The Effect of Brand Crowding on Brand Differentiation: The Moderating Effect of Product Knowledge

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DEDICATION

First, I dedicate this MSc thesis to my girlfriend Siobhan, whose support throughout the MSc program made it all possible. I also dedicate this work to my friend Denise, without whom I would not be able to complete this program. Third, I dedicate this work to Dr. Nicole Coviello, for introducing me and inspiring me to pursue my MSc in Marketing. Finally, I dedicate this work to Dr. Narognsak Thongpapanl and Dr. Abdul Ashraf, whose wisdom, guidance and patience helped me to develop as a researcher, and as a person.
Abstract

Brand differentiation is a commonly examined phenomenon in marketing. Among the many antecedents of brand differentiation, brand crowding has not been examined, especially in the context of the chocolate industry. This paper proposes that brand crowding has a positive effect on brand differentiation. It further suggests that product knowledge has a positive effect on this relationship while brand differentiation has a positive effect on both brand preference and purchase intention. Chocolate brands are used in one study to test the hypotheses. Examining the relationship between brand crowding and brand differentiation will help marketing managers create strategies to ensure crowding does not have an adverse effect on their brands.

Keywords: Brand Differentiation, Brand Crowding, Brand Preference, Product Knowledge, Brand Loyalty, Purchase Intention
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Introduction

Brand differentiation has had a long history of being a key focus for successful firms (Davicik & Rundquist, 2012) and is the mechanism by which brands attempt to stand out from others. Tesseras (2015) maintains that differentiation is what distinguishes the Top 100 Brands. The Top 100 report found that brands perceived as “different” by consumers grew by 336%, compared to just 23% for those perceived as less differentiated. However, there are many industries and companies who do not acknowledge the benefits of differentiating (Tesseras, 2015).

In the chocolate industry for instance, if an individual were to select a brand of chocolate to purchase on Amazon.ca, they would have over 3,000 brands to choose from (Amazon, 2016). Those who know their chocolate may be able to organize and differentiate the brands, but those who do not have any pre-existing knowledge may not. Many retail marketers acknowledge that crowding of products in a retail setting is a key consideration in brand performance (Li, Kim, & Lee., 2009; Mehta & Sharma, 2013). However, despite the almost century-long idea of differentiation used by the strongest of firms, there has been a lack of differentiation by major brands (Rehman, 2014). Only about 10% of consumers think that companies’ offerings are differentiated (Allen, 2012). Many competitors in some industries use similar names, slogans, and values, leading Pilcher (2009) to argue that differentiation is the key to building a strong brand. Furthermore, previous researchers have found that many major brands seem to be lacking in perceived differentiation (Romaniuk, Sharp, & Ehrenberg, 2007). This lack of differentiation between brands can result in lesser brand loyalty, lower price premiums, and ultimately have a negative impact on brand preference and purchase intention (Bennett & Rundle-Thiele, 2005; Chaudhuri & Holbrook, 2001; Krystallis, 2013). Thus, it is imperative to understand how brand
crowding and brand differentiation affect consumers’ brand perception so that companies are able to effectively position their brands in ways that are the most beneficial, especially when there are many competitors in proximity.

Current research on brand crowding and brand differentiation, however, lacks guidance (Eppler & Mengis, 2004; Sharp & Dawes, 2001, Soto-Acosta, Jose Molina-Castillo, Lopez-Nicolás, & Colomo-Palacios, 2014) and support for the consequences of differentiation are ambiguous (Kimpakorn & Tocquer, 2010; Stahl, Heitmann, Lehmann, & Neslin, 2012). Carter (2014) states that robust differentiation is an absolute must. On the other hand, several authorities question the importance of brand differentiation as part of a branding strategy (Felix, 2014; Romaniuk et al., 2007). Moreover, there is a lack of understanding of the intricate relationship between brand differentiation and brand crowding and also their interactive effects on consumers’ decisions. A better understanding of product knowledge and its effects on the relationship between brand crowding and brand differentiation is needed. Thus, theoretical and managerial arguments can be made for a more in-depth understanding of brand differentiation in the context of brand crowding. This study will provide key insights on how brand crowding and brand differentiation interact so that companies are better able to position their brands appropriately to consumers against the potential threat of competitors.

The contributions we aim to make with this study are three fold. First, consistent with the existing literature, we propose a direct effects model, with brand crowding having a negative effect on brand differentiation. This study will use the working definition of brand crowding as being the event in which consumers are presented with too many brands, resulting in confusion and an inability to process information. This conceptualization emphasizes the brand aspect of crowding, as opposed to previous conceptualizations in the literature which placed emphasis on
retail spacing or perceived crowding (Eroglu & Harrell, 1986; Machleit, Eroglu, & Mantel, 2000). Brand crowding only captures the crowdedness perceived by the consumer when faced with several brands of the same retail category at the same time. This definition will allow us to isolate the crowding effects of brands and analyze the impact it has on consumer behaviour and preferences.

Second, an exclusive focus on direct relationships to explain the effects of brand crowding may not cover all aspects of the consumer experience with brand differentiation, and may prevent a more comprehensive understanding of consumer attitudes towards the brand experience. In addition, researchers have argued that consumer-related factors interact with the effects brand crowding has on consumers’ decision-making (Hwang et al., 2012). Most notable of these factors is product knowledge and of the various operationalisations of product knowledge, support for its antecedents remains equivocal (Hadar & Sood, 2014; Machleit et al., 2000;). Machleit et al. (2000) found that product knowledge has no effect on crowding, while Hadar and Sood (2014) found that product knowledge does have an effect on crowding and purchase intent. The lack of conclusive evidence from previous research and the recognized importance of product knowledge drives our exploration of the construct as a moderating factor. To examine all aspects of product knowledge, we will explore the construct as both objective knowledge and subjective knowledge (by using two separate measures), while controlling for familiarity.

This paper will examine whether brand crowding ultimately has a negative effect on brand differentiation. It will also investigate whether product knowledge has a moderating effect on the relationship between brand crowding and brand differentiation. In doing so, this research explores the intricate relationships between brand crowding, brand differentiation, and product
knowledge and provides a better understanding regarding the way in which brands are able to properly position themselves according to the different knowledge levels of consumers.

**Literature Review**

**Brand Differentiation**

Differentiation has been investigated in strategy literature and used in the industry for decades as a generic strategy. Bain and Company (2016) lists differentiation as one of the key aspects of having a sustainable repeatable strategy. Young & Rubicam Inc.’s Brand Asset Valuator (1997) has, for years, documented the power of differentiation in global brands. One of the key measures in their model of brand equity is differentiation. Aaker (2003) states that successful brands constantly measure high on differentiation, while declining brands measure inversely on perceived differentiation. He outlines several reasons as to why differentiation is so important: it makes it easier for consumers to link it to the brand, enables more efficient and effective communication, makes a dimension of the category more visible and more important to the decision process, and can be the basis for sustainable competitive advantage (Aaker, 2003).

In academia, the idea of differentiation goes as far back as 1912, when Shaw (1912) described differentiation as “meeting human wants more accurately than the competition” (p. 719). This results in an increase in demand as well as higher prices for the product. Similarly, Porter (2008) defines differentiation as a strategy that targets consumers based on attributes as opposed to price. He posits that those who compete on cost and price eventually lose margins, while companies that differentiate are able to secure margins and deter competitors. Similarly, Frambach (2003) defines differentiation as “creating a market position that is perceived as being unique industry-wide and that is sustainable over the long run. Such differentiation can be based
upon design or brand image, technology, features, customer services, distribution, and so forth” (p. 381).

