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The Role of Brands in Online and Offline Consumer Choice

BY

Yvonne Kabeya Saini

Candidate number: 224319

Supervisors Names:

Professor John G. Lynch, Leeds Business School, University of Colorado, Boulder, USA

&

Dr Thabo Mosala, Wits Business School

University of the Witwatersrand, Johannesburg, South Africa

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ABSTRACT

This dissertation examined the role of brands in consumer decision making in online environments versus offline environments. The effects of the information type and quality available in a given purchase environment influences consumer choice. The premise on which this study was based is the accessibility-diagnociticity model which states that the weight given to any piece of information which would be used for consumer decision making depends on the accessibility of that piece of information, the accessibility of alternative inputs and diagnositicity or perceived relevance of the inputs (Feldman & Lynch 1988). Information available to consumers plays a significant role in their decision making and there has been limited studies investigating this in the online versus offline shopping environments. The challenge of online shopping for some product categories is that there is limited capacity to provide touch, smell and taste information.

The dissertation reports three experiments which were conducted to test the hypotheses. Participants were randomly assigned to different shopping environments with varying levels of information. The findings extend the theory of the diagnosticity of information (Alba, Hutchinson, & Lynch, 1991; Feldman & Lynch 1988; Herr, Karde, & Kim, 1991; Lynch, Marmorstein & Weigold, 1988; Lynch 2006) indicating that, when consumers observe that they do not have enough information to make a purchase decision, they do not make a decision unless the brand is familiar.

The findings from the research offer fresh insights that familiar brands have greater advantage in online shopping than unfamiliar brands, particularly for experiential products. The results suggest that in purchase situations where there is limited sensory information, consumers rely on brand familiarity to make decisions or they do not make a decision if the brands are unfamiliar. The results of the dissertation showed that when there is limited information in consumer decision making processes, consumers use their knowledge about brands to make or not make a decision. The results contradict the long tail theory (Anderson, 2006) which proposes that the businesses would make more profits from niche offerings of unfamiliar brands. The results of the study were not conclusive on the effects of shopping environments on price sensitivity for familiar and unfamiliar brands. The results suggested the predicted pattern, though the interaction was not statistically significant and there is need for future research on online price elasticity. Future research should also explore the effects of these new sources of information like blogs, consumer and expert reviews, Facebook, etc. on consumer decision making in the offline and online environments.

Key Words: *Information, Accessibility-diagnosticity model, Brand familiarity, shopping environment, consumer choice, familiar and unfamiliar brands*

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DISSERTATION DECLARATION

I hereby declare that this thesis is my own unaided work except where due recognition has been given. It is submitted for the degree of Doctor of Philosophy at the Graduate School of Business Administration at the University of the Witwatersrand Johannesburg in South Africa. It has not been submitted before for any other degree at any other university.

…….

Mrs Yvonne Kabeya Saini

February 2015

DEDICATION

This dissertation has been dedicated to my children; Mwila, Munshya & Mwape Saini. Your presence in my life pushed me to limits. There were times I felt I should give up my pursuit of higher education, but your presence in my life motivated to never give up. The Lord knew that I needed children like you to help me shape my outlook and focus in life.

CHAPTER 1: INTRODUCTION

This introductory chapter gives a brief overview of: 1) the context of this dissertation study; 2) the problem statement; 3) sub-problems with research questions and research objectives; 4) brief research methodology, 5) and contribution to literature. The chapter ends with 6) the organisation of the thesis.

1.1. Context of the Study

With the advent of the internet, doing business has changed and is being challenged by the opportunities and complexities of trading online, with no physical presence. The Internet led to the emergence of e-commerce which is defined as doing business electronically (Kracher & Corritore, 2004) or remotely using various interactive technologies including computers, cell phones, ipads, television and other electronic gadgets. The interest of academicians and practitioners is to establish whether there are systematic differences in consumer choice behaviour in offline and online stores and to comprehend the reasons for these differences (Degeratu, Rangaswamy & Wu, 2000). The objective of this dissertation was to provide some insights in the effect of the purchase environment on consumer behaviour.

The central aim of this dissertation was to investigate the effects of online versus offline environments on consumer choice of familiar versus unfamiliar brands. Online and offline shopping environments have different levels of information. The study utilises the

accessibility-diagnonsticity model developed by Feldman and Lynch (1988) to make predictions about the weight given to brand familiarity in online versus offline choice.

The accessibility-diagnosticity model states that the weight given to any piece of information to be used as an input for judgment or choice depends on: a) the accessibility of the input; b) the diagnosticity or perceived relevance of the input, and c) the accessibility and diagnositicity of alternative inputs to the same decision (Alba, Hutchinson & Lynch, 1991; Feldman & Lynch 1988; Herr, Kardes & Kim, 1991; Lynch, Marmorstein & Weigold, 1988; Lynch, 2006). The accessibility-diagnosticity model is based on the information consumers are exposed to or seek in the decision making. The accessibility-diagnosticity model suggests that any factor that increases the accessibility of an input is also expected to increase the likelihood with which that input will be used for the judgment (Ahluwalia & Gürhan-Canli, 2000). The more diagnostic a piece of information is, the greater weight it is expected to receive in the evaluation and decision making (Feldman & Lynch, 1988). Most critically, information of modest diagnosticity – such as brand familiarity -- may get little weight if the consumer has alternative accessible and diagnostic inputs, but substantially more weight if the consumer lacks other accessible and diagnostic inputs. This model is relevant to this study due to the different levels of information available in the offline and online shopping environments.

The different level of information available to consumers impacts the relative choice of familiar and unfamiliar brands. This thesis sought to propagate the idea that branding is more important in the online environment because of the limited information which is available to consumers when making decisions. Online retailers decide what type of information they will

provide to their prospective customers. The issue is that the online shopping formats have limitations on the type, quantity and quality of information on brand attributes linked to the consumption benefits they can provide.

The premise is that human beings use their senses of sound, sight, smell, and touch, and these have powerful effects on the physical, cognitive, social and emotional influences on decision making (Soars, 2009). It has been suggested that information, especially on sensory attributes available online, may be inferior to the offline environment (Wood, 2001). Offline shopping environment affords buyers the opportunity to obtain information on brand attributes through senses of touch, taste and feel, as well as to inquire about relevant product information from the sales representatives (Alba, Lynch, Weitz, Janiszewski, Lutz, Sawyer & Wood, 1997). Online shopping environments are particularly likely to be deficient in the provision of information through the senses of touch, smell and taste. This thesis tests the hypothesis that brands are more powerful in purchase environments when other diagnostic information is lacking, and so the focus is on decisions involving products where sensory information is particularly relevant, and shows that, in such instances, brands have more powerful influence on decisions online than offline.

There is no argument that brands will always be more powerful online than offline, because sometimes the online environment has equal or better diagnostic information that consumers would find if shopping for similar products in a brick and mortar environment. When information is richer online than offline, it is expected that brands would be less rather than more important to online choice than to offline choice (Simonson & Rosen, 2014, p.68).

When information is equally rich online and offline, no difference in the role of brands is expected.

There are still millions of people in the world who have not embraced e-commerce. In Appendix I, I provide general background on e-commerce research in South Africa. The material covered there is generally unrelated to the hypotheses in this dissertation, but it does make the case that online shopping in South Africa is small but growing. The issues I studied will become more and more important to the South African economy over time. Comparatively, all living people have engaged in offline purchase behaviour. The internet penetration rates are high in developed countries and low in developing countries as the 2013 figures reveal: 39 inhabitants per 100 are online worldwide; with this, 77 inhabitants per 100 are online in developed countries and only 31 are online in developing countries (International Telecommunications Union, 2013).

E-commerce studies are still in their embryonic stage and prior studies have not been conclusive in understanding fully online consumer behaviour and specifically, the role of brands in online versus offline shopping. My study is needed to anticipate how shopping behaviour and marketing competition will change when people who are not online go online in the future; practitioners and academicians will have insights in the expected online consumer behaviour.

E-commerce has resulted in increased competition as consumers can now buy products from anywhere in the world as geographical barriers are reduced. South African businesses are

affected by these global factors as competition is now outside of local levels and comes from outside the national boundaries. Online retailers are faced with many challenges, such as security concerns, as consumers are worried about their personal details and credit card information which can be compromised and accessed by third parties. Consumers are also concerned with shopping fulfilment when physical products are not delivered immediately upon purchase. In online shopping scenarios, consumers have to wait for the delivery of non-digital products and have to evaluate the product again upon receiving these. Trust is another issue between online retailers and consumers in believing that, for example, the online retailer will deliver the product purchased and it will not be replaced by an inferior product or the wrong product. My research implicitly studies another kind of risk: the risk that one will buy a product that does not perform as one expects due to limitations of the information available in that channel to provide information that allows the consumer to predict consumption utility (Alba et al., 1997)

1.2. Key Ways in which Consumer Purchasing Decision Making Differs Online versus Offline

With the advent of the Internet, consumers have a choice either to purchase products online or offline. In order for a consumer to choose to buy via the internet versus another channel, the online channel must offer benefits that are superior to current offline channels (Alba, et al., 1997). Online merchants typically possess unique characteristics (Peterson, Balasubramanian & Bronnenberg, 1997). This section discusses briefly some of the differences in the consumer purchasing situations between online and offline environments

which have been studied by other authors and are relevant to this work. All these points are reviewed all in greater depth in Chapter 2.

1.2.1. Search Costs

E-commerce has led to the reduction in search costs for products (Alba, et al., 1997) as the Internet offers itself as an inexpensive source of information (Kulkarni, Ratchford, & Kannan, 2012; Peterson et al., 1997). This means that information on the Internet is low cost on a broad section of offerings (Degeratu et al., 2000). The Internet has the capacity to provide a wide range of information at a lower cost, but is still deficient in the provision of sensory information through touch, smell and taste.

1.2.2. Online Information

In some categories, online shopping is expected to be superior to offline shopping in terms of the sheer quantity of attribute information it can provide (Alba, et al., 1997). This quantity of information about product attributes on the internet is, however, a mixed blessing. Consumers have to efficiently sort the daunting amount of information (Alba, et al., 1997), and evaluate the alternatives.

More pertinent to my thesis is that shopping environments differ in the quality of information. Here again, there are cases where information is of higher quality online, but

also cases where it is of lower quality. It is sometimes hard to tell the validity of information available online, such as star ratings from consumer reviews (De Langhe, Fernbach & Lichtenstein, 2015). The internet has the ability to provide more information to consumers with minimal search costs (Alba, et al., 1997). The internet has made great strides in the provision of quality information through visual and sound senses, (e.g., written documents on brands, music, videos) but the internet is deficient in provision of sensory information.

1.2.3. Pricing

One of the issues I consider in this thesis is whether the relative price elasticity of familiar and unfamiliar brands will change with the shopping environment. Prior literature has not considered this issue, but instead focused on the narrower question of whether price elasticity should be greater online than offline because of the greater ease of finding substitutes. From the early empirical studies on online pricing, it was expected that price dispersion would be lower online than offline. Price dispersion is the distribution of prices (such as the range and standard deviation) of a product with similar characteristics across sellers at a given point in time (Brynjolfsson & Smith 2000; Pan, Ratchford & Shankar 2004).

The other argument on online pricing is about whether consumers would be more price sensitive online that offline. Lynch and Zettelmeyer (2011) argue that lower search costs for price information online increases price sensitivity but that most authors have ignored the effects of online shopping on the depth of quality information. If there are lower search costs for quality online, this should make consumers see bigger differences in utility, leading to

decreasing price sensitivity when competing products are truly differentiated (Lynch & Ariely, 2000). In the online environment, consumers are able to compare prices of identical products sold at different online retailers and this increases price sensitivity. But when products differ on dimensions in addition to price, easy comparison does lead to increased price sensitivity as consumers are able to make tradeoffs. In this vein, branding, differentiation and consumer loyalty continue to play a key role in online shopping.

In general, I predict, based on the accessibility-diagnosticity model, that price elasticity should be greater to the extent that people lack other diagnostic differentiating information about the qualities of competing brands. In an impoverished environment online, brand familiarity will be a bigger part of the total picture than offline in impressions of information diagnosticity, so brand familiarity should affect price elasticity more online than offline.

1.2.4. Decision-Making and the Role of Brands

When consumers make decisions to purchase products and services, they are influenced by internal and external factors. Some cues used in decision making are marketer-dominated and others are not. In the offline environment, for products dominated by experiential attributes, consumers are able to evaluate the quality of a product prior to purchase. Online, the same consumers are not able to evaluate certain sensory and experiential cues or attributes (Danaher, Wilson & Davis, 2003).

Some cues that influence consumer decisions are not controlled by manufacturers or retailers, like word of mouth (Godes & Mayzlin 2004; Godes & Mayzlin, 2009), mass media coverage and the more recent phenomenon of blogs, social media and independent reviews like *Consumer Reports*. Other cues that influence consumer decision making are under the control of manufacturers and retailers: these include product attributes, price, and where the product is sold. One critical marketer-controlled factor that influences consumer decision-making is branding (Keller, 1993; 2003).

For consumers to use branding as a decision making tool, consumers need brand knowledge that can come from direct and indirect experience. "Brand information leads to brand awareness, which is a memory-based categorisation task in which a consumer recalls a specific brand name" (Schmitt, 2012, p.8-9). Consumers need to have been exposed to a brand for them to use the brand name in their choice decisions. Brand familiarity is therefore important when consumers make their choices (Hoyer & Brown, 1990; Muthukrishnan 1995). Familiarity is "defined as the number of product-related experiences that have been accumulated by the consumer" (Alba et al, 1991, p.10). Normally a well-known brand is a source of competitive advantage as familiar brands are highly salient in the minds of consumers, and the brand has the ability to differentiate itself in the clutter of competition (Lee, Conroy, & Motion, 2012). Brand knowledge and awareness lead to brand familiarity, which leads to liking and the increased probability of a brand being placed in the evoked set (Aaker, 1996). Evoked set is defined as the "products or brands which a consumer considers in making a purchase decision" (Schiffman, Kanuk, & Wisenblit, 2010, 566). This dissertation focuses on the effects of the purchase environments (online versus offline) on the choice of familiar and unfamiliar brands.

1.3.1. Problem Statement

The main focus of this dissertation was to show the effects of the shopping environments on reliance on brands in consumer choice. This is based on the fact that there are differences among shopping channels with regard to the quality of non-brand information available online versus offline. Online channels are at a disadvantage in providing sensory information and certain other characteristics like the physical fit of clothing that matters in consumer decision making. I generally show that in certain online shopping situations when sensory information is highly relevant, brand familiarity receives more weight in decision making than offline.

Prior studies do not make it clear how or to what extent brand names impact consumers' online purchase decisions (Aghekyan-Simonian, Forsythe, Kwon, & Chattaraman, 2012). My dissertation aims to fill the gap in understanding consumer behaviour in the context of online versus in-store shopping (Lee & Tan, 2003).

1.3.2. Sub-Problems, Research Questions & Research Objectives

My dissertation focused on three sub-problems, each calling for a separate experiment. The discussion below covers a sub-problem, the research questions and objectives for each of the three experiments conducted in this study

1.3.3. Experiment 1 Sub-Problem: Preference for Familiar Brands in Choices Involving Familiar and Unfamiliar Brands

From the literature, there is little information on the effects of shopping format on relative choice of familiar versus unfamiliar brands in a consideration set of familiar and unfamiliar brands, and whether non-brand information is more diagnostic offline or online. Experiment 1 investigated this. I expected to show that more familiar brands have a greater advantage over unfamiliar ones in an online environment than in an offline environment. I expected this difference only if the offline environment included richer sensory information. My prediction was that the choice share of unfamiliar brand would be higher in the shopping formats which have more non-brand diagnostic information.

Past research has examined the role of brand familiarity holding constant the shopping environment or has examined the effects of varying shopping environments without considering how this might differentially affect familiar and unfamiliar brands. In offline shopping environments, familiar brands persistently sell more (Pare & Dawes, 2012) and are more likely to be purchased (Delgado-Ballester, Navarro & Sicilia, 2012; Park & Stoel, 2005; Danaher et al., 2003; Degeratu et al., 2000). A study by Hoyer and Brown (1990) in the offline environment explored how brand awareness affects choice, brand sampling and the regularity at which high quality brands are chosen. The results of the study suggested that when known (familiar) brands compete with unknown or (unfamiliar) brands, more

consumers will choose the familiar brands as brand awareness was used as cue for choice (Hoyer & Brown, 1990). Therefore, brand familiarity is used as heuristic when little information is available in a decision making context. The internet has limitations in the provision of certain types of information, especially those with taste, smell, touch and taste attributes (Alba, et al., 1997). Due to this difference, people will rely more on a brand familiarity heuristic when non-brand information is impoverished.

The main problems investigated in my Experiment 1 are stated as follows:

- When non-brand information is more diagnostic offline than online, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will be higher in online choice than in offline choice.

- If non-brand information is equally diagnostic online and offline, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will not differ between offline and online choice.

My argument is that it is not that brands are generally more important online than offline. The key concept I test is that the weight of brands increases when consumers have less diagnostic non-brand information available in a particular purchase environment. My dissertation explored the effect of the shopping formats with varying levels of information on the choice of familiar and unfamiliar brands.

1.3.4. Experiment 1 Research Questions

Experiment 1 endeavoured to answer the following questions: what are the effects of the shopping environment on relative choice of familiar versus unfamiliar brands? Do familiar brands have a greater choice share of sales and does this advantage increase in the online environment compared to an offline environment?

The premise for experiment 1 was to show how the environment affects the consumer's choice of buying familiar and unfamiliar brands from stores carrying both types of brands. The conjecture was that consumers will choose familiar brands unless the shopping environment provides diagnostic quality information for unfamiliar brands. In other words, the main research question is experiment 1 was to examine how the retail format affects the purchase choice of familiar and unfamiliar brands. The study was predicted to indicate that familiar brands have a greater advantage over unfamiliar ones online than offline.

1.3.5. Experiment 1 Objective

The central idea in this experiment was to show how the environment affects the consumer's choice of buying familiar and unfamiliar brands. The conjecture was that consumers will choose familiar brands unless the shopping environment provides diagnostic quality information for unfamiliar brands. The results of the experiment indicated that familiar brands have an advantage over unfamiliar brands in the shopping environment with limited sensory information or non-brand information.

1.3.6. Experiment 2; Sub-Problem: Selling only Familiar Brands or Only Unfamiliar Brands in Online versus Offline Channels

Sub-problem 1 asked the question of how consumers would choose between the mixed set of familiar and unfamiliar brands in the shopping environments with different information. The second experiment asks the question of how the online versus offline environments affect the willingness of consumers to buy at all from a store carrying purely unfamiliar brands or purely familiar brands. An emerging literature studies consumers decisions to decline to choose from a set with too much uncertainty (Dhar & Simonson, 2003).

Prior studies have not tested the effects of shopping environment on consumers' likelihood to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and obviously have not investigated whether any disparity in sales between stores carrying brands of the two types would be stronger online than offline. Experiment 2 focused on these constructs. I expected to show that consumers are more likely to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and this tendency is stronger online than offline.

Research on consumer behaviour and brands mainly focuses on the positive consumption of brands; consumers purchase brands for the many benefits they represent. The constructs of

brand avoidance and choice of no-decision options has not been investigated in the literature on online shopping. Dhar (1997) suggested that most work on consumer decision making confronted consumers with a selection of options and studied forced choice from those options. But he noted that decision makers in various situations defer choice. Sometimes choice deferral involves not choosing now, but seeking more information on existing alternatives. Sometimes no choice occurs as an avoidant strategy in the face of difficult trade-offs (Dhar, 1997, Luce 1998). The classical theory assumes that preferences exist, that information processing is costless, and the "no" purchase decision depends on the utility of the most preferred option. In reality, information on all possible brands is either unavailable or simply impossible to process. The summary of the study suggested that a no–choice option may be chosen when none of the alternatives appears attractive, when the decision maker expects to find better alternatives by continuing searching, or the available information does not seem sufficient to identify a brand with a decisive advantage (Dhar, 1997).

Dhar (1997, p.230) rightly suggested that additional research is needed to assess the advantages and limitations of focusing on decision uncertainty in predicting the preference for a "no" choice option by using other tasks and contexts. Broadly, I expected that people will choose not to choose when they feel that they do not have enough information. For products dominated by experiential attributes, consumers may feel that the information is more inadequate online than offline. This should be particularly true if the online environment is selling only unfamiliar brands rather than only familiar brands.

1.3.7. Experiment 2 Research Questions

Experiment 2 addressed the following questions: What are the effects of shopping format on consumers' likelihood to make a purchase from a set of familiar brands compared to their likelihood to make a purchase from a set of unfamiliar brands? Imagine that consumers are shopping from a store carrying only unfamiliar brands of chocolate or a store carrying only familiar brands. The basic questions for the sub-problem were stated as follows: what are the effects of the familiarity of the retail assortment of brands on willingness to spend when those products are sold in an online environment? How would the effects of brand familiarity differ in an offline environment? Would shoppers decline to buy from an online store carrying only unfamiliar brands? How does the store merchandise combination affect the choice of familiar and unfamiliar brands?

Prior studies have not tested the effects of shopping format on consumers' likelihood to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and whether this tendency should be stronger online than offline. Experiment 2 focused on these constructs and I expected to show that consumers are more likely to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and that this tendency is stronger online than offline.

1.3.8. Experiment 2 Research Objectives

The central idea in this experiment was to show how the environment affects consumers' choice of buying familiar and unfamiliar brands, to continue shopping or to avoid choice. The conjecture was that consumers would rather continue shopping or not make a decision on unfamiliar brands when the information is limited. I concluded that in the shopping environment that does not provide diagnostic information, consumers will not feel they have enough information to make a purchase. The results of experiment 2 suggested that in situations where diagnostic information is limited, brand familiarity plays an important part in the decision to either continue shopping or not. This implies that unfamiliar brands were an inferior alternative and increased the no option choice in environments with less non-brand (sensory) information.

Experiment 3; Sub-Problem, Research Question and Research Objectives

1.3.9. Experiment 3 Sub-Problem

My last research problem focused on how online and offline store environments change the relative price elasticity for familiar and unfamiliar brands. The basic question is: Does the shopping environment change the relative price elasticity for familiar and unfamiliar brands? Broadly, I expected consumers to be more price sensitive when there is less diagnostic differentiating information. Some brick and mortar environments provide more diagnostic

information than online environments, particularly when sensory attributes are critical. Brand familiarity is a further basis for differentiation. Thus, I expected to find more price sensitivity for unfamiliar than for familiar brands, but particularly so in online environments or offline environments that lacked diagnostic sensory information.

There are diverse theories on brand and price sensitivity. Much of the work on effects of brand on price sensitivity is really about the effect of brand advertising on price sensitivity (e.g., Mela, Gupta & Lehmann, 1997; Mitra & Lynch, 1995). A marketing power school of thought suggests that brand advertising reduces the price elasticity of demand, in that brand advertising leads to artificial product differentiation, increasing monopoly power, and thus creating brand loyalty and lowering sensitivity to prices in brand choice (Comanor & Wilson, 1979, Comanor & Wilson, 1974). Contrary to the marketing power school of thought, the information school of thought suggests that increased brand advertisements provide information on brands and brand substitutes (Stigler, 1961). Advertising in turn creates familiar brands through brand awareness, which increases competition and the size of the consideration set, and this leads consumers to be more price-sensitive.

The premise of research question 3 is based on the availability and accessibility of information at the point of purchase and its effect on relative price elasticity for familiar and unfamiliar brands. In an environment where there is more diagnostic information, relative price elasticity would be less for familiar brands than for unfamiliar brands – in accord with past research showing the effect of advertising in lowering price elasticity. In general, consumers are price elastic for unfamiliar brands and I predicted this tendency to be stronger online than in the offline environment which lacks sensory information. I expected this price

elasticity to be greater in the online environment than the offline environment where there is more sensory information. There are no prior studies that explored the effects of the purchase environment on relative price elasticity for familiar and unfamiliar brands in the same consideration set. My predictions were that price could be an important cue in the shopping format where there is less diagnostic information and that consumers would be less price elasticity for unfamiliar brands in a shopping format with more non-brand diagnostic information than in an environment with less non-brand diagnostic information.

For Experiment 3, as in Experiments 1 and 2, the theory underlying this research implies that the difference between familiar and unfamiliar brands online versus offline will be observed when the offline environment has richer sensory information. The hypotheses can be reversed in those (rarer) conditions under which information other than brand is perceived to be less deficient and more diagnostic online than offline.

1.3.10. Experiment 3 Research Questions

Experiment 3 answers to the following research question; what are the effects of the purchase environment on price elasticity for familiar and unfamiliar brands?

Academic literature has not established a relationship between brand familiarity and the price premium consumers are willing to pay for familiar brands relative to unfamiliar brands, or

how that price premium might differ online vs. offline. Price plays an important role in all consumer purchase decisions (Lichtenstein, Ridgway, & Netemeyer, 1993).

In experiment 3, consumers shopped from stores carrying both familiar and unfamiliar brands. I manipulated the prices of familiar and unfamiliar brands independently so that I could measure price elasticity. I compared the price elasticities of familiar and unfamiliar brands in the same three shopping environments that I used in Experiments 1 and 2: online, offline with opportunity to taste before buying, and offline with no taste information. The experimental research design was intended to allow me to make causal inferences about the effect of the shopping environment on price elasticity.

1.3.11. Experiment 3 Research Objectives

I expected to show that marketers can charge a price premium for brands that are more familiar to consumers, and that the price premium consumers are willing to pay for familiar brands relative to unfamiliar ones is bigger online than offline. Based on the literature, I expected lower price elasticity for unfamiliar brands in the shopping environments where there is more non-brand diagnostic information. No previous studies have compared the effects of shopping formats on price elasticity of familiar versus unfamiliar brands, nor have prior studies used the theoretical lens of the accessibility-diagnositicity model to understand effects of shopping formats. The results for experiment 3 showed the predicted pattern, though the predicted interaction of shopping environment and brand familiarity was not statistically significant. More revenue was raised for unfamiliar brands in the shopping environment with more sensory information though this was not statistically significant.

1.4. Brief Research Methodology

A true experiment is the best method of finding out whether one thing really causes another (Ellsworth, Ellsworth, Carlsmith, & Gonzales, 1990. p.9). An "experiment differs from other types of scientific investigation in that rather than searching for naturally occurring situations; the experimenter creates the conditions necessary for observation" (Ellsworth et al., 1990, p. 11). Much prior research comparing online to offline shopping used observational methods that allow the possibility of selection effects – different kinds of consumers shop online versus offline (e.g., Degeratu, et al., 2000).

For the three experiments, the experimental design was a 2x3 factorial design with three (3) experimental conditions, online, offline with taste, and offline without (no) taste. The offline without taste condition was a control condition. I generally expected similar patterns in that condition as in the online condition. The availability of sensory information distinguished the conditions. In the condition, offline with taste, participants tasted the brands. The procedures for experiments 1, 2 and 3 differed in the choice set, familiar versus unfamiliar brands, and in terms of the shopping trips.

1.5. Contribution of Study to Literature

Offline and online environments differ on a number of dimensions that are reviewed in Chapter 2 of this dissertation, such as the interactivity of the shopping environment. I framed most of these dimensions of difference out of the equation for purposes of this research and

focused on the differences between online and offline shopping in the provision of diagnostic sensory information that, I argue, will affect the role of brand familiarity. My theoretical lens in this dissertation is the accessibility-diagnosticity model (Alba, et al., 1991; Feldman & Lynch, 1988; Herr, et al., 1991; Lynch, et al., 1988; Lynch, 2006). I compared the role of brands in the online and offline shopping environment. The three experimental shopping environments were online, offline with taste and offline without taste. The environments differed on the availability of sensory information and this distinguished online and offline shopping environments.

My conclusion to the study is that when consumers perceive that they do not have enough information to separate the best alternative from the rest, they rely more heavily on brand familiarity as a basis for choice. Familiar brands have greater advantage in online shopping than unfamiliar brands, particularly for experiential products. The theoretical contributions from my work could be summarised are follows: a) my study extended theoretical and empirical work on the accessibility-diagnosticity model and showed its relevance to the analysis of store environment effects. I also add to a small literature using the accessibilty-diagnosticy framework to understand branding effects (Ahluwalia & Gurhan-Kanli, 2000; Broniarczyk & Alba, 1994; Herr, et al., 1991; Berens, Reil & Bruggen, 2005). The detailed contributions and implications are presented in Chapter 7.

1.6. Organisation of the Dissertation

The dissertation has seven (7) chapters. The introductory chapter is followed by the theoretical and empirical framework in chapter 2, where e-commerce is examined. In chapter two (2), I review relevant and adjacent literature including the theories of consumer behaviour, branding and the accessibility-diagnsoticity model. Chapter three (3) of the thesis discusses the experimental design research methodology used in collecting data. Chapter four (4) is devoted to experiment 1 results and discussion. Chapter five (5) is devoted to experiment 2 results and discussion. Chapter six (6) is devoted to Experiment 3 results and discussion. Chapter seven (7) is the general discussion of the dissertation including the empirical implications and areas for future research.

CHAPTER 2: THEORETICAL AND EMPIRICAL BACKGROUND

The chapter on the theoretical and empirical background covers the following sections:1) Introduction; 2) a review of theories of consumer behaviour; 3) theories of branding; 4) the accessibility-diagnosticity model; 5) a review of empirical studies on branding and online consumer choice; 6) branding and price elasticity; and ends with section 7) concluding remarks.

2.1. Introduction

The premise of this study incorporates theories of consumer behaviour and branding. I use the accessibility-diagnostic model to understand the effects of the different types of information available in the online and offline shopping environments and how this affects the choice of familiar and unfamiliar understanding.

2.2. A Review of Theories of Consumer Behaviour

This section briefly discusses the main theories of consumer behaviour and how they have evolved over the years. Consumer behaviour became a separate field of study in the 1960's (Pachauri, 2001), and came into its own with the founding of the interdisciplinary *Journal of*

Consumer Research in 1974. Consumer behaviour is defined as the "activities people undertake when obtaining, consuming and disposing of products and services." (Blackwell, Miniard & Engel, 2006, p.4.). Understanding and predicting consumer behaviour is a critical input in the segmentation strategies of firms and in the development of their marketing strategies.

In the late 1970s, consumer researchers reacted to a general consumer decision making model coming from microeconomics which argued that consumers are rational beings who endeavour to obtain complete information on the alternatives and seek to maximize utility (Bettman, 1979). The general decision making model was criticised and a more realistic perspective was advanced – that consumers were not "rational" but they are "boundedly rational" (Simon, 1955). The argument was that decision makers have limitations on their abilities for processing information. The theory of bounded rationality advocated that consumers use heuristics to limit information processing and this also depends on the availability and processability of information (Bettman, 1979). This perspective evolved into what is sometimes now called "behavioural decision theory," which emphasizes the role of the external environmental factors in the process of information learning, which causes behaviour (Pachauri, 2001). Work in behavioural decision theory has traditionally been concerned with documenting deviations of actual behaviour from what is rational (Simonson, 2015). Consumer researchers build models around the "black box" phenomenon which stated that the consumer decision process has an input (internal and external factors); process (black box) and output stage (Yoon, Sarial-Abi, & Gürhan-Canli, 2012; Schiffman, Kanuk & Wisenblit, 2010, p. 37, Howard & Sheth, 1969).

