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THE INFLUENCE OF AFFECT ON PRODUCT EVALUATIONS AND ENDURING CONSUMPTION ENJOYMENT

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THE INFLUENCE OF AFFECT ON PRODUCT EVALUATIONS AND ENDURING
CONSUMPTION ENJOYMENT

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DISSERTATION

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A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Business and Economics
at the University of Kentucky

By
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ABSTRACT OF DISSERTATION

THE INFLUENCE OF AFFECT ON PRODUCT EVALUATIONS AND ENDURING
CONSUMPTION ENJOYMENT

This dissertation consists of two essays on the influence of affect on consumer intentions and behavioral responses. In the first essay, the influence of negative affect on consumer satiation is investigated. In the second essay, the influence of conceptual fluency, a positive affective response of "feeling right" during advertising evaluations, evoked by the structural properties of memory networks, is identified.

In the first essay, how anticipated consumption variety influences consumers' affective responses to slow satiation in the present is investigated. Prior research has focused on how cognitive appraisals of present variety influence consumers' satiation rates. However, in addition to cognitively attending to the present, consumers also generate affective information regarding future consumption events (e.g. thinking about dessert while eating an entrée). Results indicate that more anticipated consumption variety reduces the amount of negative affect consumers experience during recurrent consumption, which is found to extend consumers' present consumption enjoyment (reduced satiation rates). Further, the moderating roles of vice and virtue product perceptions and consumer emotional intelligence are also investigated, providing additional evidence of the proposed affective process mechanism while identifying boundary conditions for the effect.

In the second essay, how the structural nature of semantic memory can produce affective responses, in the form of conceptual fluency, to influence consumers' product behavioral intentions is investigated. Memory activations, generated by key words in advertising, can provide a temporary boost to the perceived desirability of a given product. However, memories are not activated in isolation. Rather, an entire network of interrelated concepts is activated along with the focal memory through various learned associations. Despite a great deal of knowledge detailing the phenomena of memory spreading activations, research has primarily focused on which memories are connected to each other, rather than on *how* activated memories are connected to their surrounding networks. This essay identifies consumers' responses to the betweenness centrality (e.g. providing mediated access to other concepts in memory via the shortest path) of a focal word in advertising, rather than the activation of specific associations, as critical for advertising success.

James Mead_____
Student's Signature

4/27/15_____
Date

THE INFLUENCE OF AFFECT ON PRODUCT EVALUATIONS AND ENDURING
CONSUMPTION ENJOYMENT

By

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 4/27/15
Date

To my wife, Natalie, without her support, encouragement, and tolerance, the last five years would not have been possible.

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1 Introduction

The term "affect" is broadly used to describe a range of internal feeling states, more commonly known as moods and emotions (Cohen, Pham, and Andrade 2008). The moods and emotions that consumers experience are often interpreted as information, diagnostic of the desirability of a given situation or course of action (Schwarz and Clore 1983). As such, consumers frequently rely on affective information to make decisions and regulate their behaviors (Cohen, Pham, and Andrade 2008; Isen and Patrick 1983; Kidwell, Hardesty, and Childers 2008a; Pham 1998; Schwarz and Clore 1983). For example, resisting the urge to overindulge in tasty but unhealthful foods (Kidwell, Hardesty, and Childers 2008a), deciding to attend an event (Pham 1998), and interpreting an advertisement as more or less persuasive (Kidwell, Farmer, and Hardesty 2013). However, despite a great deal of knowledge regarding how affect influences consumers, many questions remain.

For example, while affect is known to play a central role in how consumers experience and enjoy products (Vorderer, Klimmt, and Ritterfeld 2004), little is known regarding how affect influences satiation, the decrement of enjoyment during recurrent consumption (Redden 2008). In fact, prior research on satiation has largely focused on how cognitive appraisals of present variety or repetition influence consumers' satiation rates. In this dissertation, differences in anticipated consumption variety are used to manipulate consumers' affective state during a present consumption experience. Anticipated consumption variety was selected as the affective manipulation because anticipated events can produce affective responses similar to actual experiences (Holmes

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and Mathews 2005) and because consumers often think about future consumption events (e.g., thinking about dessert while eating an entrée) during present consumption experiences.

In this dissertation, it is proposed that anticipating future consumption variety provides a proverbial light at the end of the tunnel for consumers engaged in a repetitive consumption experience, when they may otherwise feel a general sense of frustration. Thus, anticipating future consumption variety may enable consumers to reduce the amount of negative affect they experience with recurrent consumption, extending their present enjoyment. That is, consumers may experience less irritability, frustration, and boredom during a present consumption experience (Fishbach, Ratner, and Zhang 2011; McAlister and Pessemier 1982; Poor et al. 2012) by merely anticipating future variety.

Using an experimental framework and data collected over four studies, this dissertation attempts to make the following theoretical contributions. First, the results demonstrate that consumers who anticipate more variety in a future consumption experience become satiated more slowly than consumers who anticipate less future variety. Second, mediation analysis establishes negative affect as the underlying mechanism connecting present satiation and anticipated future consumption variety. Third, the results of moderation analyses identify an interaction effect of product type (vice vs. virtue) and consumer emotional intelligence on the proposed anticipated future variety–present satiation link. That is, the negative relationship between anticipated consumption variety and satiation rate is enhanced for vice products and for consumers high in emotional intelligence. The demonstration of these moderation effects provides additional evidence

of the proposed affective process mechanism and identifies important boundary conditions for the effect of anticipated consumption variety on present satiation.

Substantively, this research provides consumers (and marketers) with a means to influence present satiation. The ability to reduce satiation rates by merely anticipating (or encouraging consumers to anticipate) more or less future variety may enable consumers to enjoy their favorite possessions, current circumstances, or beneficial products longer. Further, anticipated consumption variety may reduce the threat of brand switching and product fatigue (Chernev, Hamilton, and Gal 2011; Menon and Kahn 1995) for marketers.

Continuing the central thesis of this dissertation, the second essay investigates how focal words within an advertisement influence consumers' evaluations of advertised products through influencing their conceptual fluency, an emotional "gut" reaction (Landwehr, Labroo, and Herrmann 2011) when processing information. Memory activations, generated by advertising slogans, can provide a temporary boost to the perceived desirability of the advertised product (van Osselaer and Janiszewski 2012). For example, memory activations have been shown to influence consumers' product preferences (Sela and Shiv 2009) as well as their willingness to pay for goods (Forster, Liberman, and Friedman 2007). Consequently, marketers often spend considerable resources to identify the right words or phrases to generate favorable consumer responses.

However, memories are not activated in isolation. When consumers are exposed to a focal word, an entire network of interrelated concepts is activated along with the focal memory through various learned associations. Despite a great deal of knowledge detailing the phenomena of memory spreading activations (Anderson 1983), research has primarily focused on the effect of specific memory activations on consumer outcomes. For example, how priming the concept of "bye" can lead to increased willingness to pay due to activating the homophone of "buy" in consumers' minds (Davis and Herr 2014). This essay investigates how a focal word's location within its local semantic network influences how consumers process and respond to advertising. Specifically, it explores how the betweenness centrality (i.e., providing mediated access to other concepts in memory via the shortest path) of a focal word in advertising influences consumers' willingness to pay, word-of-mouth, and purchase intentions of an advertised product through affecting consumers' conceptual fluency.

Conceptual fluency describes a sense of ease in information processing, generally characterized by positive gut reactions (Landwehr et al. 2011). It is associated with the familiarity and recognition of a stimulus (Reber et al. 2004), often producing a "feels right" moment for consumers (Kidwell et al. 2013). As such, advertisements which generate conceptual fluency are often found to be more persuasive than non-fluent advertisements (Kidwell et al. 2013). In this dissertation, it is proposed that words with higher betweenness centralities may generate perceptions of conceptual fluency by bridging and connecting less semantically similar clusters of the network together. Words that provide logical structure, congruence, and context to a larger semantic web of concepts are expected to increase the processing ease of advertisements featuring such

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words, relative to advertisements using words that are less centrally connected to their surrounding semantic networks.

Over a series of four surveys, this dissertation attempts to make the following theoretical contributions. First, results suggest that as the betweenness centrality of a focal word in advertising increases, positive product behavioral intentions also increase. Further, the effect of betweenness centrality is demonstrated as exerting its own unique and significant influence on consumers' product behavioral intentions beyond participants' attitudinal rating of the words, via hierarchical regression analysis. In doing so, this dissertation identifies that the manner in which memories are connected to their local semantic networks is critical to an advertisements' ability to influence key product behavioral intentions. Second, mediation analysis identifies conceptual processing fluency as the distal psychological mechanism responsible for the betweenness centrality effect. This highlights the significance of semantic structures as a key determinate of how consumers process and respond to memory activations as a novel means to generate conceptual fluency.

Given that the vetting and selection of focal words with which to build a brand's identity is critically important (van Osselaer and Janiszewski 2012) to marketers, this dissertation attempts to provide the following substantive contributions. First, it offers marketers a new method to compare and select focal words for their advertising campaigns. Second, it provides the novel insight that simply understanding what memory associations a focal word in advertising evokes provides only a partial account of how consumers will respond to its use in advertising. By establishing that how concepts are semantically

connected to their surrounding networks influences how consumers respond to advertising, this dissertation provides marketers with important new information to consider when selecting words to feature in advertising.

Overall, this dissertation seeks to enhance the understanding of how affect influences consumer behavior. In the first essay, how a reduction in negative affect, through anticipating more future consumption variety, can extend consumers' enjoyment to a present consumption experience is investigated. In the second essay, how the local semantic network surrounding a focal word in advertising influences consumers' conceptual fluency, or their positive gut feeling toward the advertisement, to influence a number of downstream product behavioral intentions is explored. Thus, this dissertation contributes to the literature regarding how affect influences consumer behavior.

2   Enjoying the Present by Anticipating the Future: Anticipated Consumption Variety, Affect, and Consumer Satiation

2.1   Introduction

With enough repetition, even the most enjoyable experiences can eventually become tiresome and unfulfilling. That is, a consumer's first Hershey's Kiss is often more enjoyable than his or her fifth or sixth because of satiation (Galak, Kruger, and Loewenstein 2013). While the phenomenon of satiation is often deemed an inevitable side effect of recurrent consumption (Brickman and Campbell 1971; Redden 2008), the ability to accelerate or slow the effect remains a topic of great interest given its implications for consumer enjoyment, repeat purchase decisions (McAlister and Pessemier 1982), and the regulation of consumption (Galak et al. 2014; Redden and Haws 2013). Prior research on satiation has focused primarily on how consumers perceive and experience stimuli during an ongoing consumption experience, often related to cognitive appraisals of variety or repetition in the domain of consumption. For example, more specific descriptions of products (item categorization levels) in an assortment cause consumers to become satiated less rapidly by focusing their attention on novel aspects of the items they are consuming (e.g., the specific flavors of each jellybean), which decreases consumers' sense of repetition (Redden 2008). Relatedly, the more attention consumers devote to monitoring their consumption amounts, the more repetitive the experience seems, which leads to an increased satiation response (Redden 2008; Redden and Haws 2013). Even the amount of thought (Larson, Redden, and Elder 2014) consumers devote to visualizing a product before consuming it can influence their

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satiation rates during a present consumption experience. However, while consuming, consumers attend to more than their present consumption experience. They may also consider, plan, and anticipate the future. How does anticipating what comes next influence consumers' satiety in the present? As prior research has demonstrated the significance of perceived present variety on consumer satiation (Redden 2008) and that anticipated variety represents an important aspect of future consumption choices (Ratner and Kahn 2002), the current research investigates how anticipating more or less future consumption variety can slow or accelerate consumers' satiation rates in a present experience.

Anticipating experiences (e.g., thinking about dessert while eating an entrée, browsing song lists while listening to music) can produce emotional responses similar to actually experiencing the consumption event (Holmes and Mathews 2005). As such, anticipated experiences often produce a measurable effect on a range of consumer behaviors through the affect they evoke, from self-regulation (Nenkov, Inman, and Hulland 2008) to purchase decisions (Abendroth and Diehl 2006; Blair and Roese 2013; Tsiros and Hardesty 2010). Despite being a seemingly common consumer phenomenon, little is known about how anticipated future consumption variety, and affective responses to it, influences consumers' satiation responses in the present. With a better understanding of the effect of anticipated consumption variety on consumers' satiation rates, organizations may be able to influence consumer behavior to extend the enjoyment of products and services.

This research makes several theoretical contributions to the satiation and affect literature. First, it establishes the importance of anticipated future consumption variety in determining consumers' present satiation. Specifically, it demonstrates that consumers who anticipate more variety in a future consumption experience become satiated more slowly than consumers who anticipate less future variety. Second, it establishes negative affect as the underlying mechanism connecting present satiation and anticipated future consumption variety; in contrast, extant research has largely focused on cognitive mechanisms of satiation, such as attention to consumption (Redden 2008) and mental imagery (Morewedge, Huh, and Vosgerau 2010). Third, this research identifies the moderating roles of product type (vice vs. virtue) and consumer emotional intelligence on the proposed anticipated future variety–present satiation link. That is, the negative relationship between anticipated consumption variety and satiation rate is enhanced for vice products and for consumers high in emotional intelligence. The identification of these moderators not only establishes important boundary conditions for the effect of anticipated consumption variety on consumer satiation but also provides additional theoretical support for our proposed affective process mechanism.

In addition to the theoretical contributions, this research offers several substantive contributions as it relates to extending or contracting consumers' enjoyment of products and services. For example, by merely anticipating more future consumption variety while engaged in a present consumption experience, consumers may be able to extend their enjoyment of their favorite or beneficial products, such as a favorite song, more healthful foods, or exercise equipment, by exerting some degree of control over their satiation rates. Conversely, anticipating less future consumption variety may help them dampen

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their desire to overindulge in unhealthful foods or consume products and services in a more sustainable manner (Mick et al. 2012).

2.2   Theoretical Background

Figure 2.2 depicts the framework for understanding how anticipated consumption variety influences consumer satiation. First, we propose that anticipated consumption variety is negatively related to consumers' satiation rates, such that anticipating more of the same increases satiation while anticipating variety reduces satiation. Second, we propose that anticipated consumption variety influences consumer satiation by reducing the negative affect consumers experience in the present. Third, we propose that the effect of anticipated consumption variety on consumer satiation rates is stronger for vice products than virtue products, given the more central role of affect in the enjoyment of such products. Fourth, we predict that consumers with high levels of emotional intelligence are more capable of skillfully perceiving and using the affect generated from more anticipated consumption variety to reduce their satiation in the present, moderating the relationship between anticipated consumption variety and consumers' satiation rate.

2.2.1   Overview of the Satiation Literature

The act of repeatedly consuming a product or experience often leads to the decrement of consumption enjoyment. While the actual repetition of an experience can lead to satiation (Galak et al. 2013; Redden 2008; Redden and Haws 2013), satiation can be more than a function of recurrent consumption and exposure. Satiation is also a psychological phenomenon that can be spontaneously influenced independent of consumers' actual

consumption experiences (Galak, Redden, and Kruger 2009; Galak et al. 2014). For example, research has demonstrated that increased attention to consumption accelerates satiation (Redden and Haws 2013), while increased item categorization levels, perceived greater assortment levels (Redden 2008), or perceived temporal distance from a past consumption experience can slow satiation (Galak et al. 2014). Relatedly, consumers become satiated more slowly when consuming an item with perceived limited availability because they focus more on enjoying the rare consumption opportunity rather than monitoring their consumption amounts (Sevilla and Redden 2014). Even imagined consumption (Morewedge et al. 2010) and the repeated evaluation of products (Larson et al. 2014) can induce or accelerate satiation in consumers. For example, consumers eat fewer M&M's if they imagine their consumption beforehand (Morewedge et al. 2010) and enjoy a snack less if they repeatedly evaluate foods with similar sensory properties (Larson et al. 2014). Although extant research has linked perception of present variety to consumer satiation, we enrich the satiation literature by identifying how *anticipated future variety* influences consumer satiation.

2.2.2   The Benefits of Real or Anticipated Variety

Perceptions of variety within a given domain of consumption often produce pleasant affective experiences (Kahn and Wansink 2004; Ratner and Kahn 2002; Wilson and Gilbert 2008) and increase consumption enjoyment (Poor, Duhachek, and Krishnan 2012; Vorderer, Klimmt, and Ritterfeld 2004). For example, research has linked more (vs. less) product variety to enhanced consumer enjoyment (Ratner, Kahn, and Kahneman 1999) and customer satisfaction (Mogilner, Rudnick, and Iyengar 2008), even if additional

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variety comes at the expense of consuming less of one's favorite products (Ratner et al. 1999). Furthermore, consumers' satiation response to present variety can vary as a function of self-control level (Haws and Redden 2013). As such, it is not surprising that consumers may strategically seek variety within a given product category to slow their satiation with a favorite product or experience (McAlister and Pessemier 1982; Ratner et al. 1999). Thus, real or perceived variety not only seems to boost consumer enjoyment and slow satiation, due to elevated feelings of repetition (Redden 2008; Redden and Haws 2013), but also directly enhances the enjoyment of consumer experiences (Kahn and Wansink 2004; Ratner and Kahn 2002; Wilson and Gilbert 2008). In this research, we propose that consumers not only are sensitive to perceptions of variety in the present but also are greatly influenced by the consideration of *future* consumption variety, which will influence their perceived enjoyment of and satiation with a present consumption experience.

Consumers often anticipate what they will consume next while in the midst of a present consumption experience, as a planning mechanism or for enjoyment in and of itself (Gollier and Muermann 2010; Zhong and Mitchell 2010). Consumers often imagine or simulate future consumption experiences to inform their present decision making (Gilbert, Gill, and Wilson 2002), as simulated consumption can provide valuable information. However, we contend that anticipating future consumption variety not only provides consumers with information about a future course of action but also delivers the proverbial *light at the end of the tunnel* for consumers engaged in a repetitive consumption experience, when they may otherwise feel a general sense of frustration.