In addition to strategy and industry, differentiation is commonly looked at in marketing literature as having a different attribute or product offering. The literature indicates that support for differentiation is a critical part of brand strategy. Davcik and Rundquist (2012) define differentiation as creating differences to distinguish a company’s offerings to consumers from competitors and also suggest that a differentiated company has a stronger market orientation than those that attempt to be a cost leader. Delivering differentiation is also a stronger strategy than improving product quality. Balmer (2001) calls differentiation one of the three virtues of strong corporate brands. Centeno, Hart, & Dinnie (2013) insist that differentiation is a key factor for brand growth. McDowell and Dick (2013) assert that successful brands must be perceived as different from their rivals in order to be successful. As has been demonstrated, past research has mainly explored differentiation in the context of firms attempting to employ a differentiation strategy in order to separate themselves from each other (Allen, 2012; Martin, 2015; Porter, 1979).

Brand differentiation has further and more specifically been defined as the degree to which the brand itself is perceived to be different. Sharp and Dawes (2001) define brand differentiation as occurring when a firm/brand outperforms rival brands in the provision of one or more features such that it faces reduced sensitivity to one or several other features. Firms inevitably save money by not having to provide additional features while reducing direct competition, allowing the firm to capture greater value and additionally saving money on advertising from increased brand loyalty. Differentiation also creates a more unique product image so that it becomes more difficult for customers to directly compare, thereby allowing
firms to charge a premium. In contrast, Kimpakorn and Tocquer (2010) define brand differentiation as the degree to which a brand is perceived as different from its competitors in the customers’ mind. Differentiation can be created through attributes, psychological or emotional benefits, or through customer experience. It can also be created with a clear brand identity which includes a set of values, brand personality, brand attributes, and promises that distinguish the brand from its competitors. Kimpakorn and Tocquer (2010) further note that to successfully achieve brand differentiation, a firm must align brand identity, company culture, and brand image.

Despite the abundance of literature on differentiation, there needs to be more work focused on brand differentiation. Brand differentiation captures the difference that consumers perceive exists between brands, and brands alone. Romaniuk et al. (2007) has called for more investigation into brands building some level of distinction as opposed to only differentiating. She also notes this is to be done at the brand level instead of the attribute level, creating a difference in brands. In the context of this study, brand differentiation involves creating a brand that is perceived to be unique and distinctive in comparison to others (Davcik & Sharma, 2015). Therefore, our working definition of brand differentiation will be a brand’s uniqueness to consumers in comparison to other brands that are usually within the same category.

**Antecedents of Brand Differentiation**

Several attempts have been made to identify dominant factors related to brand differentiation from different perspectives in the brand crowding context. Factors such as (a) moderate discrepancies (or differentiating benefits and improved quality), (b) brand personality, (c) brand associations, (d) consumer involvement, (e) ability for strategic marketing, (f) and customer and competitor orientation have been identified as the key factors affecting brand
differentiation. Moderate discrepancies in the attributes have been found to have a positive impact on brand differentiation. A study conducted by Sujan and Bettman (1989) demonstrated these moderate discrepancies by introducing a moderately important attribute for a consumer product. Their study showed that moderate levels of discrepancy lead to brand differentiation. Additionally, Agres and Dubitsky (1996) identified certain factors (differentiating benefits or improved quality) that influence brand differentiation in the context of brand building. Additionally, there has been evidence that brand differentiation exists through attributes which may be trivial or even meaningless, and still create a sense of differentiation (Broniarczyk & Gershoff, 2003; Carpenter, Glazer, & Nakamoto, 1994). The literature therefore suggests that overall, there are several factors that have a significant effect on brand differentiation.

Another antecedent prevalent in brand differentiation literature is brand personality. Rauschnabel et al. (2016) stated that applying brand personality to higher education literature enables institutions to create brand differentiation. To develop on existing literature, Lee and Rhee (2008) created a conceptual framework and a set of scales to measure within-category brand personality based on consumer perception. Their empirical scale demonstrated that brand personality leads to brand differentiation within the same brand category. Others have extended this line of research by identifying the key personality traits that lead to successful brand differentiation. They found that agreeableness, sophistication-youth, conscientiousness, ruggedness, competence, excitement, sophistication, and sincerity are potential major personality facets that firms should advance in their marketing strategies (Klabi & Debabi, 2011; Li et al., 2014). This research shows that personality has an effect on brand differentiation.

Brand associations serve to positively influence brand differentiation. Till et al. (2011) developed a tool which allowed them to provide a sharp focus on attributes that are stronger
differentiators. With this tool, they were able to identify that brand associations, create brand
differentiation and note which associations provide a stronger differentiating factor. Puligadda
and Ross (2010) assert that brands that lack strong brand associations end up with reduced brand
differentiation. In line with that assertion, McCarthy and Oakenfull (2014) demonstrated how
marketers and brand researchers can “elicit brand associations in a competitive category context,
in which identifying each brand's points-of-parity and points-of-difference is critical for brand
differentiation and positioning” (p. 175). The methodology presented investigated four important
characteristics (verbal/nonverbal, unconscious, metaphorical, and clusters) of brand associations
most critical to brand differentiation.

Several other factors have been found to have an influence on brand differentiation.
Consumer involvement has been found to influence levels of brand differentiation (Soscia,
Girolamo, & Busacca, 2010). Findings demonstrated that following exposure to comparative
advertising, consumers characterized by a low level of involvement perceived a lower brand
differentiation than that perceived by the high-involvement consumers. Kim, Shin, & Min (2016)
conducted surveys with managers from top firms in Korea to show that the ability for strategic
marketing can lead to differentiation, which can then lead to better firm performance.
Zolfagharian and Cortes (2010) also found that strategic orientation has a positive influence on
brand differentiation. However, they found that consumer and competitor orientation have a
significant positive effect on brand differentiation.

Consequences of Brand Differentiation

Past literature has demonstrated that differentiation leads to decreased price sensitivity
(Kalra & Goodstein, 1998), increased premium pricing (Davcik & Sharma, 2015; Keegan, 1995),
and improved ability to distance oneself from direct competition (Kotler, Ang, Leong & Tan,
1996). For example, Kalra and Goodstein (1998) found that differentiating through celebrity endorsement increased the price consumers are willing to pay. Kotler and Keller (2012) assert that brand differentiation had a significant impact on brands’ abilities to implement a price premium, approximately as high as 10-20%. In addition to enabling brands to implement price premiums, brands can also reach a higher relative price in their industry (Chaudhuri & Holbrook, 2001; Davcik & Rundquist, 2012; Tirole, 1988). For example, Kimpakorn and Tocquer (2010) found that brand differentiation in the context of the luxury hotel industry has a major positive influence on customer brand relationships. The findings from this research confirmed that brand managers must build differentiation that is both relevant and consistent, in order for the consumer to trust the brand. Chaudhuri and Holbrook (2001) found that brand differentiation can also position brands in less direct competition to others in the same category, leading to decreased price sensitivity and higher market share. Brand differentiation coupled with innovation also leads to a greater degree of difference between a brand and its competitors, forcing other firms to utilize or acquire more resources to fill the innovation gap (Tirole, 1988). Similarly, Davcik and Sharma (2015) found that differentiation drives price premiums with an emphasis to do it through innovation. The previous evidence supports the notion that differentiation drives price premiums and decreases price sensitivity.

Carpenter, Glazer, Nakamoto (1994) assert that differentiation positively affects perceived quality, especially if the brand is priced above others. They found that differentiation causes an increase in brand loyalty, name awareness, and brand associations. Huang and Tsai (2013) corroborate this research concluding that brand differentiation is closely related to brand equity. Broniarczyk and Gershoff (2003) further demonstrated that brands gain choice share when differentiating themselves by any trivial attribute. Voola and O’Cass (2010) found that
differentiation had a positive effect on responsive market orientation and proactive market orientation. They also found that differentiation had a positive effect on performance through market orientation (Voola & O’Cass, 2010). Frambach, Prabhu, & Verhallen (2003) found that differentiation influenced market orientation, which also had an effect on new product activity. They further noted that differentiation had a direct effect on new product activity.