In the 1980s, the cognitive perspective of understanding consumer behaviour emerged which stressed the role of information processing in consumer decision making (Bettman, 1979; Biehal & Chakravarti, 1983; Lynch & Srull, 1982). The cognitive social perspective of consumer behaviour drew from similar cognitive psychology notions from work on social cognition, such as the concept of high and low involvement in decision making. It was argued that this high involvement process involves extensive or active information processing (Celsi & Olson, 1988; Engel, Blackwell & Miniard, 1995; Petty, Cacioppo, & Schumann, 1983) and the low involvement process relied more on salient, easy-to-process peripheral cues.

The social cognitive approach argued that it was critical to understand consumers' attitudes, persuasion, and information processing and the role of memory and attention in choice (Alba et al., 1991; Lynch & Srull 1982; Simonson, Carmon, Dhar, Drolet, & Nowlis, 2001). The argument was that due to cognitive limitations and the search and time costs in collecting all the information needed, consumers use cues or heuristics like brand familiarity or price to make a choice.

According to Alba, et al., (1991, p. 2), "research on consumer decision making from a cognitive perspective addresses four main questions: 1. which of the available brands or alternatives are considered, and why? 2. What information is processed in evaluating each brand considered, and why? 3. How are these inputs combined to arrive at a final choice? 4. How do memories of past decisions alter the answers to questions 1, 2, and 3?"

With respect to the first of these issues, economic theory of search acknowledges that it is not rational to search for complete information on all alternatives. Though not the focus of this dissertation, much work on consumer decision making has focused on the third of these questions: How are the inputs combined to arrive at a final choice? Consumers choose different combination rules and rely on different heuristics depending on task difficulty. The consumers' choice and the particular "choice combination rule used to make the choice depend on i) the number of alternatives and attributes, ii) some specific attribute values which are difficult to process, iii) the uncertainty about the values of many attributes, and, iv) when the number of shared attributes are smaller" (Bettman, Johnson, & Payne, 1991, p. 51). Further review of theories on consumer behaviour that do not directly relate to my empirical research can be found in Appendix II).

My thesis is more focused on the second and the fourth of the issues identified by Alba, et al. (1991), as discussed above, which are framed as follows: "2) What information is processed in evaluating each brand considered, and why?" and "4) how do memories of past decisions alter the answers to questions 1, 2, and 3?" To explore the question of what information is processed in evaluating each brand in consideration, I am interested in brand name and price, and how the use of these cues varies across shopping environments with different non-brand sensory information.

Branding is itself a topic related to the fourth question of how memories of past decisions dictate what information is evaluated for considered brands. When consumers rely on brands as a shortcut to make decisions, rather than searching for information on more fundamental "engineering" attributes of products, this can be construed as broadly consistent with

bounded rationality. In this dissertation, I rely more on the literature from the social cognition perspective – emphasizing underlying psychology and not deviations from economic rationality – rather from the behavioural decision theory with its focus on comparisons to rational models. In particular, I rely on the accessibility-diagnostic framework (Feldman & Lynch, 1988) for a theory of what determines the weight of an input (such as brand familiarity) in decisions. That framework will be discussed later in Section 2.4. Section 2.3 will review the theories on branding.

The importance of understanding consumer decision making is only bound to continue due to technological changes (Bettman, Luce & Payne, 1998). With the advent of the internet, online shopping formats provide marketing researchers and practitioners' opportunity to test their theories and apply their tools (Alba, et al., 1997; Simonson, 2015). "An issue of particular interest to both practitioners and academics is in determining whether there are systematic differences in consumer choice behaviour between online and regular offline stores and if there are differences in understanding the reasons for these differences" (Degeratu, et al., 2000, p.55).

2.3. A Review of Theories of Branding

The review that follows covers the brands constructs that are relevant to my current study. To keep the review relevant, I do not discuss concepts unrelated to the research questions that are developed in sections 2.5 and 2.6.

2.3.1. Early History of Brands

Early in the history of branding, manufacturers produced products and sold the products unbranded or sold with store name. Until 1890's, few manufacturers advertised their consumer products in any consistent or continuous manner in the national media (Schutte, 1969). There were different names given to branded products from pre-sold brands to controlled brands, advertised brands, packer's brands, price brands and so on. Schutte (1969) proposed two main categories, manufacturers' brands and distributors' brands.

Brand architecture refers to the branding strategy a company uses to brand its products (Keller, 2012). Manufacturers decide to brand or not to brand their products and many engage in corporate brands (Sony), product brands (Surf), sub-brands (Courtyard by Marriott), co-brands (Citi AAdvantage Visa Signature Card) and other strategies (Keller, 2012). In family branding, for example you can have the corporate brand for many of the products like Toyota Corolla, Toyota Yaris etc., or standalone brands with no reference to the manufacturer only the product itself, for example, Unilever products, Surf, Sunlight, Rama, etc..

Private label brands or store brands are products branded by distributors and retailers. For example, the Costco wholesale chain sells a variety of products under its Kirkland brand. Private labels are a threat to manufacturer brands as they increase competition, traffic into the store and store loyalty (Amrouche & Yan, 2012; Hoch, 1996). On the other hand, the store brands are increasing the bargaining powers of retailers with manufacturers and the retailers

are able to control brand assortments. This dissertation focused on manufacturer brands rather than private label brands.

2.3.2. Defining a Brand

A brand is defined as "a name, term, sign, symbol, design or combination of these intended to identify goods and services from one seller or group of sellers and to differentiate them from those of competitors" (Kotler & Keller, 2006, p.274). A brand is more than a product because it has dimensions that differentiate it in some way from other products designed to satisfy the same needs and these differences can be rational, tangible, symbolic, emotional and intangible (Keller, 2008; Keller & Lehmann, 2006). A brand is an experience attribute that assures consumers of a consistent level of product quality (Alba, et al., 1997). A brand name is a useful heuristic or a proxy for quality-determining attributes.

The basic understanding of a brand is based on the knowledge consumers have in their memory on brands, which consists of a set of nodes and links. Nodes are stored information connected by links that vary in strength in consumer memories. A node becomes a potential source of activation for other nodes either when external information is being encoded or when internal information is retrieved from long term memory (Keller, 1993). A brand has no objective existence at all; it is simply a collection of perceptions held in the mind of the consumer (Fournier, 1998). At the foundation of the concepts and theories of brands is brand knowledge, which is dependent on the information consumers have in their memories. The following section focuses on brand knowledge.

2.3.4. Brand Knowledge

Brand knowledge is defined in terms of the personal meaning about a brand stored in consumer memory and all descriptive and evaluative brand-related information (Keller, 1993). The brand knowledge model by Keller (1993) further states that brand knowledge includes all the attributes, benefits, images, thoughts, feelings, attitudes and experiences that become associated with a brand. Understanding of the content and structure of brand knowledge is critical as it influences what comes to mind when consumers think about brands (Keller, 1993). "Brand knowledge is conceptualised as consisting of a brand node in memory to which a variety of associations are linked" (Keller, 1993, p. 3). The source of this brand knowledge is dependent on the different types of information consumers keep in memory and from the relationship of the brand with other information sources like people, place, things or other brands. The other sources of brand knowledge are things "(events, causes, third-party endorsements), places (country of origin and channels), other brands and people (employees and endorsers)" (Keller 2008, p. 280). Brand knowledge is therefore dependent on the information consumers have about brands.

Keller's (1993) brand knowledge framework (see Figure 1 below) distinguished several aspects of brand information stored in memory.

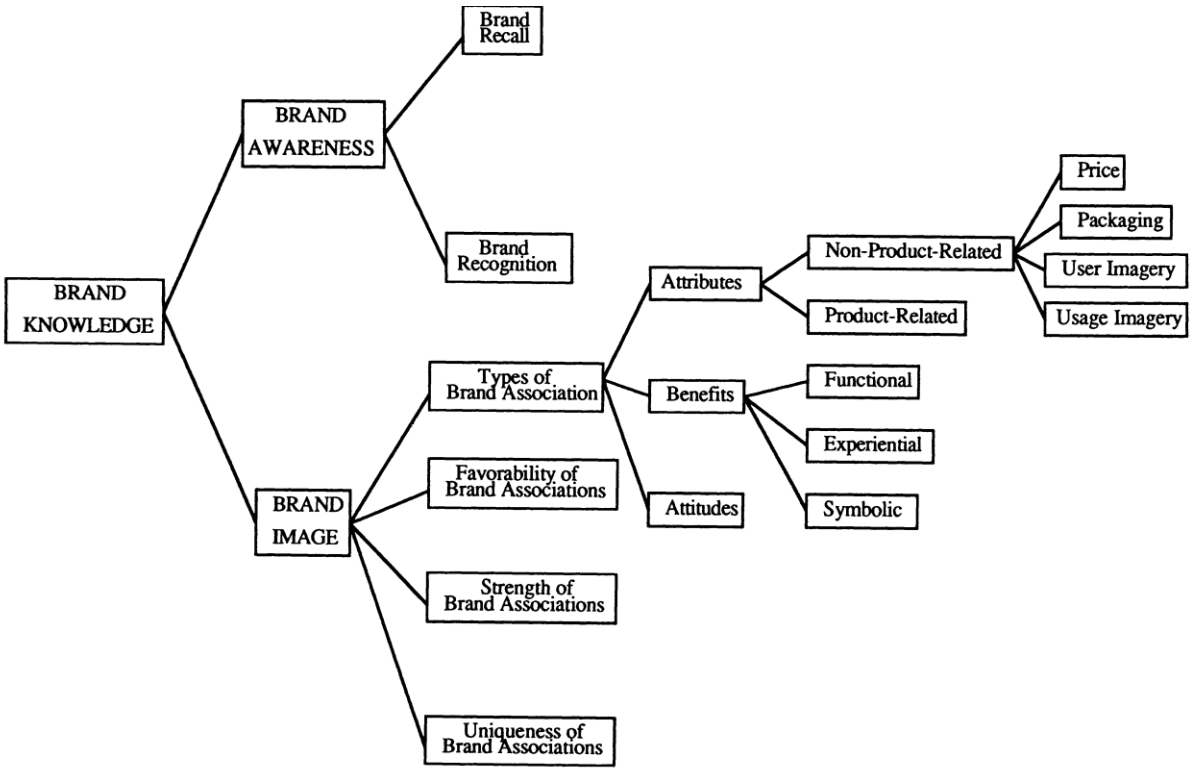

Figure 1: Brand Knowledge, Keller, 1993, p. 7

Brand knowledge is viewed as a multidimensional construct and the key dimensions are brand awareness and brand image, which are interrelated and based on the information in a consumer's memory (Keller, 1993). According to Keller (1993), brand image is conceptualised with four types of brand associations: 1) types of brand associations, 2) favourability of brand associations, 3) strength of brand associations and 4) uniqueness of brand associations. The types of brand associations are conceptualised to consist of brand attributes, brand benefits and attitudes (see Figure1). The model by Keller (1993) further

explains that brand attributes consist of product related attributes and non-product related attributes. For the constructs of non-product attributes, these are made up of price, packaging, user imagery, usage imagery and brand related attributes. Brand benefits are explained to be made of various types of benefits including functional, experiential and symbolic. The following section expands on the brand knowledge constructs.

2.3.5. Brand Associations or Brand Image

From Keller's model, brand knowledge is based on the brand image and brand awareness. Brand image is based on the brand associations consumers have of a brand and is "defined as perceptions about a brand as reflected by the brand associations held in consumer memory" (Keller, 1993, p. 3). Brand image and brand associations can be used interchangeably as they represent the same concepts. Brand associations are those associations that are unique to a brand and that differentiate it from other brands (Keller, 1993). Brand associations are defined as the attributes, benefits and attitudes that differentiate a brand from competing brands – for example, Close-Up toothpaste and kissing (Broniarczyk & Alba, 1994). Brand associations are the "informational nodes linked to the brand node in memory and contain the meaning of the brand for consumers" (Keller, 2008, p. 51; Keller, 1993).

The core brand associations are those abstract associations "(attributes, benefits and attitudes) that characterize the 5 to 10 most important aspects or dimensions of a brand" (Keller, 2008, p. 121). These are solicited when consumers are expected to create a mental map of the brand, based on asking them, "When you think of this brand, what comes to mind?" (Keller,

2008, p. 121). The more a person thinks about the product information and relates it to the existing brand knowledge, the stronger the resulting brand associations will be. Brand association is affected by the pieces of information that are personally relevant to the consumer and the consistency with which it is presented over time (Keller 2008, p. 56). Here one would include "soft" associations such as brand image. "Brand image" refers to non-product-related attribute beliefs, for example a product being described as being friendly or stylish (Keller & Lehhmann, 2006).

Following the brand knowledge model by Keller (1993), brand image consists of (1) types of brand associations, (2) favourability of brand associations, (3) strength of brand associations and (4) uniqueness of brand associations. There is an interaction between the four characteristics of brand associations, and they change content and meaning with one another. The sections below expand on these constructs to provide understanding for brand associations constructs theorized by Keller (1993).

2.3.6. Types of Brand Associations

The different types of brand associations are based on brand attributes, benefits and attitudes and these are discussed below.

1. Brand Attributes

Brand attributes are the "descriptive feature that characterise products and services, or, basically, what a consumer thinks the product has" (Keller, 1993, p. 4). The brand attributes are related to the functions consumers expect from a product (Keller, 1993). For the non-product related attributes, these include the price information, packaging, user imagery. User imagery describes what type of persons use the product or service, based on demographic and psychographic facts. Demographic factors include age, sex, race, income and other measurable factors. Brand image is closely related to the concept of "brand personality," as measured by scales for brand sincerity, excitement, competence, sophistication, and ruggedness (Aaker, 1997). For brand image associations to increase the likelihood that a brand is chosen, they should be strong, favourable and have unique associations to the brand memory. Psychological factors include traits like youthful, gentle, extroverts, introverts, need for cognition, verbalisers, materialistic. Usage imagery describes where and what types of "situations the product or service is used, time of day, week, year, formal or informal" (Keller, 1993, p. 4).

2. ***Brand Benefits***

The other component of the types of brand associations is the brand benefits. These are the "personal values consumers attach to the product or service attributes" (Keller, 1993, p. 4). Benefit associations are what consumers think the product or service can do for them and these benefits provide a central reason for a consumer's choice of a specific brand over

another (Dawar & Lei, 2009). Consumers seek various benefits ranging from functional, experiential and symbolic benefits. Functional benefits are the intrinsic advantages related to the product attributes and related to the basic motivation. The basic motivations can be based on Maslow's theory of needs, which itemised one's needs into a hierarchical format from physiological, safety, social, esteem and self-actualisation needs. (Schiffman, Kanuk & Wisenblit, 2010, p. 116). Experiential benefits deal with consumers "satisfying sensory pleasure, variety or cognitive stimulation" (Keller, 1993, p. 4). Symbolic benefits are mainly outward related to how consumers are perceived by others by the mere consumption of ownership of specific brands and these seek social approval and self-esteem (Keller, 1993).

3. Brand Attitudes

The other construct of types of brand associations is brand attitudes, which is related to the overall positive or negative evaluation of a brand, which has a crucial influence on brand choice (Keller, 1993). There are different models of brand attitudes but the main one is the one developed by Fishbein and Ajzen (1975). Their multiattitude model states that attitudes are formed from consumer beliefs about a product and the extent to which a consumer thinks that a brand has the attributes and benefits the consumer is seeking. Overall, brand attitudes are related to the brand attributes and functional, experiential and symbolic benefits consumers seek.

4. Favourability of Brand Associations

Consumers evaluate brands differently, as not all consumers value the brands equally. "The success of a marketing programme is reflected in the creation of favourable brand associations in that consumers believe that the brand has attributes and benefits that will satisfy their needs and wants" (Keller, 1993, p. 5). Evaluating brands is dependent on the consumption situation (birth day or Christmas gift or a consumer being in a hurry) these shape the goals of consumers (Keller, 1993).

5. Strength of Brand Associations

Brand associations have different levels and these are characterized by the strength of connection to the brand nodes. This strength depends on how the information enters consumer memory (encoding) and how it is maintained as part of the brand image (storage) (Keller, 1993). The brand association strength is based on the amount of information and the quality of processing the information received at encoding. In other words, this "strength depends on how much a person thinks about the information about the brand and the manner in which consumers think about the information" (Keller, 1993, p. 5).

6. Uniqueness of Brand Associations

The last construct of associations is how unique the associations are from other competing brands. This construct deals with brand positioning, how a brand is different from others and its competitive advantage or its "unique selling proposition" (Keller, 1993, p. 6). These comparisons on attributes can be product related or non-product related and further include the benefits (functional, experiential or symbolic) (see Figure 1). Brands exist as customers find some distinguishing characteristics like name, colour, and shape to identify products or services that serve them and are used to simplify choices. In other words, branding leads to brand associations in the minds of the customers to differentiate the brand and establish competitive superiority. Brand identity is a unique set of brand associations that the brand strategist aspires to create or maintain. It represents what the "brand stands for and implies a promise to customers from the organisation's members, whereas brand image is how a brand is perceived by consumers" (Aaker, 1996, p. 68, 71).

2.3.7. Brand Awareness

According to the brand knowledge model by Keller (1993), brand awareness constitutes brand recall and brand recognition. Brand awareness is related to the strength of the brand node or trace in memory, which measures the consumer's ability to identify the brand under different conditions (Aaker, 1996; Keller & Lehmann, 2006). A brand node must exist in memory, and one can characterize how that node is linked to other concepts in memory. Brand awareness is defined as a "rudimentary level of brand knowledge involving at the least

recognition of the brand name" (Hoyer & Brown, 1990, p. 141). It is acknowledged that without brand awareness occurring, brand attitude and brand image cannot be formed (Macdonald & Sharp, 2003).

According to Hoyer and Brown (1990), the differences between the two brand constructs of awareness and recognition is elusive. Brand awareness has levels which arise from simple recognition of the brand name to a highly developed cognitive structure based on detailed information on a brand (Hoyer & Brown, 1990). For consumers to purchase a product, they must first be aware of it and have some level of brand awareness. This is how brands are more likely to be considered or included in the consideration set as brand awareness is used as a cue in consumer choice (Macdonald & Sharp, 2003). Brand awareness is based on the information the consumer has been exposed to and includes brand recall and brand recognition. Brand awareness is therefore an important memory-based categorisation task in which consumers recall specific brand names (Schmitt, 2012).

Studies indicate that brand awareness is a prevalent choice cue among consumers facing a decision task; consumers who are aware of one brand in a choice set tend to choose the known brand even when it is lower in quality (Hoyer & Brown, 1990). Lynch and Srull (1982) and Alba, et el., 1991) explain further that brand recall and recognition occurs in stimulus based situations, memory based situations or mixed choice situations. This suggests that brand awareness may trigger differences in information processing during the purchase decision process.

Brand awareness plays a critical role in consumer choice for three main reasons: "1) consumers think of brands when they think of product categories, and brand awareness increases the probability that a brand would be chosen; 2) brand awareness affects choice even if there is no other brand association; 3) brand awareness influences choice through the formation and strength of brand associations" (Keller, 1993, p. 3). Consumers make purchase decisions on brands based on the information that come from different sources such as advertising, promotional material, word of mouth, media or sales people (Hernandez, Han & Kardes, 2014). High levels of brand awareness and a positive brand image should increase probability of brand choice as well as consumer loyalty. Brand loyalty is expected to take place when favourable beliefs and attitudes for the brand are demonstrated in repeat buying behaviour (Keller, 1993).

2.3.8. Brand Equity

Brand equity is an important branding concept as it contributes to the profitability of firms. "Brand equity" refers to the excess cash flows that come to a brand by virtue of the fact that it carries its particular brand name that connotes certain things to consumers (Keller & Lehmann, 2006). In other words, brand equity is defined in terms of the marketing effects uniquely attributable to the brand: when certain outcomes result from the marketing of a product or service because of its brand name that would not occur if the same product or service did not have that name (Keller, 1993). Excess cash flow may come from the consumer's willingness to pay a higher price for the same quantity of a product because of its brand name than they would for the same product unbranded, or from the consumer's

willingness to buy a greater quantity at a higher quantity of the product than they would if the same product were sold unbranded at the same price.

Customer based equity is defined as the "differential effect of brand knowledge on consumer response to the marketing of the brand" (Keller, 1993, p. 8). Marketing theorists generally think that brand equity is derived from the network of associations in a consumer's memory representing brand knowledge. The favourability, strength and uniqueness of brand associations are the dimensions distinguishing brand knowledge that play an important role in determining the differential response that makes up brand equity (Keller, 1993). A brand can have positive or negative brand equity. According to Keller (1993), negative brand equity occurs when consumers react less favourably to the product, price, promotion or distribution of the brand than they do to another unbranded version of the product. Positive brand equity occurs when consumers react positively to the marketing programme of a brand. Overall marketing activities are aimed at increasing brand equity. This dissertation focuses on brand familiarity and not brand equity. Brand equity will not be explored further as it is a financial concept and my focus is purely on the more psychological concept of brand familiarity. However, my studies do directly examine how brands affect the quantity purchased at the same price (Experiments 1 and 2) and willingness to pay a higher price for the same quantity (Experiment 3).

2.3. 9. Brand Familiarity

From the foregoing discussions of brand knowledge and its constructs, brand familiarity is a product of brand knowledge which is made up of brand associations. Familiarity is used as a generic term for the strength of the memory trace of a stimulus or the association of two or more stimuli (Alba, et al., 1991). The premise of brand familiarity is that items that are familiar to the consumer are likely to be recognized more frequently and more quickly than unfamiliar items (Alba, et al., 1991).

Brand familiarity construct is described as the number of product related experiences that have been accumulated by the consumer determined by product usage and advertising (Alba & Hutchinson, 1987). The brand related experiences may include exposure to advertisements for the brand, recognition of the brand name, exposure to the brand in a store or usage of the brand (Campbell & Keller, 2003; Biswas, 1992). Further, product-related experiences are defined at the most inclusive level and include advertising exposures, information search, interactions with salespersons, choice and decision making, purchasing and product usage in various situations (Alba & Hutchinson, 1987). Any exposure to a brand increases the likelihood of brand awareness and familiarity (Keller, 1993). According to a study by Holden and Vanhuele (1999), just hearing a brand name once may make that name look familiar. Greater brand familiarity, through repeated exposures to a brand should lead to increased consumer ability to recognise and recall the brand (Keller, 1993). Anything that causes the consumer to experience or be exposed to the brand has the potential to increase brand familiarity (Keller, 1993) and hence brand choice. In other words, the knowledge consumers have stored in memory differs for familiar and unfamiliar brands.

Brand familiarity is important in that consumers who are not likely to be motivated to search for the specific exposure context may use a brand judgment based on the sense of familiarity alone (Holden & Vanhuele, 1999). Marketers are interested in brand familiarity due to the role familiarity plays in facilitating brand consideration in consumer choice. Brand familiarity also results in a better developed knowledge structure (Biswas, 1992). A brand that is familiar will tend to be favoured; familiarity signals that it is tried and trusted, and familiar brands are easily noticed, recalled and liked. Marketers are keen to understand the development of brand-name familiarity as this will tend to facilitate consumer choice (Holden & Vanhuele, 1999). As familiarity with the brand increases, a consumer's confidence about that brand increases, suggesting that consumers perceive less risk when they are more familiar with a brand and increase in confidence towards the brand and in intention to buy the same brand (Park & Stoel, 2005; Laroche, Kim & Zhou, 1996). In other words, brand familiarity reduces the consumer's perceived risk in their decision making (Keller, 2003). Brand familiarity generates trust unless a person has a negative perception of the brand (Ha, 2004).

Consumers may make choices based on brand awareness considerations when they have low involvement. When "consumer choices are not a matter of life or death and consumers do not see large differences among brands, consumers are unmotivated about the choice process and so will use brand familiarity as a cue to make the decision" (Keller, 2008, p. 55). Moreover, when consumers are low in knowledge, they may use mere familiarity as a heuristic in selecting a brand (Hoyer & Brown, 1990). Greater brand familiarity occurs through repeated exposures to a brand and leads to consumers' ability to recognize and recall the brand (Keller, 1993). On the other hand, unfamiliar brands indicate that consumers have limited knowledge about the brands (Dawar & Lei, 2009).

Consumer decisions are based on predictions of product performance. Consumers base their predictions in part on product cues as consumers make assumptions about the relationship between the cues and subsequent consumption satisfaction (Alba, et al., 1997; Brucks, Zeithaml, & Naylor, 2000). Consumers rely on various cues and some of the major cues are brand or product attributes which are used to predict quality (Van Osselaer & Alba, 2000). "At various brand contact points and touch points with consumers, brands provide multisensory stimulations through sight, sound, smell, touch and taste (e.g., logo, brand characters, verbal slogans, auditory jingles), and these influence consumer choice" (Schmitt, 2012, p. 36-37).

Brands simplify choice, promise a particular quality level, reduce risk and engender trust (Keller & Lehman, 2006). A study on the key drivers of automobile brand choice concluded that consumers bought vehicles based on multiple factors, some directly attributed to the brands while others on external cues associated with the brand (Narteh, Odoom, Braimah, & Buame (2012). Another study concluded that the consideration of brands for choice is based on brand familiarity (Holden & Van Huele, 1999). A study by Hernandez, et al., (2014) concluded that familiar brand names are powerful diagnostic cues for consumer decision making.

A study by Hoyer and Brown (1990) in the offline environment, explored the effects of brand awareness on choice, brand sampling and the frequency with which the highest quality brand is chosen. The results of the study by Hoyer and Brown suggested that when known (familiar) brands compete with unknown or (unfamiliar) brands, more consumers will choose the familiar brands as brand awareness was used as cue for choice (Hoyer & Brown, 1990).

In the offline environments, brands with high market shares (familiar) persistently show excess brand loyalty (Pare & Dawe, 2012). In the offline environment, the study by Delgado-Ballester, et al., 2012), indicated that familiar brands are recognised and chosen more than unfamiliar brands because familiar brands have perceptual and conceptual fluency. Familiar brands come to mind more readily and enjoy cognitive and affective advantages; in the offline shopping environments, familiar brands persistently sell more (Pare & Dawe, 2012; Delgado-Ballester, et al., 2012)

This dissertation uses only one of the brand knowledge concepts reviewed above, brand familiarity. In the present research, I expected that the relative advantage of familiar brands over unfamiliar brands will be greater in shopping environments with less diagnostic non-brand information. Specifically, the relative advantage of familiar brands will be greater online than offline if, and only if, the other information available is perceived to be better offline than online. I expect that more familiar brands will enjoy a greater advantage in overall preference online than offline, but only when the other information available is more diagnostic offline than online.

Other brand constructs include brand extensions, brand personality, family brands, brand communities, brand love (Batra, Ahuvi & Bagozzi, 2012), brand functionality and brand architecture (Keller, 2012), and corporate brand reputation. I do not expand on all of the various brand constructs, but focus on the brand constructs relevant to the research problems (brand awareness which is discussed in section 3.4.4). This dissertation explores how brand familiarity influences choice in the online and offline environments. The following sections

discuss the accessibility and diagnostic model and how this is related to information on brands and consumer decision choice.

2.4. The Accessibility-Diagnosticity Model

In a situation of "too much" information, selective information processing is prevalent (Kardes, Cronley, Kellaris & Posavac, 2004). The accessibility-diagnosticity model assumes that for any given decision, the consumer could use any of hundreds of cues, but instead uses only a small subset. The model attempts to explain why a given cue gets high or low weight in a given decision (Ahluwalia & Gürhan-Canli, 2000; Alba, et al., 1991; Feldman & Lynch, 1988; Herr, et al., 1991; Lynch, et al., 1988; Lynch, 2006; Simonson, Carmon, Dhar, Drolet, & Nowlis, 2001).

Alba, et al. (1991) summarize the accessibility-diagnoticity model as a model of the weight that any given cue gets in a consumer decision, particularly when some of the information the consumer relies on comes from memory. The likelihood that a cue or input A will be given weight in some decision Y is:

a. "a positive function of the "accessibility" of Input A in memory, that is, its ease of retrieval (e.g., Biehal & Chakravarti, 1983, 1986; Keller 1987, 1988; Tybout, Sternthal, & Cakler, 1983);

b. a positive function of the perceived diagnosticity of Input A for decision Y, i.e., the degree to which the decision suggested by Input

A alone is perceived to allow one to one's task objective (e.g. Costley & Brucks, 1989; Lichtenstein & Scrull, 1985);

c. a negative function of the accessibility of alternative diagnostic inputs (B,C,D) in memory (e.g., Bettman & Sujan, 1987; Higgins & Rholes, 1978);

d. a negative function of diagnosticity of alternative inputs (B C D) that are accessible in memory (e.g., Hoch & Ha, 1986; Levin & Gaeth, 1988; Lynch, et al., 1988; Alba, et al., 1991)

The model assumes that decisions arise from an anchoring and adjustment process in which inputs are sequentially retrieved with the consumer updating the implications of already-considered evidence with each new input retrieved. The order of retrieval is a function of the accessibility of each input and accessible information can be actively disregarded if it is perceived to be non-diagnostic. Memory search stops after a number of searches fail to retrieve new inputs or when the cumulative diagnosticity passes some threshold that depends on the involvement of the decision among other factors (Alba, et al., 1991).

2.4.1 Accessibility of an Input

Anderson and Bower (1980) and Aaker (2000) argue that highly accessible information tends to be easier to process because of the greater number and strength of associative pathways in memory. Accessibility refers to the ease of retrieval of the cue or activation of potential

available knowledge from memory. The accessibility aspect of the model refers to how easily an input (a piece of information) can be retrieved from memory. In other words, the direct function of frequency and recency and activation of information in memory (Higgins, 1989). Accessibility normally increases when the stimulus is visible and when the consumer engages in elaborative information processing, leading to better memory for the information when later decision making relies on memory.

2.4.2 Diagnosticity of an Input

The "diagnosticity" of that input for a judgment or choice refers to the degree to which the consumer perceives that the decision implied by that input alone would accomplish their decision goals (Feldman & Lynch, 1988; Aaker, 2000). A piece of information is perceived as diagnostic for judgment if it helps the consumer assign a product to one and only one cognitive category (Lynch, et al., 1988). Information that has multiple interpretations is nondiagnostic (Herr, et al., 1991).

A cue is diagnostic for *choice* if it discriminates the best from the rest (Lynch, et al., 1988). In other words, diagnositicity deals with the perceived relevance of the piece of information or cue for choosing among options. For instance, imagine that there are three brands of perfume being considered for purchase by a consumer and all of them are the same size. In this instance, size is non-diagnostic and will not be a point to be included in the decision making. If the sizes were different, the size could become diagnostic if the consumer preferred one size over another.