Thus, we predict that anticipating more future consumption variety will increase consumer enjoyment, slowing their satiation with a present experience.

> H1: During a present consumption experience, consumers who anticipate more (less) future consumption variety will become satiated less (more) quickly during a present consumption experience.

However, unlike present variety, we suggest that anticipated variety does not necessarily influence consumers' enjoyment and satiation through focusing their attention on present consumption amounts and, therefore, repetition (Redden 2008; Redden and Haws 2013; Sevilla and Redden 2014). Rather, we predict that anticipated consumption variety influences satiation through the affect evoked by imagining future variety. Given that imagined and real experiences often activate similar neural responses and emotions or affect in consumers (Bray, Shimojo, and O'Doherty 2010; Decety and Grèzes 2006; Holmes and Mathews 2005) and that affect is often central to many consumer behaviors, we predict that affect from this imagined future event plays a central role in our model.

2.2.3 Affect and Consumption Enjoyment

Consumers frequently rely on affective information to make decisions and regulate their behaviors (Cohen, Pham, and Andrade 2008; Isen and Patrick 1983; Kidwell, Hardesty, and Childers 2008b; Labroo and Mukhopadhyay 2009; Pham 1998; Schwarz and Clore 1983; Scott et al. 2008; Wood and Moreau 2006). Affective information has been reliably linked to many consumer behavior and decision processes, including product enjoyment (Poor et al. 2012; Vorderer et al. 2004; Wang, Novemsky, and Dhar 2009). As Poor et al.

(2012) discuss, consumers often experience a mix of positive and negative affect levels during repeated or recurrent consumption. For example, a favorite song may initially produce a great amount of desirable affect but will eventually lose its ability to produce positive affect and, with repetition, may actually produce negative affective responses, resulting in diminished enjoyment over time (Frederick and Loewenstein 1999; Lucas 2007; Poor et al. 2012; Wang et al. 2009; Wilson and Gilbert 2008). That is, consumers not only experience affective adaptation, which results in a decline of positive affect (Wang et al. 2009), but also often view repeated consumption as undesirable and frustrating, causing them to experience increased levels of negative affect, such as irritability and boredom (Poor et al. 2012). Given that affect is a key component of enjoyment, consumers may regard their current affective state as indicative of their present consumption enjoyment. If consumers are unable to recapture the positive affect lost through affective adaptation, perhaps by consuming the product faster or in greater amounts (Frederick and Loewenstein 1999; Galak et al. 2013), they are likely to experience satiation effects.

In this research, we propose that anticipating future consumption variety will enable consumers to reduce the amount of negative affect they experience with recurrent consumption, thereby extending their enjoyment in the present by reducing negative affective information. That is, consumers may experience the affective benefits of real variety (Kahn and Wansink 2004; Ratner and Kahn 2002; Wilson and Gilbert 2008), such as reduced irritability, frustration, and boredom (Fishbach, Ratner, and Zhang 2011; McAlister and Pessemier 1982; Poor et al. 2012), by merely anticipating future variety during a present consumption experience. However, we do not expect anticipated future

variety to generate increased positive affect, given that consumers are still engaged in a repetitive and perhaps unenjoyable experience in the present. After all, consumers are not likely to experience positive affect at the end of a repetitive and unfulfilling experience merely because they anticipate a desired injection of variety. In summary, we expect anticipated consumption variety to reduce the amount of negative affect consumers experience by signaling the relief of an increasingly monotonous, unfulfilling, or unsatisfying experience (Brickman and Campbell 1971). Therefore, we expect anticipated consumption variety to reduce satiation by limiting the rate at which consumers grow irritated, upset, or frustrated with their present experience, not by raising consumers' affective state with positive emotions.

Prior research has demonstrated that the presence of negative affect is often interpreted as an internal signal to avoid a potential outcome (Carver and Scheier 1990; Fredrickson 2001) or discontinue one's actions (Clore 1994). Thus, by reducing the negative affect consumers experience in the present, more anticipated future consumption variety may prolong their enjoyment in the present through perceptions that the amount of negative affect they experience is indicative of their present enjoyment (Schwarz 1998), even as they experience a natural decline of positive affect during a present recurrent consumption experience (Wang et al. 2009). Therefore, we predict the following:

> H2: Negative affect mediates the relationship between anticipated
> consumption variety and satiation rate during a present consumption
> experience, such that anticipated consumption variety reduces the amount

of negative affect consumers experience during a present consumption experience, leading to a decreased present satiation rate.

2.3 Empirical Overview

We conduct two experiments to assess hypotheses 1 and 2. In experiment 1, we test the core prediction that anticipated consumption variety influences consumers' satiation rate to a present consumption experience. In experiment 2, we demonstrate that negative affect mediates the effect of anticipated consumption variety on consumer satiation rates. We also rule out several competing cognitive process explanations in experiment 2.

Following this, we introduce experiments 3 and 4, which are designed to further explain the process underlying our proposed effects. In experiment 3, we examine the moderating role of vice versus virtue product perceptions on the relationship between anticipated consumption variety and product satiation rates. In doing so, we provide additional evidence of an affective process explanation and also identify an important boundary condition for the effect of anticipated consumption variety on consumers' satiation rates. Experiment 4 assesses the moderating effect of consumer emotional intelligence on the relationship between anticipated consumption variety and satiation, providing additional evidence of an affective process mechanism and demonstrating how consumers can slow satiation rates with improved emotional intelligence.

2.4 Experiment 1

Experiment 1 tests the core prediction that anticipated consumption variety influences consumers' satiation rate of a present consumption experience (hypothesis 1).

Specifically, we propose that consumers who anticipate more variety in a future consumption experience will become satiated less quickly than consumers who anticipate less variety in a future consumption experience.

2.4.1 Method

Pretest. To select the song for experiment 1, we provided participants with a randomized list of the 15 most popular songs (song title and artist) from Spotify (21 business undergraduate students from the same population of students as in experiment 1) and asked them to rate each song on a three-item measure of their overall favorability (e.g., "I really like this song," on a seven-point scale; see table 1 for all items). We selected the song "Ho Hey" by the Lumineers because its mean ($M = 5.32$) was significantly greater than the scale midpoint ($M = 5.32$ vs 4.00; $t(20) = 4.82$, $p < .01$) and had the highest average mean, resulting in a conservative test because the song was generally liked (see table 2.4.1). The song "Ho Hey" was edited to a 20-second clip for use in the main study.

Main Experiment Procedure. Eighty-six business undergraduate students completed the experiment in exchange for research credit. This experiment employed a 2 (anticipated consumption variety: more vs. less) $\times$ 15 (song clip exposure) mixed-factor design. Anticipated consumption variety served as the between-subjects factor, and song clip exposure served as the within-subject factor. Participants were told that the song evaluation study would be administered in two parts.

The first part of the procedure manipulated the 15 repeated exposures of the same clip. Participants were informed that they would repeatedly evaluate (15 times) a specially

edited song clip designed to highlight its key musical features and aspects (procedure adapted from Galak et al. 2009). During this listening task, participants repeatedly listened to the pretested song "Hey Ho" and each time rated (15 times in total) their enjoyment of the 20-second clip using a three-item measure (hate it/love it, it's very unpleasant/it's very pleasant, and not fun at all/very fun, on 101-point anchored slider questions).

The second part manipulated anticipated consumption variety. During the first part, in which they listened to "Ho Hey," participants were also given a brief description of the song clip for the second part of the study. This information was given during each of the 15 rating occasions. Participants were reminded about the next song clip they would listen to and evaluate during the second part of the study (based on their randomly assigned experimental condition). Participants were informed that this second part would begin after they completed their ongoing (15 total ratings) listening task. Participants were informed, "After your first listening task, you will be asked to listen to another [similar/different] style song from a [similar/different] style artist that most college students enjoy." Finally, participants completed a manipulation check question: "Listening to the song clip I just evaluated (the first listening task) and the one I will listen to and evaluate next (the second listening task) will feel like the same thing over and over."

2.4.2 Results

We excluded four participants from data analysis for failing a sound/volume check on their lab computer. We removed 11 additional participants because of noncompletion of the experiment.

Manipulation Check. Participants in the less anticipated consumption variety condition perceived significantly less variety between the two tasks than those in the more anticipated consumption variety condition ($M_{\text{less variety}} = 5.17$ vs. $M_{\text{more variety}} = 4.33$; $t(84) = 2.31$, $p < .05$). This confirms that our manipulation operated as intended.

Present Consumption Enjoyment. We conducted a 2 (anticipated consumption variety: more vs. less) $\times$ 15 (song clip exposure) repeated measures analysis of variance (ANOVA) on the three-item present consumption enjoyment measure. A test of the effect of song clip exposure on enjoyment indicated that participants found the song clip less enjoyable the more they listened to it ($F(14, 1176) = 122.43$, $p < .01$). The main effect of anticipated consumption variety also significantly influenced consumption enjoyment ($M_{\text{less variety}} = 46.25$ vs. $M_{\text{more variety}} = 57.82$; $F(1, 84) = 5.44$, $p < .05$). In support of our theorizing, this linear trend of decreased enjoyment with repeated consumption interacted with participants' experimental condition ($F(14, 1176) = 1.71$ $p < .05$; see figure 2.4.2). Consumers who anticipated more consumption variety in the subsequent listening task became satiated more slowly than consumers who anticipated less consumption variety, in support of hypothesis 1.

2.5 Discussion

This experiment establishes the relationship between anticipated future consumption variety and the satiation experienced during present consumption. Specifically, anticipating variety in the future prolongs the enjoyment (reduced satiation) of a related, present consumption experience. In experiment 2, we delve further into anticipated consumption variety to investigate the mechanism underlying this effect. If, as we predict in hypothesis 2, consumers' negative affective state mediates the relationship between anticipated consumption variety and consumer satiation, then participants who anticipate more or less future song variety should experience different amounts of negative affect immediately after their song listening task. Because we expect consumers to experience similar amounts of positive affective adaptation during their song listening task, we predict that their *negative affective state*, influenced by their experimental condition of more or less anticipated consumption variety, will fully account for their satiation response.

2.6 Experiment 2

Experiment 2 aims to replicate the effect of anticipated consumption variety on satiation rate demonstrated in experiment 1 (hypothesis 1), while identifying the underlying process driving the effect. Specifically, we assess the mediating effect of consumers' negative affective state (hypothesis 2); we argue that the affect evoked from anticipating (more or less) future variety will significantly influence participants' satiation rate during their song listening task. We also examine several alternative cognitive explanations. Specifically, research has shown that the constructs of variety seeking (McAlister and

Pessemier 1982; Raju 1980; Ratner et al. 1999), mental imagery (Larson et al. 2014), and attention to consumption (Redden and Haws 2013) influence satiation by focusing and reducing attention to the present object of consumption. In the case of anticipated future consumption variety, we suggest that thinking about future consumption experiences generates affective reactions through mental simulation of the future experience, not by drawing attention to the present consumption experience.

2.6.1 Method

One hundred thirty-five undergraduate business students completed the experiment in exchange for research credit. This experiment employed the same 2 (anticipated consumption variety: more vs. less) $\times$ 15 (song clip exposure) mixed-factor design and procedure as in experiment 1. After the final song rating (enjoyment measure 15), we introduced additional measures. We included the hypothesized mediator, participants' negative affective state, measured using the negative affect items from the PANAS scale (Watson, Clark, and Tellegen 1988). In addition, we measured positive affect, mental imagery, variety seeking, and attention to consumption. Finally, we gathered three new manipulation check items to allow for an assessment of reliability (see table 2.6.1 for all items).

2.6.2 Results

Manipulation Check. A three-item manipulation check, in which lower scores indicate less anticipated future consumption variety (see table 2.6.1), confirmed that participants'

expectations of anticipated song variety significantly differed depending on their experimental condition ($M_{\text{less variety}} = 4.24$ vs. $M_{\text{more variety}} = 4.97$; $t(133) = -3.59$, $p < .01$).

Present Consumption Enjoyment. A 2 (anticipated consumption variety: more vs. less) × 15 (song clip exposure) repeated measures ANOVA revealed a main effect of song clip exposure on enjoyment; participants found the song clip less enjoyable the more they listened to it ($F(14, 1862) = 119.93$, $p < .01$). The main effect of anticipated consumption variety was nonsignificant ($F(1, 133) = 3.14$, $p > .05$). In support of hypothesis 1, participants who anticipated more consumption variety in the subsequent listening task became satiated less quickly during their first listening task ($F(14, 1862) = 1.70$, $p < .05$; see figure 2.6.2).

Negative and Positive Affect. Controlling for participants' initial enjoyment of the song clip and individual differences in mental imagery, variety seeking, and attention to consumption, to isolate the effect of anticipated consumption variety on post-consumption affect, a multivariate analysis of covariance revealed a significant effect of low versus high anticipated consumption variety on participants' negative affective state measured immediately after they completed the song listening task ($F(5, 129) = 5.09$, $p < .05$). Furthermore, participants' positive affective state did not differ between experimental conditions ($F(5, 129) = .20$, $p > .50$). That is, participants who anticipated more future variety experienced significantly less negative affect than participants who anticipated less future consumption variety ($M_{\text{less variety}} = 3.10$ vs. $M_{\text{more variety}} = 2.56$), while both groups experienced similar amounts of positive affect ($M_{\text{less variety}} = 3.83$ vs. $M_{\text{more variety}} = 3.76$). The covariate of attention to consumption also had a significant,

positive effect on the amount of negative affect consumers experienced ($F(5, 129) = 5.57$, $p < .05$). No other covariate produced a significant effect on consumers' positive or negative affective states.

Mediation Analysis: PANAS. Following Larson et al. (2014), to test for mediation, we employed Preacher and Hayes's (2008) process macro (model 4) with bootstrapped samples (n = 5,000). Participants' enjoyment at time 15 served as the dependent variable, anticipated consumption variety (less or more) as the independent variable, and the enjoyment at time 1 (baseline enjoyment) as a covariate to control for the effect of participants' initial enjoyment of the song at time 1 on their final song enjoyment (time 15). Table 2.6.1 provides a complete list of all items used in the mediation analysis. First, we tested our predicted process mechanism, participants' negative affective state, as operationalized by the negative affect items from the PANAS scale (Watson et al. 1988), as the mediator; we also included positive affect as a potential mediator in the model. Second, owing to their prevalence in satiation (Galak et al. 2013; Galak et al. 2009; Larson et al. 2014; Redden 2008; Redden and Haws 2013), we also simultaneously tested the constructs of variety seeking (Raju 1980), mental imagery ($\alpha = .92$) (Larson et al. 2014), and attention to consumption (Redden and Haws 2013) as potential mediators, along with participants' negative and positive affect.

As predicted, negative affect fully mediated the relationship between anticipated consumption variety and enjoyment (time 15), as the 95% confidence interval of the indirect effect excluded zero (.59 to 7.22), while the 95% confidence interval of the direct effect included zero (−.01 to 18.08). More specifically, the direct effect of consumers'

negative affective state on enjoyment (time 15) indicates that participants who reported lower levels of negative affect directly after completing their "Ho Hey" listening task experienced higher levels of song enjoyment at time 15 ($\beta = -.27$, $t(127) = -3.57$, $p < .01$). These results confirm hypothesis 2.

Participants who experienced high levels of positive affect also reported high levels of enjoyment at time 15 ($\beta = .35$, $t(127) = 4.67$, $p < .01$); however, the experimental condition did not account for the amount of reported positive affect, as the confidence interval of the indirect effect included zero (–4.25 to 3.37). Similarly, the constructs of variety seeking, mental imagery, and attention to consumption failed to provide full or partial mediation of the relationship between the enjoyment of the song clip at time 15 and anticipated consumption variety, as the 95% confidence interval of the indirect effects included zero in all cases (–2.19 to .40, –.61 to 1.76, and –.68 to 1.83, respectively).

Mediation Analysis: Upset, Distressed, and Irritable. Although the mediation analysis identified negative affect as the mechanism responsible for the effect of anticipated consumption variety on consumer satiation rates, the negative emotions assessed in the PANAS scale are quite varied and perhaps not all applicable in the context of consumer satiation. For example, in the context of consuming an everyday item, anticipated consumption variety may have a minimal impact on how afraid, ashamed, or scared consumers feel but may influence how upset, distressed, and irritable they are (Fishbach et al. 2011; McAlister and Pessemier 1982; Poor et al. 2012). As such, we reran the

mediation analysis with a specific focus on the emotions of upset, distressed, and irritable.

As predicted, a scale comprising the emotions of upset, distressed, and irritable fully mediated the relationship between anticipated consumption variety and enjoyment (time 15), as the 95% confidence interval of the indirect effect excluded zero (.10 to 7.66), while the 95% confidence interval of the direct effect included zero (−1.10 to 17.60). More specifically, the direct effect of consumers' negative affect subscale on enjoyment (time 15) indicates that participants who were less upset, distressed, and irritable directly after completing their "Ho Hey" listening task experienced higher levels of song enjoyment at time 15 ($\beta = -.27$, $t(127) = -3.57$, $p < .01$).). Again, the scales of variety seeking, mental imagery, and attention to consumption failed to provide full or partial mediation of the relationship between the enjoyment of the song clip at time 15 and anticipated consumption variety, as the 95% confidence interval of the indirect effects included zero in all cases (−2.40 to .43, −.61 to 2.04, and −.73 to 1.77, respectively).

2.6.3 Discussion

This experiment replicates the effect of anticipated consumption variety on the present enjoyment of a related consumption experience, as demonstrated in experiment 1. Furthermore, it identifies consumers' negative affective state, specifically the emotions of upset, distressed, and irritable, as the mediator responsible for the differing satiation rates between the more versus less anticipated variety conditions, in support of hypothesis 2. In addition, this study rules out positive affect as well as several other potential cognitive mechanisms common to the consumer satiation or consumer motivation literature.