Firms that do not differentiate have to compete with other firms more directly, causing them to resort to slashing prices to fight for market share. Successful brands are perceived to be more differentiated in comparison to less successful brands (Davcik & Sharma, 2015). It is clear that brand differentiation leads to superior firm performance (Davcik & Sharma, 2015; Smith & Park, 1992; Vera, 2016), making it an important part of a firm’s marketing strategy. The construct explored between products and product attributes are used interchangeably with product differentiation (Davcik & Sharma, 2015).

Several researchers have stated their advocacy for future research into brand differentiation. Romaniuk et al. (2007) calls for more research to be done on what makes a brand distinct to consumers and what really sets a brand apart. Madden, Fehle, & Fournier (2006) further argue that future research is needed into brand differentiation and performance while Frambach et al. (2003) call for additional studies into differentiation under additional contexts, especially in the areas of product and technology. Many other previous researchers have called for a deeper investigation into brand-level differentiation (Davcik & Sharma, 2015; Gupta, Czinkota, & Melewar, 2013; Romaniuk et al., 2007).

**Brand Crowding**

Crowding has been explored in different contexts which can be divided into three distinct areas: perceived crowding (Zehrer & Raich, 2016), information overload (Malhotra, 1984), and
choice overload (Iyengar & Lepper, 2000). This study will refer to these concepts to explain the phenomenon of brand crowding.

Crowding has been documented extensively in psychology and marketing literature. Crowding can broadly be defined as, “a state of psychological stress that results when there is not enough [cognitive] space to deal with the supply [of stimuli]” (Stokols, 1972, p. 75). The concept can be traced back to Miller (1956), who determined that humans have a clear and definite limit to the accuracy in which they can process a stimulus. He discovered that this limit is around the number of seven, give or take two. He further noted that people are not always at the mercy of this rule stating that people have many cognitive techniques for dealing with this limitation. Esser (1972) defined crowding as high density stimulation, producing stimulus overload from inappropriate or unfamiliar social contacts. Desor (1972) defines the phenomenon similarly as the “reception of excessive social stimulation” (p. 79). Other literature subsequently refers to the crowding of information in one’s mind as “information overload” (Eppler & Mengis, 2004; Goswami, 2015; Malhotra, 1984). Malhotra (1984) defines information overload as presenting an individual with too much information so that they become confused and cannot make a correct choice. Eppler and Mengis (2004) simply defines it as receiving too much information. Their meta-analysis found that the performance of participants was positively correlated with the amount of stimuli a participant receives, but after a certain point, their ability started to decline rapidly. Goswami (2015) defined information crowding as when “the volume of available information increases, individuals and organizations become overwhelmed by the plethora of information” (p. 233). Marketing literature has since expanded on the concept of crowding and information overload first introduced in psychology.
Machleit et al. (2000) define crowding as the number of non-human elements in an environment and their relationships to each other. Stanton and Paolo (2012) discuss the idea of crowding, characterizing it as when too many options are available. Similarly, Iyengar and Lepper (2000) presented the concept of choice overload; the idea that too many choices being presented to a participant may be detrimental to making the “right” choice, or even a choice to begin with. Prior research on crowding predominantly focused on the effects of being presented or exposed to too many attributes. It also focused on the overall physical crowdedness of the store or level of human crowding. This study proposes that when individuals are presented with too many brands, they become confused and cannot process the information given and describes this as “brand crowding”.

**Antecedents of Crowding**

Several researchers have identified dominant factors that influence crowding. Stokols (1972) found that the amount of space and stressors (such as noise, glare, and length of exposure) influence the perception of crowding for individuals. Studies conducted in residential and work environments suggested that a number of architectural cues can create a feeling of perceptual separation, and affects crowding perceptions (Baum et al., 1974; Desor 1972). Social variables such as the number of people, amount of social interaction, status allocation, division of labour, and group size were also found to be drivers of perceived crowding (Machleit et al., 2000; Stokols, 1972). Concentrated shopping hours for working women, population shifts, and the increasing number of recreational (Bellenger, Robertson, & Greenberg, 1977) and experiential (Holbrook & Hirschman, 1982) shoppers, have contributed to crowded environments. Wicker (1973) argued that one of the most important factors in determining whether a consumer experiences crowding is the degree of manning (levels of staffing). He found that participants
exposed to the undermanned condition felt more crowding than those who are part of an over
manned condition.

Hui and Bateson (1991) identified crowding as a direct function of density and found that
perceived control is an important factor in explaining crowding. Eppler and Mengis (2004) found
that organizational design, information, the person’s attitude and qualification, task and
processes, and information technology are all factors that influence crowding. Jacoby, Speller, &
Berning (1974) found that altering the number of brands and amount of information also affected
crowding. In their research, they presented different amounts of rice or prepared dinner brands
and information to the consumers and discovered a positive relationship between the amount of
information presented and the participants’ experiences of crowding. Brand-relevant information
was simplified to either high or low (for example, high vs low calories per serving; high vs low
cholesterol) and either randomly or systematically applied to each brand. Jacoby et al. (1974)
performed a similar experiment using different levels of information for bogus brands of laundry
detergent to cause crowding on their participants. They used six information dimensions were
used and each dimension varied from very low to very high in the range of attributes ($0.39 to
$1.23 for price). Eroglu and Machleit (1990) found that perceived risk in and time pressure to
purchase were shown to intensify shoppers’ perceived crowding. The same study found that task-
orientation has a mediating effect, demonstrating that task-oriented shoppers experienced more
crowding as opposed to non-task-oriented shoppers (Eroglu & Machleit, 1990). Further, several
researchers have found that country of origin has an effect as to whether consumers perceive
crowding or not. For example, Pons, Laroche, & Mourali, (2006) found that Middle Eastern
respondents perceive both a lower level of crowding and appreciate crowded situations more

**Consequences of Crowding**

In addition to looking at factors that affect crowding, researchers have also determined crowding’s influence on satisfaction, feelings of pleasure, negative and positive feelings, tension, arousal, and excitement (Hui & Bateson, 1991; Machleit et al., 2000). Machleit et al. (2000) found that crowding leads to a decrease in shopping satisfaction, and that the effect can be moderated by expectations of crowding and personal tolerance for crowding. Their study indicates that emotion only partially moderates the effect between crowding and shopping satisfaction. Several other researchers have validated their findings, demonstrating that crowding leads to decreased shopping satisfaction (Eroglu & Machleit, 1990; Eroglu, Machleit, & Barr, 2005; Grewal et al., 2003; Kim & Park, 2008; Li et al., 2009; Machleit et al., 1994). Crowding negatively affects firm performance, as it often leads to negative experiences for consumers, reduced purchase intention and time spent in store, and lower retail performance (Alawadhi & Yoon, 2016; Eppler & Mengis, 2004; Machleit et al., 2000). In addition to the aforementioned negative effects found, Gelbrich and Sattler (2014) found that perceived crowding reinforces the negative effect of anxiety experienced by consumers in the context of using technology. Other effects crowding has on the shopping experience are: attitude towards the store (Mehta et al., 2013; Pan & Siemens, 2011), feelings of loss of perceived control (Sherrod, 1974), and behavioural responses detrimental to the shopping experience (Hui & Bateson, 1991; Pan & Siemens, 2011).