2.4.3 Accessibility and Diagnosticity of Alternative Inputs

The accessibility-diagnosticity model implies that accessible information (e.g., brand familiarity) is not used as an input for judgment and choice when more diagnostic or probative information is available and accessible. Information retrieved from memory can be actively disregarded if it is perceived to be non-diagnostic and a cue that might be regarded as moderate in diagnosticity may not be considered if other diagnostic inputs are considered early on that are perceived as sufficient (Lynch, 2006). These points can be readily applied to the role of brands in online decision-making. Information about whether a brand is liked or disliked or whether it is familiar or unfamiliar will receive more relative weight in a final choice if other diagnostic information is not readily accessible. Brand familiarity and brand liking have slightly different effects, which will be explained in the next section.

2.4.4. The Link between Accessibility and Diagnosticity and why Brand Familiarity Matters

Brand liking is one kind of cue that consumers can rely upon to come to decisions. Brand liking is diagnostic for choice when it separates the best alternative from the rest, but not if the alternatives being considered are similar in brand liking (Lynch, et al., 1988). Familiarity or recognition is another useful way to make decisions (Goldstein & Gigerenzer, 2002). Studies show that when consumers are aware of only one brand in a set, they tend to choose the familiar brand, and are less likely to cite taste as a factor in their later decisions (Hoyer & Brown, 1990). These findings are consistent with the accessibility-diagnosticity model and

parallel findings for effects of brand liking – the cue is used when diagnostic but not when nondiagnostic, and the use of one cue suppresses use of other cues.

There is one additional way in which familiarity has effects that do not parallel brand liking. Though accessibility and diagnosticity are distinct constructs, in some circumstances, there is a link between the ease with which certain information can be retrieved from memory, and diagnosticity (Lynch, 2006). Information that is hard to retrieve seems less diagnostic (Schwarz, 2004). For example, if consumers experience difficulty in recalling price information for a particular choice alternative, they may be reluctant to use this information as a basis for a choice (Lynch, et al., 1988; Lynch, 2006).

Conversely, ease of retrieval leads to a perception that the information retrieved is valid (Schwarz, 2004), and also leads people to conclude that they like alternatives that seem familiar (Zajonc, 1980). Kardes, et al., (2004) concluded that consumers engage in selective processing of information and this is dependent on the amount of information that is presented and the manner in which this information is presented. For that reason, brand familiarity is a somewhat diagnostic input or cue for consumer decision making, both online and offline, but its effects may be weakened in shopping environments with abundant diagnostic non-brand information.

This research studies how brand familiarity is given weight in the offline and online environments as reflected by how brand familiarity influences brand choice. The answer to

this question, I argue, is dependent on what other diagnostic information is available in online environments versus offline.

2.4.5 Diagnosticity of Non-brand Information Online and Offline

Consumers depend on product information to compare products and brands, and the information strongly influences purchase behaviour (Kowatsch & Maass, 2010). The nature of the offline and online environment offers consumers different types of information that help with the development of brand familiarity and that alters the "diagnosticity" of information other than the brand name. Lynch, et al. (1988, p. 171) explained that "an input is diagnostic for a judgment or decision to the degree that consumers believe that the decision implied by that input alone would accomplish their decision goals (e.g., maximize utility, choose a justifiable alternative, and so on)." In the context of consumer choice, the diagnosticity of information apart from brand name relates to the degree to which the consumer believes that she has enough information to separate the best alternative from the rest.

Prior research in psychology and marketing has established that consumers often feel more confident when impressions are based on direct experience compared to indirect information (Fazio & Zanna, 1978; Smith & Swinyard, 1983 cf. Wright & Lynch, 1995). If there is less experiential information online than offline, this implies that consumers will have less confidence in their product evaluations in those circumstances. This thesis tested the

conjecture that consumers will rely more on brand familiarity to make choices online than offline in these circumstances.

Of course, it is not always the case that information is perceived as more impoverished online than offline. Online experiences can be highly interactive, allowing consumers to focus on exactly the information that they find most relevant (Alba, et al., 1997; Ariely, 2000). Moreover, online shopping can incorporate rich information media that may actually be better than that available in a brick and mortar store, as when online music sites permit listening to songs from CDs in ways not typical offline (Klein, 2002; Liang & Lai, 2002). Online shopping may sometimes have superior word-of-mouth information availability due to online ratings and user reviews (Simonson & Rosen, 2014). In some instances, online decision aids may help consumers avoid dominated alternatives (Haubl & Trifts, 2000). However, in many circumstances, consumers perceive information online to be less diagnostic than offline. Based on these premises, my dissertation research presented in this thesis investigated ways in which brand familiarity plays a greater role online than offline.

2.4.6. Information Provision and Quality of Information Online and Offline

Retail formats, offline and online differ in the amount of information provided by the retailers. Moreover, there is high interactivity online which includes reciprocity in the exchange of information (Alba, et al., 1997). Online retailers decide what type of information they will provide to their prospective customers. The issue is that the online shopping formats have limitations on the type and quantity and quality of information about attributes linked to

consumption benefits they can provide. This should be understood in the context that human beings use their senses of sound, sight, smell, touch and these have powerful effects on the physical, cognitive, social and emotional effects and influence decision making (Soars, 2009). For search products, their attributes are evaluated and assessed before purchase (touch, taste drops smell are important attributes) while the quality of experience products is difficult to assess prior to purchase and usage as this is only possible after usage (Alba, et al., 1997; Wood, 2001). Search and experience goods are classified based on the product quality information to be obtained either before or after purchase (Huang, Lynch, Chakravarti, & Mitra, 2009). Other authors have argued like Nelson (1970) that consumers conduct minimal pre-purchase information search for experience goods but perform extensive search for search goods.

Many researchers have suggested that the type of information available online may be inferior, especially on sensory attributes (e.g., Wood, 2001). A study by Huang, Schrank, and Dubinsky (2004) concluded that the perceived ability to assess product quality before purchase is less in the online shopping environment than in the traditional retail setting. Online shopping is deficient of providing information through the senses of touch, smell and taste senses. Peck and Childers (2003) argued that the nature and use of touch can affect online shopping behaviour and this haptic information may be relevant to chronically touch oriented individuals. Credence products have their quality assessed after repeated purchase and use, though purchase can be based on trust and recommendations from others. Consumers make inferences on product attractiveness on the basis of the information provided by retailers and the retail formats compete on the information they provide as cues for these inferences (Alba, et al., 1997). Offline shopping affords buyers the opportunity to touch and feel the merchandise and obtain information from the sales representatives (Alba,

et al., 1997). Online retailers can improve on sensory stimuli, through sensory stimuli to improve shopper experience and change online behaviour (Soars, 2009). [1]

In deciding which products or brands to choose from, consumers are exposed to enormous amounts of information, yet people's processing capacity is limited (Bettman, Luce & Payne, 1998; Kunreuther, Meyer, Zeckhauser, Slovic, Schwartz, Schade, Hogarth, Kunreuther, 2002; Haubl & Trifts, 2000; Plassmann, Ramsøy, & Milosavljevic, 2012). The presence or absence of knowledge structures of various sorts affects the types of information processed and the processing heuristics used by consumers (Alba & Hutchinson, 1987; Alba, et al., 1991). Consumers also engage in what is known as selective information processing especially when there is information overload (Yoon, et al., 2012). How consumers represent, attend to and perceive incoming information has influence on their behaviour (Plassmann, et al., 2012).

Consumers often act on information that is less than complete and far from perfect. Consumers are faced with some degree of risk or uncertainty in their purchasing decisions (Kim, Ferrin, & Rao, 2008). Due to the limited capacity to evaluate all the available information that is available for decision making, in most decision situations, hundreds of cues exist but only a handful of cues exert real influence (Alba, et al., 1991).

[1] I would not argue that online information is necessarily inferior to offline. Some consumption benefits or attributes are conveyed more effectively online than offline. For example, one can listen to music before purchase online but this is untrue of some brick and mortar stores. Others have pointed to easier access to word of mouth information online, e.g., in the form of user ratings (Simonson & Rosen, 2014, p.191).

Let us now consider how the amount, content and form of information available online and offline affects the relative risk of buying a given product offline versus online. Online environments tend to dominate offline environments in the sheer amount of information that they make readily available (Alba, et al., 1997). Online stores have no limitation in stock keeping units (SKUs) and it is often easy to collect information about many details of a given product. Typically more information on sensory attributes is available offline and more information on non-sensory attributes is available online.

However, more information is not necessarily perceived by consumers as better. Without some decision aid, more information can be overwhelming. More alternatives lead to better choices only if there is some easy way to screen hundreds of alternatives to focus attention on a handful that are a good fit to the consumer's utility function (Diehl, Kornish & Lynch, 2003). In the offline environment, a skilled salesperson can perform this function. Retail formats also differ in the content of what they provide. In the offline environments, buyers have the opportunity to touch and feel merchandise and obtain information from sales associates, while the Internet provides high quantity information (Alba, et al., 1997).

Finally, formats differ in the "form" of the information --- how easily the information is accessed and processed and whether there is "decision support." The experiments in this dissertation manipulated the information quantity and quality for consumer decision making. Bettman and Kakkar (1977) argued that strategies used to acquire information are strongly affected by the structure of the information presented. Following Slovic's (1972) "principle of concreteness," they argued that consumers process information in the format in which it is presented. Concreteness represents the general notion that a decision maker tends to use only

the information that is explicitly displayed in the stimulus object and only in the form in which it is displayed.

In this dissertation research, I manipulated the nature of accessible and diagnostic non-brand information available in the three shopping formats. The premise of the experiments was based on the hypothesis that brand familiarity or brand unfamiliarity would matter in the shopping environment with non-brand information.

2.4.7. Interactivity

Online and brick and mortar stores differ not just in the content of information they provide but in interactivity, and the relative degrees of interactivity can influence whether the consumer perceives more diagnostic information to be available offline versus online. Interactivity is a multidimensional construct comprising reciprocity in the exchange of information, availability of information on demand, response contingency, customisation of content and real-time feedback (Alba, et al., 1997; Ariely, 2000; Eggert, 2006; Haubl & Trifts, 2000). I did not investigate this factor in my dissertation, and I hold interactivity constant in the studies I report that compare shopping environments. However, I briefly explain the relevance of interactivity below to note a caveat on my general conclusions about whether non-brand information is likely to be more or less diagnostic when shopping on the internet compared to in a brick and mortar store.

When consumers gather information about products and services, consumers can screen information so that they can focus on alternatives that match their idiosyncratic needs. Alba, et al. (1997) noted that in the online environment, there are no sales persons to help the buyer with either more information or clarification, nor to simplify the decision by focusing on criteria the customer says are important to him or her. Traditional merchandising is limited by physical constraints as floor space and shelf space limit the number of complements that can be place in close proximity to any given product while the Internet allows unlimited cross-referencing to find complementary products (Diehl, Van Herpen & Poyner, 2010). The Internet offers the availability of powerful means of searching, organizing and disseminating such information (Peterson, et al., 1997). Consequently, the perceived quality of information available online will increase with increases in the interactivity of the online retailer's site. All of these are ways that the relative "quality" of information online and offline depend on the degree of interactivity of each format.

2.5. A Review of Empirical Studies on Branding and Online Consumer Choice

The review is divided into two sections. The first part focuses on the advantages of familiar brands and second part reviews situations where consumers do not make a choice or defer choice.

2.5.1. Familiar Brands Online Advantage

For the offline shopping environment, studies have shown that familiar brands have an advantage over unfamiliar brands.[2] A study of brand names and online shopping indicated that consumers process more information on brands that are familiar and allocate more attention and effort to them (Park & Lennon, 2009). The conclusion of the study by Park and Lennon (2009) was that a well-known brand has a powerful effect on influencing consumer's perceptions of online store and affect purchase intention. However, this study did not compare online to offline shopping environments and held the environment constant. In fact, many studies about online shopping hold the shopping environment constant and make claims that their research designs do not support.

Another study was conducted to examine the direct and indirect influences of product brand image on consumer's online purchase intension. The results of that study indicated that brand image had a positive influence on online purchase intentions for fashion apparel products (Aghekyan-Simonian, et al., 2012). The aforementioned study included product brand image and did not break up the brand images into familiar or unfamiliar.

In the online shopping environment, the information available is not the same with the offline information (Burke, 1997). The internet has limitations in provision of taste, smell, touch and

[2] One relatively weak study by Huang, et al. (2004) concluded that in an online environment, the usual advantage to brand familiarity does not apply. As a caveat, the authors held constant the shopping environment, limiting ability to make any statements about differential role of familiarity offline and online. The authors faced experimental respondents with an online shopping situation and the opportunity to buy an MP3 player. Its brand name was said to be familiar Sony, unfamiliar Rio, or there was no name given. Surprisingly, consumers rated that there was more risk involved in buying a branded than an unbranded product, and there was no difference in rated risk in buying the familiar Sony than the unfamiliar Rio. The authors do not really explain their findings, but offer several speculations, such as that respondents were rating their risk of shopping online rather than the risk of buying that particular product.

taste attributes to consumers (Alba, et al. 1997) though the internet has capabilities to provide superior sound and sight information or attributes. Retail formats, offline and online differ in the amount of information provided by the retailers and that there is high interactivity online which includes reciprocity in the exchange of information (Alba, et al., 1997). Online retailers decide what type of information they will provide to their prospective customers. The issue is that the online shopping formats have limitations on the type and quantity and quality of information about attributes linked to consumption benefits they can provide. Online retailers have limitation on the type of information they provide especially in relation to search, experience and credence products.

One of the heuristics used to decrease risk and increase purchase has been brand familiarity (Park & Stoel, 2005). Some studies look at the familiarity of the retailer. A study conducted by Smith and Brynjolfsson (2001), indicated that customers responded strongly to well-known branded internet retailers as consumers could enforce to fulfil the promised shipping times. A study conducted by Smith and Brynjolfsson (2001), indicated that customers responded positively to well-known branded internet retailers. Consumers used brand names as a signal of reliability in service quality. While there have been predictions that the Internet would "commoditise" many industries and reduce the role of differentiation, the results of this study showed that branding in an important factor in consumer decision making. One line of research looks at the branding of internet retailers– e.g., Massmart or Amazon.com -- rather than the branding of the merchandise carried by retailers that is not the focus of this dissertation. The following discussion focuses on studies on branding and consumer decision making, which is my preferred focus of study.

The study by Degeratu, et al. (2000) suggested that brand names would be more important online in some product categories and not in others. The study explored whether brand names were more valuable online or offline. The results by Degeratu, et al. suggested that brand names would be more important online in some product categories and not in others. These authors did not attempt to disentangle effects of different types of brand associations, but simply looked at how the environment changed the explanatory power of a set of brand dummy variables in predicting sales. Degeratu, et al. suggested that brand names would be more important online in product categories that are differentiated on brand image and other attributes that do not lend themselves to be easily summarized by online retailers like fashion products. On the other hand, it was suggested that brand names would be less important for functional products like computers for which online stores would provide detailed attribute information.

This study focused on the search attributes and used data from peapod.com. This research did not attempt to analyse any characteristics of the differential information available online versus offline that would explain observed differences in the role of brands. The study by Deregatu, et al. (2000) left many unanswered questions. The authors relied on packaged goods grocery items. For these, the brick and mortar environment does not rely on sensory information of touch and smell. Moreover, the research was correlational and "did not use experiments and so it is difficult to know exactly what caused the effects" (McCabe & Nowlis, 2003, p. 432). Moreover, the authors did not investigate my research question of whether the relative power of familiar versus unfamiliar brands might differ as function information available of the shopping environment

The empirical study which is close to my Experiment 1 is the research by Danaher, et al. (2003). Danaher, et al. conducted a study to ascertain brand loyalty online and offline. The study compared brand loyalty in online and traditional shopping environments and used data from one retailer who had online and offline presence. The results indicated that high market share (familiar) brands had greater expected loyalty when bought online, and the conclusion was that brands play a crucial role in helping the consumer infer consumption benefits. Danaher, et al. found that brand name was important in the sense that a strong brand did better in the online environment compared with a "weak" or unfamiliar brand. These results indicate that purchase behaviour online tends to be more conservative than in traditional stores as familiar brands with a strong offline presence do better in the online environment than offline. "The limitation of this study was that with the data they used, they were not able to pinpoint which reason(s) might have driven the results, so left this as an area for future research" (Danaher, et al., 2003. p. 474).

My argument is that it is not only that brands are important in online decisions but that there is a difference in how consumers would decide either to buy familiar or unfamiliar brands in different shopping environments. The information available in the purchase environment at the time of decision making plays a crucial role in the choice of brands. My dissertation explored the effect of the shopping formants with varying levels of information on the choice of familiar and unfamiliar brands (Experiment 1) to try to fill the gap from previous studies.

2.5.2. Research Questions and Hypothesis for Experiment 1

From the foregoing literature review, the research question for experiment 1 was to study the effects of shopping format on relative choice of familiar versus unfamiliar brands. What are the effects of the shopping environment on relative choice of familiar versus unfamiliar brands? Do familiar brands have a greater choice share of sales and does this advantage increase in the online environment over unfamiliar brands online than offline? As noted above, I frame interactivity out of the equation for purposes of this research and focus on differences between online and offline shopping in the provision of diagnostic sensory information. From the forgoing literature review, there is little prior work on the effects of shopping format on relative choice of familiar versus unfamiliar brands in a consideration set of familiar and unfamiliar brands. Moreover, what work exists does not test directly for what informational differences are causing changes across shopping environments in affecting relative preferences for familiar vs. unfamiliar brands. Experiment 1 explored this. I expected to show that more familiar brands have a greater advantage over unfamiliar ones online than offline. The share of unfamiliar would be higher in the shopping format which has more non-brand diagnostic information.

I predicted that familiar brands have a greater advantage over unfamiliar ones online than offline. The premise for this prediction was that:

- When non-brand information is more diagnostic offline than online, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will be higher in online choice than in offline choice.

- When non-brand information is equally diagnostic online than offline, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will not differ between online and offline choice.

2.5.3. Experiment 1 Hypothesis

The central idea in this experiment was to show how the environment affects the consumer's choice of buying familiar and unfamiliar brands. Consumers shopped for chocolates from online or offline stores that carried the same mix of familiar and unfamiliar brands. There were three shopping environments: online, offline without taste, and offline with taste. The conjecture was that consumers will choose familiar brands unless the shopping environment provides diagnostic quality information for unfamiliar brands. I will state each hypothesis first in the null, and then in the alternate form.

H_{10}: *Consumers' total choice of units on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{1A}: *Consumers' total choice of units on unfamiliar brands relative to familiar brands will be greater in Offline with Taste environments where there is diagnostic information compared to online environments or Offline without Taste shopping environments.*

Secondly, this conjecture was to explore that the proportion of units chosen would be more for familiar brands in the Online and Offline with taste environment than the Offline with taste.

H_{20}: *Consumers' choice proportion of unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{2A}: *Consumers' proportion choice of unfamiliar brands relative to familiar brands will be greater in Offline with Taste environments where there is diagnostic information compared to online environments or Offline without Taste shopping environments*

Thirdly, this conjecture was that the total amount of Rands spent would be more for familiar brands in the Online and Offline with taste environment than the Offline with taste.

H_{30}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{3A}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be greater in Offline with Taste environments where there is diagnostic information compared to online environments or Offline without Taste shopping environments*

2.5.4. No-Decision Option

Experiment 2 in my dissertation compares consumers' willingness to buy at all from a store carrying only familiar brands compared to a store carrying only unfamiliar brands. I predict that relative sales in the two types of stores will differ, depending on the shopping environment. I again compare three environments: online, offline without taste, and offline

with taste and predict that the third of these will differ from the first two in the relative sales of stores carrying familiar versus unfamiliar brands. Literature on consumer behaviour and brands mainly focuses on the positive consumption of brands as consumer purchase brands for many positive benefits they represent. Brand avoidance and no-decision options constructs have not been studiously researched in work comparing online to offline shopping.

I noted earlier that one of the contributing factors to increased online perceived risks is that consumers are unable to physically examine all products when shopping online. This increases the risk perceptions as consumers cannot touch, feel or try before purchase as they have inaccurate product colours and insufficient information on quality attributes (Forsythe & Shi, 2003; Huang, et al.; 2004, Laroche, Mcdougall, Bergeron & Yang, 2004; Aghekyan-Simonian, et al, 2012; Wood, 2001). Among the various risks identified, not having enough information was cited as one of the main online shopping concerns (Wood, 2001; Forsythe & Shi, 2003). For nondigital products, consumers have to wait for delivery to have experiential information which is not available online, and this raises the level of risk consumers perceive (Wood, 2001). These risks could manifest in an unwillingness to purchase at all from a store, or a decision simply to keep more of one's money in one's wallet at a store where there is not enough diagnostic information to allay uncertainty.

Though I do not measure or manipulate risk in my dissertation, risk perceptions are likely affected by the two main variables I do manipulate: brand familiarity, and the quality of non-brand information available in the shopping environment. In the online environment consumers assess the following risks; customer familiarity with the Internet, the company, brand name, price of the product or service, perception of security of information, security of

purchase and guarantees (Schoenbachler & Gordon, 2002). Perceived risk is a subjective expectation of loss; it is a multidimensional construct comprised of financial, social, psychological, and physical and performance components or negative outcome from the transaction (Kim et al., 2008; Eggert, 2006; Huang, et al., 2004), in other words, the loss of money, ego and time. Online shopping risk is defined as the subjectively determined expectation of loss by an Internet shopper in contemplating a particular online purchase (Forsythe & Shi, 2003). Results from various studies on perceived online risks and the intention to engage in online shopping have not been consistent. Findings from some studies indicated that perceived online risks would deter engaging in Online shopping (Chang, Cheung & Lai, 2005).

McCabe and Nowlis (2003) conducted a study to explore the effects of examining actual products or use product descriptions in consumer decision making. The results of their study argued that for products with material properties such as clothing, consumers prefer offline stores as they allow physical inspection; consumers do not show any preference to buy offline or online for products with geometric properties like packaged goods as the sense of vision is highly diagnostic both online and offline. These authors also argued that for products where touch properties were diagnostic, verbal description of these attributes would reduce the differences in preference between offline and online (McCabe & Nowlis, 2003).

Another study by Banister and Hogg (2004) examines the choice to defer purchase due to active dislike of a set of brands rather than to uncertainty. These authors suggested that consumers indeed can reject a brand based on identity or symbolic meaning. Self-esteem is a powerful motivator for consumer behaviour and is sought via approach towards an ideal or

the avoidance of undesired end state. Consumers avoid brands or products which do not project their image for themselves. This study by Banister and Hogg (2004) differs from my current study in that my study deals with unfamiliar brands where the consumers do not know much about the brand compared to the rejection of the brand based on what consumers know about the brand.

A study by Lee, Motion and Conroy (2009) defined brand avoidance as the deliberate rejection of brands despite one having finance and the ability to purchase and access brand. The study by Lee, Amir and Ariely (2009) suggested three main factors why consumers can avoid choosing a brand. Firstly, **experiential avoidance** which results from first hand experiences and due to unmet expectations, a consumer avoids the brand. Secondly, **identity avoidance**; consumers avoid a brand that is perceived to be symbolically incompatible as consumers do not want to be associated with the negative brands meanings or values. Lastly **moral avoidance**; caused by brand management policies that have negative effects on society (Nike and the sweat factories, product's country of origin). My study differs with Lee, et al. (2009) in that my focus is on unfamiliar brands about which consumers have little information. In the study by Lee, et al. (2009), people reject the brand based on what they know about the brand versus choosing or not choosing a brand based on what they do not know.

The empirical study closest to my experiment 2 was conducted by Dhar (1997). Dhar suggested that decision makers in various situations defer choice. Choice deferral can reflect seeking more information on existing alternatives or a no choice occurs to avoid difficult trade-offs. Dhar contrasted the percent choosing not to choose when a single option was

offered so the choice set was {A, defer} compared to when a second equally valued option B was added to the set {A, B, defer}. As he predicted, people were more likely to defer choice in the second choice set that produces more conflict than from the first, violating classical economic models. The classical theory assumes that preferences are complete and that information processing is costless, the "no" purchase decision depends on the utility of the most preferred option. One chooses "defer" only if no other option exceeds some reservation utility threshold, and so one prefers to continue searching. By this account, it cannot be more likely that both A and B fail to surpass that threshold than that A alone fails to surpass it. In reality, information on all possible brands is either unavailable or simply difficult to process. Consumers choose "no choice" when there is not enough distinguishing information to make a choice. My argument is that both brand name familiarity and non-brand information in the store environment can produce distinguishing (diagnostic) information, and so my experimental factors should affect the likelihood of choosing not to spend from one's wallet.

Literature on the impact of environmental factors on the no-choice of familiar and unfamiliar brands is scarce. Dhar (1997) rightly suggested that additional research is needed to assess the advantages and limitations of focusing on decision uncertainty in predicting the preference for a "no" choice option by using other tasks and contexts. Prior studies have not tested directly the effects of shopping formats on consumer's likelihood to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and that this tendency should be stronger online than offline.

Moreover, to my knowledge, there are no observational or econometric studies of the effects of shopping format on unwillingness to make a purchase from a set of unfamiliar brands

compared to one from a set of familiar ones. Observational / econometric studies cannot distinguish a "no sale" because a consumer was not in the market for a product versus a decision not to buy after looking at the available selection. In my experiments, in contrast, I can endow respondents with a constant amount of money to be spent on chocolates and test how my experimental variables affect how much is spent.

The literature reviewed above focused on consumer decision making, based on choosing and deciding not to choose but these were not distinguished by online and offline shopping environments. The other studies focused on consumers making decisions about brands that they know and do not like. My study is dealing with shopping environments where a decision to buy or not to buy is affected by a sense of what you do not know about the brand. Experiment 2 is expected to show that consumers are more likely to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and this tendency is stronger online than offline. I conclude that if the shopping environment does not provide diagnostic information, consumers will feel that they do not have enough information to make a decision and will defer choice or continue searching.

2.5.5. Research Questions and Hypothesis for Experiment 2

What are the effects of shopping format on consumers' likelihood to make a purchase from a set of familiar brands than from a set of unfamiliar brands? Is this tendency stronger online than offline?

I again contrast the three shopping environments of online, offline without taste, and offline with taste. This time, instead of shopping at stores with a mixture of familiar and unfamiliar brands, they shop at stores carrying only familiar chocolates or only unfamiliar chocolate brands.

I expected to show that consumers are more likely to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and that this tendency should be stronger online than offline. The presence of familiar or unfamiliar brands in the choice set influences whether a consumer will buy– versus defer choice or keep searching – and this effect differs for online and offline *choice*. The assumption is that the effect of the familiarity of a store's brand assortment is stronger online than in offline choice when non-brand information is more diagnostic (offline with taste condition)

The central idea in this experiment was to show how the environment affects consumer's choice of buying familiar and unfamiliar brands or continue shopping or avoid choice. The conjecture was consumers would rather continue shopping or not make a decision on unfamiliar brands when the information is limited.

2.5.6. Experiment 2 Hypothesis

$H_{40:}$ Any tendency for consumers to defer choice more from a set of unfamiliar brands than from a set of familiar ones will not be differentially strong in the online versus offline purchase environment

H_{4A}: Consumers will defer choice from a set of unfamiliar brands more than from a set of familiar ones, and this tendency will be stronger in Online than Offline purchase environments.

From the hypothesis, I predicted that participants will buy more in the familiar choice set than in the unfamiliar choice set, but more critically, this will depend on the shopping environment. I concluded that if the shopping environment does not provide diagnostic sensory information, consumers will feel they do not have enough information to make a purchase, but particularly for stores carrying only unfamiliar brands.

2.6. Branding and Price Elasticity

My third experiment returned to the context of a store carrying a mixture of both familiar and unfamiliar brands and varied across groups whether consumers were shopping online, offline without taste, or offline with taste. My last research question studied the effect of shopping environments on relative price elasticity for familiar and unfamiliar brand. My literature review focused on the concept of price elasticity, studies of how branding changes price

elasticity and how shopping environments change price elasticity. Currently there are no studies that specifically explored the effects of the shopping environment on relative price elasticity for familiar and unfamiliar brands.

2.6.1. Price Elasticity

Price is a prominent attribute for nearly all consumers in every product category which influences consumer choice. Price elasticity is the response to price changes. Price elasticity is defined as the percentage change in demand caused by a percentage change in price (Granados, Gupta, Kauffman, 2012; Mohr, Fourie, & Associates, 2008.) The calculation for price elasticity by Mohr, et al. (2008) requires to divide the percentage change in the quantity demanded by the percentage change in the price of the product or service concerned with the formula being: Ep= Percentage change in the quantity demanded of a product/ percentage change in the price of the product.

For normal goods, the accepted view is that when the price increases, demand decreases and vice versa. Demand is described to be elastic where there is a higher proportional increase or decrease in demand when the price is increased or decreased. Inelastic demand occurs when there is minimal change in demand when the price increases or decreases (Granados, et al., 2012). The main factors that influence price elasticity are substitute products, degree of complementarity of the product, type of need being satisfied by the product (necessities versus luxuries), time of purchase, proportion of income being spent on the product, advertising (branding), durability, number of uses of the product and a combination of

various factors (Mohr et al., 2008). The dissertation focuses on the effects of the shopping environment and branding on price elasticity for familiar and unfamiliar brands in the different shopping environments.

At the onset of e-commerce, it was initially projected that the internet will bring about a nearly perfect market. A study by Brynjolfsson and Smith (2000) looked at the homogenous product, CDs and books across offline and online channels and concluded that there was high price dispersion on the internet. The results indicated that retailers with the lowest prices did not make the most sales and concluded that brands will still play an important role in consumer choices as consumers were willing to pay more for homogenous products from branded or well-known retailers (Brynjolfsson & Smith, 2000)

2.6.2. Branding and Price Elasticity

This section reviews some empirical studies on the relationship of online branding and price elasticity. This is mostly work about the effects of differentiating brand (as opposed to price) advertising on price elasticity; branding is strongly affected by advertising. The review looked at two schools of thought, the marketing power and the information school of thought. I also review work on the effect of the purchase environment on price elasticity.

2.6.3. Marketing Power: Brand Advertising Reduces Prices Elasticity

There are diverse theories on brand and price sensitivity, firstly, one school of thought suggests that brand advertising reduces the price elasticity of demand. This marketing power school of thought states that, brand advertising leads to artificial product differentiation, increases monopoly power and thus creating brand loyalty and lowering sensitivity to prices in brand choice (Comanor & Wilson, 1979; Comanor & Wilson, 1974). The marketing power school of thought states that the more a brand is advertised, the more familiar it becomes to consumers and the more consumers know of the attributes of the brand and so decreases price elasticity. The consumers have more information on the brands and are able to differentiate the brand offerings and make decisions bases on brands and not price, this scenario decreases price elasticity.