Specifically, participants who anticipated more variety in a subsequent consumption experience became satiated less quickly during their song listening task. More anticipated consumption variety seems to generate desirable affective benefits (less negative affect), which results in the reduced satiation response. Given that affect is a component of people's psychological reward system, as participants' affective state shifted, even though the product itself remained objectively unchanged, they seemed to use their current affective state to inform their liking and enjoyment of the product, thereby accelerating or decelerating their satiation in the present moment. In experiment 3, to investigate further the affective nature of the relationship between anticipated consumption variety and consumer satiation, we identify an important boundary condition for the effect. That is, the effect of anticipated consumption variety on consumer satiation is attenuated for products (virtues) whose consumption enjoyment is less dependent on generating affective responses with use, but remains for products (vices) whose affect is central to product enjoyment (Ramanathan and Williams 2007).

2.7   The Role of Affect in the Enjoyment of Vice and Virtue Products

In the section that follows, we provide a brief overview of the vice and virtue product literature as it relates to providing theoretical support for our proposed affective process mechanism. Indulgent products often produce greater emotional responses with use than utilitarian products (Ramanathan and Williams 2007; Wang et al. 2009). For example, the consumption of a craft beer or fine wine often generates greater affective benefits with use than soymilk or wheatgrass juice. Indeed, the value and enjoyment of indulgent or vice products often highly depend on the short-term affect they generate with use

(Ramanathan and Williams 2007). Wertenbroch (1998) distinguishes between consumers' preferences for virtue and vice products, depending on the extent to which they evaluate immediate or delayed consequences of consuming the products. Vices tend to be more immediately gratifying and indulgent, whereas virtues tend to be less immediately gratifying and indulgent (Liu et al. 2015).

The pleasurable nature of vice products creates positive emotional imagery and impulsivity among consumers by activating lower-order (system 1) and more automatic consumption motivations (Evans 2008; Loewenstein 1996; Shiv and Fedorikhin 1999; Thomas, Desai, and Seenivasan 2011; Wertenbroch 1998). Therefore, vice products derive more of their utility or enjoyment from generating affect with use (Ramanathan and Williams 2007). Consumers may perceive an accumulation of negative affect (Poor et al. 2012) during repeated consumption of a vice (vs. virtue) product as more closely linked to the product itself, because affect is more relevant to the enjoyment of a vice product (Pham 1998). Given that affective information is a key input to many consumer behaviors, as discussed previously, consumers who experience low levels of negative affect during the consumption of a vice product may become satiated less quickly from the affective information process (Pham 1998; Schwarz and Clore 1983).

Recall that, from the effects established by our experiments thus far, we expect consumers who experience less negative affect by anticipating more future consumption variety to extend their overall enjoyment in the present. This effect should be attenuated when the experienced affect relates less to the products consumed (i.e., in the case of virtue products). In other words, we do not expect to find an effect of anticipated

consumption variety in the context of virtue goods because their value and enjoyment are more a function of controlled cognitive processes (Evans 2008; Wertenbroch 1998).

Thus, by reducing the negative affect consumers experience during recurrent consumption, anticipating more future consumption variety may prolong their enjoyment and reduce their satiation rate for vice products, but not virtue products. As such, we predict the following:

H3: The effect of anticipated consumption variety on consumer satiation is magnified (attenuated) for vice (virtue) products.

2.8 Experiment 3

Experiment 3 assesses the moderating role of vice versus virtue products on the effect of anticipated consumption variety on consumers' satiation response to a related present consumption experience (hypothesis 3). Specifically, we predict that consumers who anticipate more future consumption variety will become satiated less quickly than participants who anticipate less future consumption variety when consuming a vice product in the present. However, we do not expect to find an effect of anticipated consumption variety on satiation rates when participants consume a perceived virtue product in the present because of the more utilitarian and less emotionally laden nature of the product.

2.8.1   Method

Pretest. To select the song for experiment 3, we chose four pairs of popular songs as likely to be identified as vice or virtue songs by study participants. Furthermore, we selected each vice/virtue song pair from the same band or artist to minimize possible effects of band or artist arising between the vice or virtue conditions. Each song was edited to a 20-second portion of their chorus to create the song clips for the experiment. We pretested the four pairs of vice/virtue songs with 35 Amazon Mechanical Turk (MTurk) participants from the United States, who were compensated $1 for their time. Participants listened to and rated each of the eight songs (presented in random order) on favorability and perceptions of vice or virtuousness (e.g., very indulgent/not at all indulgent; see table 2.8.1 for all items). As a result, we selected the vice song "Welcome to the Jungle" and the virtue song "Sweet Child of Mine" by Guns N' Roses on the basis of participants' similar (and highest average) perceptions of overall favorability ($M_{\text{Welcome to the Jungle}} = 5.38$ vs. $M_{\text{Sweet Child of Mine}} = 5.61$; $t(34) = -1.63$, $p > .1$) and different perceptions of vice/virtue using a three-item measure (see table 1) ($M_{\text{Welcome to the Jungle}} = 2.84$ vs. $M_{\text{Sweet Child of Mine}} = 4.02$; $t(34) = -7.79$, $p < .01$; see table 2, panel B, for the results of all songs).

Procedure. To extend the generalizability of the previous results, we used an adult sample for this experiment, with different songs than in our previous experiments. One hundred fifty-three MTurk participants from the United States ($M_{\text{age}} = 38$, 47% male) completed the experiment in exchange for $1. This experiment employed a 2 (anticipated consumption variety: more vs. less) × 2 (present song: vice vs. virtue) × 15 (song clip

exposure) mixed-factor design. Anticipated consumption variety and the presented song each served as between-subjects factors, and song clip exposure served as the within-subject factor. Otherwise, this experiment follows the procedure from experiment 1.

2.8.2   Results

Manipulation Check. We removed five participants from the analysis because of noncompletion of the study. As intended, the three-item manipulation check confirmed that participants' expectations of anticipated song variety significantly differed depending on their experimental condition ($M_{\text{less variety}} = 3.15$ vs. $M_{\text{more variety}} = 5.49$; $t(151) = -14.16$, $p < .01$).

Present Consumption Enjoyment. To test our proposed three-way interaction, we conducted a 2 (anticipated consumption variety: more vs. less) $\times$ 2 (present song: vice vs. virtue) $\times$ 15 (song clip exposure) repeated measures analysis. Importantly, the model revealed a main effect of song clip exposure; participants found the song clip less enjoyable the more they listened to it ($F(14, 2086) = 40.79$, $p < .01$). The between-subjects main effect of anticipated consumption variety ($F(1, 149) = .07$, $p > .50$) did not significantly influence song clip enjoyment. The between-subjects main effect of the presented song (vice or virtue) ($F(1, 149) = 3.81$, $p < .10$) marginally influenced song clip enjoyment, as did the interaction between anticipated consumption variety and presented song ($F(1, 14) = 3.80$, $p < .10$). However, the linear trend of decreased enjoyment over time significantly interacted with participants' experimental condition of anticipated consumption variety ($F(14, 2086) = 3.53$, $p < .01$); that is, participants who anticipated more consumption variety in the subsequent listening task became satiated less quickly.

More important, ANOVA revealed the predicted significant three-way interaction among anticipated consumption variety, song clip exposure, and the presented song ($F(14, 2086)$ = 2.61, $p < .01$; see figure 2.8.2). We investigated the nature of the three-way interaction with a series of planned contrasts. We first calculated the satiation rates (slopes) for all participants across their song-rating task and then compared their satiation rates across the relevant experimental conditions. The contrasts indicated that participants in the vice song condition experienced significantly slower satiation rates ($t(78) = 2.82$, $p < .01$) when anticipating more ($M_{slope} = -.68$) rather than less ($M_{slope} = -2.15$) future variety. Participants in the virtue song condition did not experience significantly different satiation rates ($t(71) = .18$, $p > .80$) when anticipating more ($M_{slope} = -1.15$) versus less ($M_{slope} = -1.24$) future variety. The pattern of results shows that participants listening to the virtue song ("Sweet Child of Mine") demonstrated similar satiation responses regardless of whether they were anticipating less or more variety in their future listening task. However, participants listening to the vice song ("Welcome to the Jungle") became satiated less quickly in the more anticipated variety condition. These results provide support for hypothesis 3.

2.8.3   Discussion

This experiment demonstrates the moderating role of vice versus virtue products on the effect of anticipated consumption variety on consumers' satiation responses to a related present consumption experience. Specifically, we demonstrate that consumers who listened to the vice song ("Welcome to the Jungle") became satiated less rapidly when anticipating more rather than less future consumption variety. Consumers who listened to

the virtue song ("Sweet Child of Mine") did not experience different satiation rates as a function of anticipated future consumption variety. Given these findings, in a posttest we examined the extent to which the "Ho Hey" song clip (experiments 1 and 2) was a vice (vs. virtue) song and found that the song was perceived as a vice song among participants in our study pool and was significantly below the scale midpoint ($M = 3.39$; $t(30) = -3.60$, $p < .05$).

Taken together, the results from all three experiments show that anticipating more future consumption variety slows the satiation with products that highly depend on the affect they generate to be enjoyable, such as vices (Wang et al. 2009). When consumers anticipate more future consumption variety while presently consuming a vice product, the amount of negative affect they experience during recurrent consumption is reduced. As such, for vice products, this reduced negative affect seems to somewhat mask the natural decline of positive affect consumers experience from the product during recurrent consumption (Wang et al. 2009). However, the satiation of virtue projects, which are less dependent on affect to be enjoyable, seems to be less affected by the act of anticipating more or less future consumption variety.

In experiment 4, we continue our study of the impact of anticipated consumption variety on satiation by assessing the moderating role of consumer emotional intelligence. Specifically, if affect is central to the impact of anticipated consumption variety, we expect consumers with higher levels of emotional intelligence to skillfully prolong their enjoyment in the present by reducing negative feelings typically associated with repeated exposures when anticipating more future consumption variety. However, we expect

consumers with lower levels of emotional intelligence to be less capable of extending

their present enjoyment when anticipating more future variety, because it is more difficult

for them to use emotional information to achieve desirable outcomes. Thus, if emotional

intelligence moderates the relationship between anticipated consumption and satiation,

additional theoretical support will be provided for the role of affect as the process

mechanism underlying these effects. In the section that follows, we provide a brief

overview of the consumer emotional intelligence literature as it relates to providing

theoretical support for our proposed affective process mechanism.

2.9   Consumer Emotional Intelligence

Consumers vary in their ability to recognize and skillfully use emotional information

during consumption experiences. Consumers with higher emotional intelligence are better

able to understand and manage their emotions to achieve desired outcomes than

consumers with lower levels of emotional intelligence. Examples include resisting the

urge to overindulge in tasty but unhealthful foods (Kidwell, Hardesty, and Childers

2008a) and reducing susceptibility to menu displays (Kidwell et al. 2008b). Thus, the use

of emotional intelligence may serve as a default interventionist process (Evans 2008), in

which consumers are able to recognize and adjust their automatic emotional reactions to a

stimulus to achieve a higher-order goal (Kidwell et al. 2008a).

Consumers with higher levels of emotional intelligence should be more capable of using

emotional information to achieve a desirable consumer goal, such as prolonging their

enjoyment of products and experiences. Consumers who are better able to differentiate

between positive and negative emotions should become satiated less quickly during

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consumption (Poor et al. 2012). The ability to perceive and parse negative and positive emotions during consumption enables people to cognitively reappraise their experience, reducing the effects of their negative emotions, to extend their present consumption enjoyment (Poor et al. 2012). Thus, we propose that if anticipated consumption variety causes consumers to mentally simulate and experience the affective responses associated with a future consumption experience (Larson et al. 2014; Morewedge et al. 2010) to influence their satiation response in the present, consumers with higher emotional intelligence should be able to perceive and use the reduced negative affect from anticipating more future consumption variety to extend their enjoyment in a present consumption experience. That is, from an affective information perspective (Pham 1998), consumers with higher (lower) levels of emotional intelligence should be more (less) skilled in employing affective information to manage their present consumption enjoyment (Carver and Scheier 1990; Fredrickson 2001). Thus, we predict the following:

H4: The effect of anticipated consumption variety on consumer satiation is magnified (attenuated) for consumers with higher (lower) levels of emotional intelligence.

2.10   Experiment 4

Experiment 4 investigates the moderating role of consumer emotional intelligence on the effect of anticipated consumption variety on consumers' satiation response to a related present consumption experience (hypothesis 4). Specifically, we predict that consumers with higher levels of emotional intelligence will become satiated less quickly than those

with lower levels of emotional intelligence when anticipating more future consumption variety.

2.10.1 Method

Pretest. To select the song for experiment 4, we pretested the 15 most popular songs from Spotify with 51 business undergraduate students from the same population of students as in experiment 4, for favorability in the same manner as in experiment 1. As a result, we selected the song "Radioactive" by Imagine Dragons on the basis of participants' overall favorability ($M = 5.33$). Participants' song favorability was greater than the scale midpoint ($M_{\text{Radioactive Favorability}} = 5.33$ vs 4.00; $t(50) = 7.40$, $p < .01$; see table 2 for a complete list of tested songs and their related summary statistics). The song was then edited to a 20-second portion of the song's chorus to create the song clip for this experiment. We conducted a separate pretest to ensure that participants perceived the study song clip as a vice rather than a virtue. The results indicate that the radioactive song was perceived as a vice and was significantly below the scale midpoint ($M = 3.10$; $t(30) = -4.24$, $p < .01$).

Procedure. Two hundred fourteen undergraduate business students completed the experiment in exchange for research credit. This experiment employed a 2 (anticipated consumption variety: more vs. less) × (measured: consumer emotional intelligence) × 15 (song clip exposure) mixed-factor design. Anticipated consumption variety served as the between-subjects factor, and song clip exposure served as the within-subject factor. To reduce hypothesis guessing, we measured consumer emotional intelligence (Kidwell et al. 2008a) in a separate survey during the same lab session. Other than the measurement of

consumer emotional intelligence, this experiment follows the procedure from experiment 1.

2.10.2 Results

Manipulation Check. We removed 24 participants from the analysis because of noncompletion of the study or because participants entered inconsistent respondent IDs across data sets. As intended, the three-item manipulation check confirmed that participants' expectations of anticipated song variety significantly differed depending on their experimental condition ($M_{\text{less variety}} = 3.85$ vs. $M_{\text{more variety}} = 4.59$; $t(212) = -4.38$, $p < .01$).

Present Consumption Enjoyment. To test our proposed three-way interaction, we conducted a 2 (anticipated consumption variety: more vs. less) $\times$ (consumer emotional intelligence) $\times$ 15 (song clip exposure) repeated measures analysis. The model revealed a main effect of song clip exposure; participants found the song clip less enjoyable the more they listened to it ($F(14, 2940) = 227.27$, $p < .01$). The hypothesized three-way interaction among anticipated consumption variety, song clip exposure, and consumer emotional intelligence (split-half = .71) was significant ($F(14, 2940) = 4.33$, $p < .01$; see figure 2.10.2 for details). All other effects were nonsignificant ($ps > .30$).

We explored the nature of the significant three-way interaction by calculating the satiation rates (slopes) for all participants. We then conducted a regression analysis on these slopes, with participants' anticipated consumption variety condition, emotional intelligence, and their interaction as independent variables, to probe for the directionality

of the moderating effect of consumer emotional intelligence. The results were similar to those of the repeated measures model. Anticipated future consumption variety (less anticipated variety coded as 0, more as 1) ($\beta = .02$; $t(210) = .29$, $p > .70$) did not exert a significant main effect, while emotional intelligence ($\beta = .30$; $t(210) = 2.77$, $p < .01$) did. However, the main effects are qualified by a significant interaction between anticipated consumption variety and emotional intelligence ($\beta = -.29$; $t(210) = -2.72$, $p < .01$), suggesting that consumers with higher emotional intelligence levels became satiated less quickly while anticipating more future consumption variety. To decompose this interaction, we used floodlight analysis (Spiller et al. 2013) to identify the range of emotional intelligence for which the simple effect of more or less anticipated consumption variety was significant. This analysis revealed a significant, positive effect of anticipated consumption variety on satiation rates of participants with an emotional intelligence less than $-.75$ (z-standardized) ($B_{JN} = .72$, SE $= .36$, $p = .05$) and a significant, negative effect on satiation rates of participants with an emotional intelligence greater than 1.31 (z-standardized) ($B_{JN} = -1.03$, SE $= .52$, $p = .05$). That is, participants who anticipated more future variety experienced lower rates (slopes) of satiation during their song listening task. However, this effect was only present among consumers with relatively high levels of emotional intelligence. Consumers with lower levels of emotional intelligence seemed to experience increased satiation rates (slopes) when anticipating more rather than less future consumption variety.

2.10.3 Discussion

This experiment demonstrates the moderating role of consumer emotional intelligence on the effect of anticipated consumption variety on participants' satiation response to their present consumption experience. Specifically, we demonstrate that participants with higher levels of consumer emotional intelligence become satiated less quickly than participants with lower levels of consumer emotional intelligence when anticipating more future consumption variety, in support of hypothesis 4. As such, consumers with higher levels of emotional intelligence seemed to have reduced the amount of negative affect they experienced by anticipating more consumption variety, thereby extending their enjoyment during trial 15 of their song listening task. These findings suggest that consumers with higher levels of emotional intelligence are better positioned to skillfully use the affective information from anticipating more consumption variety to achieve the desirable consumer response of extended enjoyment, providing additional theoretical support for our model.

2.11 General Discussion

Across four experiments, we contribute to theory by demonstrating that more anticipated future consumption variety can slow consumer satiation rates of present experiences (hypothesis 1). In addition, we identify the underlying mediating role of negative affect as influencing consumers' satiation response (hypothesis 2) and investigate how the effect of anticipated consumption variety on consumer satiation rates depends not only on certain product types (vice vs. virtue) (hypothesis 3) but also on consumer emotional intelligence (hypothesis 4).