Milgram (1970) identified several common problems that result from crowding such as: spending less time on each input, disregarding low-priority inputs, blocking off reception prior to
entrance, and a reduction in communication sources. Eppler and Mengis (2004) have also identified other symptoms of crowding, such as a lack of perspective, cognitive strain, greater tolerance of error, lower satisfaction, and an inability to use information to make a decision. In marketing literature, researchers have identified that heavy crowding can negatively affect the performance of an individual. For example, Malhotra (1982) used five different amounts of houses with five different levels of attributes for the houses to overload participants. It is worth noting that Malhotra (1982) found the cause of the effect was the number of attributes and not the number of alternatives. Respondents felt more certain about their choices as the variation in relative attractiveness increased. Participants’ satisfaction with the task decreased as a direct result of increased confusion as the number of alternatives increased (Malhotra, 1982). Xu, Shen, & Wyer (2011) found that when people felt that their space was violated, they were more likely to choose products to express their individuality. Whiting (2009) found that crowding negatively influenced time spent in store and that re-patronage intentions can cause copious amounts of stress. Researchers also found that the stress caused by crowding can be mitigated by social withdrawal (Aylott & Mitchell, 1998; Evans, Lepore, & Allen, 2000). Stanton and Paolo (2012) state that brand crowding has been linked to consumer confusion, which can cause consumers to deploy coping mechanisms to reduce their confusion. The studies and results suggest that these symptoms are a result of brand crowding.

**Product Knowledge**

Product knowledge is a well-documented topic in marketing literature. Brucks (1985) stated that product knowledge is based on what an individual stores in their memory. She identified two important aspects for the information processing approach to product knowledge: subjective and objective knowledge. Subjective knowledge refers to what individuals perceive
they know, while objective knowledge refers to the amount of knowledge stored in the memory (Brucks, 1985). Agres and Dubitsky (1996) identified knowledge as not just being aware of the product, but also what the product really is. According to Young and Rubicam's Brand Asset Valuator project (2018), knowledge is the result of a communication process that has already achieved differentiation, relevance, and esteem. Lacey et al. (2010) defined product knowledge as product-related experience and accumulated information, while Chen et al. (2011) described it as acquiring, storing, integrating, and applying related knowledge about the product. From the above literature, there is ample evidence of product knowledge being an important part of marketing literature.

In many cases, researchers define product knowledge in terms of what people perceive they know about a product category or what they actually know about the product category (Rao & Monroe, 1988). Based on Rao and Monroe’s (1988) definition, product knowledge will encompass what consumers actually know about the product category and their confidence in the knowledge that they hold.

**Antecedents of Product Knowledge**

Many factors influence product knowledge. Braunsberger, Lucas, & Roach (2004) found that product usage was positively related to subjective product knowledge, but not to objective product knowledge. Park, Ribière, & Schulte (2004) stated that product-related experience has a greater impact on subjective knowledge as opposed to stored product class information. Many other researchers have found that product experiences lead to product knowledge (Hoch & Deighton, 1989; Hoch & Ha, 1986; Kempf & Smith, 1998). Soderlund (2002) extended this field by finding that customer familiarity, or the number of purchase-related experiences, affected knowledge. It has also been found that the level of consumer product involvement influenced
product knowledge (Park & Moon, 2003). Sääksjärvi, Holmlund, & Tanskanen (2009) discovered that many personal factors, such as, being female, of higher income, and higher education, have an impact as to whether a consumer has higher levels of product knowledge. Several other factors have been found to be antecedents of product knowledge including advertising (Arndt, 1968; Coulter, Zaltman, & Coulter, 2001; Hoch & Ha, 1986), personal search (Alba & Hutchinson, 1987; Beatty & Smith, 1987; Darley, 1999; Srinivasan & Ratchford, 1991), and exposure to influential individuals (Dichter, 1966; Feick & Price, 1987).

**Consequences of Product Knowledge**

Product knowledge is known to have a direct impact on many facets of consumer behaviour. Recent studies show that product knowledge affects favourability towards a sponsorship (Lacey, 2010), perceptual category breadth, usage of product dimensions, decision time, confidence (Park & Lessig, 1981), and learning (Johnson & Russo, 1984; Mourali, Laroche, M., & Pons, 2005). Chan-Wook & Moon (2003) found a correlation between product involvement and subjective product knowledge. Chuang Tsai, Cheng, & Sun (2009) demonstrated that “consumers with low product knowledge were more motivated to pay attention to advertisements that contain pertinent information” (p. 187). Low consumer product knowledge also caused individuals to “form much more favourable advertisement and brand attitudes toward advertisements with terminologies than those without terminologies, but not more favourable attitudes for high consumer product knowledge individuals” (Chuang et al, p. 487). Graeff (1997) demonstrated similar results, finding that high knowledge consumers tended to make more meaningful inferences from product knowledge compared to low knowledge consumers. Several other researchers have also found that lower knowledge consumers may not
make the intended meaningful inference during message processing (Cowley & Mitchell, 2003; Lee, 2014; Lee & Olshavsky, 1994).

Johnson and Russo (1984) showed that product knowledge facilitated learning when consumers are rating alternatives. They also found that consumers with product knowledge were able to demonstrate stronger brand organization. Mishra, Umesh, & Stem (1993) demonstrated that product knowledge mitigates attempts at attraction effects suggesting that greater consumer knowledge regarding a product results in them being less likely to be influenced by manipulations of the choice set. Mourali, Laroche, & Pons. (2005) found that product knowledge reduced perceived risk in the information search context. They further found that product knowledge lowered the desire for interpersonal information, with higher knowledge consumers tending to rely less on interpersonal information sources and proactively seeking information elsewhere. Wang et al (2012) examined the effects of product knowledge on perceived newness and adoption intention and found that product knowledge had a significant positive effect on perceived newness and, subsequently, on adoption intention. Ho and Svein (2011) showed that higher product knowledge leads to higher purchase intention. In addition to that direct effect, they also found that product knowledge was a positive moderator in the satisfaction and purchase intention relationship.

**Hypothesis Development**
Figure 1: Visual representation of research model

Previous research in branding asserts that crowding causes the identification and selection of relevant information to be increasingly difficult, meaning they are unable to sort information effectively and efficiently (Eppler & Mengis, 2004; Jacoby, 1977). The prevention of adequate information processing and the inability to identify correct information leaves the consumer overwhelmed with information and subsequently unable to properly process this information, resulting in a negative influence on brand differentiation (Schneider, 1987; Zehrer & Raich, 2016).

Brand crowding also materializes from providing too many choices for the consumer. When consumers are exposed to crowding, they suffer from confusion and greater tolerance for error. This means that consumers are more willing to make subpar decisions when faced with crowding (Eppler & Mengis, 2004). Crowding causes consumers to develop a disregard for low-priority inputs (Milgram, 1970), meaning they do not spend adequate time to find the differences between each brand, resulting in a negative influence on brand differentiation.

Another effect brand crowding can also cause is the potential mental immobilization or blocking off reception from inputs prior to entrance (Bawden, 2001; Milgram, 1970; Schick, Gorden, & Haka, 1990). That is, as brands flood into a consumer’s mind, it may become so overwhelming that they end up dismissing the brands even before they consider the brand as a purchase option. It has also been found that consumers are only able to process a certain number of brands (Iyengar & Lepper, 2000; Miller, 1956) and several experiments have shown even a small incremental increase in brands and products, anywhere from 3 to 6, or 20 to 25, can cause this effect (Jacoby et al., 1974; Jacoby, Speller, & Kohn, 1974b; Malhotra, 1982; ). However,
when an unmanageable number of brands are presented to a consumer, they have been found to deploy coping mechanisms to deal with the situation (Stanton & Paolo, 2012). These coping strategies help reduce the amount of information processing required and the consumer ends up using other methods to deal with the situation and avoid processing the information. For example, a consumer may delay their purchase or abandon it all together in the presence of brand crowding (Stanton & Paolo, 2012). It is predicted that consumers may not be able to process the information, resulting in a lack of differentiation for the brands. This leads to the first hypothesis:

**H1: Brand crowding negatively influences brand differentiation.**

Past research has shown that product knowledge leads to more accurate distinctions about product differences (Calvet, Campbell, & Sodini, 2007; Cowley & Mitchell, 2003; Hadar & Sood, 2014). For example, Calvet et al. (2007) found that when consumers are more knowledgeable, they are able to make better and more efficient decisions. Further, Mason and Bequette (1998) found that when consumers are able to have more accurate and schema-consistent distinctions (i.e., the ability to recognize an unchanging pattern of thought that organizes categories of information), they become more attentive to the information. They also found that stable schema leads to structure and coherence, which mitigates the effect of brand crowding and allows consumers to find meaningful differences within the brands. Product knowledge allows consumers to more efficiently process the information, leading them to have an easier time comparing brands effectively (Lin & Chen, 2006; Lusardi & Mitchell, 2007). This provides support for the idea that when consumers are more knowledgeable, they are able to effectively compare and meaningfully differentiate between the brands.