Economic theory suggests that higher availability of information brings markets closer to perfect competition and full market efficiency. Many have suggested the internet provides perfect information (Granados, et al., 2012). This has led some scholars to expect that consumers will be more price sensitive on the internet as consumer will have more information on brands. The study by Granados, et al. suggested that improvements in the availability of market information in the online channel decrease search costs which affect price elasticity of demand due to the price comparison and product information which would make consumers less price sensitive

The insights from the marketing power school of thought are that consumers will be price inelastic online if information is worse online than offline. I suggest that when consumers are familiar with brands, they will not be price sensitive as they will make decisions based on brand heuristics and not price. The inference to my study indicates that consumers would be price sensitive for unfamiliar brands and not familiar brands unless the shopping environment provides more diagnostic information that is particularly relevant to reduce price elasticity for unfamiliar brands.

2.6.4. Information School of Thought: Brand Advertising Increases Price Elasticity

Contrary to the marketing power school of thought, the information school of thought suggests that increased brand advertisements provide information on brands and brand substitutes (Stigler, 1961). Advertising is seen as providing information that increases price elasticity (Nelson, 1974). Advertising in turn creates familiar brands through brand awareness and this increases competition and the consideration set and this leads consumers to have extended information on many brands and makes them more price sensitive.

Researchers argue that the internet can significantly impact on the nature and degree of customer price sensitivity (Shankar, Rangaswamy & Pusateri, 1999). The understanding is that if more information is available to customers, they are able to compare the product offerings and their prices, then less weight will be placed on brands in the decision making process. This suggests that consumers will be more price sensitive online as they will be able to search for both price and brand information.

2.6.5. Effects of Shopping Environments and Price Elasticity

The study by Mitra and Lynch (1995) attempted to provide a theoretical and empirical reconciliation of the competing advertising models, advertising as market power and advertising as information. The marketing power which argued that advertising increased product differentiation and decreases brand price elasticity and the information model which contended that advertising decreases price elasticity as it increased the consideration set and the number of known substitutes. According to Mitra and Lynch,

a) Advertising increases consideration set size;

b) Larger consideration sets increase price elasticity.

c) Advertising increases perceived differentiation among brands creating greater strength of preferences.

d) Consumers will be less price elastic when they have stronger preferences.

e) Moreover, with stronger preferences, consumers will voluntarily consider fewer brands, as it becomes unlikely that brands that are expected to be less liked will be the final choice once considering temporary considerations like price discounts.

The results from Mitra and Lynch suggested that claims that advertising will always increase or decrease price elasticity are misguided. Whether advertising increases or decreases price elasticity, depends on the various paths described above. The stronger paths a) and b) above, the more advertising will increase price elasticity, consistent with the advertising as information school of thought. The stronger paths c), d), and e) above, the more advertising

will decrease price elasticity, consistent with the advertising as market power school of thought.

The study further argued that there are product markets in which consumers rely on point of purchase information to generate alternatives for consideration, weakening path a), and for such, the net effect of increased advertising by brands will be to decrease price elasticity.

The study by Mitra and Lynch (1995) stated that the effects of advertising on consumer price elasticity depends on the **choice situation** in regards to the purchase information available at the time as this dictates what options are considered. Mitra and Lynch (1995) showed that the same non-price advertising can increase or decrease price elasticity depending on the purchase environment. In the time since publication of this paper, Kaul and Wittink (1995) and Mela, et al. (1997) have shown that in many common grocery store situations, advertising on the internet tends to lower price elasticity. I should note that in all of my studies, the set of alternatives was held constant and the stimulus environment provided alternatives for consideration. Thus, advertising (and brand familiarity) should decrease price elasticity.

Just as advertising provides information that can make consumers less price sensitive, the shopping environment can too. The electronic shopping environment has proved to provide greater access to information at lower search costs (Petrescu, 2011; Chu, Arce-Urriza, Cebollada-Calvo, & Chintagunta, 2010; Xing, 2008; Chun & Kim, 2005; Alba, et al., 1997;

Shang, Chen & Shen, 2005; Shankar, et al., 1999). Consumers can get information about the brands they consider much easier and faster than the traditional retail format (Petrescu, 2011).

Electronic shopping affects the ease of accessing both price and nonprice information. Electronic shopping lowers the cost of acquiring and processing price information and this increases price sensitivity in line with the information theory of brand advertising. On the other hand, non-price differentiating information can be provided and this reduces price sensitivity (Lynch & Ariely, 2000). Lynch and Ariely tested conditions under which lowered search costs online should increase or decrease price sensitivity. The results of this study argued that lowering the cost of search for quality information reduced price sensitivity.[3] Lynch and Ariely concluded that research is needed to learn how retailers can use electronic commerce not to compete on price, but to capture the value of differentiation for their customers and themselves.

The conjecture for my study emanates from the accessibility-diagnostic model. The accessibility-diagnoticity model is a model of the weight that any given cue gets in a consumer decision (Alba, et al., 1991). The premise of research question 3 for my Experiment 3 is based on the availability and accessibility of information at the point of purchase and its effect on relative price elasticity for familiar and unfamiliar brands. People will rely more heavily on price (and thus be more price elastic) when they lack other diagnostic information. The store environment provides differentiating information that

[3] Additionally, easy cross-store comparison between two online wine merchants had no effect on price sensitivity for unique SKUs, but increased price sensitivity for SKUs common to the two wine stores. I should note that in my studies, consumers shopped from only a single retailer, so cross-store comparisons are not relevant.

causes consumers to have stronger preferences, lowering price elasticity. Brand familiarity also creates strength of preference, lowering price elasticity. But the tendency for brand familiarity to lessen price elasticity should be weaker in an environment with richer non-brand information.

In general, my earlier literature review established that consumers are price elastic for unfamiliar brands. I expected this to be greater in the online environment than the offline environment and where there is more sensory information, where one can taste, smell, or experience the product. I would expect similar effects of ability to ask a salesperson questions to get more information about an unfamiliar brand in a brick and mortar environment.

I have not found literature that looks at the combined effects of brand familiarity and store environment on price elasticity. The premise for Experiment 3 was that in the online environment, there is limited diagnostic information compared to the offline environment where consumers can physically evaluate products and services and are able to get more information from the sellers face to face. In the online environment consumers rely more on brands and that consumers would be less price sensitive than offline.

I hypothesized that consumers would be more price sensitive for unfamiliar brands online – so that they would only buy unfamiliar brands when they were discounted in price, whereas they would be less price elastic for familiar brands. I hypothesized this same tendency would be weaker in offline environments with more sensory diagnostic information. For familiar brands, the effect of shopping environment on price elasticity would be inelastic. The thesis

argues that online shopping environments should provide more diagnostic information in order to sell more unfamiliar brands.

Based on the literature reviewed, I expected lower price elasticity for familiar brands and for this tendency to be stronger in shopping environments where there is less non-brand diagnostic information – that is, when there was less sensory information on the taste of chocolates. Academic literature has not examined the hypothesis on effect of shopping formats on price elasticity for familiar and unfamiliar brands. In a condition where there is more diagnostic information, price would play an important part in the choice of familiar and unfamiliar brands. In a condition where there is less diagnostic information, price would play an important role in the choice of familiar and unfamiliar brands. In an environment where there is more non-brand information, consumers would be expected to be less price sensitive for unfamiliar brands. The predictions for experiment 3 were that compared to familiar brands, unfamiliar brands will sell predominantly at their lower prices in environments with impoverished non-brand information but this tendency would be weaker in environments with rich diagnostic non-brand information.

2.6.6. Research Questions and Hypothesis for Experiment 3

What are the effects of purchase environment on relative price elasticity for familiar and unfamiliar brands? Does the shopping environment change the relative price elasticity for familiar and unfamiliar brands?

My Experiment 3 looked at how the environment affects the consumer's choice in buying familiar and unfamiliar premium brands and in particular affects the role of price in buying familiar brands versus in buying unfamiliar brands. The conjecture for my study emanates from the accessibility-diagnocity model. The accessibility-diagnoticity model as a model of the weight that any given cue gets in a consumer decision, particularly when some of the information the consumer relies on comes from memory (Alba, et al., 1991). The premise is that in the consumer decision making process, the availability and accessibility of information is critical.

There are no prior studies which explored the effects of the purchase environment on price elasticity for familiar and unfamiliar in a consideration set. My predictions were that, price could be an important cue in the shopping format where there is less diagnostic information and that consumers would be less price elasticity for unfamiliar brands in a shopping format with more non-brand diagnostic information. I also wished to explore the general applicability of the accessibility-diagnositicity model to a context different from prior investigations.

Another study was done in 2010 whose purpose was to study the moderating effects of household shopping frequency and product sensory nature and brand loyalty (Chu, et al., 2010.). The research used data from a leading grocery chain. The results of this research suggested that, consistent with my predictions for Experiment 1, households are more brand and size loyal online than offline. Contrary to my reasoning, they found that consumers were less price sensitive online than offline. They did not investigate the interaction of brand familiarity or prior loyalty with the purchase environment on price elasticity.

2.6.7. Experiment 3 Hypotheses

The central idea in this experiment is how the environment and pricing affects the buying of familiar brands compared to unfamiliar brands of chocolate. In this study and all three experiments, the unfamiliar brands are generally more premium chocolate sold in stores at higher prices than the familiar brands. My conjecture is that consumers would not choose unfamiliar brands at normal premium prices unless the shopping environment provides diagnostic sensory quality information. Each participant shopped across multiple trials varying across trials the price level of familiar and the price level of the unfamiliar brands (normal price or 30% discount from that price level). This allowed me to calculate two dependent variables:

1. the average price level of any familiar brands purchased and the average price level of any unfamiliar brands purchased, and
2. The individual's price elasticity for familiar brands and price elasticity for unfamiliar brands.

I expect that the price premium that the (superior) unfamiliar brands are able to charge will be greater in the offline with taste shopping environment than in either the online or offline without taste shopping environments. The offline with taste environment provides diagnostic differentiating information that should soften price sensitivity, particularly for unfamiliar brands.

I conjecture that consumers would not buy unfamiliar premium brands at a full price unless they have diagnostic non-brand information – i.e., they can taste that the premium brands are

actually higher in quality. The consequence of this is that familiar brands can sell at both regular and discounted prices, but unfamiliar brands will sell predominantly at their lower prices. Thus, the difference in average price paid for the unfamiliar brands and the average price paid for unfamiliar brands will be greatest in the offline with taste condition.

H_{50}: The difference in average price paid for familiar and for unfamiliar brands will not differ across the three shopping environments

H_{5A}: Consumers will be more willing to pay a higher price for unfamiliar premium brands than for familiar (lower priced) brands in the Offline with Taste condition where there is diagnostic non-brand information than in either the Online condition or the Offline without Taste Condition.

This greater ability of premium brands to sell at a price premium is only greater offline than online in the offline with taste condition where non-brand information is more diagnostic offline than online.

I further expected that consumers would be more price elastic for unfamiliar than for familiar brands, but that this would prevail in the online condition and offline without taste condition, but less so in the offline with taste condition where consumers could justify quality by diagnostic non-brand cues. This basically means that consumers will be more price sensitive to unfamiliar brands than familiar brands and that this will be strongest in the two conditions lacking diagnostic sensory information.

H_{60}: The difference in self-price elasticities for familiar versus unfamiliar brands will not differ across the three shopping environments

H_{6A}: The tendency for consumers to have higher self-price elasticity of demand for unfamiliar brands than for familiar brands will be greater in the online condition and offline without taste than in the offline with taste condition.

2.7. Concluding Remarks

Consumer choices concerning the selection, consumption and disposal of products and services can be difficult but these decisions are important to the consumer, to marketers and to policy makers (Bettman, et al, 1998). Consumer research insights play an important role in managerial decision making (Keller, 2003). The results of this study have implications for marketing research and practice.

There are differences in how consumers make purchase decisions in the online and offline environments. Information available to consumers in the two environments is not the same and brand familiarity may be relatively more diagnostic online than offline. This study focuses on the role of brands in consumer decision making in the online and offline environments. The study explores where branding is more important in the offline or offline shopping environments. The main underlying factor is the fact that there is limited sensory

information available to consumers in the offline environment. There are cases where sensory information is no different online and offline, and I investigate this case too in my thesis.

The conceptual point is that brand familiarity will have a bigger role when the purchase environment is informationally impoverished. Though I do not investigate this case in my thesis, when information is richer online than offline, I would predict that brands would be less important to online choice than to offline choice.

In the quest to understand how the quality of information influences consumer decision making, the concept of diagnosticity is explored. Information is perceived as diagnostic for judgment if it helps the consumer in consumer decision making. In this dissertation, brand familiarity is regarded as diagnostic for consumer decision making for both online and offline. The assumption is that familiar brands have a higher likelihood to be chosen than unfamiliar brands. The study shows that marketers need to develop strategies to increases brand familiarity and hence brand choice when selling online.

The study argues that when consumers make decisions either to buy online or offline, the quality information they have or have been exposed to about a brand has tremendous impact on whether they will buy offline or offline and that in many cases, this can be mediated by the increased role of brand familiarity in choice online.

CHAPTER 3: RESEARCH METHODOLOGY

This chapter includes the following sections: 1) an introduction; 2) research design; 3) operationalization of variables and research questions; 4) population and sampling frame; 5) data collection methods; 6) statistical techniques and data analysis and 7) concluding remarks.

3.1. Introduction

In social sciences, the main research methods used are the qualitative, quantitative paradigms and mixed methods. In consumer research, the two broad paradigms are the positivist which attempts to uncover cause and effect and the non-positivist approaches which focuses more on interpretation and believes in a subjective view of data interpretation (Pachauri, 2001, Simonson, et al., 2001). I chose the quantitative and positivist approach, and this was driven by my research questions and hypotheses.

3.2. Research Design

The research designs augment the value of the information to be obtained to answer the research questions while at the same time aims at reducing the cost of obtaining it. Research design constitutes decisions that make up the master plan, stipulating the methods and

procedures for collecting and analysing the needed information. In other words, it is a framework or blueprint for conducting the research project.

Broadly, research designs can be partitioned into qualitative and quantitative. Qualitative research would include approaches such as participant observation or semiotic analysis of texts (Belk, Wallendorf, & Sherry, 1989; Mick, 1986; Spiggle, 1994). The quantitative methodology takes an approach to research to effectively identify the measure and prioritize the thousands of elements that impact an action or decision (Gurley, Lin & Ballou, 2005). In other words, quantitative research addresses research objectives through empirical assessments that involve numerical measurement and analysis approaches (Zikmund & Babin, 2007) and applies some form of statistical analysis (Malhotra, 2007).

Quantitative research can be broadly partitioned into descriptive and causal. Descriptive studies, such as surveys, attempt to sample randomly from some population and provide statistics describing the distribution of responses, such as central tendency of individual variables or correlations between variables or multivariate relations among a set of variables, such as descriptive studies of consumer information seeking (Dickson & Sawyer, 1990; Johnson, Bellman, & Lohse, 2003; Johnson, Moe, Fader, Bellman, & Lohse, 2004; Newman & Staelin, 1972.) Descriptive research can be invaluable in establishing certain basic facts such as evidence of extremely low levels of search in brick and mortar shopping and internet search. However, with descriptive research, the cause of the phenomena described is often ambiguous. When the research question is about causation, experiments are the preferred methodology.

For example, Popkowski-Leszczyc and Rao (1990) and Mitra and Lynch (1995) both investigated the issue of whether advertising caused changes in price elasticity, with the first set of authors relying on panel data and Mitra and Lynch relying on experiments. In the first case, it was impossible to say whether advertising caused changes in price elasticity, if firms respond to differences in price elasticity by changing their advertising, or if some third variable was causing changes in both advertising and price elasticity. Mitra and Lynch (1995) instead experimentally varied exposure to advertising before allowing people to shop for Canadian candy bars, and were therefore able to make confident causal inferences.

To take another experiment, for example, Degaratu, et al., (2000) and Lynch and Ariely (2000), both investigated the issue of price elasticity in online shopping, with Degaratu, et al., (2000) relying on panel data from Peapod and online shoppers to a Nielsen panel of brick and mortar shoppers, and Lynch and Ariely (2000) using an experiment. In the work of Degaratu, et al., naturally, one must be concerned about whether any differences in behaviour online versus offline was caused by the shopping environment, or if different kinds of people seek out different types of shopping environment. Causality is unclear. In contrast, Lynch and Ariely created different online shopping environments and experimentally varied certain theoretically relevant search costs, randomly assigning members of the Duke University community to conditions where consumers shopped at two online wine stores and bought real wines. The latter study was able to make confident causal statements not possible from a panel study. With sophisticated econometrics, one is sometimes able to approximate the causal inferences from an experiment, but in the end, the randomized experiment is the gold standard when the goal is to make causal statements.

For my dissertation, I collected data via causal research using experiments. Causal research is used to understand which variables are the cause (independent variables) and which variables are the effects (dependent variables) of a phenomenon and is used to determine the nature of the relationship between the causal variables and the effect to be predicted (Ellsworth, et al., 1990; Malhotra & Birks, 2007). Experiments normally vary some independent variable to discover what happens to something in an attempt to understand the effects of presumed causes. For example, to assess what happens to one's blood pressure when one exercises, or what happens to one's weight when one eats certain types and amounts of foods, one might experimentally vary exercise regimen or diet (Brinberg, Lynch, & Sawyer, 1992; Shadish, Cook & Campbell, 2002). Quantitative and experimental research approaches should be generalizable and applicable to other situations (Calder, Phillips, & Tybout, 1981; Zikmund & Babin, 2007), though the limits of generalization are never entirely clear (Lynch, 1982; Lynch, 1999). This is in line with my study whose objective was to examine effects of decision environments on various aspects of consumer decision making in shopping contexts which tested various hypotheses. Many other studies which analyse consumer decision processes use quantitative analysis (Ariely, 2000; Dhar & Simonson, 2003; Haubl & Trifts, 2000; Kahneman & Tversky, 1979; Payne, Bettman & Johnson, 1988; Zauberman, Kim, Malkoc & Bettman, 2009).

3.2.1. Research Design and the Experimental Approach

The purpose of my research was to explore the effects of the shopping environments on the choice of familiar and unfamiliar brands using the accessibility and diagnosticity model (Feldman & Lynch, 1988). To measure the effects of shopping environments, the three

shopping conditions created had to be manipulated by providing different types of information in each environment. This was the ideal research method for collecting the data and measuring the effects of shopping environments. I chose an experimental design, as it "consists of a carefully worked out and executed plan for data collection and analysis which permits the inference of causation" (Keppel & Wickens, 2004, p.2).

I used a factorial design. One may ask why a factorial experimental design? A factorial design is "an experimental design in which two or more treatments are simultaneously administered such that every level of one variable occurs with the level of other variables" (Ellsworth et al., 1990.p. 348). Factorial designs allow testing hypotheses about statistical interactions, as when the effect of one independent variable such as familiarity of brands has different effects depending on the level of a second independent variable such as store environment.

The basic principle of experimental design is to design the experiment so that the "effects of the independent variables can be evaluated" (Ellsworth et al., 1990, p.118.). Experiments are used in designs where it is possible to manipulate the independent variable and then be able to measure the dependent variable and how to integrate the two in a situational context. In my research, shopping environment was a "between subject" factor as "each subject was exposed to one of the experimental treatments so that each condition of the experiment is composed of subjects of a different group of subjects" (Ellsworth et al., 1990, p. 143 & 346). However, in some studies, the variation of familiar versus unfamiliar brands happened between separate groups (as in Study 2), while in other studies the people saw both familiar or unfamiliar brands, making that a "within subjects" factor (Keppel & Wickens, 2004).

Studies like mine allow the experimenter to infer that changes in the independent variable causes changes in the dependable variable. Therefore, an experiment is designed to investigate a causal relationship between two or more variables. There are other studies of a similar nature to my study which have used experimental designs (Alba & Marmorstein, 1987; Ahluwalia & Gürhan-Canli, 2000; Broniarczyk & Alba, 1994; Grohmann, Spangenberg & Sprott, 2007; Holzwarth, Janiszewski & Neumann, 2006; Lynch & Ariely, 2000; Haubl & Trifts, 2000; Herr, et al., 1991; Mitra & Lynch, 1996). The research design employed for my study 1 was 2x3 mixed factorial design, with one between-subject (shopping environment) and one within-subjects factor (brand familiarity).

3.2.2. Reliability and Validity

Reliability and validity concepts are important in experimental research to indicate that the results are credible and based on grounded theories and concepts. The reliability concept deals with the concept of ensuring that the experiment is measuring what needs to be measured. In the same vein, in conducting experiments, one needs to ensure that the quality of the measurements is consistent. Reliability cannot be accurately calculated but estimates can be observed. One of the ways to deal with this is to perform pre-tests or pilot tests to test that the experiment will capture the desired measurements as expected.

Validity deals with the concepts that in an experiment, one is using the right measurements and that there is accuracy in the results. For the independent and dependent variables, the implementation and measurement should be standardized that indeed one is capturing the

right measures. For the dependent variable, one needs to be sure that there are multiple measures for the dependent variables and that treatment factors are explicitly stated. In my research, for experiment 1, I used 5 familiar and 5 unfamiliar brands; this was done to ensure that the measurements were not for one familiar or unfamiliar brand, for multiple brands for validity of measurements. A placebo control group was included and random assignment to treatments was implemented for validity (Campbell, 1986).

Validity and reliability concepts are related as one cannot have reliable measurement if the measurements are not valid and this is true for independent and dependent variables. In experiments, one of the concerns is when the researcher makes inferences with either Type I or Type II errors. Section 3.2.3 below discusses the issues of reliability and validity in more detail and indicates how these issues of validity and reliability were managed in my experiments.

3.2.3. Experimental Approach and Validity

Consumer research studies use various sources of data including econometric analysis, analyses of scanner panel data and laboratory experiments. In quantitative research, researchers have options of using surveys to collect data, observation, case studies or use panel data or do experiments ranging from field, analogue randomised, natural, and correlational or quasi-experiments. Experimentation is one of main research design methods used in examining causal relationships (Shadish, et al., 2002). My causal research sought to understand relationships among variables and these causal explanations and experimental

design was the ultimate method to be used (Shadish, et al., 2002). I used randomized experimental design where units were assigned to receive the treatment by a random process (Shadish, et al., 2002). In the randomised experiment, the outcome between groups is likely due to the manipulated treatment of groups. One of the issues with experimental design research methods is that some researchers argue that laboratory settings limit the generalisation and application of findings (Shadish, et al., 2002). In the following section, I discuss the major four (4) validity concepts as they relate to experimentation. According to Cook, Campbell and Day (1979), there are four validity issues which relate to experimentation and these are statistical conclusion, internal, external and construct validity.

1. Statistical Conclusion Validity and Reliability

The main authorities in the experimentation design state that statistical conclusion validity refers to whether the treatment in the experiment has had some effect and is concerned with sources of error and the appropriate use of statistical test for dealing with such error (Cook, Campbell, & Peracchio, 1990). In other words, statistical conclusion validity focuses on providing evidence that the inferences between the variables is well grounded and that statistical significance tests are carried out and involve contrasting statistics within treatment group and one rejects or accepts the null hypothesis. In some contexts, failure to reject the null hypothesis implies that the treatment as implemented makes so small a difference that it would not be worth worrying about it, if it has made a reliable difference (Cook, et al., 1990). In the experimental design, relationships below five percent probability level are typically considered “true” while those above the five percent probability are treated as though they are

false (Cook, et al., 1990). In my studies, I used standard analysis of variance tests with type 1 error rate (probability of rejecting the null hypothesis if the null is true) set at 5 percent.

Experiments have independent variables that are manipulated and dependent variables that are measured. "Statistical conclusion validity can be reduced by lack of reliability of the measures used for one's dependent variables. Reliability of a measure refers to its consistency and freedom from *random* error of measurement" (Ellsworth, et al., 1990, p280-281). This refers to the fact that consistency over time that what is being measured is a stable attribute. Reliability is distinguished from validity, which pertains to whether one's measures are free of systematic errors. Do the operational dependent variables reflect the intended conceptual dependent variables, or do they reflect something else. This latter issue is discussed below under "construct validity." For my experiments, I used multiple familiar brands and multiple unfamiliar brands. This enhanced the reliability of my key dependent variables, compared to what would have occurred if I had chosen only one or two familiar and unfamiliar brands.

2. *Internal Validity*

Internal validity addresses whether or not the observed effects between an independent and dependent variable is a causal relationship (Cook & Shadish, 1994; Campbell, 1986). The question here is whether the operational independent variable is the true cause of between-group differences in the operational dependent variable. Even if we can be reasonably sure of such a causal relationship, there still may be room for debate about what the active ingredient was in the manipulation and what exactly the operational dependent variable was tapping. These are issues of construct validity, to be discussed later. According to Cook, et al. (1990),

p.500), “threats to internal validity are to compromise inferences about the relationship observed between two variables which would have occurred even without the treatment under the analysis.” The major tool to deal with “internal validity is random assignment of subjects into different independent variables” (Cook, et al., 1990, p. 500).

There is a key distinction not always understood between random sampling and random assignment to conditions. Random sampling is a matter of whether the participants chosen for the study were sampled randomly; this is sometimes thought to affect external validity (see Calder, et al., 1981; but see Lynch, 1983) and has no effect on internal validity. Random assignment of participants to treatments affects internal validity. It is relevant to external validity mainly because external validity is about generalization of *causal* relations, so without internal validity there can be no external validity (Cook, et al., 1979). Almost all experiments have a non-random sample but employ random assignment of participants to experimental conditions.

In my experiments, participants were drawn from a population (different shopping malls) and each participant was randomly assigned to the treatment condition; shopping environment (online, offline with taste and offline without taste (Shadish, et al., 2002; Keppel & Wickens, 2004). Participants in the studies were randomly approached at the different shopping malls and randomly assigned to the different independent variable conditions.

Internal validity may be increased by having a well-controlled, well designed experiment that allows the experimenter to rule out confounding extraneous variables as alternative

explanations of the result and that reduces random error so that significant results are more likely. “Internal validity may also be increased by “selecting procedures and operations that have a great deal of experimental realism for the subject” (Ellsworth, et al., 1990 p.74). Internal validity pertains to the ability to rule out that a statistical relation between an operational independent variable and an operational dependent variable is due to something unrelated to the treatments. The fact that “subject populations differ across places and that population’s change over time has been a source of criticism of experimental work” (Ellsworth et al., 1990, p. 209) and if, for example, people self-select into conditions rather than having random assignment, this threatens internal validity. For this study, the subjects to be used in these experiments can be viewed as early adopters of technology and their responses would be different from the majority or laggard adopters of technology.

To deal with internal validity concerns, my subjects were randomly assigned to experimental conditions so that each subject had an equal probability of being assigned to any condition or group and so that the assignment of one subject did not influence the assignment of any other subject (Ellsworth, et al., 1990). On the other hand, those who pre-qualified and met the criteria participated in the experiments (see, section 3.4.2.). Internal validity is best promoted via random assignment (Shadish, et al., 2002). Random assignment ensures that, before exposure to the different treatments the sample and the population distributions for the three shopping environments are identical on all measured and unmeasured variables within the limits of sampling error.

3. Construct Validity

Construct validity deals with rigorous and comprehensive descriptions of the theoretical cause and effect of the studied independent and dependent variables (Cook, et al., 1990). To achieve construct validity, in theory research, the theoretical constructs have to be defined clearly and be able to be measured and show that they based on sound theory to show that theoretically there is a relationship between the independent and dependent variables (Calder, et al., 1981). In other words, construct validity of a measure refers to the "degree to which differences indicated by the measure correspond to "real" differences in the conceptual dependent variable" (Ellsworth et al., 1990.p. 282).

To ensure that there is construct validity, independent variables should be demonstrated that they can be varied and that these different levels can be shown. In my dissertation, the independent variables were the shopping environments which were manipulated at three levels. The online environment had only a web page shopping interface. For the offline with taste condition, the environment offered sensory information (taste, touch, smell) and the control group, was the offline without taste environment where the sensory information provided was only sight. In my experiments, construct validity was well designed. The high construct validity of the experiments can be reproduced with other product categories. To deal with mono-operation bias, the experiments had more than one measure of effects.

Construct validity pertains to the ability to understand the "active ingredient" in the operational independent variable and the latent constructs in the operational dependent variable , allowing one to interpret the relation between operational independent variable and

dependent variable in terms of more general constructs. In other words, "construct validity is about generalising causes and effects and adds specificity to external validity concerns" (Shadish et al., 2002, p.469).

I attempted to address construct validity of the independent variables by clearly manipulating different levels of information given to the participants. To improve validity, the independent variable had three levels, online, offline with taste and offline without taste. The offline without taste condition was set up as control group of sorts. My theory was not that the mode of shopping per se is what affected the role of brands, but the amount of diagnostic non-brand information. I therefore expected that the offline without taste group would look very similar to the online shopping group, but different from the offline with taste group. The results also indicate that there were effects of the independent variables on the dependent variables.

Construct validity is also assessed by the degree to which the relationships among measures or manipulations of constructs agree with what would be predicted by theory (Cronbach & Meehl, 1955) In the present research, this is a matter of whether the relationships uncovered follow what would be expected from the diagnosticity-accessibility model.

4. External Validity

External validity is the degree to which results of a specific study can be generalised to other people, places, times, treatments, settings or empirical realisations (Cook et al., 1990; Ellsworth, et al., 1990; Bracht & Glass, 1968; Shadish, et al., 2002). Among the consumer

behaviour researchers, there has been controversy over external validity for experimental design purporting that experiments lack external validity and that the results are difficult to generalise. Understanding external validity generalization for experiments, Calder, et al., (1981) classified two types of experimental studies, the effects and theory application. In the effects application studies, it is suggested that their generalisation is derived by the research goals which seeks to generalise directly to real world situations and is based on the philosophy of induction (Calder et al., 1981). For example, studies that will look at price and perceived quality relationships (Winner, 1999). The theory application studies derive their generalisation from theoretical and nontheoretical variables as the goal is to test the theory, whether it can be falsified or not, and so it is expected that the theory should be generalizable (Calder et al., 1981). The general understanding is that effects application studies have high external validity while theory application studies have high internal validity and minimal external validity (Winner, 1999). To provide an understanding on external validity for studies like mine which fall under the theory application, the following section below discusses the counter arguments on external validity for experimental design.

Cook and Campbell (1979) make a key distinction between generalizing *to* some well-specified population and generalizing *across* subpopulations described by different levels of some background variables. In the case of the research in this dissertation, would different findings have been obtained if different respondents had been used, or if the study had been done in different locations, or using products other than chocolates? Lynch (1982, 1983), has argued that generalizing "to" is almost never possible for any populations of real interest, because those populations involve future behaviour, and future behaviours have zero chance of being sampled. Lynch argues that what matters instead are inferences about ability to generalize "across" subpopulations defined by different levels of some background factor. If

an experiment holds certain background factors constant, would results change if those background factors are held constant at different levels than the ones studied?