2.11.1 Theoretical Contributions

Specifically, we demonstrated that the act of anticipating more future consumption variety slows the satiation with products by reducing the amount of negative affect consumers experience during repetitive consumption. This effect holds for products that are relatively more dependent on affect to be enjoyable, such as vices, but not for products that are less dependent on affect to be enjoyable, such as virtues. We suggest that the ability to slow satiation with anticipated consumption variety should also hold with other product categories (hedonic products) for which affect is considered a relevant factor (Pham 1998) of a products' utility or enjoyment. Furthermore, we demonstrated that consumers with higher levels of emotional intelligence are more capable of extending their present consumption enjoyment when anticipating more future consumption variety, due to their ability to skillfully use emotional information to achieve desirable consumer outcomes, providing additional evidence of our proposed affective process mechanism.

2.11.2 Substantive Contributions

Substantively, this research provides consumers (and marketers) with a means to influence present satiation by merely anticipating (or encouraging consumers to anticipate) more or less future variety. The ability to reduce satiation rates may enable consumers to enjoy their favorite possessions, current circumstances, or beneficial products for longer. It may even provide a tool to help them reduce their desire to overconsume (Galak et al. 2013). For example, on packaging, marketers could highlight the many different entrées that can be prepared with a staple food product, such as pasta

or rice. Similarly, when listing to music, consumers could take note of the variety of genres and artists coming up next on their playlist to enhance their current song enjoyment. As such, anticipated consumption variety, a common consumer experience, may offer consumers and marketers a flexible means to influence satiation rates.

This research investigated the influence of more or less anticipated variety within the same domain of consumption (music and music), but we suggest that similar effects may hold between different domains of consumption. For example consumers may become satiated less rapidly with country music if they anticipate watching a sci-fi movie later in the day, whereas they may become satiated more rapidly if they anticipate watching a western. Furthermore, we suggest that anticipated consumption variety should influence consumer satiation rates in a variety of consumer domains, such as food and nondurable goods, providing opportunities for further research to explore the downstream consequences of satiation, such as consumption amounts, repeat purchase behavior, and overconsumption.

2.11.3   Further Research

Further research might also explore and identify additional moderating factors that may enable anticipated consumption variety to reduce consumers' satiation responses to products that are less dependent on affect to be enjoyable, such as utilitarian products. For example, perhaps in the presence of a specific health goal prime, consumers would become satiated less rapidly with an exercise machine when anticipating more future consumption variety, owing to a sense of increased goal progress. Switching machines or exercises may feel like more progress was made during their workout toward their goal

than doing similar exercises for the entire course of a workout. In the context of satiation at large, research might delve further into the role of affect in consumer satiation, given the nuanced effect of distinct but similar emotions on a range of consumer behaviors (Winterich and Haws 2011). For example, the results presented in this research suggest a relationship between attention to consumption amounts, a common satiation mechanism, and negative affect. As such, negative affect, and perhaps other specific emotions such as upset, irritable, and distressed, may represent a fruitful new area in satiation research. Relatedly, researchers could explore emotional intelligence training (Kidwell, Hasford, and Hardesty 2015) as a means to grant consumers increased control over their satiation responses. Furthermore, whereas this work explores the consequences of anticipated variety on enjoyment overtime with a satiation framework, additional research could investigate the effect of anticipated variety during product evaluation and choice. For example, would more anticipated future variety in a vending machine assortment (e.g., rotating product selection) influence consumer preferences for virtue versus vice products (Wilcox et al. 2009)?

Satiation is often considered a barrier to happiness for consumers (Brickman and Campbell 1971; Redden 2008) and a threat to firms because of brand switching and product fatigue (Chernev, Hamilton, and Gal 2011; Menon and Kahn 1995). Indeed, satiation seemingly limits consumer enjoyment in a variety of experiences, from food (Galak et al. 2013; Redden and Haws 2013) to friendships (Galak et al. 2009). While the complexities of consumer satiation provide many additional avenues for research, the results presented herein identify anticipated consumption variety as a new means for consumers or marketers to manage the effects of recurrent or repetitive consumption. To

prolong enjoyment in the present, consumers should anticipate future consumption variety.

2.12   Tables and Figures

Table 2.4.1: Song Pretest Results, Experiments 1, 2, and 4

Song: Experiments 1 & 2	M	(SD)	Song: Experiment 4	M	(SD)
Ho Hey	5.32	(1.25)	Radioactive	5.33	(1.27)
Cruise	5.19	(1.58)	Wake Me Up	5.20	(1.58)
Thrift Shop	5.18	(1.51)	Counting Stars	4.92	(1.53)
I Will Wait	5.07	(1.66)	Timber	4.80	(1.75)
Don't you Worry Child	4.90	(1.43)	Drunk in Love	4.78	(1.42)
Scream and Shout	4.83	(1.25)	Let Her Go	4.78	(1.40)
It's Time	4.80	(1.44)	The Monster	4.71	(1.81)
Sure Be Cool If you Did	4.80	(1.26)	Royals	4.67	(1.54)
Pontoon	4.74	(1.14)	Dark Horse	4.65	(1.46)
Little Talks	4.65	(1.31)	Say Something	4.59	(1.47)
Better Dig Two	4.63	(1.09)	Burn	4.43	(1.44)
Radioactive	4.50	(1.12)	Team	4.39	(1.13)
Locked out of Heaven	4.46	(1.63)	Talk Dirty	4.31	(1.50)
Diamonds	4.42	(1.35)	Let It Go	4.29	(1.37)
Two Black Cadillacs	4.28	(1.24)	Pompei	4.27	(1.35)

Table 2.6.1: Measurement of Items by Experiment

Construct	Measurement Items	E1	E2	E3	E4
Pretest Song Favorability (7-point scale, created)	• I really like this song. • This song is very enjoyable to listen to. • It has a "catchy" beat. Cronbach α	0.89	--	0.92	0.73
Consumption Enjoyment (101-point scale, repeated measure, first item from Redden 2008, other two items created)	• How much are you enjoying the song clip? (hate it/love it) • How do you feel about this song clip? (it's very unpleasant/it's very pleasant) • How fun is it to listen to this song clip? (not fun at all/very fun) Cronbach α	0.90	0.94	0.93	0.95
Manipulation Check (7-point scale, created)	• I think there will be a lot of musical variety between the song clip I just listened to and the song I will listen to next. • I will get to listen to several different styles of music in this survey. • The next song I will listen to will be different from the song clip I just listened to. Cronbach α	--	0.77	0.82	0.76
PANAS (9-point scale, Watson et al. 1988)	How do you feel right in this present moment? • Positive: Enthusiastic, interested, Determined, Excited, Inspired, Alert, Active, Strong, Proud, Attentive • Negative: Scared, Afraid, Jittery, Nervous, Ashamed, Guilty, Hostile, *Upset, Distressed, Irritable* Cronbach α	-- --	0.93 0.86	-- --	-- --
Variety-Seeking Tendency	• I enjoy listening to different genres of music for the sake of comparison. • If I have a choice when I listen to music, I'd rather try something new than listen to the songs I already know.	--	0.76	--	--

Table 2.6.1, continued: Measurement of Items by Experiment

(7-point scale, Raju 1980)	• I tend to listen to a lot of different types of music, just for the sake of a change of pace.				
	Cronbach α				
Attention to Consumption (7-point scale, Redden 2008; Redden and Haws 2013)	• I paid careful attention to how long I had been listening to the music clip. • I paid careful attention to how many times I had listened to the music clip. • After a while, I "zoned out" while listening to the music clip. (reverse)				
	Cronbach α	--	0.63	--	--
Perceived Vice/Virtue (7-point scale, Lowe and Haws 2014; Read, Loewenstein, and Kalyanaraman 1999)	• Very indulgent/not at all indulgent • May cause bad delayed consequences/may cause good delayed consequences • Unhealthy/healthy • Very much a guilty pleasure/not at all a guilty pleasure • Low brow/high brow				
	Cronbach α	--	--	0.85	--

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Table 2.8.1: Song Pretest Results, Experiment 3

Artist	Song Pairs	Favorability		Virtuousness	
		M	(SD)	M	(SD)
Guns N' Roses	Sweet Child of Mine	5.61[a]	(1.39)	4.02[c]	(0.91)
	Welcome to the Jungle	5.38[a]	(1.61)	2.84[d]	(0.87)
Black Eyed Peas	Union	4.20[a]	(1.37)	4.82[c]	(1.11)
	Rock Your Body	4.45[a]	(1.67)	2.83[d]	(0.92)
Black Eyed Peas	Where is the Love	4.22[a]	(1.58)	5.03[c]	(1.02)
	I Got a Feeling	3.90[a]	(2.04)	2.71[d]	(0.87)
Christina Aguilera	Make the World Move	3.79[a]	(1.82)	4.71[c]	(1.13)
	Love Your Body	3.85[a]	(1.81)	2.68[d]	(0.88)

* *Different* subscripts denote significantly different values by pair.

Figure: 2.2: Conceptual Model of Anticipated Consumption Variety's Influence on Consumer Satiation
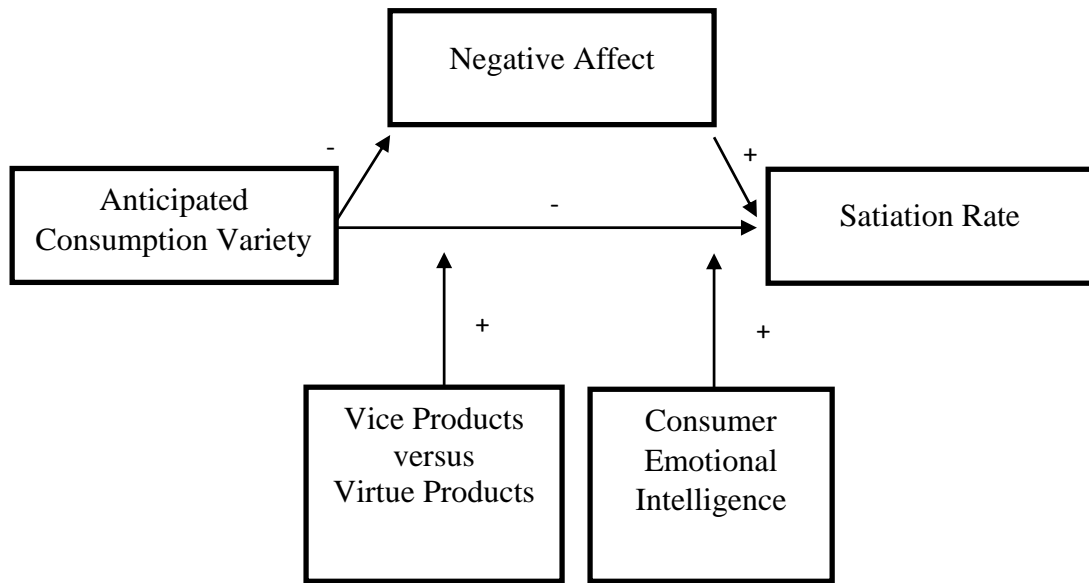
Figure 2.4.2: Change in Song Enjoyment with Repeated Exposure - Experiment 1
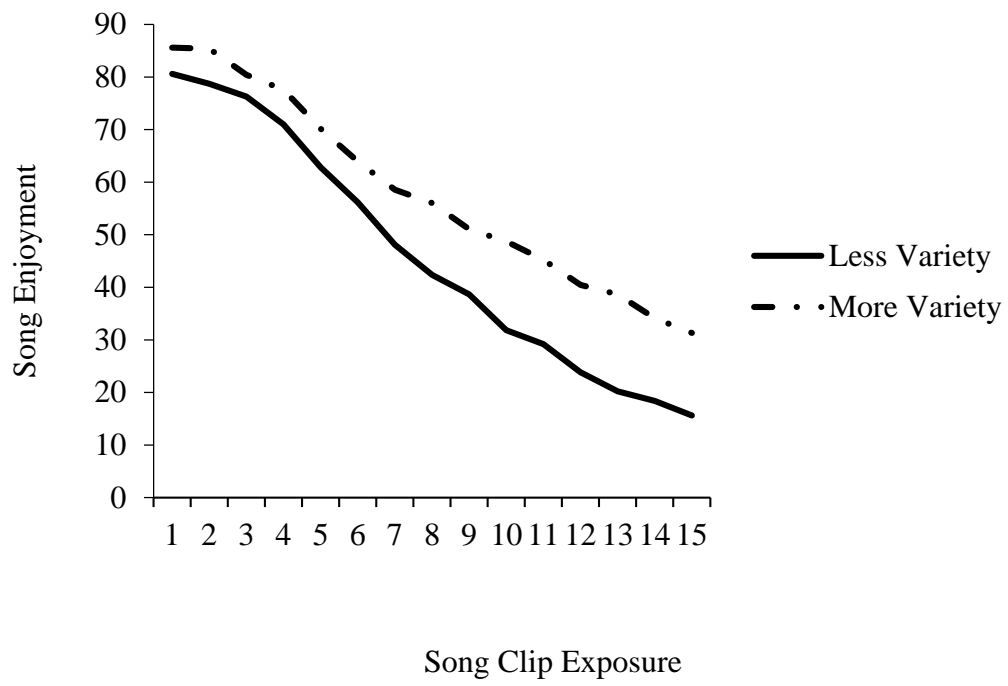
Figure 2.6.2: Change in Song Enjoyment with Repeated Exposure - Experiment 2
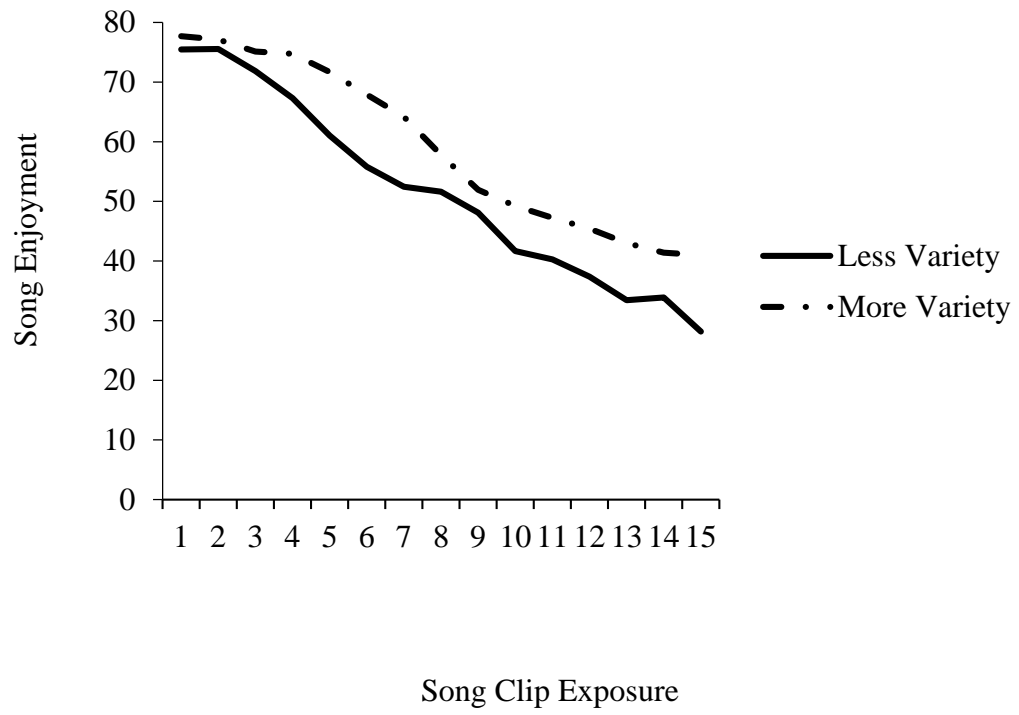
Figure 2.8.2: Vice Versus Virtue products and Change in song enjoyment with
repeated exposure: Experiment 3

Virtue Song (Sweet Child of Mine)

Vice Song (Welcome to the Jungle)
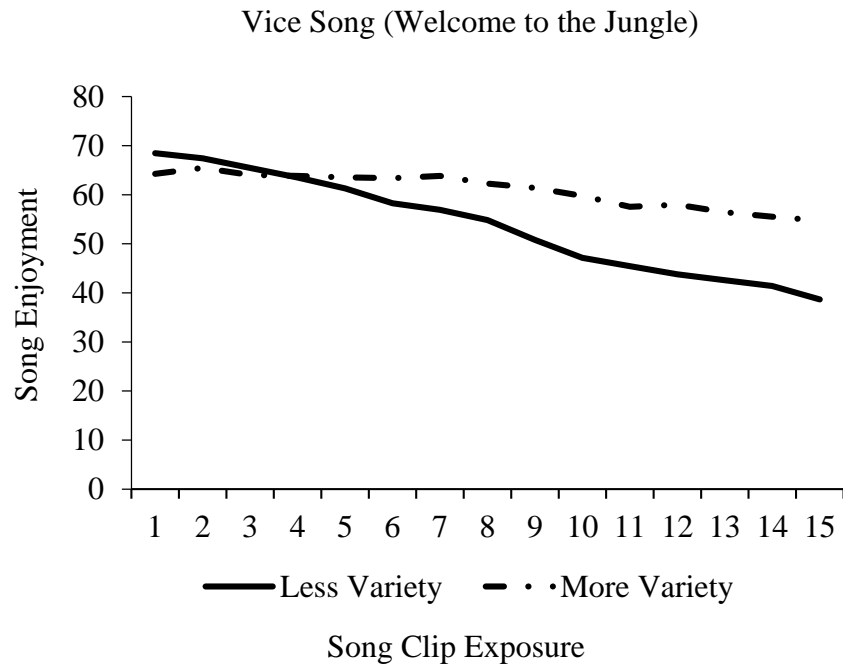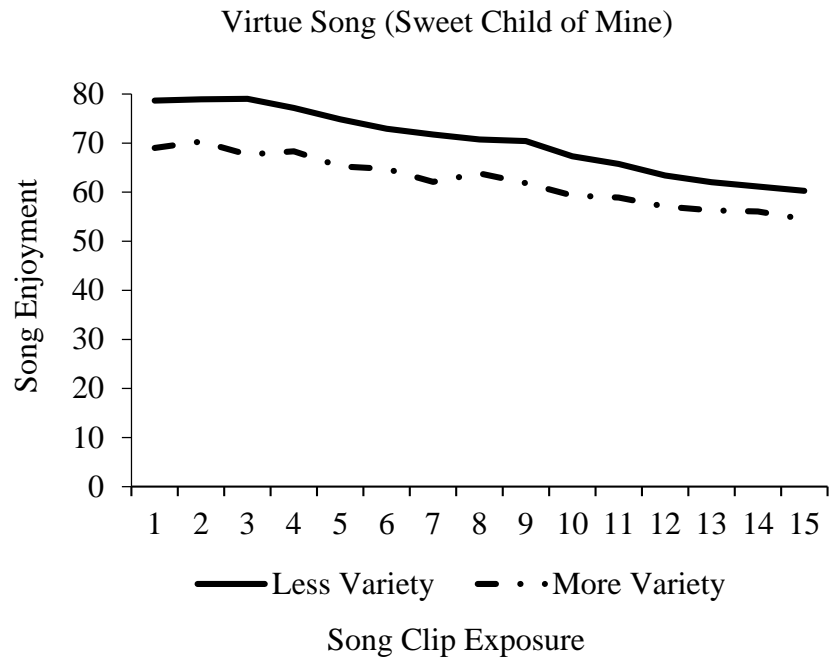
Figure 2.10.2: Consumer Emotional Intelligence and Change in song enjoyment
with repeated exposure: Experiment 4