It has also been found that as consumers become more knowledgeable about a product category, they are able to recall more specific information about each brand (Lin & Chen, 2006).
The more knowledge consumers have about a product category, the easier it is to learn brand specific information and organize it by sub categories (Cowley & Mitchell, 2003; Park & Lessig, 1981). These sub categories are created by the consumer to group relevant information together in order to streamline the information that needs to be processed. Consumers with higher knowledge would then be able to retrieve these sub categories, compare the information, and use this knowledge to make better purchase decisions (Alba & Hutchinson, 1987; Bourassa & Stang, 2016; Cowley & Mitchell, 2003). These findings provide initial support for the idea that consumers with different levels of knowledge may have different reactions to crowding. Hence, we expect that this would suppress the effect of brand crowding and allow the customer to differentiate the brands.

Moreover, Brucks (1985) noted in her findings that high knowledge consumers are more selective in the information they review during the decision making process. Since these high knowledge consumers are more knowledgeable, they are able to better organize and understand which attributes make for the best alternative (Bourassa & Stang, 2016; Cowley & Mitchell, 2003). Thus, high knowledge consumers are able to ignore insignificant information and only process the information that helps them make the most informed decision. It is predicted that the ability to filter out less relevant information alleviates high knowledge consumers of brand crowding and increases differentiation amongst brands.

H2. Product knowledge has a positive, moderating effect on the relationship between brand crowding and brand differentiation, such that higher product knowledge suppresses the negative effect of brand crowding on brand differentiation.

Previous literature found that in highly competitive markets, firms that focus on brand differentiation create a major positive influence on customer brand relationships (Keller, 2003;
Kimpakorn & Tocquer, 2010). A highly differentiated brand increases the psychological commitment of a consumer for being unique (Vera, 2016). This psychological commitment encourages the creation of brand loyalty (Iwasaki & Havitz, 1998). Brand differentiation has also been found to strengthen brand relationships (Kimpakorn & Tocquer, 2010; Vera, 2016), creating an environment for brand loyalty (Carpenter et al., 1994), resulting in consumers creating a preference and purchase intention for the brand (Machleit et al., 2000).

Differentiation has also been shown to have a positive effect on brand equity (Carpenter et al., 1994) while decreasing price sensitivity (Kalra & Goodstein, 1998). When a brand has more equity and decreased price sensitivity, consumers are found to have a higher willingness to pay when comparing high equity brands with low equity brands (Kalra & Goodstein, 1998). This means consumers will have an inelastic reaction to product price changes, especially if the brand has been compared to others and is able to position itself away from other brands. Higher brand equity also leads to higher retention rates (Stahl, Heitmann, Lehmann, & Neslin, 2012). As a result of differentiation, consumers are willing to purchase the brand if differentiated properly and are willing to choose the product over others repeatedly, meaning they have formed both purchase intention and brand preference.

\textit{H3. Brand differentiation has a positive effect on brand preference and purchase intention}
Methodology

- 1A: Brand Names
- 1B: Brand Names + Logos
- 1C: Brand Names + Wrapper
- 2: Attributes
- 3: Brand Names + Wrapper + Attributes

- Brand Crowding x Knowledge
- Brand Crowding
- Brand Differentiation
- Brand Preference
- Purchase Intention
- Knowledge

Figure 2: Visual representation of research methodology

Background

The purposes of the experiments are to explore (1) the effects of brand crowding on brand differentiation, (2) to examine the moderating role of product knowledge on the relationship between brand crowding and brand differentiation, and (3) to study the effect of brand differentiation on brand preference. If the brands, attributes, and other materials used during the study are prone to higher favourability or familiarity, it may create biased results. Any brand that is too familiar may skew the perception of the brand. To ensure the information used during the study did not contain any biases, we performed several pre-tests, for example, the first pre-test measured the familiarity and favourability of the brand names. For the main study, we decided to use chocolate as the product because there are well over 80 existing brands, making
the product category heavily crowded (CandyIndustry, 2013). Also, similar products were used in prior research to evaluate choice and crowding (Chernev, 2003; Iyengar & Lepper, 2000).

**Pretest 1:**

A. A pretest was done using just the names of the 23 chocolate brands listed below (Appendix A). MTurk was used to recruit 30 participants to measure the familiarity and favourability of the chocolate brands. The participants were told that the purpose of this study was to see consumer perception of different brands. One brand was shown at a time. Real brand names were used to ensure that the study would be realistic. Participants were asked to rate the names on a multi-item favourability scale (See Table 1) and a multi-item familiarity scale (See Table 1). A sufficient list of brands was found to have a moderate level of favourability and low level of familiarity.

B. The first pre-test was repeated with a combination of the brand names and the corresponding logos. This pre-test was performed to see if both the name and the brand logo combined would show similar effects as the previous pre-test. It was done to further ensure there would be no bias towards the logos and names of the brands. Data from 30 participants was collected through MTurk and the participants were told that the purpose of the study was to test their perception of brand names and logos. Each combination of logos and brands were shown one at a time. The brands introduced in the first pre-test were used for the following pre-test. Participants were asked to rate the logos and names on the same multi-item favourability scale and multi-item familiarity scale from pretest 1a. We found that several brands tested moderately favourable and not very familiar.

C. For the third pre-test, the brand logos were placed onto chocolate bars. The reason for including the chocolate bar format was to ensure a more realistic element when testing for
brand crowding. The pre-test was done to ensure the brand name and the candy bar picture together did not evoke a different response when compared to just the brand name or when compared to the brand’s logo and name. 30 participants were recruited through MTurk and they were informed that the intention of the study was to evaluate their perceptions of chocolate bars. Next, all 23 chocolate bar combinations with the respective brand names were presented individually. For each combination, participants were asked to rate the chocolate bars and names on the same multi-item familiarity scale and multi-item favourability scale used in the previous pre-tests. We were able to determine brands that tested moderately favourable and not very familiar, meaning we could proceed with these brands for our main study.

**Pretest 2:**

The second pre-test was done to test attributes that would be used in our main study. Attributes were used in our main study to create a more realistic product for participants to evaluate. Having been used successfully previously as documented in the literature (Allen, 2001; Chernev, 2003; just-food, 2008), we tested several attributes: nut content, cocoa content, sugar content, protein content, and chocolate level (See Appendix F for the full range of attributes). 30 participants were recruited through MTurk and were told that the objective of the study was to understand how shoppers perceived chocolate attributes. Next, they were shown a list of chocolate attributes and were then asked to evaluate each group of attributes on the same multi-item favourability scale (See Table 1). Out of all the groups, several were identified as moderately favourable.
Pre - test 3:

The finalized items from pre - test 1C were used for the current pre - test. This was to ensure that the combination of brand names, logos on chocolate bars, and attributes did not have any significant alternative effect in the main study. 30 participants were recruited from MTurk and were informed that the objective of the study was to understand how people perceive different chocolates. They were then showed a combination of the brand names, chocolate bars, and attributes. Subsequently, participants were asked to evaluate each one on the multi-item favourability seven-point scale used above (See Table 1) and the multi-item familiarity scale used above (See Table 1). The combinations confirmed the previous pre - tests, testing moderately favourable and moderately familiar which made them suitable for the main study.

