bootstrapping as recommended by Hayes, Preacher, and Myers (2008) and Preacher and Hayes (2004). We replicated 5000 samples. We find that the 95% bootstrap confident interval does not contain zero (LCI = -.04 and UCI = 1.52), which shows that negative feelings mediate the effect of message type on temperature discrepancy (figure 1). In other words, as people have more negative feelings after reading the heartbreaking message, they perceive the room to be much colder, which is consistent with the evidence from previous studies that explored the relationship between affective states and cutaneous temperature.
EXPERIMENT 3: THE EFFECTS OF COLOR ON THE EFFECTIVENESS OF CHARITABLE MESSAGES IN TERMS OF MESSAGE AND COLOR TYPE

In Experiment 3, we investigate how colors (warm vs. cold) moderate the effectiveness of a persuasive message depending on the nature of the message (heartbreaking vs. uplifting). We expect that both the factors of color and nature of message will influence the amount of attention paid to a message, which in turn will impact the degree of perceived message informativeness resulting in a greater intention to donate.

A secondary goal in this experiment is to explore the different mechanisms of persuasion (positive mood vs. pro-social attitude) for the different message types (heartbreaking vs. uplifting) and understand how colors (warm vs. cold) affect these mechanisms. We show that cold colors increase positive moods that affect intention to donate for uplifting messages and warm colors increase pro-social attitudes leading to greater intention to donate for heartbreaking messages. Figure 2 illustrates the overall model of this experiment.
We utilized the stimuli used in Study 2 but differentiated the colors of each flyer. We used two colors, orange (warm color) and blue (cold color). We controlled saturation and value and only differentiated hue (hue = 10, saturation = 239, value = 128; blue: hue = 170, saturation = 239, value = 128). For textboxes, both colors were tinted white to make them look more professional.

In a pretest, we measured readability between blue and orange colored flyers on a one-item, nine-point scale to exclude the argument that differences in message effectiveness are due to the degree of readability. Twenty-five students at a mid-western university participated in the study in exchange for course credit. Because the design of the uplifting and heartbreaking flyers was identical except for context and features, we only measured readability for the two versions of the uplifting flyers. We find no difference in readability between the two flyers in terms of color ($M_{orange} = 7.15$, $M_{blue} = 7.25$, $t(23) = -.14, p = .89$). None of the participants were red-green color-blind.

We used a 2 (message and feature: uplifting vs. heartbreaking) × 2 (background color: orange vs. blue) between-subjects design. Red-green color-blind was disqualified. We collected data from 123 students at a large mid-western university in exchange for partial course credit. We randomly assigned participants to one of the four conditions and asked them to view the stimulus on their computer screen. We asked them to read the flyer as they normally would in their daily life and evaluate the flyer by answering the corresponding questions in the paper-questionnaire. Before starting to read the flyer, participants reported on their familiarity with World Vision (1: not at all familiar with the organization ~ 5: very much familiar with the organization). After reading the stimulus, participants were asked to respond on their affective state. Following this, dependent variables (message informativeness, prosocial attitudes, and intention to donate) were taken. Gender and age were reported in the last section of the questionnaire because they were included in the model as covariates. Finally, participants were asked to guess at the purpose of the study. No one guessed at the purpose of the study.
Results and Discussion

Manipulation Check

We assessed affective states as manipulation checks for message type. We expected that the uplifting flyers would arouse more positive moods and heartbreaking flyers negative moods. We measured how participants felt while reading the flyers on thirteen semantic items (i.e., pleasant, unhappy, excited, relaxed, stimulated, calm, annoyed, irritated, soothed, angry, remorseful, sad, and guilty). We used the parallel analysis criteria (Patil et al. 2008) to determine the number of retaining factors instead of the eigenvalue greater than one rule. Patil et al. (2008) suggest that the eigenvalue greater than one rule can retain unnecessary constructs, while the parallel analysis criteria are more parsimonious. We separated those items into three factors using exploratory factor analysis with the direct oblimin rotation of the rotated component method, using the parallel analysis criteria. Three factors that explained 64% of total variance were formed. The first factor indicated positive affective state and included the following items: pleasant, excited, relaxed, calm, and soothed. People often experience both high arousal and positive affect (e.g., excitement) and low arousal and positive affect (e.g., relaxation) at the same time (Hull, Stewart, and Yi 1992). The second factor indicated negative affective state and included the following items: stimulated, remorseful, sad, unhappy, and guilty. The third factor indicated feelings of irritation and included the items: irritated, annoyed, and angry. We measured Cronbach’s Alpha to assess the reliability of the items constituting each factor. The results show a Cronbach’s alpha of .80 for positive affective state, .77 for negative affective state, and .80 for feelings of irritation. It is reasonable that we have two different factors of negative mood state - negative affective state and feelings of irritation, because negative mood states are more heterogeneous than positive mood states (Isen 1984).