+1 SD Consumer Emotional Intelligence

Song Clip Exposure

−1 SD Consumer Emotional Intelligence

Song Clip Exposure
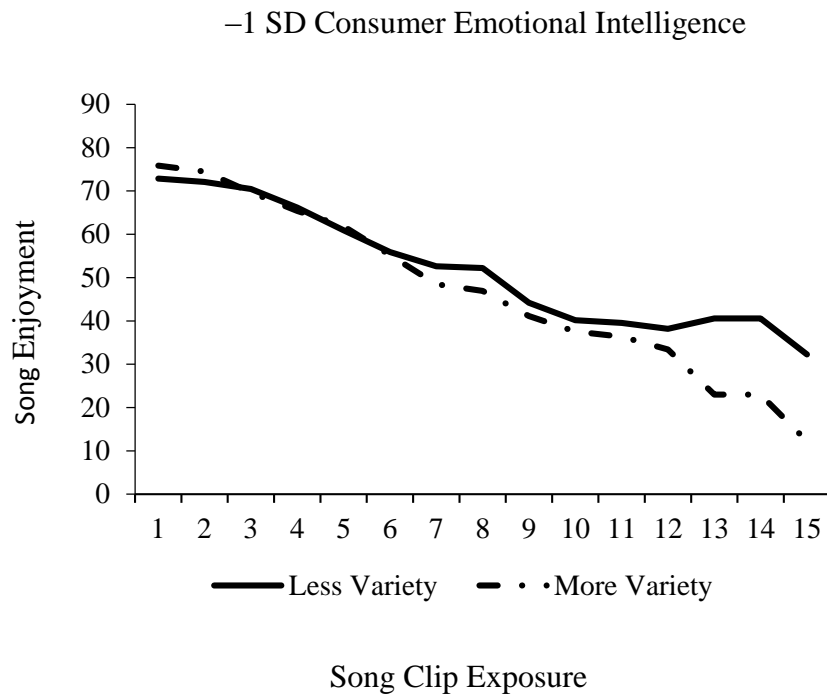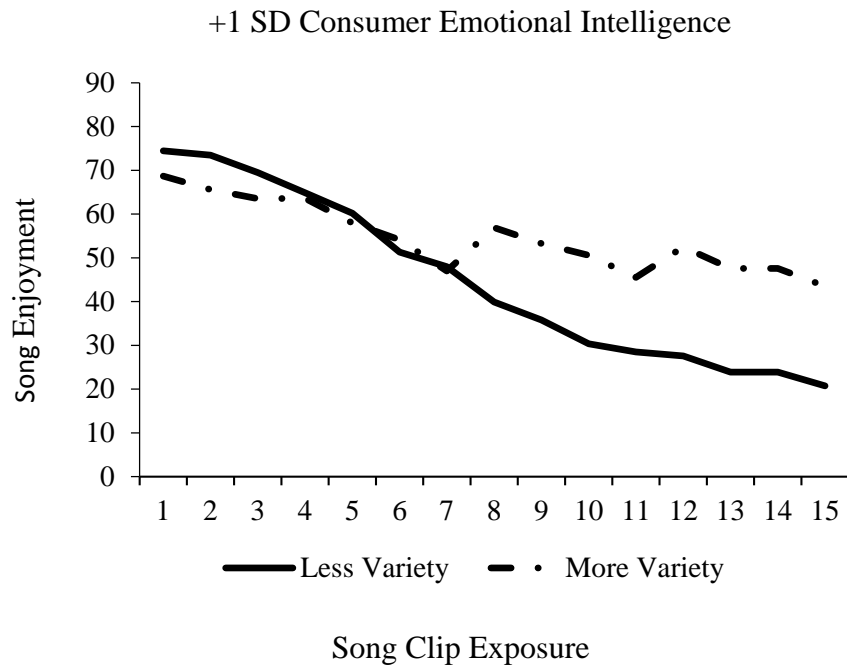
3   Synonyms, Not So Similar: How the Structure of Semantic Associations Influences

Advertising Effectiveness

3.1   Introduction

Marketers often build advertising campaigns around a few focal words. For example,

Coke's advertising frequently features the word happiness while Subway's promotional

material generally includes the word fresh. Organizations spend considerable resources to

identify the words or concepts they wish consumers to associate with their brands, with

each word carefully selected to communicate key elements of each brands' value

proposition. Indeed, such memory activations, generated by focal words in advertising,

can provide a temporary boost to the perceived importance or desirability of the

advertised product (van Osselaer and Janiszewski 2012), making them critical to the

advertisement's success. For example, memory activations have been shown to influence

consumers' goal pursuit (Bargh et al. 2001), valuation of goal facilitating means (Avnet

and Higgins 2006), and product choice (Sela and Shiv 2009).

However, memories are not activated in isolation. Rather, an entire network of

interrelated concepts is activated along with the focal memory through various learned

associations and semantic spreading (Anderson 1983; Balota and Lorch 1986). For

example, the word friend is semantically linked with the concepts of companion, close,

and love (Nelson, McEvoy, and Schreiber 2004), which are in turn linked to other

concepts, and so forth. As such, when the concept of friend is activated in memory, many

other related concepts are also activated through semantic spreading (Anderson 1983).

Research in memory, however, has primarily focused on which memories are connected to each other rather than *how* concepts are connected to their local semantic networks. Indeed, recent advances in neuroscience support the notion that the pattern and structure of cognitive networks provides a physiological basis for how consumers process and respond to information (Bullmore and Olaf 2009). Yet, minimal research exists which explores how the pattern or structure of memory activations influences how consumers process and evaluate information, calling into question if marketers are missing important information regarding which words to prominently feature in advertising.

In this research, we advance theory by demonstrating how the structure of memory associations influences consumer information processing. We suggest that the betweenness centrality of a focal word in advertising, a relative measure of the word's location and connectedness within its local semantic network, influences how consumers respond to advertising. By definition, words with high betweenness centralities occupy key mediating positions within their local semantic networks, connecting otherwise disparate concepts in memory. We suggest that such words provide logic and congruence (McGlone and Tofighbakhsh 2000) to consumers' semantic associations, therefore evoking a sense of conceptual fluency. Thus, advertisements featuring words with higher betweenness centralities are expected to be more persuasive, as conceptual processing fluency is generally characterized by positive gut reactions (Landwehr, Labroo, and Herrmann 2011).

Given that the vetting and selection of focal words to feature in advertising is critically important to marketers (van Osselaer and Janiszewski 2012), this research also offers

several substantive contributions. First, we provide marketers with a new method to compare and select focal words for advertising. Second, we provide the novel insight, that while memory associations have been linked to a range of consumer behaviors, simply understanding what memory associations a focal word in advertising evokes only provides a partial picture regarding how consumers will respond to its use in advertising. By investigating *how* concepts are connected to their surrounding networks, we provide marketers with important new knowledge regarding how consumers process and respond to focal words in advertising to influence key product behavioral intentions including willingness to pay, word-of-mouth, and purchase likelihood.

The balance of this paper is organized as follows. First, we review the literatures on memory activations, network theory, and conceptual processing fluency to build our hypotheses. We then present four studies, with two distinct pairs of focal advertising words (friend/partner and brilliant/vibrant) in a range of consumer product domains, to enhance the generalizability of our results. Finally, theoretical and substantive implications, study limitations, and further directions for research are discussed.

3.2 Theoretical Background

The model that we propose for understanding how the betweenness centrality of focal words in advertising influences consumers' behavioral intentions toward an advertised product is illustrated in figure 3.2. We propose that as the betweenness centrality of focal words in advertising increases, positive product behavioral intentions increase. Second, we suggest that the relationship between the betweenness centrality of focal words in advertising and positive product behavioral intentions is mediated by consumers'

conceptual processing fluency of the advertisement. To build theoretical support for our model, we begin with a brief review of the memory activation literature.

3.2.1 Memory Activation

Broadly speaking, memory describes an array of interconnected systems capable of registering, encoding, storing, and retrieving information (Baddeley 2013). An activated memory refers to the implicit or explicit retrieval of information into one's working memory, potentially to influence cognitions, emotions, or behaviors (Baddeley 2012; Chartrand et al. 2008; Sela and Shiv 2009; van Osselaer and Janiszewski 2012). Marketers have long recognized that memory plays a major role in consumer choice and decision-making (Bettman 1979). Indeed, memory associations are at the heart of implicit market structures (Netzer et al. 2012), consumer-based brand equity (Keller 1993), advertisement evaluations (Mehta, Chen, and Narasimhan 2008), and priming effects (Chartrand et al. 2008; Davis and Herr 2014). For example, consumer memory associations provide marketers with valuable information to visualize market structures and identify key competitors (Netzer et al. 2012). Additionally, measures of consumer-based brand equity, or the differential effects of brand knowledge or memory associations on consumer behavior, are used to differentiate competing brands on performance outcomes (Keller 1993). That is, fast food, athletic shoes, or television brands with greater positive consumer memory associations often enjoy higher levels of brand equity than their competitors (Krishnan 1996). Further, the importance of memory is often cited within the advertising literature, given its role in generating product familiarity and inducing consumer purchases (Mehta et al. 2008).

In addition to informing brand and purchase decisions, memory activations also influence

consumers' goal directed behavior, temporarily boosting the perceived desirability of a

given product or course of action (van Osselaer and Janiszewski 2012). For example,

memory activations have been shown to influence goal pursuit (Bargh et al. 2001), the

valuation of goal facilitating means (Forster, Liberman, and Friedman 2007), and product

choice (Sela and Shiv 2009) by priming or explicitly highlighting the desirability of an

outcome. Sounds (homophones) can even prime words or concepts with very different

meanings. For example, reading the word "bye" can prime the concept of "buy," which

increases consumers' willingness to pay for a meal at a new restaurant (Davis and Herr

2014). Further, consumers who were primed with the positive concept of Kermit (of the

Muppets), evaluated a bottle of wine with a frog on its label more favorably than

consumers who were primed with the negative concept of warts (Dimofte and Yalch

2011). While the influence of memory activations has been studied, research has yet to

explore how a memory node's structural position within its local semantic network

influences how consumers perceive and process information.

3.2.2   Network Theory

At its core, network theory recognizes that few entities exist in isolation, but rather as

members of a larger system of interconnected relationships (Borgatti and Foster 2003).

To describe the various patterns and structures of relationships, researchers in social

networks (Borgatti et al. 2009; Van Den Bulte and Wuyts 2007), physics (Newman

2008), and mathematical graph theory (West 2001) have developed dozens of measures

described by a lexicon of terms. At its most fundamental level, a network is a

mathematical representation of a system of relationships defined by a collection of nodes and ties. A node is defined as a portion of the system that is separate and independent from other elements in the system, as well as being internally coherent and homogeneous (Bullmore and Bassett 2011), for example, a person, a concept memory, or a neuron. A tie is defined as the presence of some type of relationship or connection between nodes. The tie may be physically defined, such as chemical or electrical links between neurons (Bullmore and Olaf 2009) or represent the flow of information, such as the probability of a cognitive association between concepts in memory (Krishnan 1996; Netzer et al. 2012). Thus, from people in organizations to memories in one's mind the behaviors of individual elements of a system are often shaped by interactions with other members of the system (Goel and Goldstein 2013). In this research, we investigate how the structural position of a focal word in advertising influences how consumers process information, based on its pattern of connections with other memories or concepts in the minds of consumers. In the following section, physiological as well as information processing evidence is provided to support the treatment and measurement of memories as networks from a graph theoretic perspective.

3.2.3   Memories as Networks

Research utilizing functional magnetic resonance imaging (fMRI), as well as other imaging methods (Bullmore and Bassett 2011), provides convergent evidence to support the memories-as-networks paradigm. For example, researchers are able to match network images of brain activity with categories of concepts. That is, MRI images of seemingly related words, such as *carrot* and *celery*, share similar patterns of brain activity, whereas

words with less in common (cow and carrot) generate distinct patterns of activity (Pereira, Detre, and Botvinick). Indeed, the human brain itself is structurally and functionally organized into a complex network of functional systems and neurons (He and Evans 2010).

However, despite direct neurological evidence supporting the networked nature of memory (Bullmore and Bassett 2011; Bullmore and Olaf 2009; Pereira et al. 2011), as well as related work in semantic spreading (Anderson 1983) and mediated priming (Balota and Lorch 1986), research in memory activations has largely remained at the dyadic (Chartrand et al. 2008; Sela and Shiv 2009) or direct tie level (Krishnan 1996; Kruglanski et al. 2002). While some research has explored memory activations at the level of a local network, those authors primarily use aggregate memory networks, among a population of interest, as a visualization tool to discover novel associations, identify key competitors, and guide managerial decision making (John et al. 2006; Netzer et al. 2012), without exploring the information processing implications of memory structures at the level of the individual consumer.

For example, research in the context of memory activation has demonstrated that when participants are asked to think about the word *lion*, the word *stripes* is also non-consciously activated in memory. Because both words are related to an intermediary word, *tiger,* memory activations spread from the focal concept (lion) to directly related concepts (tiger) to seemingly unrelated concepts (stripes) (Balota and Lorch 1986). Such indirect activations could thus quickly spread until most of the reasonably related words

or concepts are activated in memory, forming a network of interconnected concepts surrounding the focal node.

While it may be difficult to measure and account for the effect of individual memory activation with a local semantic network, established associative measurement methodologies (John et al. 2006) and network analysis techniques and software (Borgatti, Everett, and Freeman 2002) allow for an accurate accounting of the structure surrounding activated memory node's within its local semantic network. Thus, in this research, we do not attempt to isolate and control for the activation of dozens or hundreds of activated memories, rather, we measure the structural position of an activated memory node within its local systems, to investigate how the structural properties surrounding a focal memory activation affect information processing.

For example, consider two similar words, *friend* and *partner*. In addition to their interchangeable use and similar meaning in many situations, friend and partner have been shown to activate similar concepts in memory via an open-ended word association task (Nelson et al. 2004). As such, it is not surprising that partner and friend are listed as synonyms for each other on thesaurus.com. Despite their similarities, friend and partner may differ in terms of how each word is connected to its local semantic network (Miller 1995), potentially influencing how consumers would process advertising which featured them. Perhaps friend serves as a critical mediator to other concepts in memory, whereas the concepts directly connected to partner are more peripheral and share many interconnections to each other. As such, friend may be located on a semantic superhighway, while partner rests on a quiet cul-de-sac. Thus, friend enjoys a relatively

high betweenness centrality (i.e., providing mediated access to other concepts in memory via the shortest path). That is, friend is more centrally connected to different or distinct parts of its surrounding network than partner, which we suggest will offer certain consumer processing benefits and enhance product behavioral intentions when prominently featured in advertising.

3.2.4   Betweenness Centrality in Memory Networks

Betweenness centrality (b_k) is defined as the share of geodesics (the shortest route between two points) between pairs of nodes that pass through a focal node k, expressed mathematically below.

$$b_k = \sum_{i,\,j} \frac{g_{ikj}}{g_{ij}}$$

b_k = betweenness centrality of node k
g_{ikj} = number of geodesics from nodes i to j that pass through node k
g_{ij} = number of geodesics from nodes i to j

Theoretically, betweenness centrality is a representation of the number of times something that moves through a network passes through a given node, assuming it travels through the network via the shortest path (Freeman 1979). In essence, it approximates network traffic along a given route. In memory networks, path distances are better described as the strength or probability of an associative connection between nodes rather than a literal physical distance (Anderson 1983; Balota and Lorch 1986; Nelson et al. 2004). Network traffic, on the other hand, is more conceptually analogous to the frequency of cognitive activations along a given route. Thus, we suggest that

betweenness centrality, applied to concepts in memory, represents the frequency or probability of cognitive activations of a particular node or concept in a semantic network. As such, betweenness centrality is an approximation of how focal or central a given node is relative to its other associative connections. Thus, focal nodes with higher betweenness centralities are more likely to be activated as semantic associations are non-consciously spread from one node to another (Anderson 1983; Balota and Lorch 1986).

While betweenness shares certain similarities to other centrality measures, such as degree, a count of a node's in-going or out-going direct ties, betweenness centrality also accounts for the ties among alter nodes, allowing a relative structural measure of position within a semantic network. Given that memory activations spread via semantic associations, we suggest that information regarding how alter nodes are connected to each other provides critical information regarding the probability a given node will draw an individual's cognitive attention and influence information processing. Given that betweenness centrality approximates network traffic along a given route, nodes with higher betweenness centralities are also more likely to act as mediating bridges, connecting two otherwise disparate concepts or areas of a network together.