Study 1

To investigate how the effects of brand crowding affect brand differentiation and brand preference, we had to create a study that captured all three effects, while also including our moderating factor, product knowledge. Since confectionary with many existing brands was popular in past literature, real chocolate brands were used for all crowding conditions. From pre - test 3, 15 brands were selected. We designed a 2 (low/high brand crowding) x 2 (low/high product knowledge) between-subjects experiment. Previous studies (Malhotra, 1982) have used multiple crowding levels for a more comprehensive look at the effects of crowding on different levels.

One hundred and fifty participants were used from MTurk. The experiment first asked participants about their knowledge of chocolate. Seven questions measured on a Likert scale were asked to determine their level of objective knowledge (Moorman, Diehl, Brinberg, & Kidwell, 2004) (See Table 1). Seven statements were then provided to the participants to
distinguish whether they were true or false (See Table 1). This form of questioning was adopted from previous studies (Pieniak, Verbeke, Vermeir, Brunsø, & Ottar, 2007; Tuu, Olsen, & Linh, 2011). We decided to manipulate knowledge between two subject groups. We conducted a manipulation for our high knowledge condition manipulation, which was found to cause an increase in chocolate knowledge (Fabrigar et al., 2006; Ho & Svein, 2012; Smith, Fabrigar, MacDougall, & Wiesenthal, 2008). In the low knowledge condition, the participants were showed a control paragraph before completing the experiment. In the high knowledge condition, the participants were primed with the knowledge manipulation procedure before completing the experiment.

We randomly assigned participants to low and high brand crowding conditions. Those with low brand crowding observed 6 brands, while those in the high brand crowding condition observed 12 brands (Iyengar & Lepper, 2000; Malhotra, 1982). In the past, researchers have presented the conditions in the form of rows. For example, a past experiment with 6 and 30 items presented 1 row of 6 in the 6 item condition and 5 rows of 6 in the 30 item condition. In this experiment, we had participants look at all the chocolate bar brand pictures, name, and 5 of its attributes (Chernev, 2003) provided for them simultaneously. They were presented either in 1 or 2 rows of 6 brands. Attributes were provided to create a more realistic presentation of a brand. To further prevent any confounding effects of the attributes, we mixed the attributes with the brands. Each condition had very similar attributes with attributes switched around from other brands (Sela & Berger, 2012). After looking at all of the brands simultaneously, several questions were asked to measure brand preference, brand differentiation, and several other measures (See Table 1).
For the brand crowding manipulation check, the participants responded to five measures on seven-point Likert-type scales (See Table 1). They were asked to answer whether they felt that too many brands had been presented to them. This was done to ensure that the participants were successfully manipulated by the crowding conditions. They were also asked whether the brands left a strong impression and their perception regarding the brand. We also included confounding variable checks on the logo and brands (See Table 1). This was done using a 1 = strongly disagree to 7 = strongly agree scale (Allen, 2001). We asked a screening question at the end of the test that had participants rate their aversion to chocolate on a multi-item aversion scale. This was to determine if an aversion to chocolate could potentially affect our results and provide new insight into our research.

Results

Manipulation Check

Respondents from the objective knowledge manipulation (M= 6.23, p= .000) have a higher level of objective knowledge in comparison to those who read the control paragraph (M= 4.95, p= .000). Furthermore, respondents perceived a higher level of crowding as the number of brands increased, with the low crowding condition having experienced the least crowding (M=4.74), and the high crowding condition being the most crowded (M=4.18). Thus, the manipulations for both knowledge and brand crowding were verified.

Study 1

The data was analyzed using a one-way ANOVA procedure. 10 outliers were removed before the data analysis was performed in order to prevent distortion of the results. The analysis revealed that brand crowding had a significantly negative effect on brand differentiation, with
brand differentiation (F (1,83) = 8.208, p = .005) being lower in the high brand crowding condition (M= 4.31, SE= .180), as opposed to the low brand crowding condition (M= 5.26, SE= .136). Hypothesis 1 was supported by this study.

The data was analyzed using two-way ANOVA procedures. There was no interaction effect of product knowledge on the relationship between brand crowding on brand differentiation (F (5,73) = 1.352, p = .253), whether it was low (M= 5.26, SE= .136) or high (M= 4.31, SE= .180) brand crowding. Hypothesis 2 was not supported by this study.

For the relationship between brand differentiation and brand preference/purchase intention, the data was analyzed using one-way MANOVA procedures. To manipulate brand differentiation, we dichotomized the factor into low and high conditions. The MANOVA analysis revealed significant positive effects of brand differentiation on brand preference (F (22,62) = 2.56, p = .002, M=3.65, SE=.142) and purchase intention (F (22,62) = 1.767, p = .042, M= 4.27, SE=.081). Hypothesis 3 was supported by this study.

**General Discussion**

The results of this study provide evidence that brand crowding has a significant effect on brand differentiation, which subsequently affects brand preference and purchase intention. Surprisingly, the study also demonstrates that a lack of significant effect product knowledge has on the relationship between brand crowding and brand differentiation. The study confirms that brand crowding has a significant negative effect on brand differentiation, suggesting that the more brands people are exposed to, the less differentiated they perceive the brands to be. Our results show that a small amount of brands does not affect participants’ abilities to differentiate between the brands. On the other hand, high brand crowding has a significantly negative effect
on brand differentiation. Participants who were exposed to the high crowding condition (12 brands) differentiated between the brands less in contrast to those who were exposed to the low crowding condition (6 brands). They were overwhelmed with the amount of brands presented to them, rendering them incapable of differentiating between the brands.

The results of this study demonstrate that product knowledge has no significant effect on the relationship between brand crowding and brand differentiation. Product knowledge does not mitigate the effects of brand crowding on brand differentiation, suggesting that neither higher nor lower product knowledge has an effect on whether participants are able to differentiate between the brands in different brand crowding conditions or not. This may be due to product knowledge not being an effective moderating variable for this model.

The study illustrated that, those with high brand differentiation experienced higher brand preference and higher purchase intention. Different levels of brand differentiation elicit different responses from participants. Our results show that low brand differentiation causes lower levels in brand preference and purchase intention. This suggests that when participants are unable to differentiate, they end up forming lower brand preference and lower purchase intention. On the other hand, high brand differentiation meant that participants are more likely to form preferences and buy one of the brands. These results are both congruent and incongruent with the current body of knowledge.

**Theoretical Contributions**

Several contributions have been made to the existing marketing literature through this thesis. Firstly, this has been the first body of work to introduce, conceptualize, and operationalize brand crowding. Also, no research has been done previously on brand crowding, as an
antecedent to brand differentiation together in one model. Not only were the variables used together in this study, but brand crowding was shown to have a significant effect on brand differentiation. Crowding has been studied, conceptualized and operationalized in the past under many forms with several different evolutions. This research helps the advancement and evolution of previous uses of crowding.

Secondly, we find support for the significance of both brand crowding and brand differentiation. The existing research did not provide a clear direction for brand differentiation, nor did it have a unique conceptualization that could be used only to address the crowding in brands. The effect of brand differentiation was clarified by this study, while also providing a clear direction for brand differentiation by demonstrating its positive effect on brand preference and purchase intention. In summation, this study provides a foundation on which future research could be carried out relating to the effects of brand crowding and brand differentiation.

Contrary to the hypothesis and previous studies, the research found that product knowledge does not have a significant effect on the relationship between brand crowding and brand differentiation. This is significant for several reasons. Product knowledge used in this context has also been a first and continues to contribute to the literature that uses product knowledge as a moderator. This study also provides evidence for researchers to start to explore why product knowledge has no effect on some relationships. Finally, our measure of objective knowledge manipulation falls in line with the existing literature, further reinforcing the operationalization of the construct.
Managerial Implications

There are many managerial contributions that the research makes. Firstly, this research provides a model that practitioners can use to help model their brand strategy. Considerations such as positioning among competitors, distribution channels and retail placement are addressed in the research. For example, when designing the user interface for an e-commerce site, firms should take crowding into serious consideration. Presenting too many brands together may have an adverse effect on a consumers’ experience of an online store. Firms that have several brands within the same product category or with many extensions may need to re-evaluate their brand portfolio and whether those brands contribute to the crowding of that industry. Another insight the research provides for practitioners is that product knowledge does not have an influence on brand crowding and brand differentiation, meaning they are not able to mitigate the effect of crowding by educating consumers about the products.