A common but mistaken claim is that external validity in experimental design refers to the extent to which relationship observed between the independent and dependent variables during the experiment is generalizable to the "real world." (Malhotra & Birks, 2007). But which "real world" circumstances? External validity indicates the effects observed in an experiment can be generalised to the other populations and settings. It has been argued that one cannot, for experimental designs, increase external validity of a given study as external validity cannot be equated with realism (McGrath & Brinberg, 1983). Lynch (1999) argues that external validity is not increased by a single real-world setting and specific sets of "real" people. Assessing of external validity for experiments is based on understanding how the focal variables in the theory interact with the moderator variables (Lynch, 1999). The "realism" of experimental tasks is irrelevant to external validity unless the experiment is unrealistic on dimensions that interact with the treatment manipulations (Lynch, 1982). For the need to have an alignment of external validity and construct validity, Lynch further maintains that understanding of the theory, the level of its constructs and the specified variables, mapping correctly the constructs to the observables is critical for making inferences about external validity.

Winer (1999) suggested that scanner data be used in consumer behaviour research to enhance external validity. But scanner panel data are inadequate if the goal is to test psychological theories of consumer behaviour, because such data invariably omit psychological variables (Lynch, 1999). Researchers are not allowed to tamper with panels that are used for sales

tracking purposes, and thus cannot ask attitudinal and cognitive questions central to testing behavioural theories rigorously (Lynch, 1999). For example, in my study, panel data would not show the factors influencing the choice of familiar and unfamiliar brand and the manipulation of the shopping environments where information in each shopping environment was not the same. In experimental design, external validity is a function of laws of behaviour and is based on theory. It is suggested that for external validity, the theory motivates the study and the empirical assessment of interactions of the posited variables with background factors, interpretation of those findings in terms of more general constructs and the mapping of the revised theory onto real world observables is what affect external validity (Lynch, 1999).

For theory application generalisations, construct validity is linked to external validity as experiments have different ideas, priorities and values (Cook et al, 1990; McGrath & Brinberg, 1983). If a treatment effect is moderated in some way when changing some background factor that the researcher would have thought irrelevant, that suggests that the researcher's theory is somehow incomplete (Lynch 1999). McGrath and Brinberg (1983) continue to state that for experiments, the facets of methods and concepts, instrument and execution validity and random sampling play crucial roles in external validity. The authorities in experimental design conclude that "for theory testing experimental designs which do not specify target settings, populations, times, etc., external validity is of relatively little importance" (Cook, et al, 1990, p.516). The argument is that when researcher's interest is mainly theoretical, the inference of external validity is of little concern as external validity is not viewed as necessary for achieving a rigorous theory test (Calder, et al, 1981). It is suggested that experiments use a homogeneous sample, and ensure that background factors which might influence the effects are included in the experiment though it is practically

impossible to include all factors. External validity can never be "assured" or "enhanced" – it can only be imperfectly "assessed" by testing for whether key effects interact in some way with a background factor (Lynch, 1983). My experimental design would be classified as a theory application generalisation which is based on theory application and testing. From the foregoing discussions and arguments for and against external validity for experimental designs, it can be safely concluded that for theory application studies, external validity is not to be overly demanded as the theories are generalizable also as internal and contrast validity are critical to the experimental design studies. The experts in consumer and causal research use theory application experimentation and publish in the top journals of consumer research, journal of consumer psychology, journal of marketing research.

3.3. Operationalization of Variables and Research Hypotheses

The methodology used for my study required me to conduct experiments. The products used were real, different brands of chocolates; this was done to be consistent with other studies (Lynch & Ariely, 2000) who used wines; and Berger &Mitchell, 1989; Mitra & Lynch, 1995 and Wright & Lynch, 1995 who used chocolates). For the selection of familiar and unfamiliar brands, I conducted a pre-test to identify familiar and unfamiliar brands. My research methodology required 2x3 factorial designs with more than 400 participants used across three experiments. Subjects were randomly assigned to different shopping formats and asked to make brand choice decisions.

3.3.1. Independent Variables

The Independent variables were the shopping conditions (online, offline with taste and offline without taste). The information in the three shopping environments manipulated the amount of information available in each condition based on the accessibility and diagnostic model (Feldman & Lynch, 1988). For my research, construct operationalization was based on the theory and homogeneous respondents were used, only those who had shopped online qualified to participate.

3.3.2. Dependent Variables

Dependent variables in an experiment are any "aspect of a subject's behaviour that is measured after the administration of a treatment, the expected effect of a treatment" (Ellsworth, et al., 1990.p. 347). The dependent variables were calculated differently for the three experiments. For experiment 1 the dependent variables were based on the number of units bought and the amount of money spent on the familiar and unfamiliar brands in the different shopping environments.

For Experiment 3, the dependent variables included the average price paid for familiar and unfamiliar brands, self-price elasticity of demand for the familiar and unfamiliar brands – that is, the percentage change in quantity demanded of familiar and unfamiliar brands with a percentage change in price and cross-price elasticity of demand for familiar and unfamiliar

brands and percentage change in quantity of unfamiliar brand when familiar brand is at high price v. low price.

There are various ways to assess price sensitivity and the main ones are, first, econometric analysis of price elasticity/sensitivity based on actual prices and brand choices and quantities purchased, second by surveys on customers to determine their price related attitudes or intention to purchase or third, experimental evaluation of customer reactions or purchases to various prices that are manipulated under controlled conditions (Shankar et al., 1999). For my study, I used the experimental design.

3.3.3. Experimental Approach

My experiments were factorial designs as shown below:

Table 1. Factorial Design: Experiment 1

	Independent Variable: Shopping Environments		
Dependent Variables	Online	Offline with taste	Offline without taste
Familiar Brands	S1-S26	S27-S51	S52-S77
Unfamiliar Brands	S1-S26	S27-S51	S52-S77

Experiment 1 was a 2x3 factorial design as shown in Table 1 with one "between-subjects" independent variable which is the shopping environment with three (3 levels) and one "within-subjects" independent variable which is brand familiarity (2 levels). Table 1 shows this by noting the same subjects are in the online condition – familiar brands as the online condition unfamiliar brands, etc. This is a "mixed" factorial design. Participants were randomly assigned to the three shopping environments.

For experiment 1, the dependent variables which were calculated were the total units chosen for familiar and unfamiliar brands. I also analysed the total amount spent on familiar and unfamiliar brands. In experiment 1, I also analysed the proportion of familiar brands chosen in the three shopping environments. Here, there is not a within subjects factor of familiar vs. unfamiliar brands, because the proportion chosen of unfamiliar brands is simply 1 – Proportion familiar brands.

Experiment 2 was a 2x3 factorial design as shown in Table 2 with two independent variables, both varied between subjects. First, I varied the shopping environment with three (3 levels). Second, I varied whether the store carried only familiar brands or only unfamiliar brands. Participants were randomly assigned to these six conditions. The dependent variable for the experiments was the remainder of the money not spent (budget minus total spent).

Table 2. Factorial Design: Experiment 2

	Independent Variable: Shopping Environments		
Dependent Variables	Online	Offline with taste	Offline without taste
Familiar Brands	S1-S44	S45--S78	S79-S110
Unfamiliar Brands	S1---S44	S45--S75	S76-S115

Experiment 3 was designed as another mixed factorial design. The key dependent variable was price elasticity for familiar and for unfamiliar brands. For this, I had to vary within-subjects the prices of familiar brands (normal or .70 of normal) and prices of unfamiliar brands (normal or .70 of normal) in order to be able to calculate price elasticity at the level of the individual participant (% change in quantity / % change in price). The procedure was that participants had to make 4 shopping trips which had varied prices for familiar and unfamiliar brands. The price adjustments were based on 30% discount of normal price and selling the products at normal prices. The dependent variables were the total revenue, average price paid for familiar and unfamiliar brands, self-price elasticity and cross-price elasticity.

The key independent variables were shopping environment and brand familiarity. I again varied the shopping environment between subjects factor (with the same three levels as above) and varied within-subjects the familiar vs. unfamiliar brands factor; three repeated factors: Familiar vs. Unfamiliar brands. Thus, the diagram of the design for Experiment 3 was identical to that of Experiment 1, except for cell size differences which were 39 for the

online environment, 38 for offline with taste and lastly 35 for offline without taste with a total of 114 participants.

Table 3. Factorial Design: Experiment 3

	Independent Variable: Shopping Environments		
Dependent Variables	Online	Offline with taste	Offline without taste
Familiar Brands	S1-S39	S40-S79	S80-S114
Unfamiliar Brands	S1-S39	S40-S79	S80-S114

3.3.4. Stimuli

I chose chocolates as the category to test my hypotheses. Others have suggested that goods that require multisensory inputs in reaching product choice decisions would not likely be purchased over the internet (Citrin, Stem, Spangenberg, & Clark, 2003). Prior research has indicated that tactile input is diagnostic in consumer evaluation of products (Grohmann, et al., 2007; Peck & Childers, 2003). The focus of my dissertation was to explore the effects of shopping formats on brand choice. It was imperative to choose a product that relied more on sensory inputs of taste, touch, smell, sight and to a lesser extent, sensory for the testing my thesis hypothesis. Chocolates are convenience products with search attributes and were ideal as varying the different information levels was easier to manipulate in the three independent levels (online, offline with taste and offline without taste). Chocolates or candy bars as a product category had been used by other research experiments (Mitra & Lynch 1995; Wright

& Lynch, 1995; Macht & Dettmer, 2006; Knetsch, 1989). The choice of chocolates as product was in order.

To isolate familiar and unfamiliar brands, I conducted a pre-test experiment. Participants were drawn from Wits Business School students who were shown pictures of 40 brands of chocolates and were instructed to rate brands from 1 to 5, 1 as a brand to which one was very unfamiliar, have not heard of this brand and 5, has being very familiar and have seen the brand many times. The details and results of the pre-test are extensively discussed in Chapter 5.

3.4. Population and Sampling Frame

The sections below discussed the population used in the experiments and how the participants qualified to take part in the experiments. Ethical considerations are also discussed as the experiments required the participant to taste real food as people can react to the consumption of certain foods e.g., those who are allergic to milk develop symptoms (like wheezing, coughing & vomiting) immediately after consumption and these reactions can be fatal.

3.4.1. Population

A population is the entire set of entities to which one would like to generalize (Burns & Bush, 2006; Malhotra & Birks, 2007). Population is the aggregate of all the elements that share some common set of characteristics and that comprise the universe for the purposes of the research problem (Lynch, 1982; Malhotra, 2007). In my research, the population was defined to include males and females who have engaged in e-commerce. B2C e-commerce activities included for the population was internet banking and online shopping of groceries, airline tickets, tourism products and any other product or service. The qualifying criterion was those who have completed an online transaction. Those who had never engaged in any e-commerce activities were excluded. For experimental design studies, the subjects come from the same population and are randomly assigned to the experimental and control groups. This is to set the premise that the differences in their behaviour are attributable the independent variable (Ellsworth, et al., 1990).

3.4.2. Sampling and Ethical Consideration

A sample is a subset of the population that suitably represents that entire group (Burns & Bush, 2006; Malhotra, 2007; Malhotra & Birks, 2007). My experiments used chocolates and the participants had to be willing to taste the brands of chocolates, those who are allergic to any of the chocolates had to be excluded and also those who had diabetes due to the medical reactions which can be fatal.

To meet the ethical requirements, I obtained an Ethics clearance certificate from the Ethics Committee of the University of Witwatersrand. To avoid litigation and other problems, especially for patients with diabetes, participants were screened. I and my research assistant approached the shopping mall patrons and asked them if they wanted to participate in a study. Those who agreed were given more information that I was a PhD student from the University of Witwatersrand. I and my research assistant told the prospective research participants that we were looking for participants who had at least made one purchase online in the last year, who ate chocolates, were not allergic to milk, nuts and other chocolate ingredients and were not diabetic. Only those who met this criterion were invited to participate. The participant Information Sheet introduced me, explained briefly the research design and procedure and the compensation. Those who participated in the experiments were given one bar of cholate as compensation. The information consent form was given to the participants to read and answer the pre-qualification questions (shopping online, not allergic to milk, nuts and other chocolate ingredients and not being diabetic. Only those who qualified, answered the questions on the information consent form (See Appendix IV: 1) and signed the form, participated in the experiments. Signing the information consent form was mandatory and the provision of their telephone numbers was optional, though very few did not write their phone numbers. After signing the information consent form, verbal and written instructions were given to the participants (See Appendix IV: 2)

3.5. Data Collection Methods

I created shopping environments resembling real online and offline shopping environments to explore the effects of brand familiarity and brand choice.

3.5. 1. Procedure for Data Collection: Experiments

The purposes of the experiments were to explore the effect of the shopping environments which have varying information types present on the choice of familiar and unfamiliar brands. The main basic idea is that decision making criteria for the online and offline environments are different because of the quality of information available and so the role of brands is different online and offline.

3.5. 2. Methods for the Main Experiments 1, 2 & 3.

1. Overview

The experiments were conducted at different shopping malls in Johannesburg, South Africa. Each of the experiments were conducted in a space of two (2) to three (3) days and were conducted by me and the research assistants I had hired. The researchers were stationed in a designated area of the mall. Participants were randomly approached and asked if they wanted to participate in the chocolate study. If the answer was affirmative, the researchers asked them if they had ever shopped online (buying airline tickets, internet banking, groceries etc.), whether they were allergic to chocolate ingredients like nuts or milk and if they were diabetic. Only those who were not allergic to chocolate ingredients and who were not diabetic and shopped online were allowed to take part in the study. The participants then signed a consent form which included their names and signature and contact details. Participants were given one bar of chocolate as compensation after finishing the tasks assigned.

2. Design

Those consenting were randomly assigned to three experimental conditions according to a pre-determined sheet with permutations of the digits 1 to 3. (See Appendix V: Table 12)

1. Online, 2. Offline with Taste. 3 Offline without (No) Taste

This ensured that the participants in each condition were equivalent to each other at the start of the study. Therefore, any differences in mean responses between people in the different conditions can be attributed to my manipulation of the shopping environment.

In the area designated for the experiments, three "rooms" were demarcated using banners and each area had a table. As noted above, participants were randomly brought to one of three (3) shopping environments, each set up in a "separate room": online, offline with taste and offline without taste.

3. Procedure

After participants had prequalified to participate, they were randomly assigned to one of the "rooms" that were demarcated using banners and each area had a table. Subjects were randomly brought to one of the three (3) shopping environments, each set up separately: online (1), offline with taste (2) and offline with no taste (3).

4. Apparatus and Room Setup

The conditions on each demarcated area were set up as follows;

- **Study Area 1 – Online condition**: On the table was a laptop, calculator, pen and participant consent form. No chocolates were displayed except on the computer. Participants had to follow the research instructions for each experiment (1 or 2 or 3) and had to work on the web/internet interface. The shopping format was created using Qualtrics programme.

- **Study Area 2 – Offline with taste condition:** On the table was a pen, participant consent, a choice form. Ten (10) brands of chocolates were displayed on the table. Small pieces of chocolates as samples were placed on paper plates and each participant had to taste the ten (10) brands of chocolate before making a choice, in accordance to the instructions for the 3 experiments. Bars of chocolate were placed in front of the sample plates to identify each brand.

- **Study Area 3 – Offline with no taste condition:** On the table was the participant consent form, choice form according to the instructions for each experiment (1, or 2 or 3). Ten (10) brands of chocolates were displayed on table. No samples were provided.

5. Shopping Trips

Subjects had to read the instructions for each of the three separate experiments and the research assistants verbally explained the instructions as well. The instructions were specific to the three separate experiments. Prices were visually displayed on the paper plates in the offline conditions, and in the online shop in the online condition.

3.6. Statistical Techniques and Data Analyses

This section briefly highlights the tools used to analyse the data from the experiments.

3.6.1. Data Analysis and Interpretation

Analysis of variance examines the differences between more than two means (Maholtra & Birks, 2007).This test has to be performed to determine whether a statistically significant difference exists between the means in the experiment results. The null hypothesis typically works on the assumption that all the means are equal, and in this case, that there is no difference between the subjects' choices in the three different shopping environments; online, offline with taste and offline without taste. Looking at the review of research, ANOVA data analysis has been used by a great many researchers investigating consumer behaviour (Brown & Dant, 2008).

The statistical package used was the Statistical Package for the Social Sciences (SPSS). A one way analysis of variance (ANOVA) was run to verify the effects of variables, independent and dependent variables. ANOVA compare the mean ratings of the different shopping groups, the online versus offline with taste and the control group, online without taste for the different experiments using the relevant dependant variables.

3.7. Concluding Remarks

In this chapter, I provided the details on how the data was collected and the methods employed. Experimental design was the method used in the collection of data and I explained that this was the ideal method owing to the nature of the research questions and hypothesis. To determine the effects of shopping environments with its varied levels of information in the choice of familiar and unfamiliar brands, experimental design was the best alternative.

The data was collected between October 2011 and November 2013. The main impediment in my study was to have access to the shopping malls. I wrote and visited various shopping malls in the Johannesburg area and the majority were not willing to let me conduct the experiments at their premises. Reasons ranged from the apparent fear that I would be competing with retailers selling chocolates; others required me to have insurance in the range of R2 million Rands in case any of the participants would react negatively after tasting the chocolates.

Some of the data was captured using the Qualtrics research online programme and I manually captured the rest in an Excel sheet. For analysing the data, SPSS was used. The data collected was valid and was used in the results in Chapter 4, 5, 6 and 7.

CHAPTER 4: EMPIRICAL STUDY 1: EXPERIMENT 1

This chapter is based on research question 1. Experiment 1 was conducted and the overarching focus was on studying the effects of purchase environment on relative choice of familiar versus unfamiliar brands. This chapter includes the following sections: 1) introduction; 2) pre-test; 3) experiment 1; 4) hypotheses; 5) method; 6) results; 7) discussion of results, 8) a report of a follow up "post-test" to address a potential alternative explanation of Experiment 1, and 9) concluding remarks.

4.1. Introduction

The research question in Experiment 1 was to test whether familiar brands have an advantage over unfamiliar brands and if any such advantage differed across the different shopping formats. I conjectured that familiar brands would have an advantage over unfamiliar ones, and that this relative advantage would be greater in the online environment where the diagnostic information is limited than in an offline environment with more diagnostic sensory information. Participants shopped at mock stores carrying a mixture of familiar and unfamiliar brands of chocolate. I hypothesized that when non-brand information is more diagnostic offline than online, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will be higher in online choice than in offline choice. On the other hand, when non-brand information is equally diagnostic online and offline, the relative choice share of familiar brands in a set of familiar and unfamiliar brands should not differ in online

shopping environments compared to offline shopping environments. To test this, three shopping environments were created, online, offline with taste, and offline with taste.

4.2. Pre-test

4.2.1. Overview

Pre-test: A pre-test experiment was run before the main experiment to isolate the familiar and unfamiliar brands. Fifty-two participants were shown 40 pictures of chocolates and were instructed to rate brands from 1 to 5, 1 as a brand to which one was very unfamiliar, have not heard of this brand and 5, has being very familiar and have seen the brand many times. My goal was to select five familiar brands and five unfamiliar brands for use in a later study testing whether the mix of brands chosen differs when the shopping environment is online or "offline", where brands available for choice are physically displayed. These same pre-test results were used for selecting brands for Experiment 2 and 3.

4.2.2. Subjects

Subjects were adults who shop online as well as offline (in brick and mortar stores). Those who had never bought online were excluded. All participants shop regularly in physical stores. Subjects were students at Wits Business School (WBS). The students were Part-Time attending a Principles of Marketing class while pursuing a Post Graduate Diploma in

Management. They were asked if they would want to participate in an experiment. Those who agreed participated in the experiment.

4.2.3. Design and Procedure

The subjects were in class and pictures of 40 brands of chocolate were given to them in hard copy and flashed on a PowerPoint slide show. Subjects were asked to rate the brands of chocolates on the scale of 1-5, 1 not familiar and 5 very familiar.

1 = very unfamiliar, have not heard of this brand

2 = somewhat unfamiliar

3 = neither familiar nor unfamiliar

4 = somewhat familiar

5 = very familiar, have seen this brand many times

Higher numbers indicated greater familiarity

4.2.4. Result of the Experiment: Means (average score)

The pre-test data was further analysed with SPSS for more insight and understanding. If participants had very different ratings or rankings of the familiarity of the 40 brands, this would raise questions about the use of the mean ratings to select highly familiar and unfamiliar brands for use in the later studies.

Each respondent was treated as an "item" contributing to the overall average for the various brands tested, the correlation between each subject's ratings of familiarity and the brand averages ranged between .915 to .632. This shows that people in the pre-test sample have very similar views of which brands are familiar and unfamiliar. I used SPSS to compute Cronbach's Alpha, a measure of "inter-judge reliability" – agreement among respondents. This measure ranges from 0 to 1, and estimates the proportion of variation among the theoretical "true" mean ratings in the population explained by the mean ratings of the participants. The estimated value of Cronbach's alpha was .991, and this indicates that the results show a very high level of inter-judge reliability. The results of the pre-test were used to classify familiar and unfamiliar brands. For detailed results see Tables 6,7,8,9 and 10 in Appendix IV.

4.3. Experiment 1:

The research question is Experiment 1 was to explore how the retail format affects the purchase choice share of familiar versus unfamiliar brands. I predicted in Experiment 1 that familiar brands have a greater advantage over unfamiliar ones online than offline – but only if the offline environment provided superior diagnostic sensory information. The hypothesis stated that when non-brand information is more diagnostic offline than online, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will be higher in online choice than in offline choice. On the other hand, when non-brand information is equally diagnostic online and offline, the relative choice share of familiar brands in a set of familiar and unfamiliar brands will be no different between online choice and in offline choice. Three shopping environments were created, online, offline with taste, and offline with taste.

I measured three (3) dependent variables separately for familiar and unfamiliar brands:

- Total units for familiar and unfamiliar brands
- Proportion of familiar brands
- Total Rands spent for familiar and unfamiliar brands

4.4. Hypotheses

The central idea in this experiment was to show how the environment affects the consumer's choice of buying familiar and unfamiliar brands. The conjecture was that consumers will choose familiar brands unless the shopping environment provides diagnostic quality information for unfamiliar brands.

H_{10}: *Consumers' total choice of units on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{1A}: *Consumers' total choice of units of unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments.*

Secondly, I predicted that the proportion of familiar brand units chosen would be greater in the online and offline with taste environment than the offline with taste.

H_{20}: *Consumers' choice proportion of unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{2A}: *Consumers' choice proportion of unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments.*

Thirdly, I predicted that the total amount of Rands would be spent more for familiar brands in the online and offline with taste environment than the offline with taste.

H_{30}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{3A}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments*

4.5. Method

a. Overview

The experiments were conducted at Greenstone Shopping Centre in Johannesburg. The experiment was conducted in a space of three (3) days with two (2) research assistants. The researchers were stationed in a designated area outside Clicks department store. Eighty

participants were randomly approached and asked if they wanted to participate in the chocolate study. If the answer was affirmative, the researchers asked them if they had ever shopped online (buying airline tickets, internet banking, groceries etc.), whether they were allergic to chocolate ingredients like nuts or milk and if they were diabetic. Only those who were not allergic to chocolate ingredients and who were not diabetic and shopped online were allowed to take part in the study. The participants then signed a consent form which included their printed name and signature.

The participants who passed the screener and signed the consent form were then randomly assigned to one of three shopping formats: online, offline with samples to taste, or offline without samples to taste. Participants were given one bar of chocolate as payment.

Two participants dropped out of the study midway through and another did not follow instructions and entered an impossible value in the online questionnaire, leaving a final sample size of 78 participants. Forty-two (42) of these were men and 36 were women.

b. Design

Those consenting were randomly assigned to three experimental conditions according to a pre-determined sheet with permutations of the digits 1 to 3.

2. Online
3. Offline with taste
4. Offline without (No) Taste

c. Procedure

After participants had prequalified to participate, they were randomly assigned to one of the "rooms" that were demarcated using banners and each area had a table. Subjects were randomly brought to one of the three (3) shopping environments, each set up separately: online (1), offline with taste (2) and offline with no taste (3).

d. Apparatus and room setup

The conditions on each demarcated area were set up as follows;

- **Study Area 1 – Online condition**: On the table was a laptop, calculator, pen and participant consent form. No chocolates were displayed. Participants had to choose 5 brands from the 10 brands (5 familiar and 5 unfamiliar) described and shown through a web/internet interface. The shopping format was created using Qualtrics online survey programme.

- **Study Area 2 – Offline with taste condition:** On the table were a pen, participant consent, a choice form for 10 brands of chocolates and all brands of chocolate displayed on table. Small pieces of chocolates as samples were placed on paper plates and each participant had to taste the ten (10) brands of chocolate before choosing the 5 brands of chocolates. Bars of chocolate were placed in front of the sample plates to identify each brand.

- **Study Area 3 – Offline without taste condition:** On the table were the participant consent form, choice form for the 10 brands of chocolates and all brands of chocolate displayed on table. No Samples were provided. This makes non-brand information equally diagnostic as in the online condition.

- Each table had a chair in each area. Subjects had to read the instructions and the research assistants verbally explained the instructions as well. Prices were visually displayed on signs in the offline conditions, and in the online shop in the online condition (see pictures 1, 2 & 3 below).

Picture 1. Online Condition



Picture 2. Offline with Taste (serviettes covered the pieces of chocolates for hygiene purposes)



Picture 3. Offline without Taste



e. Shopping Trips

Subjects read the instructions and the research assistants verbally explained the instructions as well. Prices were visually displayed on signs in the offline conditions, and in the online shop in the online condition.

Subjects were asked to choose five brands of chocolates from the 10 brands displayed of familiar and unfamiliar brands. The participants were asked to purchase, if they had their own money, five brands of chocolates out of the 10, though all five could be any combination, familiar and unfamiliar brands or from the same brand. Brand familiarity was not mentioned,

the subjects were not privy to the information on which brands were familiar or not familiar and the familiar and unfamiliar brands were randomly intermixed in the display. The instructions on the decisions to be made emphasized on choosing five brands from the 10 brands displayed. Price was not an important factor in the decision choice and there were no budget constraints. (See Appendix IV: 1&2 for the Participant Informed Consent and Participant Instructions and Table 10 which shows the brands used and their prices). The choice of the brands in Experiment 1 was dependent on the availability of the chocolates at the time of the study as some of the unfamiliar brands are imported and were not readily available, for example, Amor, Bianco and Marks & Spencer Swiss Chocolate. This principle was applied to the subsequent experiments.

In the choice of the familiar and unfamiliar brands, I did not match them in their prices as price. Consequently one may wonder if price was an "active ingredient" in the manipulation of familiarity – despite the fact that this was hypothetical choice and subjects were not spending any real money. Price has both an allocative role (where low price is good) and a role as a signal of quality (where low price is bad). One would expect the role of price in signalling quality to be stronger when there is less diagnostic information to judge quality. That would predict that if familiar (low priced) brands have an advantage over high priced ones when one can easily judge quality, this advantage would be *less* when there is no diagnostic sensory information. My prediction and findings are opposite as I show that the advantage of the familiar (low priced, and perhaps low quality) brands grows when one is not able taste the chocolates. I explored the role of price systematically in Experiment 2 & 3.

4.6. Results

a. Total Units Chosen for Familiar and Unfamiliar Brands

Hypotheses 1, H_{10} stated that the total units of unfamiliar brands would the same across the three shopping environments as stated below;

H_{10}: *Consumers' total choice of units on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{1A}: *Consumers' total choice of units on unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments.*

Total units were calculated by adding the units chosen from the five (5) familiar and five (5) unfamiliar brands. The total units for both familiar and unfamiliar brands had to be five, no less or more. Thus, one need only analyse the number of familiar brands chosen to know the findings for units of unfamiliar brands. I present results using familiar versus unfamiliar as a repeated factor, but identical conclusions would be obtained if I analysed only familiar brand units or only unfamiliar brand units.

The data for the analysis for total units for familiar and unfamiliar brands discarded subjects who chose more than five units. The total subjects were 78, 27 participated in the online

condition, 25 in the offline with taste condition and 26 in the offline with taste. In terms of gender, there were 42 males and 36 females.

a. Total Units

I analysed the total units of familiar and unfamiliar brands in a 3 x 2 x 2 Shopping Environment x Gender x Brand Familiarity mixed ANOVA. Shopping environment and Gender were between subjects factors and Brand Familiarity was a within subjects factor.

The test of H_{1A}, *total units*, is the interaction of familiar v unfamiliar x by shopping environment condition. This interaction was followed in pattern to my prediction, and was significantly so. The Hypotheses H_{10}: stated that total units for familiar versus unfamiliar brands will not differ across the three shopping environments. The test of H_{10}, predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline with taste). Specifically, I had expected that in the online and offline with taste conditions, I might find that relatively more units would be chosen of familiar than unfamiliar brands, but that this disadvantage for unfamiliar brands should diminish in the offline with taste condition. Please see Figure 2.

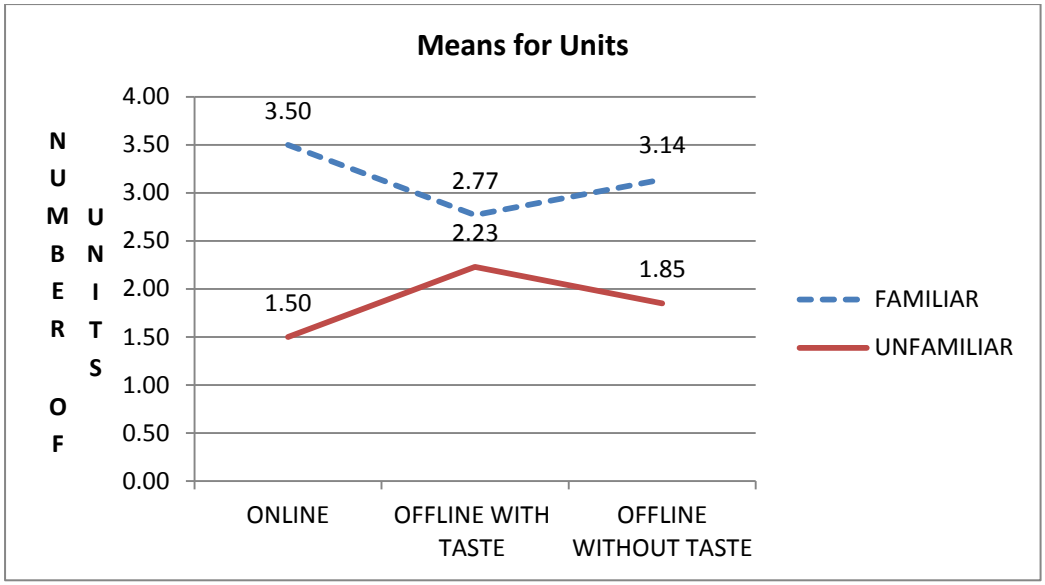

Figure 2: Means for Total Units Bought

Looking at Figure 2 above, the results show three critical effects. First, subjects bought more familiar brands (M = 3.17) than unfamiliar brands (M = 1.82). This is reflected in a significant within subjects main effect of familiar v. unfamiliar brands, F (1, 72) =33.95, p < .00) indicating that condition is statistically significant in the choice of familiar and unfamiliar brands. Effect size partial eta-squared was .32, with the observed power of 1.00.This is partly because subjects bought more familiar brands online and in the Offline with taste environments. Second, there was no main effect of condition, F (2, 77) = 0, because every subject was required to buy the same total number of units of five.