Through mediated priming (Balota and Lorch 1986) and semantic spreading activations (Anderson 1983), consumers may become non-consciously aware of a node's relative location in its semantic network, potentially affecting product behavioral intentions. For example, focal nodes with greater betweenness centrality values may generate perceptions of prestige and power derived from being in the middle of things (Van Den Bulte and Wuyts 2007). As such, the structural network patterns surrounding the word

friend, assessed via the network measure of betweenness centrality, may activate a sense of desirability, importance, or familiarity, positively influencing consumers' behavioral intentions, including willingness to pay, word-of-mouth intentions and purchase intentions of products that utilize the word in advertising.

H1: As the betweenness centrality of a word increases, positive product behavioral intentions increase.

3.3 Empirical Overview

We develop word banks for the focal words used in our studies and conduct four studies to investigate the effect of the betweenness centrality of a focal advertising word on consumers' information processing and behavioral intentions. First, we conducted a series of qualitative pre-tests to construct the associative word banks for the focal advertising words used in our studies. Then, in study 1, we test the core prediction that the betweenness centrality of a focal advertising word influences corresponding product behavioral intentions, such as willingness to pay and word-of-mouth. In study 2, we explore the unique variance focal word betweenness centrality provides to the prediction of product behavioral intentions, controlling for consumers' direct attitudinal rating of the focal word. Studies 3 and 4 demonstrate conceptual processing fluency as the psychological mechanism underlying our effect via a proximal-distal mediation analysis.

3.4 Development of Word Banks

3.4.1 Method

To build the word bank for studies 1-3, a qualitative pre-test was conducted to discover the common direct and indirect semantic associations of two similar words, friend and partner. We selected these words because (a) they have the potential to be used somewhat interchangeably in advertising due to sharing similar meanings, (b) they likely share similar semantic associations, and (c) we expected that their betweenness centralities would differ, given friend's wider and partner's narrower lexical structures (meanings and associated concepts) (Miller 1995; Nelson et al. 2004). It was important to use two related words with the likelihood of possessing similar semantic associations because we wanted to hold these factors constant across conditions, to focus our investigation on how the structural properties surrounding each word influenced consumers.

In exchange for research credit, one hundred forty-three individuals from a student subject pool participated in a between subjects design (focal word: friend, partner). Similar to the procedures of John et al. (2006), in the first phase, participants provided open-ended word associations for their condition word; they listed as many word associations that came to mind, but were otherwise unaided in their task. In the second phase, once participants provided the direct word associations for their condition word, participants were asked to provide a new set of word associations, one for each of the words generated by their condition word. In total, participants generated a list of 716 word association pairs, the vast majority of which were named by multiple participants. However, since word associations can be highly idiosyncratic, only word association

pairs listed by at least 10% of participants were included in the associative word bank for studies 1-3. In addition to the word associations generated by participants, an online database of unaided word associations was also used to develop the associative word bank; this bank has been used in related scholarly research (Nelson et al. 2004). In total, the resulting word association database was comprised of 196 unique word association pairs.

To build the word bank for study 4 (using vibrant and brilliant as focal words), an additional qualitative pretest was conducted. In exchange for research credit, two-hundred five participants from a student subject pool took part in a between subjects design (focal word: brilliant, vibrant), following the procedure described above. Brilliant has a wider lexical structure than vibrant, suggesting the potential for a higher betweenness centrality (Miller 1995). In total, participants generated a list of 1369 word association pairs. After including any omitted word association pairs present in the online database (Nelson et al. 2004), 227 unique word association pairs remained to form the word bank.

3.5   Study 1

This study examines the degree to which the structural properties and connection patterns (betweenness centrality) surrounding a focal word in advertising influence consumers' behavioral intentions towards the advertised product. Specifically, we investigate how participants' betweenness centralities for the word "friend" influence their willingness to pay and word-of-mouth intentions for a health insurance plan that prominently uses the word "friend" in its advertising slogan.

3.5.1 Method

Forty-six business students participated in exchange for course credit. Participants

evaluated a short health insurance print advertisement with the word *friend* prominently

displayed in its slogan. In this study, only a single focal word was assessed to provide

initial support that focal word betweenness centrality enhances product behavioral

intentions. In an attempt to avoid the potential influence of provider brand names,

participants were told that the name of the company providing the insurance was replaced

with [Brand] so they could focus their attention on the claims of the advertisement.

Participants saw the following ad: "[Brand] Health Insurance. Your Friend in Life.

Affordable Rates. Accepted by 95% of healthcare providers. Low, $5 co-pays." Please

see appendix Figure A1.1 for the advertisement.

After viewing the advertisement, participants provided an assessment of their willingness

to pay and word-of-mouth intentions for the health insurance plan (see Table 3.5.1 for

specific items). Participants then constructed a memory network for the word friend,

including direct and indirect ties following standard procedures (John et al. 2006).

Specifically, participants indicated if they perceived a weak, strong, or lack of association

between a focal word (starting with friend) and a list of all possible associated words

based on our qualitative pretest and Nelson et al.'s (2004) unguided word association

database. If a participant indicated a weak or strong association between the focal word

and any other word in the association database, the participant would repeat the

association task for all direct associations of their new focal word (e.g., companion) in

the association database. The resulting word by word association matrix for each

participant was then analyzed in terms of strong ties via the UCINET software package (Borgatti et al. 2002) to generate the betweenness centrality scores for the focal word friend. Figure 3.5.1 displays example networks where the word friend possesses relatively higher and lower betweenness centralities in its local semantic network.

3.5.2   Results

Regression results indicate that focal word betweenness centrality significantly predicted willingness to pay ($\beta = .31$; $t(44) = 2.14$, $p < .05$) and word-of-mouth intentions ($\beta = .38$; $t(44) = 2.73$, $p < .01$). That is, participants whose memory associations placed the concept of friend in a more central, mediating network position (a higher betweenness centrality) were more likely to indicate increased positive behavioral intentions toward the health insurance plan.

However, while participants with higher betweenness centrality measures of the word friend responded more favorably to the health insurance advertisement, many other measures of a node's network properties exist that could offer superior accounts predictive ability. As such, the network measures of in-degree centrality (the number of incoming connections to a node) and out-degree centrality (the number of outgoing connections to a node) for the word friend were also individually regressed against participants' willingness to pay and word-of-mouth intentions. In-degree centrality failed to significantly predict participants' willingness to pay ($\beta = .23$; $t(44) = 1.59$, $p > .10$), and only marginally predicted word-of-mouth intentions ($\beta = .28$; $t(44) = 1.93$, $p < .10$). The measure of out-degree centrality failed to predict either willingness to pay ($\beta = .09$; $t(44) = .57$, $p > .20$) or word-of-mouth intentions ($\beta = .17$; $t(44) = 1.17$, $p > .20$). Further,

when betweenness, in-degree, and out-degree centrality were regressed concurrently against participants' willing to pay and word-of-mouth intentions, the betweenness centrality results were replicated. Again, betweenness centrality ($\beta = .73$; $t(42) = 2.03$, $p < .05$) was found to significantly predict participants' willingness to pay, while the effects of in-degree ($\beta = -.31$; $t(42) = -1.46$, $p > .10$) and out-degree centrality ($\beta = -.22$; $t(42) = -.66$, $p > .20$) failed to reach significance. The same pattern of results was found when participants' betweenness ($\beta = .85$; $t(42) = 2.43$, $p < .05$), in-degree ($\beta = -.33$; $t(42) = -1.03$, $p > .20$), and out-degree centrality ($\beta = -.23$; $t(42) = -1.13$, $p > .20$) of the word friend were regressed concurrently against their word-of-mouth intentions.

3.5.3   Discussion

This study provides initial evidence to support our hypothesis that as the betweenness centrality of a word in advertising increases, positive product behavioral intentions also increase. Further, the effect of betweenness was compared to several other common measures of network centrality, in-degree, the number of incoming connections to a node, and out-degree, the number of outgoing connections to a node. We suggest that betweenness centrality provided superior predictive power than in-degree or out-degree centrality due to providing a whole network, structural measure of how concepts in memory are organized relative to one another, rather than capturing a more limited view of network connectedness (a count of direct ties).

However, despite initial evidence supporting H1, several questions remain. Most notably, were participants' betweenness centralities for the word friend driving the effect on willingness to pay and word-of-mouth intentions through influencing how participants

perceived and processed the advertisement? For example, as an alternative explanation for these results, perhaps participants with a more favorable explicit attitude of the word friend may have reacted more favorably to our advertisement than participants with less favorable explicit attitudes, rather than processing the advertisement differently as we suggest.

Very generally, attitudes are defined as evaluative reactions (positive, negative, or neutral) to an object (Fishbein and Ajzen 1975). As such, attitudes influence a person's tendency to respond favorably or unfavorably to an object or course of action, such as paying a premium price for a product or recommending it to their friends. Not surprisingly, the attitude construct rests at the heart of many models of consumer motivation. For example, political language often employs superficial catch phrases such as *death tax*, *patriot act*, and *freedom fries*. Such phrases communicate little if any actual information. Rather, the words death, patriot, and freedom are used to frame a topic in a positive or negative manner. Marketers similarly employ such words to evoke positive responses from consumers. For example, food is often described as *healthy*, clothing as *stylish*, and electronics as *advanced*. In study 2, we attempt to capture and isolate participants' explicit attitude of a focal word in the advertisement to measure the unique effect of betweenness centrality on participants' willingness to pay and word-of-mouth intentions.

3.6 Study 2

In this study, we investigate the unique effect focal word betweenness centrality provides to the prediction of behavioral intentions, controlling for consumers' direct attitudinal

rating of the focal word. Further, we introduce an additional focal word, "partner," which is a synonym of friend (www.thesaurus.com) but is expected to have lower levels of betweenness centrality due to possessing less semantic variety (Miller 1995). In doing so, we are able to assess the betweenness centrality of competing words to choose the best option. In addition, the effect is tested in a new product domain: an online data storage and backup service. Figure 3.6 displays an example network for the word partner.

3.6.1 Method

Two hundred thirty-three undergraduate business students participated in a 2 level (focal word: friend or partner) between subjects design to earn credit for a research requirement. Participants evaluated a short print advertisement for an online storage and backup service, with the condition word used in a slogan, as indicated in square brackets: "Your [Friend / Partner] in the Digital Age. "Brand" Online Backup and Cloud Service. Automatic data syncing and backup across all your devices. Supports all modern operating systems (computers, phones, tablets). Free 5 gigs of storage (buy additional space as needed)." Please see appendix Figure A1.2 for the advertisement.

Following exposure to one of the two advertisements, participants indicated willingness to pay as an open-ended response to avoid potential ceiling or floor effects associated with a scaled measure. Participants also indicated word-of-mouth intentions across multiple items to provide reliability measures (see Table 3.5.1). After participants evaluated the advertisement, word associations were collected following the process described in study 1. Finally, focal word attitude was measured (see Table 3.5.1 for items).

3.6.2 Results

First, a t-test revealed that the word friend ($M = 263.04$) has a significantly higher ($t(231) = -12.69$, $p < .001$) betweenness centrality than partner ($M = .69$). Second, a correlation analysis was performed to test the association between the direct attitudinal rating of the focal word and its measured betweenness centrality. The results indicate that the explicit attitudinal rating of the focal word and its measured betweenness centrality are significantly associated, but only moderately ($r(231) = .25$, $p < .01$).

Next, a hierarchical regression analysis was performed to explore the degree to which participants' focal word betweenness centrality provides unique explained variance to predict willingness to pay and word-of-mouth intentions beyond their explicit attitude of the focal word. Results demonstrate that focal word betweenness centrality adds significant explained variance to predict willingness to pay $\Delta R^2 = .017$, ($\beta = .14$; $t(230) = 2.03$, $p < .05$) and word-of-mouth intentions $\Delta R^2 = .025$, ($\beta = .16$; $t(230) = 2.46$, $p < .05$), beyond focal word attitude. Tested with just participants in the friend condition, focal word betweenness centrality adds significant explained variance to predict willingness to pay $\Delta R^2 = .035$, ($\beta = .19$; $t(118) = 2.07$, $p < .05$) and marginally significant explained variance to predict word-of-mouth intentions $\Delta R^2 = .027$, ($\beta = .16$; $t(118) = 1.85$, $p < .10$), beyond focal word attitude. On the other hand, betweenness centrality did not add any additional explained variance to predict willingness to pay $\Delta R^2 = .001$, ($\beta = .03$; $t(109) = .377$, $p > .20$) or word-of-mouth intentions $\Delta R^2 = .002$, ($\beta = -.04$; $t(109) = -.48$, $p > .20$) beyond participants' explicit attitude of the word partner. This is not unexpected given partner's low level of betweenness centrality in this data.

In the full sample, participants' attitude toward the focal word did not significantly

predict their willingness to pay, entered individually (β = -.08; $t(231)$ = -1.22, $p > .20$)

but did marginally predict willingness to pay when entered simultaneously (β = -.12;

$t(230)$ = -1.70, $p < .10$) with word betweenness centrality. Participants' attitude toward

the focal word did significantly predict their word-of-mouth intentions when presented

individually (β = .140; $t(231)$ = 2.16, $p < .05$) but not simultaneously (β = .10; $t(230)$ =

1.48, $p > .10$) with word betweenness centrality. It should be noted that without taking

into account the betweenness centrality of the focal words, participants' advertising

condition (friend or partner) did not significantly predict their willingness to pay (β = .01;

$t(231)$ = .11, $p > .20$), or word-of-mouth intentions (β = .10; $t(231)$ = 1.50, $p > .10$).

Mediation Analysis. Given that the advertisement condition did not exert its own direct

effect on participants' willingness to pay or word-of-mouth intentions, a mediation

analysis was conducted to test for indirect only mediation (Preacher and Hayes 2008;

Zhao, Lynch, and Chen 2010) through the betweenness centrality of the focal

advertisement word. To test for mediation, we utilized Preacher and Hayes's (2008)

process macro (model 4) with 5000 bootstrapped samples, where participants'

experimental condition served as the independent variable, the betweenness centrality of

their condition word as the mediator, and willingness to pay and word-of-mouth

intentions each served as the dependent variable in two separate analyses. Participants'

focal word attitude was entered as a covariate. As predicted and displayed in figure 3.6.2,

focal word betweenness centrality fully mediated the relationship between participants'

condition word and willingness to pay (indirect effect 95% CI = .99 to 20.98) and word-

of-mouth intentions (indirect effect 95% CI = .02 to .41), with non-significant direct

effects (95% CI = -16.84 to 3.19) and (95% CI = -.38 to .30) respectively, controlling for the direct attitudinal rating of participants' focal word.

3.6.3   Discussion

The results of study 2 suggest that the betweenness centrality of focal words in advertising exert their own unique and significant influence on willingness to pay and word-of-mouth intentions beyond participants' attitudinal rating of the words, replicating the findings in study 1. Critically, due to the high levels of variance in participants' betweenness centrality measures, the condition words friend and partner did not exert their own independent direct effect on willingness to pay and word-of-mouth intentions. However, evidence for indirect only mediation was provided, further highlighting the significance of understanding the effect of the structural location and position of focal advertising words. In study 3, conceptual fluency is proposed and tested as the underlying psychological mechanism responsible for the effect of focal word betweenness centrality on product behavioral intentions.

3.7   Conceptual Processing Fluency and Consumer Evaluations

Due to the increased probability of frequent activation in a semantic network, as well as their ability to provide logical structure and balance between less semantically related clusters of a network, advertisements that use focal words with higher betweenness centralities may be easier for consumers to process, resulting in perceptions of conceptual fluency. Conceptual fluency describes ease in information processing, generally characterized by positive gut reactions (Landwehr et al. 2011). As such, fluent stimuli

have been shown to generate feelings of clarity (Whittlesea et al. 1990), familiarity (Whittlesea, Jacoby, and Girard 1993), and truth (Reber and Schwarz 1999). Fluent information "feels right" to consumers (Kidwell et al. 2013, p. 352), which increases its persuasive appeal to influence intentions and behaviors (Kidwell et al. 2013).

First, conceptual fluency is associated with the successful processing, familiarity, and recognition of a stimulus (Reber, Schwarz, and Winkielman 2004). Not surprisingly, the mere exposure effect (Zajonc 1968) or increased liking of a neutral object based on repeated exposures is often explained in terms of fluency (Bornstein and D'Agostino 1994; Whittlesea 1993). That is, repeated exposures to the stimulus increase the perceived familiarity and ease of recognition of the stimulus, which in turn increases the liking of the stimulus, because familiar stimuli are less likely to cause harm (Zajonc 1968). As theorized, if words with higher betweenness centralities are likely to be repeatedly activated in memory via semantic spreading, such words may generate a non-conscious mere exposure effect in the minds of consumers, creating increased familiarity and liking.

Second, fluent stimuli are easier to process than non-fluent stimuli. Fluent stimuli are easier to categorize in relation to an individual's established semantic knowledge structures (Winkielman et al. 2003). Perceptions of conceptual fluency can be evoked by the congruence of semantic associations, such as rhyme to generate fluency in aphorisms (McGlone and Tofighbakhsh 2000). For instance, the statement *woes unite foes* was rated as more accurate than *woes unite enemies*, though both statements have functionally equivalent meaning (McGlone and Tofighbakhsh 2000). Words with higher betweenness

centralities may generate perceptions of conceptual fluency due to their mediating

location in their surrounding semantic network. Specifically, they bridge and connect less

semantically similar clusters of the network together. Words that provide logical structure

and context to a larger semantic web of concepts should increase the processing ease of

advertisements featuring such words, relative to words that are firmly embedded in

isolated clusters of a semantic network. For example, the word friend may connect/bridge

a cluster of concepts related to dependability, such as support, trust, and respect, to a

cluster of concepts related to enjoyment, such as fun, buddy, and pal. Because of its

mediating role between the concepts of dependability and enjoyment, the word friend

may provide cognitive structure or balance, logically binding otherwise dissimilar

concepts in memory. As such, words with high betweenness centralities may to produce a

sense of semantic congruence for consumers. Therefore, consumers may have to spend

less processing effort to recognize, categorize, and place such words in their individual

semantic knowledge structures, associations, evoking a sense of conceptual fluency.