As expected, we find that people experience more positive moods while reading uplifting flyers ($M_{uplifting} = 5.01$, $M_{heartbreaking} = 3.17$, $t(121) = 9.04$, $p < .01$) and negative moods while reading heartbreaking flyers ($M_{uplifting} = 5.17$, $M_{heartbreaking} = 6.08$, $t(121) = -3.13$, $p < .01$). For feelings of irritation, people feel more irritated and annoyed while reading heartbreaking flyers ($M_{uplifting} = 3.33$, $M_{heartbreaking} = 4.52$, $t(121) = -3.38$, $p < .01$).

Message Informativeness

We measured message informativeness with a one-item nine-point scale (Mogilner, Rudnick, and Iyengar 2008; how informative do you think the flyer is?). We found an interaction effect of color and a type of message on informativeness ($F(1, 116) = 11.14$, $p < .01$). Pairwise comparisons showed that the heartbreaking flyers with orange (compared to those with blue) enhance informativeness of the flyers ($M_{heartbreaking + orange} = 7.21$, $M_{heartbreaking + blue} = 6.14$, $F(1, 116) = 6.32$, $p < .05$) and that the uplifting flyers with blue (compared to those with orange) increase informativeness ($M_{uplifting + blue} = 6.70$, $M_{uplifting + orange} = 5.76$, $F(1, 116) = 4.83$, $p < .05$). There was no significant main effect of a type of flyer or color on informativeness of flyers. We included three covariates: gender, age, and familiarity with the organization. No covariate significantly affects the degree of informativeness of flyers.

Intention to Donate

We measured intention to donate on a three-item nine-point scale ($\alpha = .86$). There was a significant interaction effect of color and type of flyer on intention of donate ($F(1, 116) = 9.14$, $p < .01$). With emotionally uplifting contexts and features, people are more likely to donate when the flyers are designed with blue than orange. With emotionally heartbreaking contexts and features, people are more likely to donate when the flyers are designed with orange than blue. Pairwise comparisons show that the heartbreaking flyers with orange (compared to those with blue) induce greater intention to donate ($M_{heartbreaking + orange} = 5.73$, $M_{heartbreaking + blue} = 4.70$, $F(1, 116) = 5.21$, $p < .05$) and that uplifting flyers with blue (compared to those with orange) lead to greater intention to donate ($M_{uplifting + blue} = 5.65$, $M_{uplifting + orange} = 4.74$, $F(1, 116) = 3.95$, $p < .05$). There was no main effect of color and flyer on intention to donate. We find that women have marginally higher intention to donate than men do ($F(1, 116) = 3.14$, $p$
Mediated Moderation Analysis

We find that suitable fits of color and type of message could enhance informativeness of the flyer. We hypothesized that informativeness (assumed to be enhanced by the appropriate choice of color and type of message) would augment intention to donate. Enhanced informativeness was found to mediate the interaction effect of color type on intention to donate. This was a mediated moderation because the path from the predicting variable, the message type to the mediator (informativeness) relied on the level of the moderator (color type) (Muller, Judd, and Yzerbyt 2005).