Limitations and Future Research

Despite the discoveries made in this study, there were limitations that existed within the scope of this research. The study examined product knowledge as a moderator, but did not include other factors that could have an influence on the model. Factors that could be used for future research include involvement and brand knowledge. Involvement has been found to motivate processing and encourages consumers to think deeper about what they saw (Puccinelli et al., 2009). This would cause consumers to find more differences between brands, mitigating the effect of brand crowding. Consumers who have better developed consumer knowledge structures have an increased chance of making unique associations with brands (Hoeffler and Keller, 2003). Consumers would make better distinctions in each brand, resulting in a lower effect brand crowding has on brand differentiation.
Additionally, the amount of brands was a limitation that this study as we were only able to conduct the study using 6 and 12 brands. However, future research could utilize other amounts of brands to identify if a change in conditions has any effect on the results.

Another limitation of this study is that we were only able to conduct the experiments in one industry. The results would need to be replicated across multiple industries, preferably ones that have different consumption habits, such as furniture or wine. This would provide generalizability to the model as well as an opportunity to test other consequences, mediation effects and moderators pertinent to different industries and consumption habits. Similarly, the data for this study was only collected from the United States. Studies could be done in different nations to see if this research can be replicated across countries, or whether this is a phenomenon only prominent in American consumers.

Lastly, this study adopted the brand crowding scale from previous research. A scale development paper could be done in the future to more accurately measure this construct. The new scale would allow for better control for all the variables involved while also potentially expanding the breadth of what the scale would measure.

**Conclusion**

As industries become increasingly saturated with products and brands, consumers become increasingly confused and crowded by the sheer number of brands they need to process. Despite companies and consulting firms constantly advocating for brand differentiation, this study shows that the effect of their plan for differentiation is foiled by the amount of brands consumers end up seeing. Previous research showed the effects of crowding on the amount of stimuli in the area, physical crowding, and information. This is the first study to have done it at
the brand level. Now that this research has provided valuable evidence, firms must focus on how they can distinguish their brands from the crowd. Based on the study results, it is also suggested that they focus on how they can get consumers to consider their brands outside of contexts where their brand may be put in a position to be crowded with their competitors.

The research done in this study found support for brand crowding as having a significantly negative effect on brand differentiation. The study further confirmed that support for brand differentiation’s positive effect on purchase intention and brand preference. Surprisingly, support was not founded for product knowledge having a positive effect on the relationship between brand crowding and brand differentiation. Further research can take this model and improve on it by exploring additional moderating factors and consequences.
Appendix A

Chocolate Brands Used in This Study

Alpen Gold, Albeni, Metro, *Côte d'Or*, Freia Melkesjokolade, Lacta, Marabou, Milka, Caramio, Hobby, Ulker Bi'rüya, Verkade, Ghirardelli, Tofi, Cofler, Bon o Bon, Meiji, Ion, Perugina, Wish, Biscolata, Caffarel, Alpella
Appendix B
Chocolate Brands Used in This Study and Their Logos

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<td>[Image 72x607 to 184x720]</td>
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Appendix C

Chocolate Brands Used in This Study and Their Chocolate Bars

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Appendix D
Chocolate Brands Used in This Study, Logos and Attributes

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<td><img src="image4.png" alt="Côte d'Or Logo" /></td>
<td><img src="image5.png" alt="Freia Logo" /></td>
<td><img src="image6.png" alt="Lacta Logo" /></td>
</tr>
<tr>
<td>cocoa solids (29%)</td>
<td>cocoa solids (29%)</td>
<td>cocoa solids (28%)</td>
</tr>
<tr>
<td>Chocolate level 11%</td>
<td>Chocolate level 12%</td>
<td>Chocolate level 11%</td>
</tr>
<tr>
<td>Sugar 29g</td>
<td>Sugar 31g</td>
<td>Sugar 31g</td>
</tr>
<tr>
<td>pecans</td>
<td>Peanuts</td>
<td>Peanuts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Caramio</th>
<th>Hobby</th>
<th>Ulker Bi'rüya</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Caramio Logo" /></td>
<td><img src="image8.png" alt="Hobby Logo" /></td>
<td><img src="image9.png" alt="Ulker Bi'rüya Logo" /></td>
</tr>
<tr>
<td>cocoa solids (29%)</td>
<td>cocoa solids (29%)</td>
<td>cocoa solids (27%)</td>
</tr>
<tr>
<td>Protein 4.2g</td>
<td>Protein 3.8g</td>
<td>Protein 4.2g</td>
</tr>
<tr>
<td></td>
<td>Verkade</td>
<td>Ghirardelli</td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Sugar</strong></td>
<td>31g</td>
<td>29g</td>
</tr>
<tr>
<td><strong>Macadamia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>234g</td>
<td></td>
</tr>
<tr>
<td><strong>Walnuts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>390g</td>
<td></td>
</tr>
<tr>
<td><strong>Verkade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ghirardelli</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tofi</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chocolate level</strong></td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Sugar</strong></td>
<td>29g</td>
<td>30g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td>3.8g</td>
<td>4.2g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cofle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bon o Bon</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meiji</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cocoa solids</strong></td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Chocolate level</strong></td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Protein</strong></td>
<td>4g</td>
<td>4.2g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Roasted nuts</strong></td>
<td></td>
<td>Cashews</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perugina</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand</td>
<td>Cocoa Solids</td>
<td>Protein</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>ION</td>
<td>28%</td>
<td>4.2g</td>
</tr>
<tr>
<td>GIA PANTA</td>
<td>25%</td>
<td>3.8g</td>
</tr>
<tr>
<td>Wish</td>
<td>25%</td>
<td>4.2g</td>
</tr>
<tr>
<td>Biscolata</td>
<td>4g</td>
<td>4g</td>
</tr>
<tr>
<td>Caffarel</td>
<td>4.2g</td>
<td>4.2g</td>
</tr>
<tr>
<td>Alpella</td>
<td>4g</td>
<td>4g</td>
</tr>
<tr>
<td>Marabou</td>
<td>27%</td>
<td>4g</td>
</tr>
<tr>
<td>Milka</td>
<td>27%</td>
<td>4.4g</td>
</tr>
</tbody>
</table>
Appendix E
Knowledge Manipulation and Control Items

The flavour of chocolate differs depending on the ingredients used and how it is prepared. Typically, this involves a fermentation process where the beans are initially cleaned by hand and then covered with banana leaves and left to ferment. After several days of fermentation, the beans change colour and start to taste like chocolate. These beans are then placed on wooden boards or bamboo mats for 1-2 weeks under the sun. Once the beans become dry, they are packed into sacks and shipped all over the world. On arriving at the processing plant, the dry beans are blended with beans from other places to make a unique chocolate, or kept separate as a “single-origin” chocolate. Once the mixture is produced, it then goes through “conching”, which rolls, kneads, heats and aerates the mixture. This is where the final flavouring and aromas are added. The chocolate is finally delivered to a chocolatier, and is tempered (a method that brings chocolate to a certain temperature) and shaped into its final form.

There are mainly two types of chocolate, white and regular milk chocolate. White chocolate is technically not chocolate, since it does not technically contain any chocolate solids. Some milk chocolates can have very little chocolate solid, with most chocolates containing around 25-50%.