Finally, and most critically, the interaction of familiar v unfamiliar x condition was significant with F (2, 72) =3.71, p =.03, partial eta-squared = .09, observed power = .66. One can see from looking at Figure 2 that fewer unfamiliar brands were bought in the online and offline with taste environments compared to the offline with taste environment that provided diagnostic non-brand information. Familiar brands units dropped significantly in the Offline with taste environment. (Note that familiar brands chosen = 5 – unfamiliar brands chosen.)

This is what I predicted -- that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline with taste). In the offline with taste condition, the gap was (2.77-2.23=.54); in the online condition it was only (3.50-1.50=2.0), and in the offline with taste condition it was (3.14-1.85) =1.29) =1.3. A planned contrast of the first two conditions to the offline with taste condition was significant, F (1, 72) = 5.80, p = .02. This shows that relatively more unfamiliar units were bought in offline with taste environment compared to the other two conditions.

I also predicted that there would be no significant difference between the online condition and the offline with taste condition. A planned contrast showed that these did not differ, F (1, 72) = 1.75, p = .19.

The pattern of the interaction in Figure 2 implies that in terms of units sold, the premium unfamiliar brands are able to compete on almost even footing with the familiar brands in the offline with taste condition, but are dominated by familiar brands in the other two store environment conditions where there was not diagnostic information about taste.

In this analysis and in all that followed, there was neither a main effect of gender nor an interaction of gender with any of my key effects. Obviously there was no main effect of gender, as every participant had to choose a total of five units. For the same reason, the gender x condition interaction had to be zero. But gender did not interact with familiarity F (2, 72) =.05, p>.82, partial eta-squared = .00, observed power = .05. Nor did gender moderate

the key familiarity x condition interaction (F (2, 72) = 1.39, p = .26. partial eta-squared = .04, observed power = .29.

b. Proportion of Familiar and Unfamiliar Brands Chosen

Because in this study, every participant had to buy exactly five units, the test of choice proportions below is mathematically equivalent to the test of total units above. I predicted and found that using the measure of proportion of units chosen; relatively more familiar brands would be chosen in the online and offline with taste environment than the offline with taste.

H_{20}: *Consumers' proportion choice of unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{2A}: *Consumers' proportion choice of unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments*

Proportion of familiar and unfamiliar brands were calculated by total unfamiliar or familiar units chosen divided by 5.The total subjects were 78, 27 participated in the online condition, 25 in the offline with taste condition and 26 in the offline with taste. In terms of gender, there were 42 males and 36 females.

The test H_{2A}, *proportion of familiar or unfamiliar brands*, is again the interaction of familiar v unfamiliar x by condition. This interaction pattern followed my prediction, and was significantly so. The test of H_{2A}, predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline with taste). Specifically, I had expected that in the online and offline with taste conditions, I might find lower choice of unfamiliar brands than familiar brands, but that this disadvantage for unfamiliar brands should diminish in the offline with taste condition. Please see Figure 3.

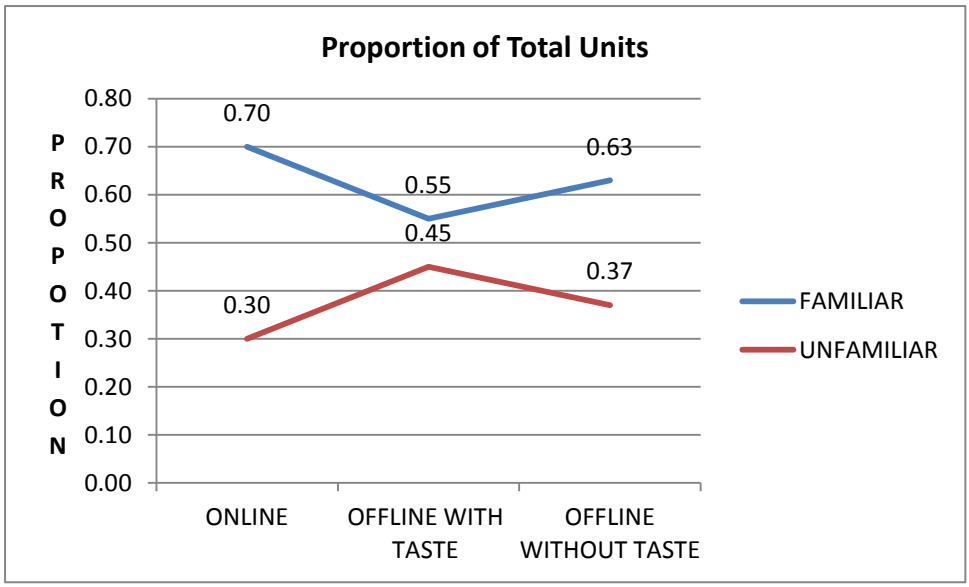

Figure 3: Means for Proportion of Total Units

Because these statistical tests had to mathematically be equivalent to the F statistics for the total number of familiar and unfamiliar brands chosen (because each participant chose exactly five brands), I refrain from restating those statistical tests.

c. Total Rands Spent

This analysis is slightly different from the preceding two in that prices of the various unfamiliar brands differed from each other and prices of the familiar brands differed from each other, so there was no necessity that exactly the same amount would be spent in total for subjects in each condition. But by a similar logic to my hypotheses above, I predicted that the relative advantage total amount of Rands would be more for familiar brands in the online and offline with taste environment than the offline with taste.

H_{30}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{3A}: *Consumers' total Rands spent on unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline with taste shopping environments*

Total Rands spent was calculated by adding the units chosen from the five (5) familiar and five (5) unfamiliar brands weighted by the prices for each brand. The total units for both familiar and unfamiliar brands had to be five, no less or more.

The data for the analysis for total units for familiar and unfamiliar brands discarded subjects who chose more than five units. The total subjects were 78, 27 participated in the online condition, 25 in the offline with taste condition and 26 in the offline with taste. In terms of gender, there were 42 males and 36 females.

Because familiar brands were on average less expensive than unfamiliar brands, if participants chose familiar and unfamiliar brands with equal proportions that would have led to more Rands being spent on unfamiliar brands than on unfamiliar brands.

In Figure 4 below, I predicted in H_{3A}, that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline with taste). Specifically, I had expected that in the online and offline with taste conditions, I might find relatively more spent on unfamiliar brands compared to familiar brands, but that this greater spending on unfamiliar brands should be greatest in the offline with taste condition. Please see Figure 4.

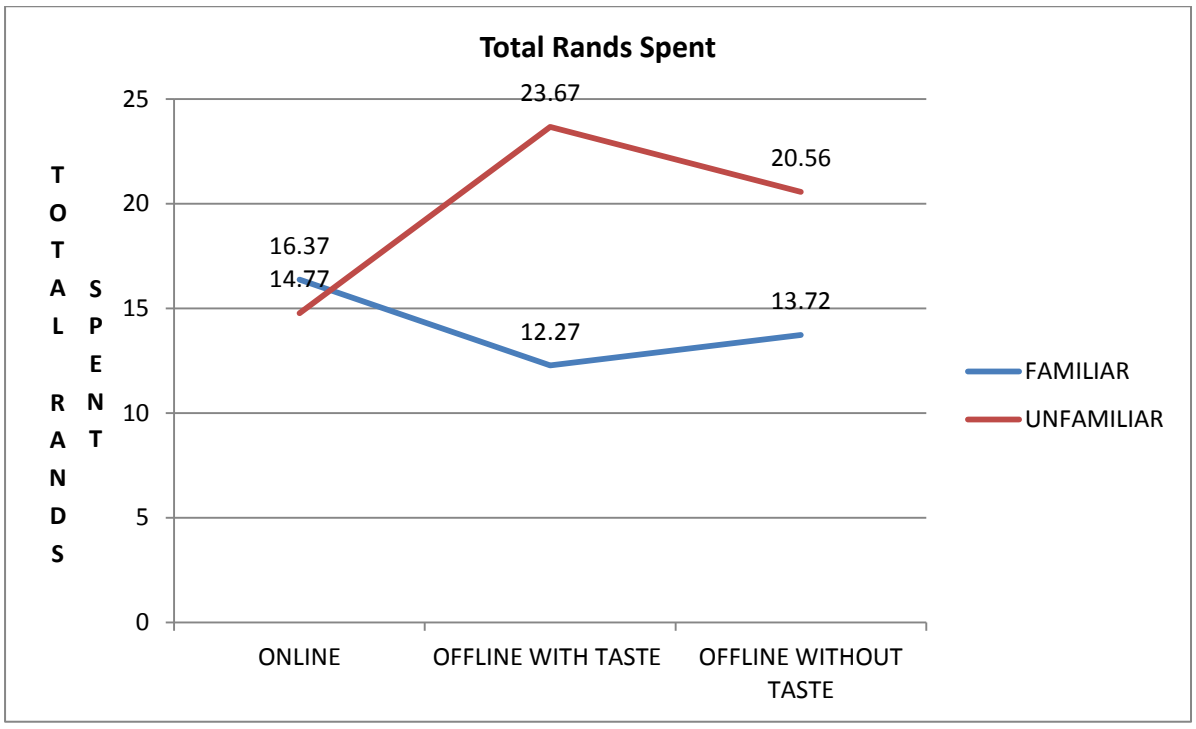

Figure 4. Means for Total Rands Spent

Looking at Figure 4 above, the results show three critical effects. First, subjects spent more on unfamiliar brands (M = R 19.66) than familiar brands (M = 14.12). This is reflected in a significant within subjects main effect of familiar v. unfamiliar brands, F (1, 72) =9.57, p < .003, partial eta-squared = .12, observed power = .86). Because unfamiliar brands were more expensive on average, one would have expected this pattern even if there was no preference for familiar brands in units chosen. But even with a tendency to purchase more familiar than unfamiliar brands, subjects in Experiment 1 (hypothetically) spent more on unfamiliar brands.

Second, there was no significant main effect of shopping environment condition when one pools what is spent on familiar and unfamiliar brands, F(2, 72) = 2.11, p = .13.

Most critically, however, there was a significant interaction of familiarity x condition, **F (**2, 72) = 4.46, p < .015 as predicted by H_{3A}. The pattern of this interaction followed my prediction, and significantly so. I predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline with taste). In the offline with taste condition, the gap was (23.67-12.27) = R 11.40); in the online condition it was only (14.77-16.37) =-R 2.3, and in the Offline with taste condition it was (20.56-13.72) =R 6.84. I tested the significance of this pattern by a planned contrast of the offline with taste versus average of online and offline with taste (contrast coefficients -1, 2, 1 for the online, offline with taste, and offline with taste conditions, respectively). This contrast was significant as predicted, F (1, 72) = 5.37, p = .02. This indicates that participants spent more unfamiliar brands in the offline with taste condition as it has the largest gap than in the other two conditions as the gaps are large.

I further predicted that there should be no significant difference in pattern between the online condition and the offline with taste condition, using contrast coefficients -1, 0, 1 for the online, offline with taste, and offline with taste conditions). I had argued that the online environment and offline with taste should be roughly equivalent because they fail to provide certain kinds of diagnostic information. The planned linear showed that this first difference for the offline with taste condition was marginally but not conventionally significant F (1, 72) = 3.69, p = .0.06.

In sum, the interaction in Figure 4 implies that the premium unfamiliar brands are able to claim large monetary sales over the familiar brands in the offline with taste condition, but less so in the other two store environment conditions where there was no diagnostic information about taste. One can see from looking at Figure 4 that less was spent on unfamiliar brands in the online and offline with taste environments. [4]

I did not expect or observe any main or interaction effects with gender. Gender was not significant as a main effect (F (1, 72) = 0.00, p = 1), nor did gender interact with condition (F (2, 72) = 0.30, p = .74) or with familiarity (F (1, 72) = 0), nor was there a gender x familiarity x condition interaction moderating the critical test of H_{3A}, F (2, 72) = 1.01, p = .37.

[4] Canderel is one of the unfamiliar brands used in the experiment. In Table 8, it shows that canderel was the most expensive and "could be considered as an outlier". Dropping canderel from the analysis did not change the results. Condition was significant in all the calculations for total units, proportion or total Rands spent.

4.7. Discussion of Results

The results suggest that in situations where diagnostic information is limited, brand familiarity is important in the choice decision. The results however, brought out interesting results: first, it was predicted that the information in the online and offline with taste is similar, suggesting that the participants' results for these environments would be similar. The results concur with other findings which suggest that marketers should exhibit or make visible real products (e.g. in restaurants) to potential buyers and allow more sensory interactions in shopping environments (Bushong, King, Camerer & Rangel, 2010). Looking at the mean estimates for the choice of unfamiliar brands, the results indicate that more of the unfamiliar brands were bought in offline with taste condition and less in the online condition. The results show the same trend for the proportion of unfamiliar brands bought.

According to the study by Holden and Vanhuele (1999), just hearing a brand name once may make that name look familiar and that a brand name may decay in the memory of the consumer while the sense of familiarity may remain. Brand familiarity is created and enhanced through repeated exposures to a brand and this should lead to increased consumer ability to recognise and recall the brand (Keller, 1993). Brand touch points have the potential to cause consumers to experience and increase brand familiarity (Keller, 1993) and hence brand choice. Brand familiarity is important in that consumers who are not in a position to search for more information in their decision making processes and contexts, may make brand choices based on the sense of brand familiarity alone (Holden & Vanhuele, 1999). Marketers are interested in brand familiarity due to the role familiarity plays in facilitating brand consideration in consumer choice. A brand that is familiar to consumers tends to be preferred and marketers are keen to understand how brand-name familiarity influences consumer choice (Holden & Vanhuele, 1999).

Consumers at times make purchase decisions on the premise of their being familiar with a brand especially when they have low involvement. When consumer choices are not a matter of life or death and consumers do not see large differences between brands, consumers are unmotivated about the choice process and so will "use brand familiarity as a cue to make the decision" (Keller, 2008, 55). Moreover, when consumers are low in knowledge, they may use mere familiarity as a heuristic in selecting a brand (Hoyer & Brown, 1990). In the present research, brand familiarity played a larger role in choice online than offline if, and only if, the other sensory information available is better offline than online.

4.8 Follow-Up Post Test of an Alternative Explanation: Do Unfamiliar Brands Simply Taste Better than Familiar Ones?

In Experiment 1, I found that people bought more unfamiliar than familiar brands, and particularly so in the online with taste condition that, I argued, provided more diagnostic sensory information and that this resolved uncertainty that inhibited choice of unfamiliar brands. It is possible, however, that it was simply the case that the unfamiliar chocolates tasted better than the familiar ones. In that case, it would not be surprising if the unfamiliar brands received a higher market share in the environment providing sensory information. Therefore, I conducted a post-test "confounding check" experiment to ascertain whether in fact the unfamiliar brands tasted better than the familiar ones. The hypotheses for this pretest were stated as follows:

H_{40}: Consumer taste ratings for unfamiliar brands are higher than familiar brands

H_{4A}: Consumer taste ratings for unfamiliar brands are lower than familiar brands

4.8.1. Method

a. Subjects

The taste test experiment was conducted at Greenstone Shopping Centre in Johannesburg. The experiment was conducted in one day with two (2) research assistants. The researchers were stationed in a designated area outside Pick ‘n Pay department store. Participants were randomly approached and asked if they wanted to participate in the chocolate study. If the answer was affirmative, the researchers asked them if they had ever shopped online (buying airline tickets, internet banking, groceries etc.), whether they were allergic to chocolate ingredients like nuts or milk and if they were diabetic. These were the same criteria used to select participants for Experiments 1 (as well as Experiments 2 and 3 to follow). Only those who were not allergic to chocolate ingredients and who were not diabetic and shopped online were allowed to take part in the study. The participants then signed a consent form shown in the Appendix IV: 3, & 4. Participants dropped out of the study midway who did not follow instructions and the final sample was 36. Demographic information like gender was not recorded.

b. Design and Procedure

Participants had to read the instruction sheet shown in the Appendix IV: 3 & 4 and the research assistants verbally explained the instructions as well.

The participants were taken to a table which had 10 brands of chocolates. No brand names were displayed. The researcher knew what brands they were, as they were numbered from 1 to 10. All participants rated the 10 brands in the same random order. Small pieces of chocolates where put on the tables. Participants were asked to taste and then rate the 10 brands of chocolates from -3 (dislike strongly) to +3 (like strongly). Each table had a sheet of paper with a rating scale and spaces to rate the samples tasted from plates 1-10. Please see the Appendix IV: Table 11.

Participants rated each of the 10 brands of chocolate on the following scale.

-3	-2	-1	0	1	2	3
Dislike Strongly	Dislike	Dislike Slightly	Neither Like nor Dislike	Like Slightly	Like	Like Strongly

In order to reduce error variance in the use of the rating scale, all participants were first asked to taste one chocolate that had emerged as a well-liked brand in an earlier pre-test of four different brands (not used as focal stimuli) and one brand that had been rated as not well liked in this set of four different brands. This is a standard procedure in rating scale experiments. The well liked brand was Aero, and the less liked brand was Lindt Mint Intense, which were rated significantly differently in an earlier pre-test, with good agreement among 16

participants in their relative ratings of the four brands rated (Cronbach's alpha = .80). Participants in the current taste test first tasted and rated unlabelled samples of Aero and Lindt to anchor their use of the scale before rating the 10 focal brands.

Apparatus and Room Setup

On the table were ten plates with pieces of chocolates from the (10) brands of chocolates, 5 familiar and 5 unfamiliar brands were used. No names were displayed on the tables and plates. To know which brand of chocolates, the plates were numbers 1 to 10. Water and paper plates were provided for the participants.

4.8.2. Results

Hypothesis H_{40} and H_{4A} stated that consumer rating of familiar and unfamiliar brands would differ as stated below.

H_{40}: Consumer taste ratings for unfamiliar brands is higher than familiar brands

H_{4A}: Consumer taste ratings for unfamiliar brands is lower than familiar brands

H_{4A} implied that one should observe a different pattern of consumer ratings for familiar and unfamiliar brands. The data on the rated means for familiar and unfamiliar brand indicates that there was an interaction which was statistically significant indicating that unfamiliar brands were liked less than familiar brands.

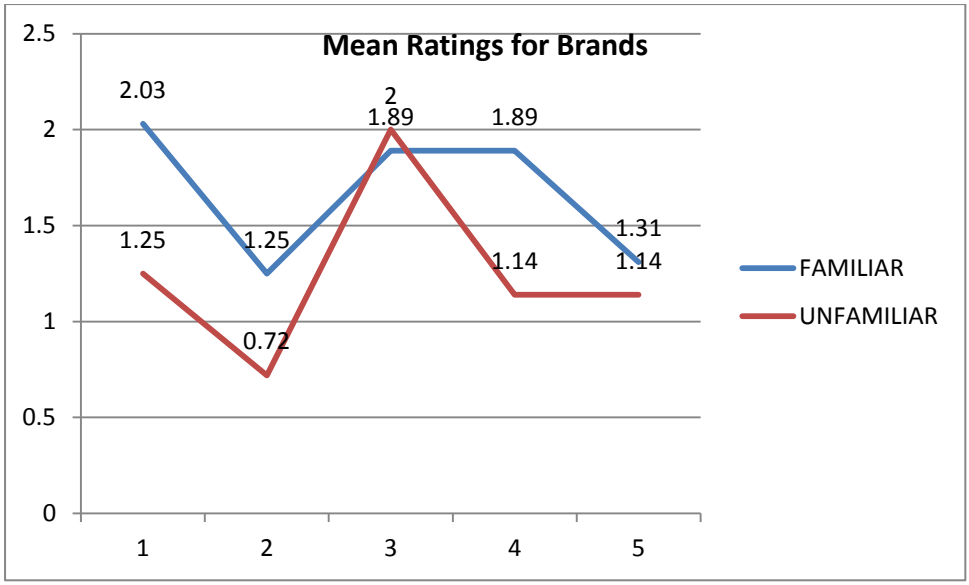

Figure 5: Means for Taste Experiment for Familiar and Unfamiliar Brands

(Unfamiliar Brands: Kinder, Bounty, Daim, Cote d'Or & Canderel; Familiar Brands: Top Deck, Kitkat, Chomp, Lunch bar and Ps; see Appendix IV: Table 12)

Figure 5 plots the mean ratings on the -3 to +3 scale for the five familiar brands (Top Deck, Chomp, Kitkat, Lunch bar, and Ps, respectively) and the five unfamiliar brands (Cote d'Or, Canderel, Kinder, Bounty, and Daim, respectively). There were significant differences in ratings among the 10 brands in a MANOVA, $F(9, 27) = 4.76$, $p < .00$.

More importantly, collapsing the five familiar and the five unfamiliar brands, a contrast of the familiar brands to the unfamiliar brands showed that the familiar brands were liked better ($M = 1.67$, $SD = 0.67$) than the unfamiliar brands ($M = 1.25$, $SD = 0.90$), $F(1, 35) = 8.98$, $p = .005$. Figure 5 shows that four of the five least liked brands were unfamiliar; only Kinder was

liked as much as the familiar brands. Because the least liked brand, Candarel, was an unusual no-sugar chocolate, I re-ran the familiar vs. unfamiliar contrast dropping Candarel The remaining four unfamiliar brands were marginally less liked ($M = 1.38$, $SD = 1.04$) than the familiar ones ($M = 1.67$, $SD = 0.67$), $F(1,35) = 3.02$, $p = .09$. The results of this pre-test conclusively show that the Experiment 1 finding increased market share of unfamiliar brands in the offline with taste condition was not simply due to superior taste of the unfamiliar chocolates compared to the familiar ones.

4.9. Concluding Remarks

The results of experiment 1 concur with the other studies indicating that familiar brands have an advantage over unfamiliar brands in the online shopping environment (Pare & Dawes, 2012; Delgado-Ballester, et al, 2012; Danaher, et al, 2003; Deragatu, 2000; Hoyer & Brown, 1990). My study results in experiment 1 provide insight to Danaher, et al. (2003)'s dilemma where they were not able to pinpoint reasons for online brand loyalty to familiar brands. My results indicate that brands are important in online consumer decision but that there is a difference in how consumers would decide either to buy familiar or unfamiliar brands as this is dependent on the information available in the purchase environment at the time of decision. When diagnostic and accessible non-brand information is available on unfamiliar brands, consumers would choose unfamiliar brands. On the other hand, in purchase situations where non-brand information is not accessible and diagnostic, consumers will rely on brand information to make purchase decisions.

CHAPTER 5: EMPIRICAL STUDY: EXPERIMENT 2

This chapter is based on the research question 2. Experiment 2 studied how the purchase environment affects consumer's willingness to choose or spend at all from a retailer carrying only familiar brands or only unfamiliar brands. As discussed in chapter 3, one common response to conflict and uncertainty is to avoid choice (or "continue searching"). I test whether such a response is more common when shopping from a retailer carrying only unfamiliar brands than a retailer carrying only familiar brands, and if so, whether this effect of brand familiarity is stronger online than offline. The chapter includes the following sections: 1) introduction to experiment 2; 2) hypotheses; 3) participants and procedure; 4) method; 5) results; 6) discussion of results and 7) concluding remarks.

5.1. Introduction.

The research question in Experiment 2 was to test the effects of the shopping format on the on the willingness to make a choice for familiar or unfamiliar brands (versus continue searching or avoiding a choice), and how this might differ online vs. offline. I expected to show that consumers are more likely to make a purchase from a set of familiar brands than from a set of unfamiliar brands, and that this tendency should be stronger online than offline. The presence of familiar or unfamiliar brands in the choice set influences whether a consumer will buy at all from a given retailer – versus defer choice or keep searching – and this effect differs for online and offline choice. The assumption is that the effect of the shopping condition is stronger online than in the offline choice when non-brand information is more

diagnostic. To test this, three shopping environments were created, online, offline with taste, and offline without taste like in Experiment 1.

The key dependent measure in Experiment 2 was total Rands spent. Unlike experiment 1 where participants were constrained to select exactly five brands of chocolate, in experiment 2, participants could choose not to buy and could choose the quantity desired. Also unlike Study 1 the selection of chocolates did not include a mixture of familiar and unfamiliar brands. Instead, the store carried either 10 familiar brands (Dairy milk, Aero, Top Deck, Chomp, Flake, KitKat, Lunch bar, Ps, Jungle energy and Ferrero) or 10 unfamiliar brands (Kinder, Bounty, Nikki, All-In-One, Daim, Nosh, Woollies, Supreme, Cote d'Or and Canderel) based on Pre-test 1 (See Appendix VI: 13 & 14). Each subject shopped in one of six conditions of a 3 x 2, shopping condition x brand familiarity between subjects design.

5.2. Hypotheses

The central idea in this experiment was to show how the shopping environment affects consumer's choice of buying familiar and unfamiliar brands or continue shopping or avoid choice. The conjecture was that consumers would rather continue shopping or not make a decision on unfamiliar brands when the information is limited.

$H_{50:}$ Any tendency for consumers to defer choice more from a set of unfamiliar brands than from a set of familiar ones will not be differentially strong in the online versus offline purchase environment

H_{5A}: Consumers will defer choice from a set of unfamiliar brands more than from a set of familiar ones, and this tendency will be stronger in online than offline purchase environments.

This hypothesis predicts that participants will buy more in the familiar choice set than in the unfamiliar choice set. On the other hand, participants will buy fewer unfamiliar brands in the online environment than the offline environment as there is less information in the online environment. Put another way, the sales difference between a store carrying only familiar brands and a store carrying only unfamiliar brands will be greater in online than in offline environments.

5.3. Participants and Procedure

Participants were randomly approached at the shopping mall and invited to participate in the experiment. Those who agreed to participate signed an informed consent form. Respondents were asked first verbally and if they had shopped online and asked if they were allergic to chocolates, milk or nuts or were diabetic. Only those who met these conditions were being randomly assigned to one of the same three shopping formats used in Study 1: either, online or offline with taste or offline without taste.

Similar to in Experiment 1, participants were randomly divided into the three shopping formats (online, offline with samples and offline without samples), but these participants choose from an environment that is either *all* familiar or *all* unfamiliar. Because of the physical constraints of the space in the shopping mall where I ran the study, I could not test all 6 conditions simultaneously; I first collected data from the conditions with familiar brands, then from the conditions with unfamiliar brands.

The participants were told to assume that they were buying chocolates with their own money and that they had a choice either to buy or not to buy or choose to shop later. The percentage of the R100 spent in the store or saved for later shopping is explored and analysed. For this experiment, 223 participants were recruited.

5.4. Method

a. Overview

To do the experiment, 109 participants took part in the experiment where only familiar brands were used and 114 for unfamiliar brands. Individuals were excluded who had never shopped online, were diabetic or were allergic to any chocolate ingredients. The experiment was conducted at a shopping mall where people were solicited to participate in the study. Participants were asked and signed a consent form to indicate that they qualified to take part in the study. Participants were given one bar of chocolate as a token of appreciation for their time. The experiment took about 10 to 15 minutes. Instructions for the experiment were given to participants who read them and the researchers explained to them verbally as well.

b. Subjects

The experiments were conducted at Greenstone Shopping Centre in Johannesburg. The experiment was conducted in a space of three (3) week days with two (2) research assistants. The researchers were stationed in a designated area outside Pick ‘n Pay department store. Over two hundred and ten (223) participants were randomly approached and asked if they wanted to participate in the chocolate study. If the answer was affirmative, the researchers asked them if they had ever shopped online (buying airline tickets, internet banking, groceries etc.), whether they were allergic to chocolate ingredients like nuts or milk and if they were diabetic. Only those who were not allergic to chocolate ingredients and who were not diabetic

and shopped online were allowed to take part in the study. The participants then signed a consent form which included their name and signature. Those consenting were randomly assigned to three experimental conditions according to a pre-determined sheet with permutations of the digits 1 to 3 (See Appendix IV)

1. Online
2. Offline with taste
3. Offline without (no) taste

Because of the physical constraints of the store, it was not possible to run all six conditions simultaneously. I therefore collected data for the familiar brand stores on the first day and a half of data collection and for the unfamiliar brand stores in the second half of day two and the third full day. Participants who dropped out of the study midway or did not follow instructions left me with a final sample of 109 and 114 for familiar and unfamiliar halves of the experiments respectively.

Strictly speaking, the fact that I could not randomly assign participants to familiar vs unfamiliar brand conditions implies that one cannot be as confident of comparisons of simple effects of familiar vs. unfamiliar brands as one can for comparisons of store environments within each level of brand familiarity. However, various analyses showed no differences in the participants who participated in the familiar and unfamiliar brand conditions. For example, for the familiar brand half of the experiment, 35 were males (32%) and 69 were females (63%), with 5 participants not indicating gender (5%). For the unfamiliar brand half of the experiment, 42 were males (37%), 64 were females (56%), and 8 participants did not

indicate their gender (7%). These proportions in the familiar and unfamiliar halves of the experiment did not differ significantly, $\chi^2(2) = 1.41$, $p = .49$.

c. Design

As noted above, participants were randomly brought to one of three (3) shopping environments, each set up in a separate room: online (1), offline with taste (2) and offline without taste (2). I varied across time blocks whether the brands on offer were 10 familiar brands or 10 unfamiliar brands, resulting in a 3 x 2, between subjects factorial design.

d. Procedure

Participants had to read the instructions and the research assistants verbally explained the instructions as well. Prices were visually displayed on signs in the offline conditions, and in the online shop in the online condition. Participants were instructed to assume that they had R100 (approximately $8.59 US at current exchange rates). The task was to choose which brands of chocolates they would buy from the R100. It was stated that they had a choice to buy or not to buy. (See Appendix VI: 4, 5 & 6 for participant instructions).

Participants were asked to indicate how they would spend R100 at their disposable whether they would use all the R100 on chocolates or keep it and shop later.

e. Apparatus and Room Setup

After participants had prequalified to participate, they were randomly assigned to one of the "rooms" that were demarcated using banners and each area had a table. Subjects were randomly brought to one of the three (3) shopping environments, each set up separately: Online (1), Offline with taste (2) and Offline with no taste (3).

The conditions on each demarcated area were set up as follows;

Study Area 1 – Online condition: calculator, pen and participant consent form. No chocolates displayed.