We followed the procedures of a mediated moderation analysis as recommended by Muller et al. (2005). We included the three covariates: gender, age, and familiarity with the organization in a series of regression models. We regressed intention to donate on color type, message type, their interaction, and three covariates. The results confirm a significant interaction effect ($\beta = -.26$, $t(116) = -3.02$, $p < .01$) on intention to donate. Next, we regressed informativeness on color type, message type, their interaction, and the three covariates. The results showed only a significant interaction effect ($\beta = -.29$, $t(116) = -3.34$, $p < .01$) on informativeness. Finally, we regressed intention to donate on color type, message type, their interaction, the three covariates, informativeness, and the color type $\times$ informativeness interaction. We found only a significant effect of informativeness on intention to donate ($\beta = .38$, $t(114) = 4.49$, $p < .01$) and a significant drop of the interaction effect of color $\times$ message ($\beta = .15$, $t(114) = -1.80$, $p < .08$). The interaction effect of color $\times$ informativeness on intention to donate was not significant ($\beta = -.10$, $t(114) = -.30$, $p > .76$). The significant drop of the coefficient value of the interaction of color $\times$ message ($\beta = -.262 \Rightarrow \beta = -.153$) indicates that the interaction effect of color $\times$ message was mediated by informativeness on intention to donate.

We confirm this mediated moderation relationship by using bootstrapping proposed by Hayes, Preacher, and Myers (2008). This method has a couple of significant advantages over other methods for testing mediation in that (1) multiple mediators can be measured simultaneously and (2) the method does not require the assumption of normality (Preacher and Hayes 2008). We generated 5000 bootstrap samples.

The bootstrapping results confirm the mediated moderation relationship, showing the 95% bootstrap confidence interval that does not contain zero (LCI = -.48 and UCI = -.10). If the 95% bootstrap confidence interval contains zero, then we can say that the effect is not significant at the .05 level. The results confirm Hypothesis 3.

Positive Emotions

We expected that cold (vs. warm) colors would increase positive mood with uplifting flyers, but not with heartbreaking flyers. We find a main effect of color ($F(1, 116) = 3.92$, $p = .05$) and message ($F(1, 116) = 84.28$, $p < .01$) on positive mood. Overall, cold colors increased positive moods more than warm colors, and uplifting messages (compared to heartbreaking messages) increase more positive moods as expected. Pairwise comparisons show that cold colors (compared to warm colors) increase positive moods only for readers of uplifting messages ($M_{uplifting + blue} = 5.43, M_{uplifting + orange} = 4.64, F(1, 116) = 7.69$, $p < .01$), but do not for readers of heartbreaking messages ($M_{heartbreaking + blue} = 3.18, M_{heartbreaking + orange} = 3.18, F(1, 116) = 0.0$).

Pro-social Attitudes

We measured pro-social attitudes on a two-item nine-point scale ($\alpha = .77$) (i.e., There is not much any one person can do about the starvation and famine in some developing countries; the helping efforts
of one person are useless as long as other people refuse to join), which was cited and slightly modified to fit the donation context from Ellen, Wiener, and Cobb-Walgren’s (1991) perceived consumer effectiveness items. Perceived consumer effectiveness is defined as an estimate of the extent to which individual activities contribute a solution to figure out environmental issues (Allen 1982; Berger and Corbin 1992; Ellen et al. 1991). Previous studies confirmed the relationship between pro-environmental behavior and a pro-environmental attitude which is measured by perceived consumer effectiveness (Jolibert and Baumgartner 1981; Berger and Corbin 1992). Therefore, we modified the items that measure pro-environmental attitudes in order to measure pro-social attitudes in donation context.

We expected that warm colors would increase pro-social attitudes with heartbreaking flyers rather than with uplifting flyers. We found a main effect of color \( F(1, 116) = 5.16, p < .05 \) on pro-social attitudes. Overall, warm (compared to cold) colors increase pro-social attitudes. Pairwise comparisons show that warm colors increase pro-social attitudes only for readers of heartbreaking messages \( M_{\text{heartbreaking} + \text{blue}} = 5.60, M_{\text{heartbreaking} + \text{orange}} = 6.69, F(1, 116) = 4.09, p < .05 \), but not for readers of uplifting messages \( M_{\text{uplifting} + \text{blue}} = 6.08, M_{\text{uplifting} + \text{orange}} = 6.73, F(1, 116) = 1.44, p > .23 \).