Third, perceptions of conceptual fluency have been reliably linked with favorable

evaluations or positive attitudes of the associated object (Kidwell et al. 2013; Lee and

Aaker 2004; Reber et al. 2004). Taken together, we predict:

> H2: Conceptual fluency mediates the relationship between focal word
>
> betweenness centrality and favorable product behavioral intentions, such
>
> that focal word betweenness centrality is positively associated with
>
> conceptual processing fluency, which is positively associated with
>
> favorable product behavioral intentions.

3.8 Study 3

Conceptual processing fluency in investigated as the psychological mechanism responsible for the betweenness centrality effect. Further, in addition to willingness to pay and word-of-mouth intentions, product purchase intentions are assessed. This study otherwise replicates study 2.

3.8.1 Method

One hundred ninety-four undergraduate business students participated in a 2 level (focal word: friend or partner) between subjects experiment to earn credit for a research requirement. After evaluating the advertisement, willingness to pay, word of mouth, product purchase intentions, and conceptual processing fluency were measured (items in Table 1). After participants evaluated the advertisement, word associations were collected, following the process described in study 1. Finally, focal word attitude was measured as described in study 2.

3.8.2 Results

Focal word betweenness centrality adds significant explained variance to predict willingness to pay $\Delta R^2 = .020$, ($\beta = .15$; $t(191) = 1.98$, $p < .05$) word-of-mouth intentions $\Delta R^2 = .040$, ($\beta = .16$; $t(191) = 2.82$, $p < .01$), and purchase intentions $\Delta R^2 = .049$, ($\beta = .23$; $t(191) = 3.15$, $p < .01$), beyond focal word attitude. When tested with just participants in the friend condition, focal word betweenness centrality ($M = 230.24$) adds significant explained variance to predict willingness to pay $\Delta R^2 = .043$, ($\beta = .22$; $t(95) = 2.05$, $p < .05$), word-of-mouth intentions $\Delta R^2 = .049$, ($\beta = .23$; $t(95) = 2.23$, $p < .05$), and

purchase intentions $\Delta R^2 = .065$, ($\beta = .27$; $t(95) = 2.57$, $p < .05$) beyond focal word attitude. In this data set, the focal word partner had a betweenness centrality of zero for all condition participants. Consistent with study 2, participants' advertising condition did not significantly predict their willingness to pay ($\beta = .01$; $t(192) = .17$, $p > .20$). However, participants' advertising condition marginally predicted their word-of-mouth intentions ($\beta = .12$; $t(192) = 1.69$, $p < .10$) and significantly predicted their purchase intentions ($\beta = .15$; $t(192) = 2.00$, $p < .05$).

Mediation Analysis. To test for indirect only proximal-distal mediation, we utilized Preacher and Hayes's (2008) process macro (model 6) with bootstrapped samples (n = 5000), where participants' experimental condition served as the independent variable, the betweenness centrality of their condition word as the proximal mediator, and conceptual processing fluency served as the distal mediator. Willingness to pay, word-of-mouth, and purchase intentions each served as the dependent variable of interest in three separate analyses. Focal word attitude was entered as a covariate in each case. As predicted and displayed in Figure 3.8.2, the proximal (focal word betweenness centrality) -distal (conceptual advertisement processing fluency) mediation fully accounted for the relationship between participants' experimental condition and willingness to pay (indirect effect 95% CI = .08 to 1.63) ,word-of-mouth (indirect effect 95% CI = .04 to .28), and purchase intentions (indirect effect 95% CI = .04 to .32), with non-significant direct effects (95% CI = -7.78 to 4.54), (95% CI = -.21 to .56), and (95% CI = -.32 to .72), respectively, controlling for the direct attitudinal rating of participants' focal word.

3.8.3   Discussion

This study identifies conceptual processing fluency as the distal psychological mechanism responsible for the betweenness centrality effect observed in our studies. That is, words with high betweenness centralities bridge and connect less semantically similar clusters of the network together (please see Figure 3.8.3 for example), producing a sense of conceptual processing fluency during consumers' advertisement evaluations. Greater conceptual fluency in turn increases the persuasive appeal of the advertisement, to influence consumer intentions.

However, while studies 1- 3 each provide evidence supporting the effect of focal word betweenness centrality to produce conceptual processing fluency in consumers, the effect of betweenness centrality has only been demonstrated in the context of two words, friend and partner. In study 4, we introduce a new set of focal advertisement words, "brilliant" and "vibrant," selected based on their use in HDTV advertisements. Further, rather than obscuring the brand name of the advertised product, in study 4 we explicitly provide the brand name to increase the external validity of our results. If the proximal-distal mediation analysis demonstrated in study 3 can be replicated, while changing focal advertisement words, product domains, and displaying the product brand name, we suggest that strong additional support will be provided for our proposed theoretical model.

3.9 Study 4

This study seeks to replicate the proximal-distal mediation demonstrated in study 3, with a new set of focal words (brilliant and vibrant) and new product domain (consumer electronics). The focal words of brilliant and vibrant were selected due to their common and nearly interchangeable use when describing HDTV screens in the print advertisements of six major consumer brands. Additionally, brilliant is expected to have a higher betweenness centrality than vibrant based on their semantic structures (Miller 1995).

3.9.1 Method

One hundred forty-nine undergraduate business students participated in a 2 level (focal word: brilliant or vibrant) between subjects design to earn credit for a research requirement. Participants evaluated a short print advertisement for a VIZO HDTV, with the condition word used prominently in the advertisement. The advertisements in each condition were otherwise identical. The specific content of the advertisement was presented as follows: "VIZIO HDTV. Brilliant LED Display. 55" 1080p Display. 120Hz Refresh Rate: Great for General Viewing and Action Content. Smart TV: Interact with Streaming Content and the Web." Please see appendix Figure A1.3 for the advertisement.

Following exposure to the advertisement, willingness to pay, word-of-mouth intentions, purchase intentions, and conceptual fluency were measured. After participants evaluated the advertisement, word associations were collected following the same procedure used in the previous studies. Finally, focal word attitude was measured. Please see figure 3.9.1

for an example network for the word brilliant and figure 3.9.1.1 for an example network of the word vibrant.

3.9.2 Results

The focal word brilliant ($M = 148.82$) was found to have a significantly ($t(147) = -5.89$, $p < .001$) higher betweenness centrality than vibrant ($M = 57.28$). In this data set, word betweenness centrality did not add additional explained variance to predict directly the outcome variables of willingness to pay, word-of-mouth intentions, or purchase intentions. However, it did provide additional explained variance to predict participants' conceptual processing fluency beyond participants' explicit attitude of their condition word $\Delta R^2 = .025$, ($\beta = .19$; $t(146) = 1.96$, $p = .052$). When tested individually, a similar result was found for participants in the brilliant condition $\Delta R^2 = .047$, ($\beta = .19$; $t(68) = 1.83$, $p = .070$), but not for participants in the vibrant $\Delta R^2 = .00$, ($\beta = .19$; $t(75) = .00$, $p > .20$) focal word condition. Participants' advertising condition (brilliant or vibrant) did not significantly predict their willingness to pay ($\beta = .13$; $t(147) = 1.56$, $p > .10$), word-of-mouth intentions ($\beta = -.13$; $t(147) = 1.61$, $p > .10$) or purchase intentions ($\beta = -.09$; $t(147) = -1.19$, $p > .20$).

Mediation Analysis. To test for indirect only proximal-distal mediation, we utilized Preacher and Hayes's (2008) process macro with bootstrapped samples (n = 5000), following the same procedure described in study 3. Replicating study 3, and displayed in Figure 3.9.2 for willingness to pay, the proximal (focal word betweenness centrality)-distal (conceptual processing fluency) mediation results indicate that betweenness centrality and conceptual processing fluency accounted for the relationship between

participants' experimental condition and willingness to pay (indirect effect 95% CI = .17

to 30.68), as well as word-of-mouth intentions (indirect effect 95% CI = .01 to .26), and

purchase intentions (indirect effect 95% CI = .01 to .19), with non-significant direct

effects (95% CI = -27.26 to 222.27), (95% CI = -.52 to .29), and (95% CI = -.51 to .40),

respectively, while controlling for the direct attitudinal rating of participants' focal word.

These results provide further evidence that focal word betweenness centrality

significantly influences the effectiveness of advertising, through the psychological

mechanism of conceptual processing fluency, providing marketers a new way to vet and

select between similar focal words for an advertising campaign.

3.9.3   Discussion

Study 4 provides an additional demonstration of the proximal-distal mediation detailed in

study 3, with a new group of focal words, in a new product domain, with the product

brand prominently displayed in the advertisement. Again, word betweenness centrality

increased consumer's conceptual processing fluency, which in turn influenced their focal

behavioral intentions towards the advertised product. Thus, the results of study 4

provided a rigorous test to enhance the generalizability of our results and support our

proposed theoretical model.

3.10   General Discussion

3.10.1   Theoretical Contributions

This research theoretically extends the literature on consumer memory and information

processing by identifying how consumers respond to how activated memory nodes are

connected in their local semantic networks. Specifically, we demonstrate that participants with higher betweenness centralities for focal words in advertising were significantly more likely to display favorable behavioral intentions towards the advertised product. That is, the manner in which memories are connected to their local semantic networks was found to influence how consumers perceived and processed information. Indeed, without accounting for how focal advertising words were connected to their local semantic networks; the focal words, or the attitudes they evoked, were found to be inconsistent predictors of the advertisement's ability to influence key product behavioral intentions. This research highlights the significance of semantic structures as a key determinate of how consumers process and respond to memory activations.

Specifically, the betweenness centrality of focal words in advertising is shown to influence consumers' conceptual processing fluency. Words with higher betweenness centralities provide logical structure, context, and congruence to a larger semantic web of concepts, which increases the ease with which consumers can recognize, categorize, and process advertisements. This increase in conceptual processing fluency results in increased positive behavioral intentions regarding the advertised product. Additionally, the effect of betweenness centrality is demonstrated as providing a unique influence on product behavioral intentions, through conceptual processing fluency, beyond participants' explicit attitude of the focal advertising word. Word betweenness centrality is also shown to outperform other measures of centrality (in-degree and out-degree centrality) to predict focal product behavioral intentions, providing additional evidence that a memory's structural location within its local semantic network influences information processing beyond an accounting of a memory's direct ties.

3.10.2 Substantive Contributions

The results presented here suggest that organizations and marketers should not only be aware of the direct or indirect memory activations evoked by their advertising, they should also be sensitive to how their focal advertising words are structurally located within consumers' semantic networks. By identifying *how* the cognitive structure surrounding a focal word in advertising influences consumers, marketers may gain additional tools to affect how consumers process their advertising to drive favorable product behavioral intentions, such as willingness to pay, word-of-mouth, and purchase. Further, organizations could direct their marketing efforts to shape the semantic networks surrounding their focal advertising words or product names. In doing so, marketers could increase the betweenness centralities of their focal advertising words, without having to rely solely on consumers' established semantic associations.

Public health campaigns, environmental initiatives, and charity events may also benefit by selecting focal words for their advertising campaigns with relatively high betweenness centralities. In fact, recent research has demonstrated the importance of conceptual fluency in recycling appeals (Kidwell et al. 2013). Enhancing advertisement copy to include words with high betweenness centralities may increase consumer response to similar programs.

3.10.3 Limitations and Further Research

The cumulative evidence provided for the betweenness centrality effect in this research is correlational in nature. Because word betweenness centrality was measured rather than

manipulated, we did not provide direct causal evidence of our proposed betweenness centrality effect. Further research may wish to address this limitation by attempting to manipulate the structure of participants' memory networks. Additionally, due to participant heterogeneity, the network measures presented in this research may not represent the exact memory activations of a given participant. However, given this additional error variance in measurement, we suggest that the robustness of our results across data sets suggests our associative word banks provided a reasonable approximation of the average memory activations within our study population.

While the current research highlights the occurrence of the betweenness centrality effect and demonstrates the psychological mechanism responsible for its results, many questions remain. For example, while this research explores the effects of one primary measure of memory network structure on consumer information processing and behavioral intentions, betweenness centrality represents one of many measures, such as density and eigenvector centrality, that describe the nature of interconnected relationships. Further research opportunities may exist to study how different types of memory structures influence consumer information processing. In summary, while it is important for marketers to understand which concepts are semantically associated in memory, it is also critical for marketers to understand how concepts are connected within the local semantic networks of consumers.

3.11 Tables and Figures

Table 3.5.1: Measurement of Items by Study

Construct and Source	Measurement Items	S1	S2	S3	S4
Willingness to Pay	• It would be worth paying a little more to use this product, relative to the other brands that are available	X			
	• How much would you be willing to pay for _____? (Open ended)		X	X	X
Word of Mouth (Items adapted from Maxham and Netemeyer 2002)	• I am likely to tell other people about this product	X	X	X	X
	• I am likely to spread positive word-of-mouth about this product		X	X	X
	• I would recommend this product to my friends		X	X	X
	• If my friends were looking for a product like this, I would tell them to try this product."		X	X	X
	Cronbach α		.91	.95	.94
Attitude toward Focal Word	What is your attitude toward the word [friend / partner / brilliant / vibrant]?				
	• Unfavorable / Favorable		X	X	X
	• Negative / Positive		X	X	X
	• Dislike / Like		X	X	X
	• Unpleasant / Pleasant		X	X	X
	Cronbach α		.91	.97	.97
Purchase Intentions	Please describe your purchase intentions of the product in the advertisement you just viewed …				
	• Very low purchase interest/Very high purchase interest				
	• Very unlikely/Very likely			X	X
	• Improbable/Probable			X	X
				X	X

Table 3.5.1, continued: Measurement of Items by Study

	Cronbach α	.91	.92
Conceptual Processing Fluency (Items from Kidwell et al. 2013; Lee and Aaker 2004; White, MacDonnell, and Dahl 2011)	• Unclear/Clear	X	X
	• Not compelling/Compelling	X	X
	• Not credible/Credible,	X	X
	• Did not flow/Flowed well	X	X
	• Difficult to follow/Easy to follow	X	X
	• Not plausible/Plausible	X	X
	• Not easy to relate to/Easy to relate to	X	X
	• Difficult to process/Easy to process	X	X
	• Difficult to understand/Easy to understand	X	X
	• Difficult to comprehend/Easy to comprehend	X	X
	• Does not make sense/Makes sense	X	X
	• Seemed unfamiliar/Seemed familiar	X	X
	Cronbach α	.96	.93

*Items on a 7-point scale unless otherwise noted.

Figure 3.2: Theoretical Model

Figure 3.5.1: Sample Participant Memory Network for Friend – Lower Betweenness

Centrality

Sample Participant Memory Network for Friend – Higher Betweenness Centrality
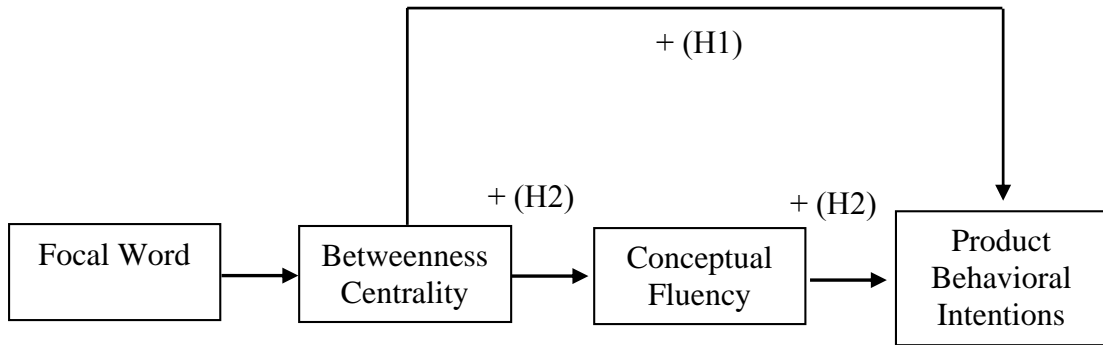
Figure 3.6.1: Sample Participant Memory Network for Partner
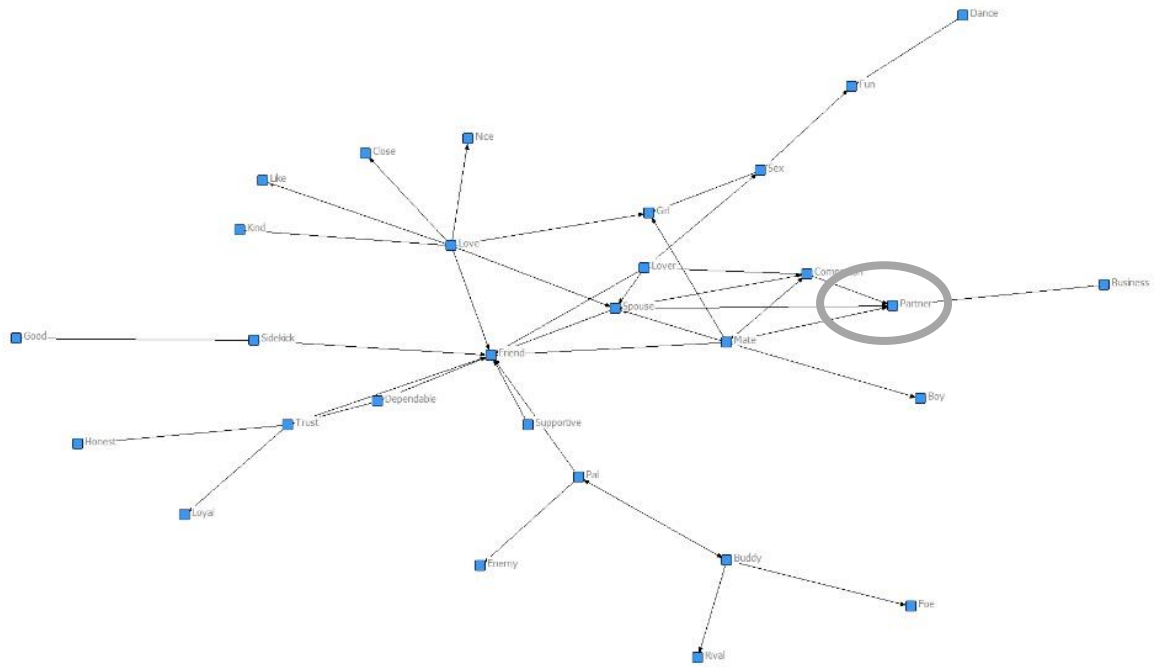
Figure 3.6.2: Willingness to Pay Mediation Analysis – Study 2