Study Area 2 – Offline with taste condition: pen, participant consent, a Choice form for 10 brands of chocolates and all brands of chocolate displayed on table. Small pieces of chocolates as samples were placed on paper plates so that the participant may taste the chocolates. Bars of chocolate were placed in front of the sample plates to identify each brand.

Study Area 3 – Offline with no taste condition: participant consent form, choice form for the 10 brands of chocolates and all brands of chocolate displayed on table. No Samples were provided.

Each table had a chair in each area in each shopping condition.

f. Shopping Trips

Participants had to read the instructions and the research assistants verbally explained the instructions as well. Prices were visually displayed on signs in the offline conditions, and in the online shop in the online condition. Participants were instructed to assume that they had R100. The task was to choose which brands of chocolates they would buy from the R100. Participants had to taste the brands of chocolates before deciding which ones they buy from the R100. Participants were urged not discuss the quality of the chocolates or any information on the chocolates to other people. This was important that each participant made unbiased decisions when participating. It was stated that they had a choice to buy or not to buy. Further, participants could not take part in the study more than once. Participants were asked to indicate how they would spend R100 if they had it at their disposable, whether they would spend all the R100 on chocolates or keep it.

5.5. Results

I analysed the unspent remainder from the 100 Rand budget in a 2 x 3 brand familiarity x shopping environment between subjects design. Consistent with my theorizing, I found a main effect of brand familiarity, $F(1,217) = 25.36$, $p < .001$, partial eta squared = 0.105, observed power = 1. Subjects left Least Square M = 36.87 Rands unspent when shopping from familiar brands and left M = 55.89 Rands unspent when shopping from unfamiliar brands.

Consistent with my theorizing, subjects left more Rands unspent in the online (Least Square M = 58.09) and offline without taste (M = 41.84) conditions than in the offline with taste condition (M = 39.21). The pattern of planned contrasts partially matched my hypotheses. The contrast of the offline with taste condition to the average of the online and offline with taste conditions was significant as predicted, F (1,217) = 6.78, p = .01. However, contrary to my expectations, there was a significant difference between online condition and offline without taste conditions that I expected to be equal due to their absence of diagnostic sensory information, F(1,217) =13.15, p = <.001.

I did not, however, observe the predicted familiarity x shopping environment results showed familiar vs. unfamiliar brands x shopping environment condition, F (2,217) = 1.38, p = .25. I expected the advantage of the offline with taste condition over the other two to be greater for unfamiliar brands than for familiar brands. But with familiar brands, mean unspent Rands in the online, offline with taste, and offline without taste conditions were 45.18, 29.07, and 36.35, respectively. With unfamiliar brands, mean unspent Rands in those same three conditions were 71.00, 49.34, and 47.33, respectively. The direction of the comparison between online and offline with taste was as I predicted, but the direction of the comparison between offline with taste and offline without taste was not. Another way to state my hypothesis is that I expected more unspent Rands for the unfamiliar than for the familiar brands, but I expected this difference to be greater in the online and offline without taste condition than in the offline with taste condition. That pattern is not evident in Figure 6 below.

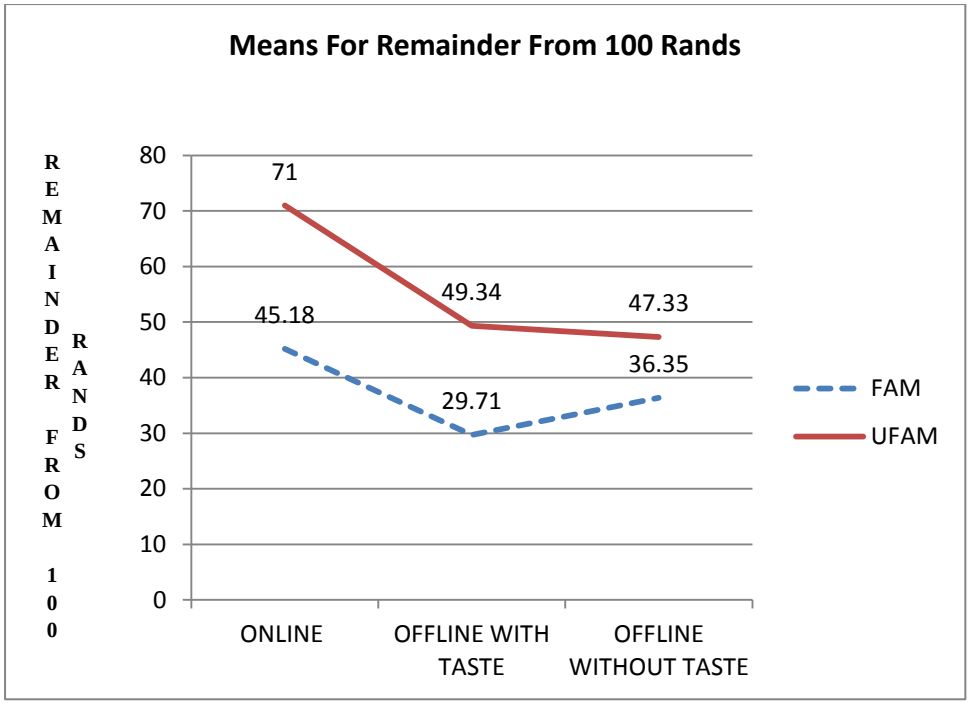

Figure 6: Means for the Remainder from R100 (Comparing amount unspent from R100 on familiar and unfamiliar brands)

The results indicate from Figure 6 that less was spent on unfamiliar brands (red/solid line) than familiar brands (blue/dotted line) in all the three shopping environments. The test of H_{5A}, however, is the interaction of familiar v unfamiliar x by condition. I predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be less in the offline with taste condition than in the average of the other two conditions (online and offline without taste). The data shows that this was not the case. In the offline with taste condition, the gap was (49.34-29.71) = 24.62); in the online condition it was directionally larger as predicted (71.00-45.18=25.82), and in the offline without taste condition it was actually directionally smaller (47.33-36.35=10.98). The results imply that the difference was higher in the online condition than the offline as predicted.

5.6. Discussion of Results

The results suggest that in situations where diagnostic information is limited, consumers tend not to spend their money. There was more unspent money for unfamiliar brands than for familiar ones, and more unspent money in the shopping environment conditions with less diagnostic information (online and offline without taste) than in the offline with taste condition with more sensory information. Brand familiarity plays an important part in the decision making to either continue shopping or not. The results for both familiar and unfamiliar indicate that participants bought less in the online condition but bought more in the offline with taste condition as there was more accessible and diagnostic information, mainly sensory as they were able to see, touch and taste the brands of chocolates.

This experiment explored the consumers' willingness to choose or defer choice in a shopping environment where there is limited information. There is limited research on this research question. The closest study was the one done by Dhar (1997) who suggested that no choice can occur as an avoidance strategy when consumers face difficult options. The main assumptions for the "no choice" decisions is that consumers have complete information and the "no" purchase decision is arrived at as consumers perceive that they cannot derive utility on the current options. Previous studies have not tested the effects of shopping environment on consumer's likelihood to make a purchase from a set of familiar brands than from a set of unfamiliar brands. My predictions were that consumers will likely make a purchase from a set of familiar brands than from a set of unfamiliar brands, and this tendency is stronger online. The "no choice" option is likely to occur in a retailer with unfamiliar brands than familiar brands. In Figure 6, the results consistently indicate that consumers spent less on

unfamiliar brands or opted to keep the money than familiar brands and hence the solid line for unfamiliar brands is above the familiar brands in all the three shopping environments.

5.11. Concluding Remarks

The results indicate that when consumers do not have diagnostic information, they would opt not to make a purchase. My results are consistent with the concept that consumers avoid making a choice when they see too much conflict or uncertainty (Bettman, et al., 1998). From the analysis of the results for experiment 2, less was spent on unfamiliar brands in the online environment. Overall in all the conditions, more was spent on familiar brands than unfamiliar brands. This suggests that when consumers are in a shopping environment which has impoverished information, especially on sensory input, consumers will tend to decide on the "no choice" option and keep the money. Research has indicated that not having adequate information to make decisions in the online shopping environment is one of the concerns by consumers (Wood, 2001; Forsythe & Shi, 2003). These concerns could be deduced as leading to consumers to defer choice or keep the money. The experiment results for both familiar and unfamiliar indicate that consumers bought less in a shopping environment which limited diagnostic information (online). In the environment where more sensory information was accessible and diagnostic, more familiar and unfamiliar brands were bought though this was lower for unfamiliar brands in terms of bars and the amount spent. The implications are that for online stores, carrying familiar brands will result in more sales than unfamiliar brands unless the online retailers provide more non-brand information which is accessible and diagnostic to the purchase decision. My results do not support the Long Tail theory which claims that you can sell more unpopular "niche" goods on the internet (Anderson, 2004) as in

my experiment, more revenue was raised in selling familiar brands than unfamiliar brands. That inequality was directionally but not significantly stronger online than offline.

CHAPTER 6: EMPIRICAL STUDY: EXPERIMENT 3

This chapter is based on the research question 3 investigated by Experiment 3. The overarching focus was to test whether the purchase environment affected the relative price sensitivity of demand for familiar and unfamiliar brands. I predicted that when the shopping environment lacks diagnostic sensory information, familiar brands can sell at both regular and discounted prices showing relatively low price sensitivity, but unfamiliar brands will sell predominantly at their lower prices, reflecting higher price sensitivity. These tendencies will be weaker when the shopping environment provides diagnostic sensory information.

In Experiment 3, I use a procedure like that used in Experiment 1 where consumers must choose five units of chocolate with a choice set of five familiar and five unfamiliar brands. However, here, consumers make four shopping trips, and the pricing of the familiar and unfamiliar brands varies across shopping trips, allowing me to test hypotheses about how the shopping environment affects relative price sensitivity for familiar and unfamiliar brands. This chapter includes the following sections: 1) introduction; 2) hypotheses; 3) method; 4) results; 5) discussion of results and 6) concluding remarks.

6.1. Introduction

The research question investigated in experiment 3 is how the retail shopping format affects the retailers' relative amount of revenue raised by familiar brands compared to premium unfamiliar brands with a higher normal price. I conjecture that it is difficult for the retailer to

make money selling unfamiliar brands unless the shopping format provides diagnostic non-brand information, because the absence of sensory information leads to greater relative price sensitivity for unfamiliar brands than for familiar ones. The general implication is that relative revenues raised for unfamiliar products compared to familiar products will be greatest when consumers have diagnostic sensory information. Even at constant prices, I had shown in Chapter 4 that the relative quantity of unfamiliar units compared to familiar units will be greater in the offline with taste environment than in the online environment or offline without taste environment. The same was true for revenues (quantity * price) raised from unfamiliar brands relative to familiar brands. I expected to replicate these findings from Experiment 1 but to further show that price sensitivity for familiar brands relative to price sensitivity for unfamiliar brands would depend on the shopping environment.

I tested this conjecture in an experiment in which consumers shopped in one of the same three environments studied in experiments 1 and 2: online, offline with taste, and offline without taste. The procedure was similar to Experiment 1 where participants had to choose five units from a choice set including five familiar and five unfamiliar brands of chocolates. However, the Experiment 1 procedure was repeated four times. Subjects faced four different price schedules across four different trials, and for each, were asked how many units they would buy of the five familiar and five unfamiliar brands if they were buying five units with their own money. On one trial, both familiar and unfamiliar brands sold at their normal prices. On a second trial, the familiar brands sold at normal price, and the unfamiliar brands were sold at 70% of normal price. On the third trial, familiar brands sold at 70% of normal price and unfamiliar brands sold at normal price. On the fourth trial, both familiar and unfamiliar brands sold at 70% of normal price.

I measured four related dependent variables separately for familiar and for unfamiliar brands:

- Total Units sold of Unfamiliar Brands (which = 4 * 5 * Total Units Sold of Familiar Brands.

- Total revenue (Quantity * Price) for familiar and total revenue for unfamiliar.

- Average Price paid for familiar and unfamiliar. Any differences observed among the three shopping environments reflects the proportion of purchases at a regular price (hi) versus at a discounted price 70% of normal price (lo) (as well as any changes in the mix of familiar and unfamiliar brands purchased).

- Self-price elasticity of demand for the familiar and unfamiliar brands – that is, what is the percentage change in quantity demanded of familiar brands with a percentage point change in price? What is the percentage change in quantity demanded of unfamiliar brands with a percentage point change in price?

    - Percentage change in quantity when own brand is at high v. low price = (Qhi – Qlo)/(.5*(Qhi + Qlo))

    - Percentage change in price at high v. low price = (Phi – Plo)/(.5*(Phi + Plo))

I expect these elasticities to be negative, reflecting the idea that quantity demanded decreases when price increases.

6.2. Hypotheses

The central idea in this experiment is how the environment affects the consumer's relative price elasticity for unfamiliar premium brands compared to familiar and less premium brands. The conjecture is that retailers cannot sell upscale unfamiliar brands at normal premium prices unless the shopping environment provides diagnostic quality information.

First, I expected to replicate my Experiment 1 (H_{10} and H_{1A}) finding that total units sold of unfamiliar brands relative to familiar ones is greatest in the offline with taste environment compared to the average of the online and offline without taste environments. I further expected no difference in units sold between the online and offline without taste environments.

Second, I conjecture that consumers buy less unfamiliar premium brands at a full price unless they have diagnostic non-brand information – i.e., they can test the hypothesis that the premium brands are actually higher in quality by tasting the chocolates. Familiar brands do not need sensory information at the point of sale. The consequence of this is that familiar brands can sell at both regular and discounted prices, but unfamiliar brands will sell predominantly at their lower prices if diagnostic sensory information is absent for both familiar and unfamiliar brands. Thus, the difference in average price paid for the unfamiliar brands and the average price paid for unfamiliar brands will be lowest in the offline with taste condition.

H_{60}: *Consumers' total spending on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments.*

H_{6A}: *Consumers' total spending on unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline without taste shopping environments.*

Third, this greater ability of premium brands to sell at a price premium is only greater offline than online in the offline with taste condition where non-brand information is more diagnostic offline than online.

H_{70}: The difference in average price paid for familiar and for unfamiliar brands will not differ across the three shopping environments

H_{7A}: Consumers will be more willing to pay a higher price for unfamiliar premium brands than for familiar (lower priced) brands in the offline with taste condition where there is diagnostic non-brand information than in either the online condition or the offline without taste condition.

This greater ability of premium brands to sell at a price premium is only greater offline than online in the offline with taste condition where non-brand information is more diagnostic offline than online. I expected no difference in relative price sensitivity of sales for familiar and unfamiliar brands between the online and offline without taste environments.

Fourth, I further expected that consumers would be more price elastic for unfamiliar than for familiar brands, but that this would prevail in the online condition and offline without taste condition, but less so in the offline with taste condition where consumers could justify quality by diagnostic non-brand cues. This basically means that consumers will be more price sensitive to unfamiliar brands than familiar brands.

H_{80}: The difference in self-price elasticities for familiar versus unfamiliar brands will not differ across the three shopping environments.

H_{8A}: The tendency for consumers to have higher self-price elasticity of demand for unfamiliar brands than for familiar brands will be greater in the online condition and offline without taste than in the offline with taste condition.

6.3. Method

a. Subjects and Design

The experiment was conducted at Clearwater Commons Shopping Mall in Randburg, where shoppers were randomly approached and asked if they wanted to participate in a chocolate study. If the answer was affirmative, the researchers asked them if they had ever shopped online (buying airline tickets, internet banking, groceries etc.,), whether they were allergic to chocolate ingredients like nuts or milk and if they were diabetic. Only those who were not allergic to chocolate ingredients and who were not diabetic and shopped online were allowed

to take part in the study. Participants were given one brand of chocolate as token of appreciation for their time.

b. Design

The subjects then signed a consent form which included their name and signature.

Those consenting were randomly assigned to three experimental conditions according to a pre-determined sheet with permutations of the digits 1 to 3; online (1), offline with taste (2) and offline without (no) taste (3). Some subjects dropped out of the study midway through and one did not follow instructions and entered higher values in the online questionnaires. Instead of choosing five chocolates, that person chose more than five in any of the different parts. This left a final sample size of 114 subjects.

The primary independent variable was our three-level shopping format factor. We also measured the gender of the participant. In addition to these two between-subjects factors, there were three within-subjects factors that varied across four shopping trials. The most central within-subjects factor is familiar v. unfamiliar brands. In addition, there are two other within-subjects factors that varied across the four shopping trials: price of familiar brands (normal vs. 70% of normal) and price of unfamiliar brands (normal vs. 70% of normal).

The dependent variables were, as noted earlier:

- Total quantity sold of unfamiliar brands (which is the complement of quantity of familiar brands given that each participant had to select five chocolates on each shopping trip);

- Total revenue for familiar (Quantity * Price) and total revenue for unfamiliar;

- Average Price paid for familiar and unfamiliar;

- Self-price elasticity of demand for the familiar and unfamiliar brands.

c. Procedure

Instructions were given both in writing and orally by the researchers. After participants had prequalified to participate, they were randomly assigned to one of "rooms" that were demarcated using banners and each area had a table. As noted above, subjects were randomly brought to one of three (3) shopping environments, each set up separately: online (1), offline with taste (2) and offline without taste (3). Each participant took four shopping trips where the pricing of the familiar brands and unfamiliar brands were independently varied to be normal or at a 30% discount, as explained in more depth under "Shopping Trips" below. The experiment took about 10 to 15 minutes; those in the offline with taste condition took longer because they had to taste all the chocolates.

d. Apparatus and Room Setup.

In the online condition, the room had laptop, calculator, pen and participant consent form. No chocolates were physically displayed. In the offline with taste condition, the room had a pen, participant consent, a choice form for 10 brands of chocolates. Small pieces of the 10 brands of chocolates as samples were placed on paper plates so that the participant may taste the chocolates. Bars of chocolate were placed in front of the sample plates to identify each brand. Prices for the chocolates were clearly shown on the plates with each brand of chocolate. In the offline without taste condition, there was a participant consent form, choice form for the 10 brands of chocolates. All brands of chocolate were displayed on paper plates on the table, enclosed in their wrappers, just as would be true in some stores. No samples were provided. Prices for the chocolates were clearly shown on the plates with each brand of chocolate.

Each table had a chair in each area. Subjects had to read the instructions and the research assistants verbally explained the instructions as well. Prices were visually displayed on signs in the offline conditions, and in the online shop in the online condition.

Shopping Trips.

On each of four shopping trips, subjects were asked to choose five brands of chocolates from the 10 brands displayed of familiar and unfamiliar brands. The subjects made four shopping trips and on each trip, the prices of the 10 brands of chocolates were manipulated. To depict the different price ranges, the prices were reduced by 30% from the regular prices.

The price manipulation for the 4 shopping trips is shown in the Table 4 below.

Table 4 Price Manipulation for the Different Parts of the Experiment 3

	PART 1 Familiar brands normal price & Unfamiliar brands normal price	**PART 2** Familiar brands normal price & Unfamiliar brands low prices (30% off)	**PART 3** Familiar brands low price (30% off) and Unfamiliar brands, normal prices	**PART 4** Familiar brands, low prices and Unfamiliar brands, low prices, 30% off
Lunchbar	**5.15**	**5.15**	**3.60**	**3.60**
Kitkat	**4.50**	**4.50**	**3.15**	**3.15**
Aero	**5.07**	**5.07**	**3.55**	**3.55**
Top Deck	**3.53**	**3.53**	**2.50**	**2.50**
Ps	**5.15**	**5.15**	**3.60**	**3.60**
Kinder	**6.95**	**4.86**	**6.95**	**4.86**
Cote d'Or	**16.00**	**11.20**	**16.00**	**11.20**
Daim	**12.00**	**8.40**	**12.00**	**8.40**
Woollies	**29.99**	**20.99**	**29.99**	**20.99**
Bounty	**6.49**	**4.54**	**6.49**	**4.54**

6.4. Results

The total subjects were 114 and of these, 39 participated in the online condition, 38 in the offline with taste condition and 35 in the offline without taste condition. In terms of gender, there were 53 males and 59 females, 2 did not specify their gender were treated as missing. There were no main or interaction effects of gender.

a. Total Quantity of Unfamiliar Brands.

I first tested whether I replicated my finding from study 1 that in a store with a mixture of familiar and unfamiliar brands, more unfamiliar brands are purchased in the offline with taste condition than in the average of the other two conditions. Because each participant was required to purchase exactly five chocolates on each shopping trip, the statistical tests on this dependent variable mirror what I would have found by analysing the quantity of familiar brands, or the difference in quantity sold of unfamiliar – familiar.

The data for the analysis had total subjects of 114 and of these, 39 in the online condition, 38 in the offline with taste condition and 35 in the offline without taste condition and of these, 53 males and 59 females.

I analysed total quantity of unfamiliar brands in a 3 x 2, shopping environment Condition x Gender between subjects analysis of variance. As in Experiment 1, there was neither a main effect of Gender ($F(2, 106) = 0.40$, $p = .53$) or a Condition x Gender interaction, $F(2,106) = 0.78$, $p = .46$). The Condition effect was not significant, $F(2,106) = 1.651$, $p = .197$. This Condition effect averages one contrast that I predicted to be significant and one that I predicted to be nonsignificant. I expected that more units of the unfamiliar brand to be chosen in the Offline with Taste condition ($M = 7.76$) than in either the Online ($M = 6.45$) or offline without Taste condition ($M = 5.62$). This planned contrast was marginally significant, $F(1, 106) = 2.875$, $p = .093$. I had expected that the Online and Offline without Taste

conditions would not differ. This planned contrast was not significant, F (1, 106) = 0.48, p = 0.49.

b. Total Revenue for Familiar and Unfamiliar Brands

The following hypotheses were stated that the total spending on unfamiliar brands would the same across the three shopping environments as stated below;

H_{60}: *Consumers' total spending on unfamiliar brands relative to familiar brands will be equal across the three different shopping environments*

H_{6A}**:** *Consumers' total spending on unfamiliar brands relative to familiar brands will be greater in offline with taste environments where there is diagnostic information compared to online environments or offline without taste shopping environments.*

Total Rands spent for the familiar and an unfamiliar brand was calculated by multiplying the units bought and the price. It was expected that more money would be spent on unfamiliar brands in the offline with taste environment.

The data for the analysis had total subjects of 114 and of these, 39 in the online condition, 38 in the offline with taste condition and 35 in the offline without taste condition and of these,

53 males and 59 females. H_{6A} implied that one should observe a different pattern of relative sales for familiar and unfamiliar brands across the three shopping environments. The data showed the predicted pattern, but as is reported below, the interaction in Figure 7 below was not statistically significant.

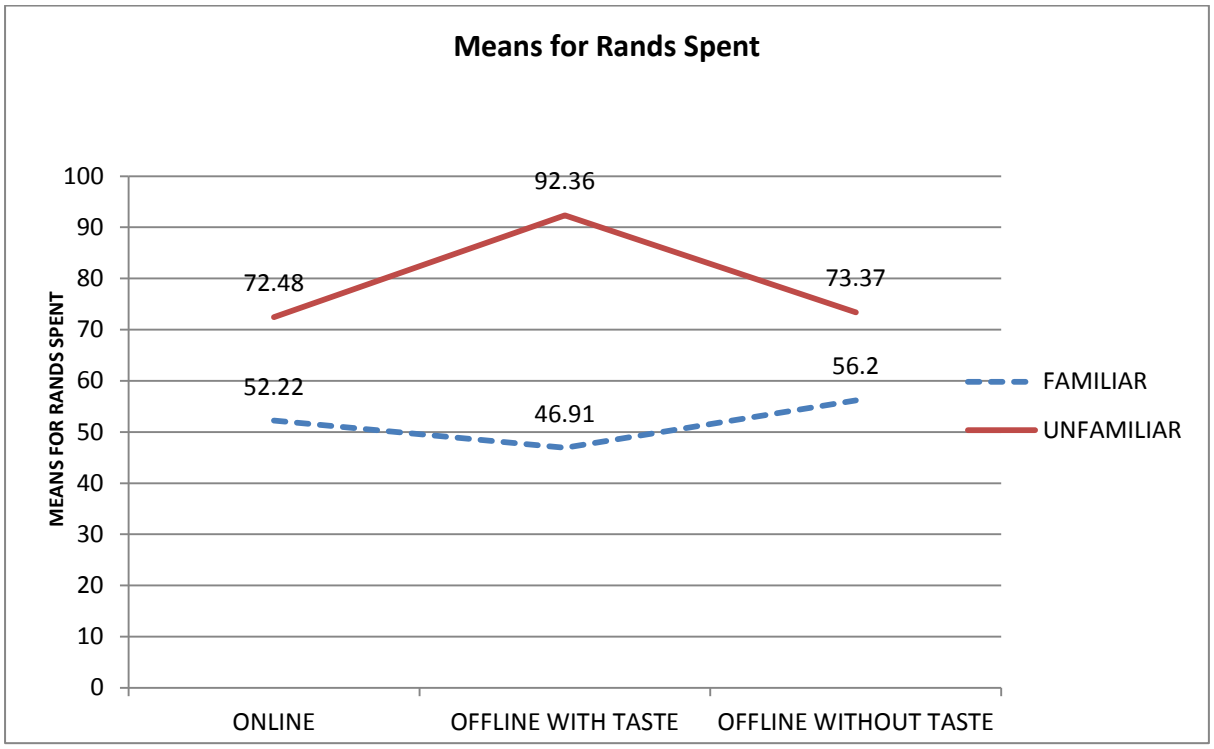

Figure 7: Means for Rands Spent on Familiar and Unfamiliar Brands (in each Condition: Quantity x Price)

Looking at Figure 7, the results show some effects. First, subjects spent more on unfamiliar brands (M = R78.83) than familiar brands (M = R52.93), a significant main effect that simply reflects the much higher prices of the unfamiliar brands, F (1, 106) = 11.00, p<.001. When familiar and unfamiliar brands spent are pooled together, total Rands spent did not vary with the main effect of Condition, F (2, 106) = 0.75, p = .476. Directionally, most revenue in total

(pooling familiar and unfamiliar) was raised in offline with taste environment with the means of R69.64 and nonsignificantly less in offline without taste is R64.79 and online R62.35.

The test of H_{6A}, however, is the interaction of familiar v unfamiliar x by condition. This interaction followed the predicted pattern as shown in Figure 7. I predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline without taste). The data shows that this was indeed the case. In the offline with taste condition, the gap was (92.36 – 46.91) = 45.45); in the online condition it was only (72.48 – 52.22= 20.26), and in the offline without taste condition it was (73.37 – 56.20) =17.17). A planned contrast showed that this first difference for the offline with taste condition was greater than the average of the other two gaps, but not statistically significant (F (1, 106) = 2.321, p = .13) *(quadratic).* I had also expected that the last two gaps for the online condition and the offline without taste condition would be equal. A planned contrast found that these two gaps did not differ significantly (F (1, 106) = 0.023, p = .88*) (linear).*

b. Average Price Paid for Familiar and Unfamiliar.

H_{70}: The difference in average price paid for familiar and for unfamiliar brands will not differ across the three shopping environments

H_{7A}: Consumers will be more willing to pay a higher price for unfamiliar premium brands than for familiar (lower priced) brands in the offline with Taste condition where there is diagnostic non-brand information than in either the online condition or the offline without taste condition

Average price paid for familiar and unfamiliar brands was calculated by dividing the total Rands spent by total units. Any differences to be observed among the three shopping environments would reflect the proportion of purchases at a regular price (hi) versus at a discounted price 70% of normal price (lo). Consumers' choice of buying unfamiliar brands at a full price would increase unless they have diagnostic non-brand information – i.e., they can taste the brands.

The data for the analysis for average price paid for familiar and unfamiliar brands discarded subjects who never bought familiar or unfamiliar brands because one could not calculate the average price paid for them. The analysis dropped subjects who did not buy at least one familiar or unfamiliar brand. The final data had 30 subjects for the online environment, offline with taste, 32, offline without taste 30 and in terms of gender, 42 were males and 50 females. Figure 8 below shows the results for average prices paid.

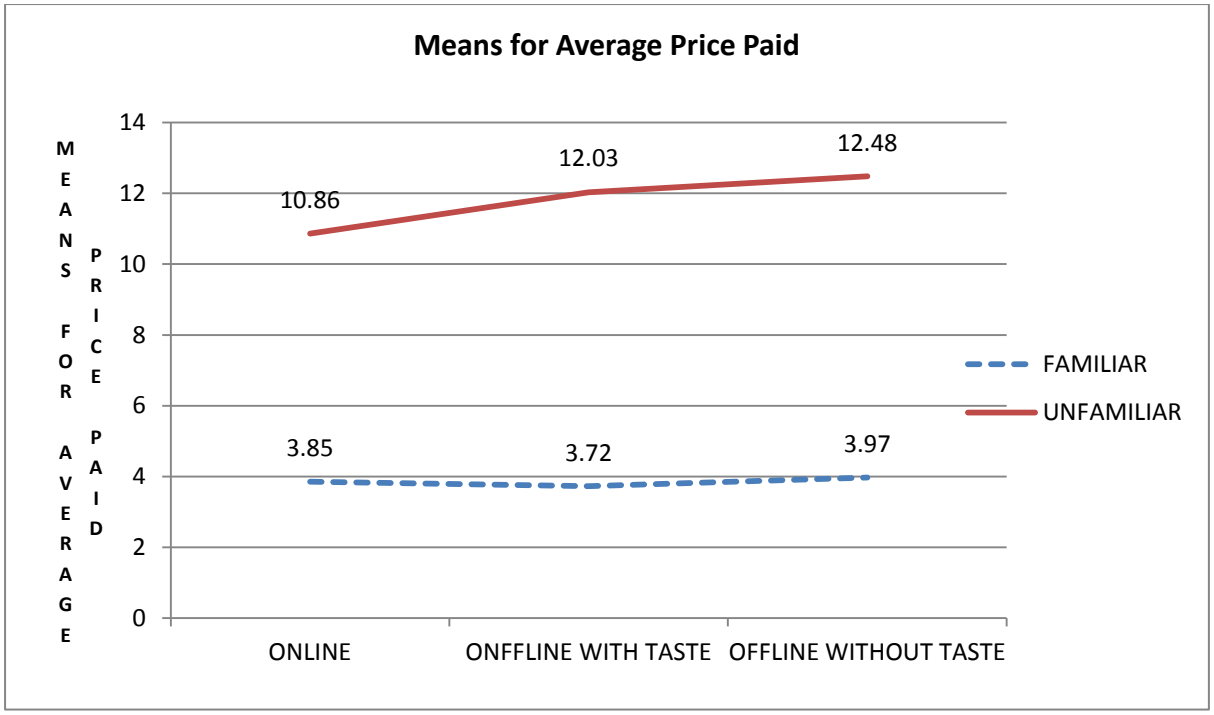

Figure 8: Means for Average Price Paid for Familiar and Unfamiliar Brands (in each Condition)

Looking at Figure 8, the results show some effects. First, the average price paid by subjects was more on unfamiliar brands (M = R11.85) than familiar brands (M = R3.84), a significant main effect that simply reflects the much higher prices of the unfamiliar brands, F (1, 86) = 201.98, p<.000. When familiar and unfamiliar brands average price paid are pooled together, average price paid did not vary with the main effect of condition, F (2, 86) = 0.77, p = .46. The average price paid was higher in the offline without taste environment with the means of R8.22, offline with taste R7.87 and online R7.35.