**Mediation Analysis for Uplifting flyer**

The interaction effect between color and message on dependent variables confirms that the color that enhances positive moods is more effective for uplifting flyers and that the color that enhances pro-social attitudes is more effective for heartbreaking flyers. We divided the participants into two groups based on message type. It was found that sixty-two subjects were assigned to read uplifting flyers and sixty-one subjects heartbreaking flyers. We followed the procedures of Baron and Kenny (1986) to find an indirect effect of positive mood on intention to donate for uplifting flyers. First, we regressed the dependent variable, intention to donate on the independent variable, color and the three covariates. We found a significant effect of color \( \beta = -.32, t(57) = -2.62, p < .05 \) on intention to donate, which implies that cold colors compared to warm colors induce more intention to donate. Second, we regressed the mediator, positive mood on color and the three covariates. We found a significant effect of color on positive mood \( \beta = -.28, t(57) = -2.28, p < .05 \), which implies that cold colors compared to warm colors increase positive moods. Third, we regressed intention to donate on positive mood and three covariates. There was a significant effect of positive mood on intention to donate \( \beta = .37, t(57) = 2.90, p < .01 \). Finally, we regressed intention to donate on color, positive mood, and the three covariates. We found a significant drop in the coefficient of color on intention to donate \( \beta = -.24, t(56) = -1.94, p > .05 \) from the value of the direct effect of color \( \beta = -.32 \).

We conducted bootstrapping to confirm the mediated relationship. Preacher and Hayes (2004) suggested bootstrapping that provides much better and reliable results for a mediation analysis because it does not impose distributional assumptions, especially, when a sample size is small. We generated 5000 bootstrap samples in order to measure indirect effects proposed by Hayes, Preacher, and Myers (2008) and Preacher and Hayes (2004).

If the 95% bootstrap confidence interval does not contain zero, it indicates a significant indirect effect. We find that the 95% bootstrap confidence interval does not contain zero \( \text{LCI} = -.38 \) and \( \text{UCI} = -.02 \), which confirms the indirect effect of positive moods, mediating the effect of color on intention to donate in uplifting flyers. For uplifting flyers, cold colors significantly increase positive moods, which in turn increase intention to donate. We cannot find the indirect effect of positive moods from heartbreaking flyers, which is confirmed by the results showing that the 95% bootstrap confidence interval contains zero \( \text{LCI} = -.11 \) and \( \text{UCI} = .06 \).
Mediation Analysis for Heartbreaking flyer

We used the procedures of Baron and Kenny (1986) to show the indirect effect of pro-social attitudes on intention to donate for heartbreaking flyers. First, we regressed intentions to donate on color and the three covariates. We found a significant effect of color ($\beta = .27$, $t(56) = 2.16$, $p < .05$) on intention to donate, which implies that warm colors led to greater intention to donate for heartbreaking flyers. Second, we regressed a mediator, pro-social attitudes on color. We find a marginally significant effect of color on pro-social attitudes ($\beta = .22$, $t(56) = 1.82$, $p < .08$), which confirms that warm colors compared to cold colors increase pro-social attitudes in heartbreaking flyers. Third, we regressed intention to donate on pro-social attitudes and the three covariates. The results show a significant effect of pro-social attitudes on intentions to donate ($\beta = .42$, $t(56) = 3.41$, $p < .01$). Finally, we regressed intention to donate on color, pro-social attitudes, and the three covariates. We found a significant drop of the coefficient value color ($\beta = .18$, $t(55) = 1.54$, $p > .13$) from the value of the direct effect of color ($\beta = .27$). We confirm that pro-social attitudes mediate the effect of color on intention to donate by showing that the 95% bootstrap confidence interval does not contain zero (LCI = .01 and UCI = .44). The results of the mediation analysis show that warm colors increase pro-social attitudes, and that the increased pro-social attitudes lead to an increase of intention to donate with heartbreaking flyers. We found no such mediated relationship with uplifting flyers (LCI = -.19 and UCI = .03). We generated 5000 samples for bootstrapping.