Researchers have found that chocolate may be beneficial to the heart and circulation while simultaneously reducing the amount of bad cholesterol. Dark chocolate in particular has been found to be beneficial to those with brain related injuries. Chocolate also contains phenylethylamine, which is the same chemical produced by the body when somebody falls in love. This encourages the brain to release endorphins, a chemical that make people feel good.
Volkswagen has revealed its latest design study, the Concept A, a crossover between a sports car and a compact SUV. It was introduced at the 2006 Geneva Auto Show. It is sometimes claimed as a cross between a coupe and a crossover SUV because of this styling and design. Introduced as a four door coupe with off road capabilities, the Concept A’s production successor is aimed at the likes of Toyota's RAV4 and the Honda CR-V. The concept combines a sleek coupe-style silhouette with the raised stance of an SUV. It is fully loaded and has plenty of light. The Concept A's finish is coloured in an intense blue tone of glacier formations and is called "Glacier metallic". Added are glass flakes which enhance the depth of the paint applied in a piano lacquer technique. The rear part, with its athletic flanks, imparts a strong elegance. The hatchback is built in tailgate-style and can be opened in two steps: the area under the rear lights swings out like a pick-up loading surface and thus creates a lot of room for big items. At the bottom the motor exhales via two round chrome pipes. The interior presents itself spacious and open. Light and air dominate the feel of the space. If needed, a large soft top can be swerved all the way back to the C column. Designed to respond to customer demand, the concept is powered by a 150 hp Twincharger, with a six gear transmission and an all-wheel drive system. The design of the car is sporty, but still rugged. A production version of the Concept A. As one company executive put it, “We’re at the forefront of crossover technology. This concept is likely to find its way into production soon ... design changes will certainly happen in response to consumer testing.” The Concept A preceded the Tiguan concept, which eventually became the production Tiguan model.
Appendix F

Attribute Items

Nut content (hazelnuts, peanuts, pecans, macadamia, roasted nuts); cocoa content (25%, 27%, 29%, 26%, 30%); sugar content (27g, 30g, 29g, 28g, 31g); protein content (3.7g, 4.1g, 4.3g, 3.8g, 3.9g); and chocolate level (11%, 12%, 13%, 14%, 15%)

Table 1: Measurement Items

<table>
<thead>
<tr>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subjective Knowledge</strong> (Moorman et al. 2004)</td>
</tr>
<tr>
<td>Ranging from 1= not at all to 7= extremely</td>
</tr>
<tr>
<td>How knowledgeable do you feel about levels of sweetness in chocolate?</td>
</tr>
<tr>
<td>How knowledgeable are you with chocolate?</td>
</tr>
<tr>
<td>How knowledgeable do you feel about chocolate content contained in foods?</td>
</tr>
<tr>
<td>How knowledgeable do you feel about chocolate in general?</td>
</tr>
<tr>
<td>How confident are you when choosing a brand of chocolate?</td>
</tr>
<tr>
<td>How confident do you feel about your ability to use your knowledgeable with chocolate when buying for others?</td>
</tr>
<tr>
<td>Can you please name your favorite chocolates?</td>
</tr>
<tr>
<td><strong>Objective Knowledge</strong> (Pieniak et al., 2007; Tuu et al., 2011)</td>
</tr>
<tr>
<td>First 4 are true, last 3 are false</td>
</tr>
<tr>
<td>Coco beans are fermented before becoming chocolate</td>
</tr>
<tr>
<td>Conching is a process that occurs in the process of making chocolate</td>
</tr>
<tr>
<td>Chocolate contains phenylethylamine</td>
</tr>
<tr>
<td>Coco beans are placed on bamboo mats for 1-2 weeks under the sun</td>
</tr>
<tr>
<td>White chocolate is technically chocolate</td>
</tr>
<tr>
<td>80% of chocolate comes from Peru</td>
</tr>
<tr>
<td>There are no medical benefits to chocolate</td>
</tr>
<tr>
<td><strong>Brand Preference</strong> (Liu, 2014)</td>
</tr>
</tbody>
</table>
Ranging from 1 = strongly disagree to 7 = strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would never buy one of these brands.</td>
<td></td>
</tr>
<tr>
<td>I would seriously consider purchasing one of these brands.</td>
<td></td>
</tr>
<tr>
<td>It is likely that I would purchase these brands.</td>
<td></td>
</tr>
<tr>
<td>It makes sense to always choose one of these brands, even if other brands taste slightly better.</td>
<td></td>
</tr>
<tr>
<td>Even if another brand has a better range of products than these brands, I strongly prefer these ones.</td>
<td></td>
</tr>
<tr>
<td>If there are other brands that are more accessible, I still prefer to choose one of these brands.</td>
<td></td>
</tr>
<tr>
<td>One of these brands would easily be my first choice for chocolates.</td>
<td></td>
</tr>
<tr>
<td>I have a very strong preference for one of these brands.</td>
<td></td>
</tr>
</tbody>
</table>

**Brand Crowding Manipulation Check (Malhotra, 1982)**

Ranging from 1 = not at all to 7 = extremely

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel certain about the brands that I saw.</td>
<td></td>
</tr>
<tr>
<td>I feel satisfied about the amount brands.</td>
<td></td>
</tr>
<tr>
<td>I feel confused about the brands.</td>
<td></td>
</tr>
<tr>
<td>I would like more information.</td>
<td></td>
</tr>
<tr>
<td>I feel as if too many brands have been presented to me.</td>
<td></td>
</tr>
</tbody>
</table>

**Brand Differentiation (Aaker, 2010)**

Ranging from 1 = strongly disagree to 7 = strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>These brands are unique.</td>
<td></td>
</tr>
<tr>
<td>These brands are distinctive.</td>
<td></td>
</tr>
<tr>
<td>These brands are differentiated.</td>
<td></td>
</tr>
<tr>
<td>These brands are innovative.</td>
<td></td>
</tr>
<tr>
<td>These brands are dynamic.</td>
<td></td>
</tr>
</tbody>
</table>

**Confounding Variable Check (Malhotra, 1982; Liu, 2014)**

Ranging from 1 = strongly disagree to 7 = strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt that certain brands were more familiar than others.</td>
<td></td>
</tr>
<tr>
<td>I felt that certain brands were more favourable than others.</td>
<td></td>
</tr>
</tbody>
</table>
I felt that certain logos were more familiar than others.

I felt that certain logos were more favourable than others.

I have an aversion to chocolate.

The brand was the only thing that left an impression.

The brand name left a strong impression.

My decision was made solely on the brand name and the logo.

**Favorability Scale** (Carrillat et al., 2005)

These names are favourable to me. (1 = very unfavourable to 7 = very favourable)

These names are likeable. (1 = not knowledgeable to very knowledgeable)

These names are desirable. (1 = very undesirable to 7 = very desirable)

**Familiarity Scale** (Saini & Lynch, 2015; Park & Jang, 2013)

These names are familiar to me. (1 = very unfamiliar to 7 = very familiar)

I am knowledgeable about these names. (1 = not knowledgeable to very knowledgeable)

I have experience with these names. (1 = very inexperienced to 7 = very experienced)


Amazon.ca (2017). Grocery & Gourmet Food: "chocolate". (April 4), https://www.amazon.ca/gp/search/other/ref=sr_in_z_Y?rh=i%3Agrocery%2Cn%3A6967215011%2Ck%3Achocolate&keywords=chocolate&pickerToList=lbr_brands_browse-bin&indexField=z&ie=UTF8&qid=1491362111


Chernev, A. (2003). When more is less and less is more: The role of ideal point availability and assortment in consumer choice. *Journal of Consumer Research, 30*(2), 170-183.


doi:10.1509/jmr.12.0118


Smith, S. M., Fabrigar, L. R., MacDougall, B. L., & Wiesenthal, N. L. (2008). The role of amount, cognitive elaboration, and structural consistency of attitude-relevant knowledge