Indirect Effect CI = .99 to 20.98
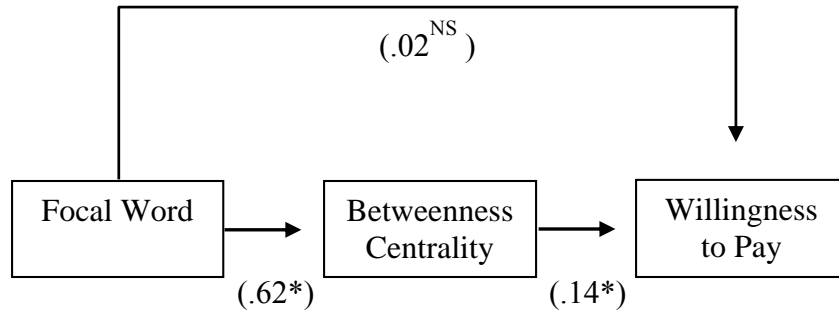
$(.02^{NS})$

| Focal Word | Betweenness Centrality | Willingness to Pay |

$(.62^*)$ $(.14^*)$

Standardized regression coefficients are shown in parentheses, * = P < .05, ** = P < .01, NS = non-significant. 5000 bootstrapped samples in PROCESS macro, 95% CI

Figure 3.8.2: Willingness to Pay Mediation Analysis – Study 3

Indirect Effect CI = .08 to 1.63
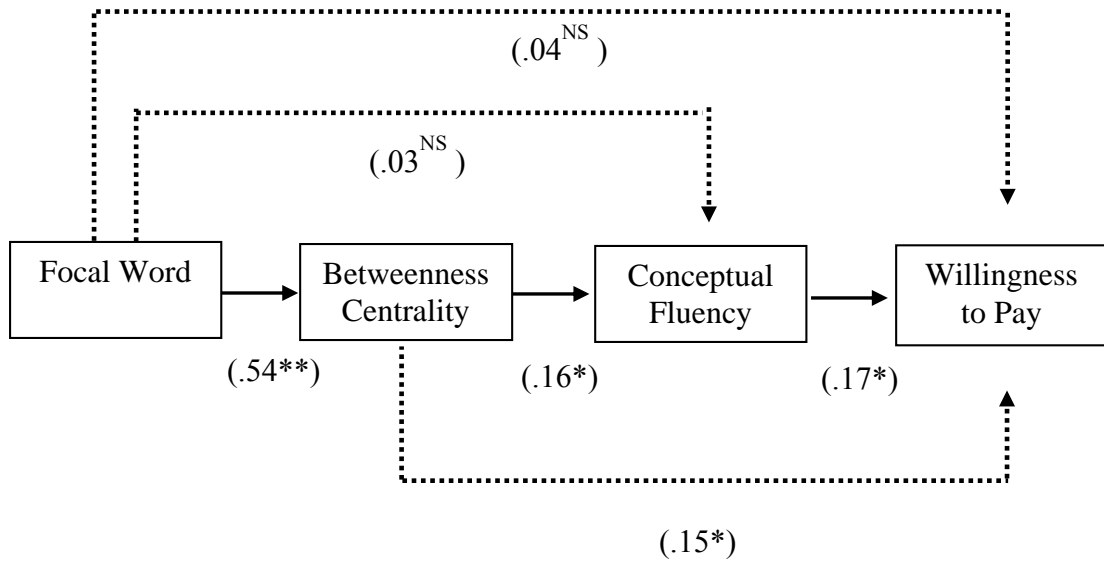
$(.04^{NS})$

$(.03^{NS})$

| Focal Word | Betweenness Centrality | Conceptual Fluency | Willingness to Pay |

$(.54**)$ $(.16*)$ $(.17*)$

$(.15*)$

Standardized regression coefficients are shown in parentheses, * = P < .05, ** = P < .01, NS = non-significant. 5000 bootstrapped samples in PROCESS macro, 95% CI

Figure 3.8.3: Sample Network, Bridging Concepts – Study 3

Figure 3.9.1: Sample Participant Memory Network for Brilliant
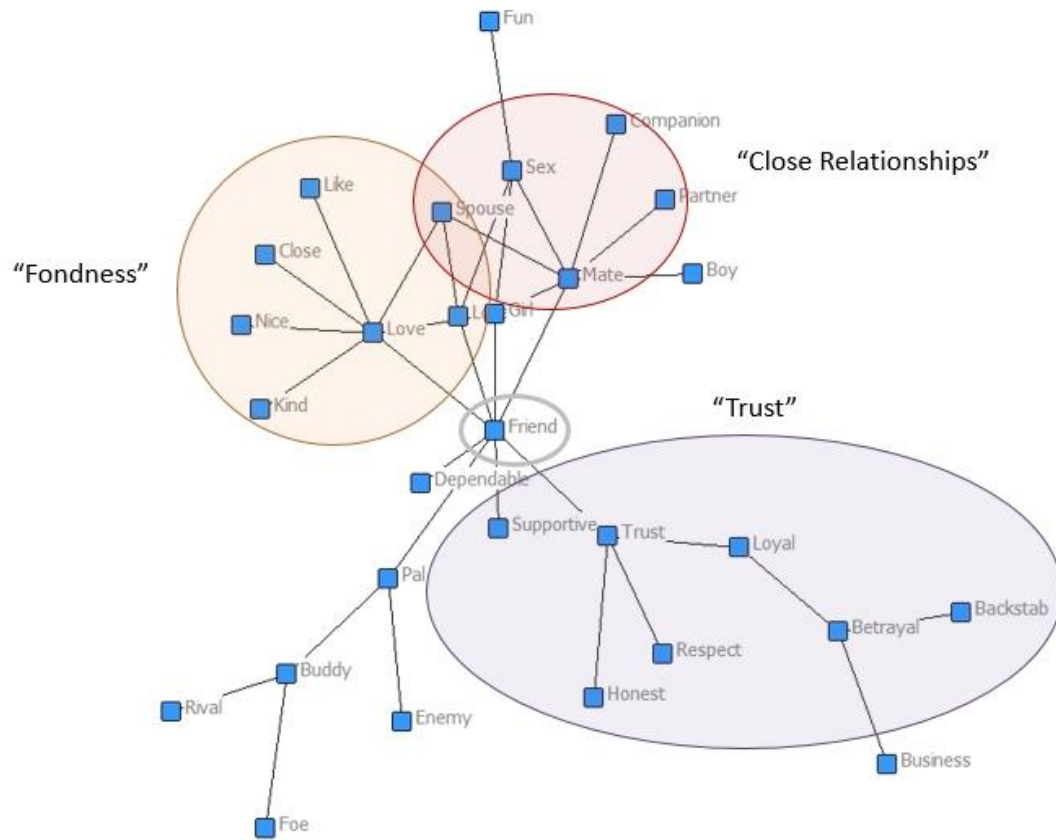
Figure 3.9.1.1: Sample Participant Memory Network for Vibrant
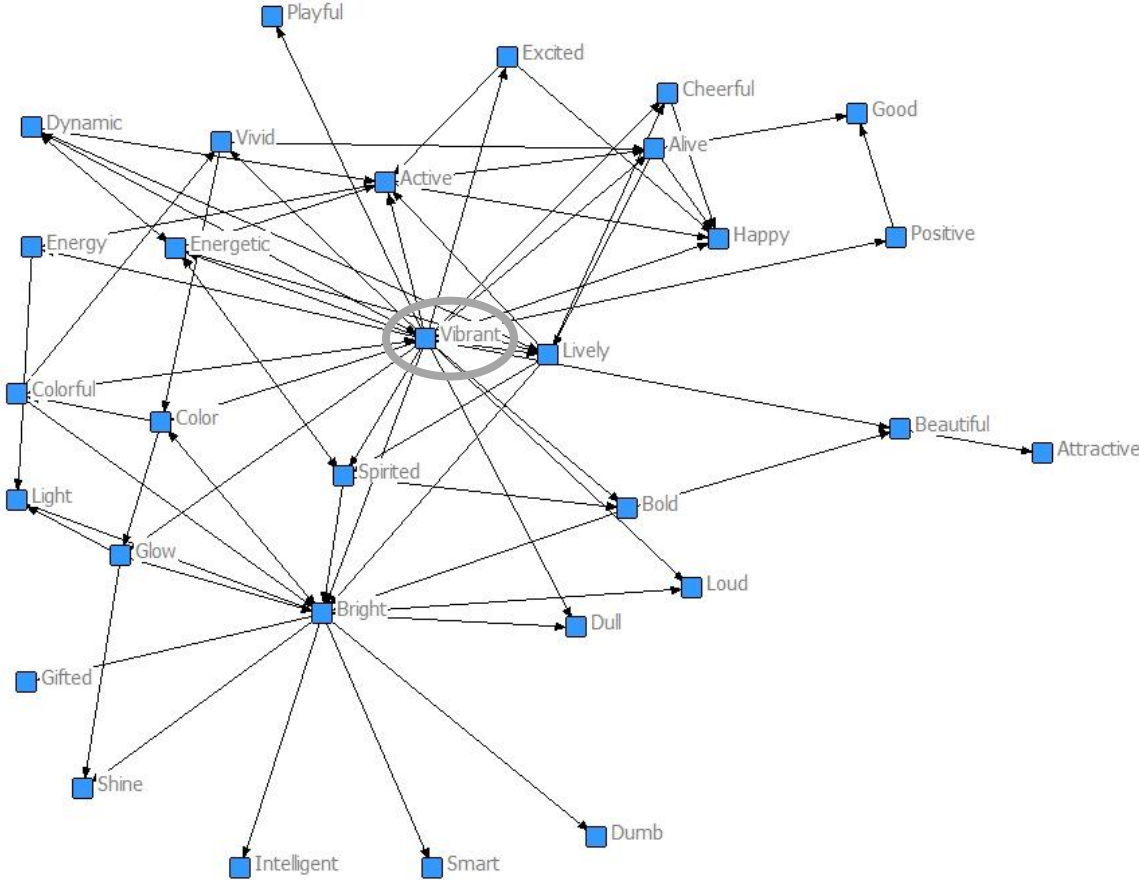
Figure 3.9.2: Willingness to Pay Mediation Analysis – Study 4

Indirect Effect CI = .17 to 30.68

$(.13^{NS})$

$(-.13^{NS})$

| Focal Word | Betweenness Centrality | Conceptual Fluency | Willingness to Pay |

$(.41^{**})$ $(.19^{t})$ $(.17^{t})$

$(.08^{NS})$
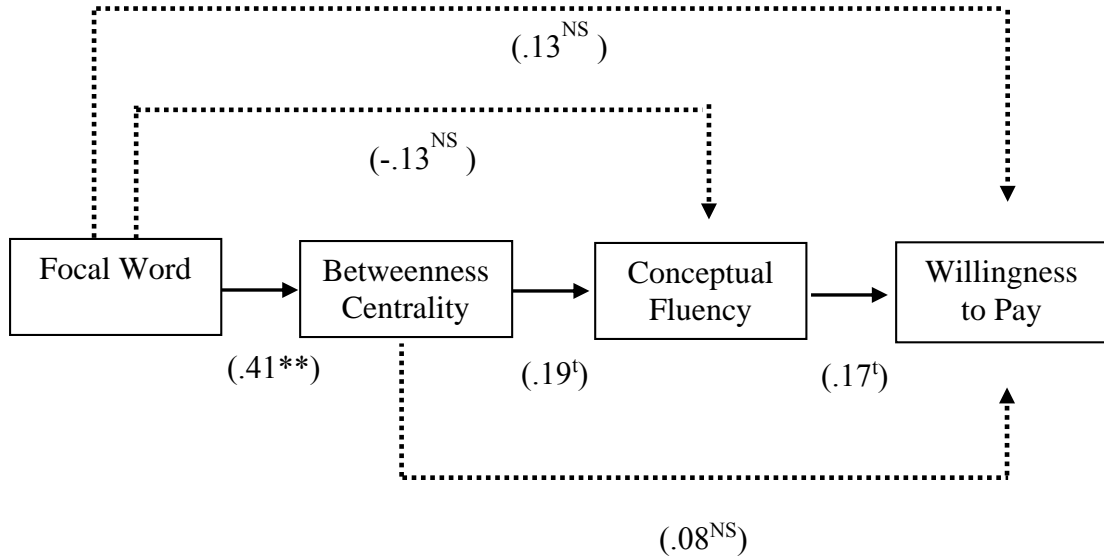
Standardized regression coefficients are shown in parentheses, $^{t} = < .055$, $* = P < .05$, $** = P < .01$, NS = non-significant. 5000 bootstrapped samples in PROCESS macro, 95% CI

4   Conclusion

The two essays comprising this dissertation study how affect, a consumer's internal feeling state, influences the enduring enjoyment of products and key behavioral intentions towards advertised products. The goal of this research is twofold, to advance theory regarding how affective responses are generated and how it influences key consumer behavior outcomes, and to highlight substantive applications of the theoretical relationships for consumers and marketers. First, it uncovers the role of affect in consumer satiation and provides a novel means to influence consumers' present consumption enjoyment. Second, it highlights how the semantic structure surrounding a focal word in advertising influences consumers' behavioral intentions towards the advertised product by affecting consumers' conceptual processing fluency.

Specifically, essay one contributes to theory by demonstrating that more anticipated future consumption variety can slow consumer satiation rates of present experiences. Further, it demonstrates that the act of anticipating more future consumption variety slows the satiation with products by reducing the amount of negative affect consumers experience during repetitive consumption. This effect holds for products that are relatively more dependent on affect to be enjoyable, such as vices, but not virtues, which are dependent on affect to be enjoyable. Additionally, consumer emotional intelligence is found to moderate the effect of anticipated future consumption variety on satiation, providing additional theoretical support for an affective process mechanism and identifying another boundary condition of the effect. Substantively, this dissertation identifies a novel means to influence consumers' natural satiation response. For example, when engaged in a repetitive activity, such as listening to music, playing a video game, or

running on a treadmill, consumers could concentrate on the potential future variety offered in their current activity. Such as a range of genres of music, new game features unlocked at the next level, or the various training programs offered on the treadmill, to extend their current enjoyment. Similarly, on packaging, menus, or advertising, marketers could highlight the many different ways to use or consume a product, focusing on how one's present product consumption may differ from their future product use.

Continuing a focus on how affective processes influence consumers, essay two contributes to theory by demonstrating how the structure of semantic associations, specifically the betweenness centrality of focal words in advertising, influences key behavioral intentions toward the advertised product. Further, it identifies conceptual fluency, a positive gut feeling when processing information, as the distal psychological mechanism responsible for the betweenness centrality effect. Thus, the manner in which memories are connected to their local semantic networks is shown to influence how consumers perceive, processes, and respond to advertising. Substantively, these results suggest that marketers should not only be aware of the direct or indirect memory activations (and their related explicit attitudes) evoked by focal words in advertising, marketers should also be aware of how their focal advertising words are structurally located within consumers' semantic networks. By identifying how the semantic network surrounding a focal word in advertising influences product behavioral intentions, marketers are provided additional tools to affect how consumers process and respond to advertising.

Together, these essays increase our understanding of how affect influences the enduring enjoyment of present consumption experiences and key behavioral intentions towards advertised products. To prolong enjoyment in the present, consumers should anticipate future consumption variety to reduce the negative affect they experience during recurrent consumption. To increase consumers' conceptual fluency and enhance consumers' positive behavioral intentions towards an advertised product, marketers should consider betweenness centrality when selecting focal words to feature prominently in advertising.

A Appendix

A.1 Chapter 2 Appendix

Figure A1.1: Text Advertisement – Study 1

[BRAND] Health Insurance

Your Friend In Life

- Affordable rates
- Accepted by 95% of healthcare providers
- Low, $5 co-pays

Figure A1.2: Text Advertisement – Study 2 and 3

Your Friend In the Digital Age

[BRAND] Online Backup and Cloud Service

- Automatic data syncing and backup across all your devices
- Supports all modern operating systems (computers, phones, tablets)
- Free 5 gigs of storage (buy additional space as needed)

Figure A1.3: Text Advertisement – Study 4

VIZIO HDTV

Brilliant LED Display

- 55" 1080p Display
- 120Hz Refresh Rate: Great for General Viewing and Action Content
- Smart TV: Interact with Streaming Content and the Web

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Professional Experience

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    - Consumer Behavior (8 sections)
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- Student Subject Pool/SONA Administrator, 2012 – 2015
- Teaching Assistant - Links Center for Social Network Analysis, 2013 Summer Workshop
- Senior Research Analyst, Bright House Networks, 2007-2010

Honors and Awards

- Gatton College of Business and Economics Fellowship, received from 2010-2015
- Max Steckler Fellowship, received from 2012-2015
- Contributed to the Marketing Department Receiving the First inaugural "DRS" (Donald Lichtenstein, Rick Netemeyer, and Scot Burton) award by vote to the PhD program that most exemplifies productivity, collegiality, and fun - 2013 Southeast Marketing Symposium
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