We hypothesized that color would have different persuasive roles depending upon that nature of the charity solicitation message. The results from this study support the prediction that cold colors are more effective for uplifting messages, as they increase positive mood, leading to a greater intention to donate. Whereas, warm colors are more effective for heartbreaking flyers because the perceived warmth of warm colors increase pro-social attitudes, which in turn positively affect intention to donate. We found that an appropriate choice of color in terms of a type of flyer increases a level of message informativeness, which lead to greater intention to donate. The results imply that the color preference effects compared to the color-temperature association effects have a preemptive impact on the effectiveness of uplifting flyers and the color-temperature association effects have a greater impact on the effectiveness of heartbreaking flyers. We found different mechanisms of how the harmony of color and a type of message is formed through mediation analyses for each type of flyer. We show that positive moods mediate the effect of color on intention to donate for uplifting flyers and pro-social attitudes for heartbreaking flyers.

GENERAL DISCUSSION

Conclusion and Summary

In the first study we show that warmth induced visually by warm colors affects perceptions of interpersonal warmth much like physical stimuli have been shown to do. Williams and Bargh (2008) found that physical thermal stimuli affect judgments for interpersonal warmth and also influence a person’s pro-social behavior. People who touch a hot stimulus were found to engage in more pro-social behavior. Our study findings support prior research in that they show that target person descriptions presented against a warm color background are viewed by people as having a warmer personality, than those presented against a cold color background. From these findings, it is plausible to assume that warm colors would also induce greater pro-social behavior in people exposed to information against such colors.

People are more likely to be more receptive to the warmth from warm colors when they feel cold (Kearney 1966). In the second study, we show that people do, in fact, perceive themselves to be colder when they are exposed to a heartbeat message rather than an uplifting message. Further, we show that negative affect is the mediator that influences the relationship between message type and perception of ambient temperature. To our knowledge, this is the first study to show that message type impacts perceptions of room temperature.
The results from the first two studies show that potentially, warm colors should induce pro-social behavior, and also that heartbreaking messages induce a perception of physical coldness in people who are exposed to such messages, by inducing negative affect. In the third study, we found an interaction effect of color and message type on charity compliance as measured by intention to donate. We find that warm colors are more effective than cold colors in inducing donation compliance when they are featured in heartbreaking appeals, whereas cold colors are more effective than warm colors in inducing compliance in appeals with uplifting messages.

Practical and Theoretical Implications

There is a dearth of knowledge in marketing on how color can potentially be used to leverage persuasive communication in the non-profit arena. From a theoretical standpoint, the findings from this study add to the extant literature on charity compliance. To our knowledge this is the first study to show that color-temperature associations impact persuasion of charity solicitations. In addition, to our knowledge this is the first study to show that the efficacy of two commons types of donation compliance appeals –uplifting and heartbreaking-is influenced by distinct process mechanisms. We add to literature by identifying these process variables and showing their role as mediators.

From a practical perspective, our findings show that it is critical for advertisers to understand the true potential of distinct hues in being able to elicit different behavioral impulses. Colors are critical in communication design and this paper makes the first attempt at exploring how communication efficacy can be honed by the appropriate choice of color, thereby yielding rich monetary and equity dividends for a brand. While numerous studies focusing on the non-profit area have explored various factors pertaining to the nature of the message and how such factors influence persuasion, not many have looked at the salience of peripheral cues such as colors on persuasion. This study takes an important initial step by showing that managers of charities should avail themselves of such cues to maximize their solicitation effectiveness.

Limitations and the Future Research

One limitation that this study has is that we controlled both color brightness and chroma. However, some previous studies report that these two elements also affect a color’s perceived temperature (Wright 1962) and affect (Valdez and Mehrabian 1994). Therefore, future studies should explore the influence of all the color factors on the persuasion impact of charitable messages.

The effects of color can be overwhelmed by other factors. For example, the Red Cross logo color is red. It is likely that logo colors that are strongly instilled in consumers’ minds as being of a warm or cold nature, could act as a potential confound when other colors are used to induce a particular type of action. Future studies should explore this facet in greater detail. Future studies should also investigate the influence of color on persuasion effectiveness of messages by for-profit institutions.
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