The test H_{7A}, average price paid, however, is the interaction of familiar v unfamiliar x by condition. That interaction was not remotely statistically significant, F(2,86) = 0.69, p = 505.I

I had predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the offline with taste condition than in the average of the other two conditions (online and offline without taste). The data shows that in the offline with taste condition, the gap was (12.03-3.72) = 8.31; in the online condition it was only (10.86-3.85) =7.01. However, and in the offline without taste condition, it was (12.48-3.97) =8.51. The gap was directionally but not significantly higher in the offline without taste condition instead of the offline with taste condition. A planned contrast showed that this first difference for the offline with taste condition was greater than the average of the other two gaps, but not statistically significant ($F (1, 86) = 0.23$, $p = .63$). I had also expected that the last two gaps for the online condition and the offline without taste condition would be equal. A planned contrast found that these two gaps did not differ significantly ($F (1, 86) = 1.16$, $p = .28$).

a. Self-Price Elasticity of Demand for the Familiar and Unfamiliar Brands

I had predicted a similar pattern for measures of self-price elasticity, derived by measuring how demand for familiar and unfamiliar brands varied on trials where each was sold at a high prices versus a low price.

H_{80}: The difference in self-price elasticities for familiar versus unfamiliar brands will not differ across the three shopping environments

H_{8A}: The tendency for consumers to have higher self-price elasticity of demand for unfamiliar brands than for familiar brands will be greater in the online condition and offline without taste than in the offline with taste condition.

Self-price elasticity of demand for the familiar and unfamiliar brands is calculated as the percentage change in quantity demanded of familiar and unfamiliar brands with a 1% point change in price. (Percentage change in quantity when own brand is at high v. low price = (Qhi – Qlo)/.5*(Qhi + Qlo) and Percentage change in price = (Phi – Plo)/ .5*(Phi + Plo). It was expected that these elasticities would be negative, reflecting the idea that quantity demanded decreases when price increases. This calculated the quantity of each type of brand sold at high price minus the quantity sold at the low price.

The data for the analysis of self-price elasticity dropped subjects who did not buy at least one familiar or unfamiliar brand because we could not calculate elasticity when average quantity was zero. The final data had 30 subjects for the online environment, offline with taste, 32, offline without taste 30 and 42 were males and 50 females.

The test H_{8A}, self-price elasticity, however, is the interaction of familiar v unfamiliar x by condition. The test of H_{8A}, predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the online and offline without Taste and not in the offline with taste condition. The results departed from my prediction in two ways. Firstly, I expected the solid line of unfamiliar brands to lie below the dotted line of familiar brands, reflecting more price sensitivity for unfamiliar brands.

Secondly, the dotted line of familiar brands was expected to be a flat line indicating little change due to shopping environment, because people already understand the quality of familiar brands. I expected that the shopping environment would primarily change price elasticity of unfamiliar brands. I expected that more unfamiliar brands would be bought in the online and offline with taste environments when the price was low for unfamiliar brands. Please see Figure 9.



Figure 9: Price Elasticity

Looking at Figure 9, the results show some effects, but nothing is statistically significant. First, subjects were nonsignificantly more price sensitive for familiar brands (M = -.12) than unfamiliar brands (M = -.01), with the F (1, 86) = 1.84, p>.18. When familiar and unfamiliar brands self-price elasticity were pooled together, condition was not significant, F (2, 86) = 1.89 = .16. The average means for self-price elasticity for conditions was, online, -.091, offline with taste -.131 and offline without taste is .019,indicating that

subjects were most price sensitive in the offline with taste condition environment, but not significantly so.

I predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the online and offline without taste conditions than in the offline with taste condition. The data shows that this was not the case, and the pattern was opposite to my expectations. In the offline with taste condition, the gap was (-0.01)-(-.26) =0.25; in the online condition it was only (-0.04) – (-0.15) =0.11, and in the offline without taste condition it was (0-0.04) =-0.04. The gap was greater in the offline with taste condition instead of the online and offline with taste conditions. A planned contrast showed that this first difference for the offline with taste condition was greater than the average of the other two gaps, but not statistically significant (F (1, 86) = 1.70, p = .20) (quadratic). I had also expected that the last two gaps for the online condition and the offline without taste condition would be equal. A planned contrast found that these two gaps did not differ significantly (F (1, 86) = 0.57, p = .45) (linear).

The test H_{8A}, price elasticity, however, is the interaction of familiar v unfamiliar x by condition. That interaction was not remotely statistically significant, F (2, 86) = 1.14, p = .324. The test of H_{8A}, predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the online and offline without taste condition and not in the offline with taste condition. Further detailed analysis is in Appendix VI.[5]

[5] The results for further analysis for cross price elasticity were not statistically significant. See detailed analysis in Appendix VI.

The results departed from my prediction in two ways. Firstly, I expected the solid line of unfamiliar brands to lie below the dotted line of familiar brands, reflecting more price sensitivity for unfamiliar brands. Secondly, I expected the dotted line of familiar brands to be a flat line indicating little change due to shopping environment, because people already understand the quality of familiar brands.

6.5. Discussion of Results

Experiment 3 was designed to show that retail shopping formats affects relative price sensitivity of familiar and unfamiliar brands, and hence, relative revenue and profit a firm can derive from familiar vs. unfamiliar brands. I predicted that unfamiliar brands would only raise more sales where there is diagnostic information, because I expected price elasticity to be especially high for unfamiliar brands when there was no sensory information. The shopping environments were divided into three, online, offline with taste and offline without taste. online and offline without taste (control group) had limited information given to participants while offline with taste had more information as the participants had the opportunity to taste, smell and touch the brands and before the purchase decision.

Other work in the literature suggests that the general ideas in Experiment 3 may have merit. Degaratu, et al., (2000) investigated the effect of price, shopping environment, and brand name, comparing physical grocery shopping to online shopping. They concluded: “1. Brand names become more important online in some categories but not in others depending on the extent of information available to consumers — brand names are more valuable when information on fewer attributes is available online. 2. Sensory search attributes, particularly

visual cues about the product e.g., paper towel design, have lower impact on choices online, and factual information i.e., non-sensory attributes, such as the fat content of margarine have higher impact on choices online. 3. Price sensitivity is higher online, but this is due to online promotions being stronger signals of price discounts. But they concluded that "the combined effect of price and promotion on choice is weaker online than offline." Degaratu, et al., (2000, p.76)

A study on real exposure effect [6] concluded that the mere physical presence of an item increases the subjects' willingness to pay and this was for both familiar and unfamiliar items and not brands (Bushong, et al., 2010). A further study concluded that by simply presenting real items rather than images, subjects' willingness to pay or buy increased by 41% to 63% (Muller, 2012). Those authors did not compare familiar and unfamiliar brands, but my conjecture was that the effects they showed would be stronger for unfamiliar brands than for familiar ones.

I had expected in Study 3 that the shopping environment would affect the choice of familiar and unfamiliar brands and I expected effects on the two major dependent variables: average price paid and self-price elasticity.

It is, of course, a matter of calibration whether consumers spend more in total on familiar (but lower priced) brands compared to less familiar (but higher priced) brands. The main

[6] Real exposure occurs when a brand is exposed to consumers through the various senses and this activates perception and attention by the nature of the stimuli, for example, product placement in movies (Lehu & Bressoud, 2009) or choosing a meal in a restaurant by reading a text based menu, looking at a picture based menu, or being exposed to a buffet table (Bushong et al., 2010).

prediction was that *relative* revenues from unfamiliar brands compared to familiar ones would be more positive (or less negative) in the online with taste environment in which there is diagnostic non-brand information. I had expected that, relative revenues for unfamiliar brands compared to familiar ones should be in online shopping environments and offline without taste environments. I expected a similar general pattern on average price paid for familiar and unfamiliar brands, which is a reflection of the degree to which each type of brand was able to sell when at full price relative to when discounted by 30%. Along with this, I expected that self-price elasticity should be more similar for familiar and unfamiliar brands in the offline with taste condition compared to the online condition and offline without taste conditions. In the latter two conditions, I expected that unfamiliar brands would sell more only when discounted, creating more self-price elasticity for unfamiliar than for familiar brands.

For dependent variables, the pattern of the interaction followed the predicted trend. But in no case was the interaction statistically significant. This suggests that a study with more statistical power might find effects of the sort hypothesized. There were certain nuances of the data that were opposite to prediction (e.g., in Figure 8, I expected that the dashed line for familiar brands would be relatively flat across shopping environments and that the solid line for unfamiliar brands would look like an inverted V, lying below the solid line but nearly touching in the online with taste condition. It is difficult to make much of the deviations from my predictions here given that the results were not statistically significant.

I had also expected that relative responses on these dependent variables for familiar and unfamiliar brands would not be different for online conditions and offline without taste

conditions. I found this to be the case. Again, however, it is difficult to claim too much credit for the support for this prediction given that I failed to find support for my main predictions noted above.

6.6. Concluding Remarks

Experiment 3 explored how the environment affects the buying of familiar and unfamiliar brands when sold at regular and discounted prices. The conjecture was that consumers would be more price elastic for unfamiliar brands unless the shopping environment provides diagnostic quality information. I had predicted that consumers will rely more heavily on price (and thus be more price elastic) when they lack other diagnostic information. Brand familiarity was expected to create strength of preference and so lowering price elasticity in the shopping environment with less non-brand information. I had hypothesized that brand familiarity will lessen price elasticity in an environment with more impoverished non-brand information. My study was in line with Bushong, et al. (2010) who concluded that the mere physical presence of an item increased the subjects' willingness to pay for both familiar and unfamiliar items. Another study by Muller (2012) concluded that by simply presenting real items rather than images, subjects' willingness to pay or buy increased by 41% to 63%. My expectations were that unfamiliar brands would seem more risky and would only sell when discounted and when there was more non-brand diagnostic information. The results for experiment 3 showed the predicted pattern, though the interaction was not statistically significant. More revenue was raised for unfamiliar brands in the shopping environment with more sensory information though this was not statistically significant.

CHAPTER 7: SUMMARY OF FINDINGS

This chapter is a summary of the research results for this dissertation on the effects of the shopping environment on the consumer choice. Summaries of the three main experiments are discussed and the following sections are included 7.1) introduction, 7.2) experiment 1 7.3) experiment 2, 7.4) experiment 3, 7.5) Meta-analysis, 7.6) general discussion 7.7) information type and quality, 7.8) risk and online shopping, 7.9) the role of brands in mitigating risk, 7.10) theoretical implications, 7.11) implications for manufacturers, 7.12) implications for retailers, 7.13) limitations and future research, 7.14) conclusion and 7.15) concluding remarks

7.1. Introduction

My dissertation examined the role of brands in consumer decision making. My focus was on the role of brands in online environments versus offline environments as a function of the information type and quality available in a given purchase environment. Firstly, I conjectured that in a situation where there is limited information, consumers use their brand knowledge to make a choice. In Experiment 1, I tested the hypothesis that the market share or quantity advantage of familiar over unfamiliar brands would be greater in online environments than in offline environments providing richer sensory information. In Experiment 2, I tested effects of brand familiarity on decision to spend at all versus keeping one's money in one's wallet when shopping from a store carrying only familiar brands versus only unfamiliar ones. I investigated whether any asymmetry in buying from a store carrying only familiar or only unfamiliar brands might depend on the online versus offline purchase environment. In Experiment 3, I tested whether the relative price sensitivity for familiar and unfamiliar brands

might depend on the shopping environment. Overall, the results from my dissertation showed that when there is limited information in consumer decision making processes, consumers would use their knowledge about brands to make or not make a decision.

7.2. Experiment 1

My hypothesis stated that familiar brands have a greater relative advantage over unfamiliar brands in the online environment than in the offline shopping environment. I conjectured that, with a choice set including both familiar and unfamiliar brands, consumers who have imperfect or incomplete information in the online environment would rely more on the brand information, and specifically brand familiarity, to make a choice. I contrasted an offline environment with enriched access to sensory information about chocolates (offline with taste) with two environments that provided no information about taste, touch, or smell: online, and offline without taste.

Firstly, my results for experiment 1 suggest that familiar brands have a lead over unfamiliar brands in the online environment which has limited sensory information than the offline environment. Subjects purchased more familiar brands than unfamiliar brands in all three shopping environments, but the sales advantage of the familiar compared to unfamiliar was less in the offline with taste condition which had touch, taste and smell information than in the online environment or the offline without taste environment. Secondly, as predicted, the online environment and the offline without taste environment did not differ. Third, I found similar results when looking at a dependent variable of revenues raised by familiar versus

unfamiliar brands, weighting the quantity selected by the prices of those brands. The unfamiliar premium brands were more expensive than the familiar, less premium brands, and this somewhat offset the quantity advantage of the familiar brands. Consequently, on average people spent more on unfamiliar than familiar brands. As I predicted, monetary expenditure differences on familiar and unfamiliar brands were greater in the offline with taste condition than in the average of the other two conditions (online and offline without taste). Participants spent more on unfamiliar brands than familiar in the offline with taste condition. My findings suggest that from a seller's perspective, familiar brands have a particularly strong advantage over unfamiliar brands in purchase environments with limited non-brand information.

My results from experiment 1 suggest that familiar brands have an advantage over unfamiliar brands and show that this advantage is greatest when consumers are most lacking in non-brand information. I have spoken throughout this dissertation as if online environments are generally impoverished compared to offline. But the inclusion of the "offline without taste" condition was intended to make clear that the key factor is whether the purchase environment provides information that allows consumers to better predict consumption utility. Sometimes that information is better offline (as in offline with taste), but there can be exceptions. I deliberately chose the category of chocolates as one where sensory information would be diagnostic. The online environment at times offers limited non-brand information especially for experience goods, for merchandise dominated by visual, touch, taste and smell attributes compared to the offline environment (Alba, et al., 1997). Some products require physical examination for consumers to get the information needed for their decision making and some of this information is not available online (for clothes, the texture from the touch, feel experience) (Aghekyan-Simonian, et al., 2012) and this might include attributes like colour, feel or texture of fabric.

These advantages of offline environments would presumably be less in categories dominated by easily verified search attributes. Products which are high in search attributes include motor vehicles and furniture as their quality can be verified before purchase without sensory inputs. The advantages of brick and mortar would similarly be lessened in categories like booking for online airline or theatre tickets where the brick and mortar store has no inherent informational advantage.

The reader should understand, however, that there can be circumstances where information is inherently better online. Traditional merchandising is limited by physical constraints such as floor and shelf space limit, while the Internet allows unlimited cross-referencing to find complementary products (Diehl, et al., 2010). For some product categories, experiential attribute information is conveyed more effectively electronically than the offline environment (Alba, et al., 1997). For example, online music sampling in online stores and consumer reviews may provide valuable experiential information not present in brick and mortar stores.

In situations where there is limited information on purchase choice, consumers rely on different cues. Some of the major decision making reminders used are brand or product attributes (Van Osselaer & Alba, 2000). Brand familiarity or brand awareness is an important factor in consumer decision making as some consumers who are aware of one brand in a choice set tend to choose the known brand (Hoyer & Brown, 1990). My findings about an enhanced role of brands in situations of impoverished information are broadly consistent with other studies stating that brand familiarity is used as a cue for differing choice options (Hoyer & Brown, 1990; Keller, 2008).

I ran a small follow-up study to test the alternative explanation for my Experiment 1 findings that unfamiliar brands sold more in environments providing diagnostic information simply because they tasted better. In a blind taste test, I found that in fact there was slight preference for the taste of familiar brands.

In all three of my studies, I deliberately confounded brand familiarity and price. The unfamiliar brands were largely more expensive premium brands. Another alternative explanation for my findings in Study 1 was that it was not that brand name got more weight in consumer decisions when sensory information was impoverished, but that price or price quality inferences got more weight when sensory information was impoverished.

Price is often said to have two effects in the marketing literature. The allocative effect of price makes products less attractive the higher the price. The signalling effect of price as a cue to quality makes products seem more attractive the higher the price. These two effects combine to influence overall evaluations of products (Huber & McCann, 1982), in some cases producing nonlinear effects of price changes on decisions. It is often said that consumers rely more on price-quality inferences when they have less information (Zeithaml, 1988). One might then reason that consumers would rely more on the signalling value of price when they had less sensory information. If that were true, my Experiment 1 results should have had exactly the opposite pattern to what I predicted and observed. (Higher priced) unfamiliar brands would have had more (not less) market share in shopping environments with impoverished sensory information.

One might still argue that my study 1 results could be a function of price in its allocative role playing a bigger part in environments with less diagnostic sensory information. This might be considered broadly consistent with Wright and Lynch's (1995) finding that "search" attributes (like price) get more weight when there is more vivid information from direct experience. Two points make this an unlikely explanation of my Experiment 1 findings. First, in experiment 1, though prices were displayed, a) choices were hypothetical, and b) respondents had to choose exactly five brands with no budget constraint. Price was never mentioned to respondents, so it seems doubtful with this procedure that price was playing an allocative role at all. Second, I explicitly tested effects of store environment on price sensitivity in Experiment 3. I did not find any main effect of store environment such that consumers were more price elastic in shopping environments with more impoverished sensory information.

7.3. Experiment 2

Experiment 2 examined the effects of brand familiarity on the willingness to make a choice versus avoiding a choice or continue searching and how this differs in online versus offline purchase environments. My results from experiment 2 are coherent with the conception that people avoid making a choice when they see too much conflict or uncertainty (Bettman, Luce, & Payne, 1998). The uncertainty in consumer choice is complicated by the fact that for many consumers, the timing for many purchase decision is not fixed or predictable (Dhar, 1997). Economic models of "reservation utility" suggest that people will not buy if the expected outcome is below some threshold. Additionally, preference uncertainty increases choice of the no-choice option (Dhar, 1997). Relatedly, work on "missing information",

however, shows that people devalue options when they feel that they are "missing" key attribute information as the absence of information is treated as a negative cue (Johnson & Levin, 1985; Simmons & Lynch, 1991).

I predicted that with a store inventory with only unfamiliar brands, participants would more often defer choice and keep the money than in a store carrying only familiar brands. I further expected that people would be less willing to buy from a store with more impoverished sensory information. But critically, I expected that this lesser willingness to part with one's money at a store with unfamiliar brands than a store with familiar ones should be observed most strongly when the choice environment lacks other diagnostic non-brand information.

The results from my study show that more was spent on familiar than unfamiliar brands. This implies that unfamiliar brands were an inferior alternative and increased the no option choice (Dhar, 1997). I also found a main effect of store environment. More Rands were left unspent in shopping environments lacking sensory information – the online condition and offline without taste – than in the online with taste environment. The pattern partly followed my expectations. I had expected online and offline without taste conditions to be equal, but in fact more Rands were left unspent in the online condition than the offline without taste condition.

Also, contrary to my predictions, I did not observe an interaction of the familiar vs. unfamiliar nature of a store's merchandise mix with shopping environment. I expected the advantage of the offline with taste condition over the other two to be greater for unfamiliar

brands than for familiar brands. The direction of the comparison between online and offline with taste was as I predicted, but the direction of the comparison between offline with taste and offline without taste was not. Another way to state my hypothesis is that I expected more unspent Rands for the unfamiliar than for the familiar brands, but I expected this difference to be greater in the Online and Offline without taste condition than in the Offline with taste Condition. That pattern was not observed, and there was no significant interaction.

7.4. Experiment 3

Experiment 3 probed how retail formats affect price sensitivity for familiar and unfamiliar brands. My conjecture was that it is difficult for the retailer to make money on unfamiliar brands unless the shopping format provides diagnostic non-brand information. For the online environment, I expected that the demand for unfamiliar brands would become more price elastic as consumers would opt to buy unfamiliar brands on discount, especially in the environment with more non-brand information (offline with taste). The results showed the predicted pattern, though the interaction was not statistically significant.

My findings from experiment 3 would be aligned to two studies; Muller (2013); Bushong, King, Camerer & Rangel (2010). A study on real exposure effect concluded that the mere physical presence of a product increases consumer's willingness to pay for both familiar and unfamiliar items (Bushong, et al., 2010). A conceptual replication of Bushong, et al. concluded that by "simply presenting real items rather than images, subjects' willingness to pay or buy increased by 41% to 63 %"(Muller, 2012, p.306). Bushong, et al. (2010) and Muller (2012) did not compare familiar and unfamiliar brands, but my conjecture was that the

effects they showed would be stronger for unfamiliar brands than for familiar ones. Both studies by Bushong, et al (2010) and Muller (2013) stipulated that the mere physical presence of an item triggered Pavlovian approach mechanisms which increased the subjects' willingness to pay. My expectations were that unfamiliar brands would seem more risky and would only sell when discounted and when there was more non-brand diagnostic information. The results followed the predicted pattern though the interaction was not statistically significant.

In addition, the design of Experiment 3 allowed a second test of the key hypotheses of Experiment 1 – that in stores carrying both familiar and unfamiliar brands, the share of unit sales of unfamiliar brands relative to familiar ones would be greater. I could also measure Rands spent on familiar brands minus on unfamiliar brands to test whether the store environment caused changes in relative revenue raised from unfamiliar brands, replicating Experiment 1. For both of these dependent variables, the obtained results followed the pattern of results from Experiment 1, but did not attain statistical significance. Should this be considered a "failure to replicate?" the results of Experiment 1, or are the results consistent with what one should expect if there is a real effect, but random variation in results due to having statistical power less than 1. To answer that question, I conducted a meta-analysis of the results on these common dependent variables in Experiment 1 and Experiment 3.

7.5. Meta-Analysis of Results of Experiment 1 and 3

Meta-analysis is a quantitative procedure which allows combining research results from a few or many studies studying almost the same independent and dependent variable relationships (Fernandes, Lynch & Netemeyer, 2014; Rosenthal & DiMatteo, 2001). Effect size is the key variable to be studied when the varying studies have differing results (Fernandes, et al., 2014). Meta-analysis therefore assesses the individual effects between the independent and dependent variable by exploring whether the effect is statistically significant when you pool the studies together (Fernandes, et al., 2014).

For this dissertation, meta-analysis was performed on experiment 1 and 3 and the dependent variable analysed was the total amount spent and units bought and the independent variable is the shopping environment (online, offline with taste and offline without taste). Experiment 1 and 3 replicated the key theoretical claims but statistical significance support for the hypothesis was not conclusive from experiment 3. Meta-analysis was conducted for the key effects answering two questions; 1. Is the shopping environment effect statistically significant for the two studies? This question was dealt with by calculating the Z statistic as shown in Table 5. The second question was to answer the following question; was there variation in effect sizes across experiment 1 & 3 apart from what would be expected by chance if the two studies were simply random draws from a common distribution of effect sizes if the same basic procedure were to be repeated again and again? This last question was answered by reviewing the Q statistic.

Table 5: Meta-Analysis of Key Effects of Shopping Environment in Experiment 1 & 3

	Dependent Variable for Test of Effect of shopping environment	Weighted mean effect size (based on Fisher's Z)	Standard Error of the mean effect size	Z-test for the Mean Effect Size	p-value of Z	Q df=1	p-value of Q
Experiment 1 & 3 Contrast of Offline with Taste with Average of Online and Offline Without Taste	Rands spent on unfamiliar - Rands spent on familiar	.20	0.07	2.68	.004	.67	.415
Experiment 1 & 3 Contrast of Offline with Taste with Average of Online and Offline Without Taste	TotalUnitsUnfamiliar(would get same for total familiar or proportion)	.20	.07	2.87	.002	.60	.439
Experiment 1 & 3 Contrast of Online vs. Offline without Taste	Rands spent on unfamiliar - Rands spent on familiar	.07	.10	1.36	.087	1.96	.162
Experiment 1 & 3 Contrast of Online vs. Offline without Taste	TotalUnitsUnfamiliar(would get same for total familiar or proportion)	0.07	-0.02	-.32	.624	2.20	.138

The results from Table 5 indicate that for the contrast of the enriched offline with taste environment with the average of the two more impoverished environments, unfamiliar brands fared relatively worse in the online and offline without taste environments than in the enriched online with taste environment. For the Rands spent and total units bought in Experiment 1 & 3, the Z values are 2.68 and 2.87 with p<..01, indicating that independent variables had a significant effect on the dependent variable. The implications are that there was a difference on the choice of familiar and unfamiliar brands in the online and offline conditions. These results suggest that we reject the null hypothesis and this is in line with my predictions that more unfamiliar brands would be bought and that relative to familiar brands, more would be spent on unfamiliar brands in the offline with taste condition than online.

In addition, the results confirmed that while both of the patterns above were statistically significant in Experiment 1 alone but not in Experiment 3 alone, there were no statistically significant differences between the findings in the two studies. It is just that the effects fell slightly below the threshold for significance in Experiment 3. The Q statistic (1 df) tests for heterogeneity of the effect sizes in the two studies were 0.67, p=42 for the measure of relative Rands spent on familiar versus unfamiliar brands and Q (1 df) = 0.60, p = .44. The Q statistic is distributed as a chi square with 1 degree of freedom.

In addition, the meta-analysis pooling across Experiments 1 and 3 confirmed that, consistent with my predictions, there was no reliable difference between the online condition and the offline without taste condition on either the measure of relative Rands spent on familiar vs. unfamiliar (Z = 1.36, p. = .09) or the measure of total units of unfamiliar brands selected out of five chocolates (Z = -0.32, p = .62). The results implications are in line with my predictions that the online and offline conditions would exhibit similar results that more familiar brands would be bought than unfamiliar brands in these two conditions.

Nor was there any evidence of statistically significant variation across the Experiments 1 and 3 on either the measure of relative Rands spent (Q (1 df) = 1.96, p = .16) or the measure of number of units of unfamiliar brands chosen out of 5 (Q (1df) = 2.20, p = .14. The implications are that the studies are not significantly different but that they are similar and that there is minimal variation between study variability (Higgins & Thompson, 2002).

7.6. General Discussion

My study explored the effect of purchasing environments, online, versus offline, environment, on the choice of familiar and unfamiliar brands. The premise of the study is based on the accessibility-diagnociticity model. The accessibility-diagnosticity model states that the weight given to any piece of information which would be used for consumer decision making depends on the accessibility of the input or information, the accessibility of alternative inputs and diagnositicity or perceived relevance of the inputs (Alba, et al., 1991; Feldman & Lynch 1988; Herr, et al., 1991; Lynch, et al., 1988; Lynch 2006; Simmons, et al., 1991). Brand associations are diagnostic for choice when it separates the best alternative from the rest (Lynch, et al., 1988) and this is related to familiarity or recognition as it is a remarkably useful way to make decisions (Goldstein & Gigerenzer, 2002). A brand that is familiar will tend to be favoured as familiarity signals that it is tried and trusted and brand-name familiarity tends to facilitate consumer choice (Holden & Vanhuele, 1999). When consumers are low in knowledge, they may use mere familiarity as a heuristic in selecting a brand (Hoyer & Brown, 1990). My findings suggest that the accessibility-diagnosticity model is applicable when one compares offline and online shopping environments. The quantity and amount of information available to consumers is different in the two shopping environments (online vs offline). When the diagnostic information is not available or deficient especially in the online environments, consumers rely on their brand knowledge to make purchase decisions, as the results of my study suggest.

7.7. Information Type and Quality

In a perfect shopping environment, consumers have all the information needed in a consumer decision making process and have the cognitive capacity of knowing and comparing everything (Derbaix, 1983). In the three (3) experiments (Experiment 1, 2 & 3), the purchase condition, offline with taste had more information than the other two conditions (Online and Offline without taste). In the offline with taste condition, subjects had the privilege to touch, smell and taste the products before deciding to purchase. My conclusions from Experiment 1 and the meta-analysis indicate that due to the extra information provided, (offline with taste condition) subjects were inclined to purchase more unfamiliar brands in the offline with taste condition. In real time shopping, consumers deal with situations where they have incomplete information and consumers develop strategies to deal with risky choice situations (Derbaix, 1983). In shopping environments which have relatively impoverished information quality, brands names are relied on heavily in decision making.

7.8. Risk and Online Shopping

My study contributes to the research questions on how and why the brain's valuations system treats displays (or shopping environments) differently (Bushong, et al., 2010). Online and offline shopping environments provide varying quantity and quality information for consumers and this differs for search, experience and shopping good. Studies have recommended that marketers develop strategies to address the online shopping risks (Forsythe & Shi, 2003). Online shopping offers benefits ranging from saving money and

time, but online shopping is perceived to be risky (Miyazaki & Fernandez, 2001; Zhou, Dai, Zhang, 2007; Liao, Liu & Chen, 2011; Chang & Wu, 2012; Forsythe & Shi, 2003; Laroche, et al., 2004; Chang, et al., 2005). The main risks identified are financial, time, performance, social and psychological risks (Laroche, et al., 2004). One of the contributing factors to increased perceived risks is that consumers are not in a position to physically examine all products when shopping online (Forsythe & Shi, 2003; Huang, et al., 2004; Laroche, et al., 2004; Aghekyan-Simonian, et al, 2012; Wood, 2001). In my study, shopping environments were manipulated with the provision of more or less information and this is line with other studies (Bushong, et al., 2010). My study results ascertain that in online shopping situations where the information is impoverished and non-brand information is not diagnostic, consumers rely more on brand information to make purchase decisions.

7.9. The Role of Brands in Mitigating Risk

The risk relievers include "product demonstration, purchase of cheaper brands, special offers, reading information on the packages, consumer magazines or reviews, buying a well-known brand, shopping around, brand loyalty, celebrity endorsement, store image, free samples, money-back guarantees, government testing and word of mouth" (Greatorex & Mitchell,1994,p.675). Other risk reduction methods are money-back guarantee, advice of friends and relatives, salesman's advice, expert advice, major brand image, and buying the expensive model (Derbaix, 1993).When quality or consumption utility is difficult to assess, brand name serves as a surrogate (Alba, et al., 1997; Derbaix, 1983; Cases, 2002; Lee & Tan, 2003; Aghhekyan, et al., 2012). It has been suggested that a brand name has the capacity to reduce risk in the traditional offline shopping and that it can also reduce certain types of risk

(security & service) in the online shopping environment (Huang, et al., 2004). It should be mentioned that some of the risk relievers are product specific and cannot be generalised (Derbaix, 1993; Greatorex & Mitchell, 1994). My results support the idea that in situations where consumers do not have all in the information needed, brand familiarity is used to reduce various risk perceptions.

7.10. Theoretical Implications

My study extended theoretical and empirical work of the accessibility-diagnosticity model. The role of brands in the online and offline shopping environment for such products like chocolates was used to examine the relative importance of brand familiarity or unfamiliarity on consumer decision making. The findings of my dissertation extend the theory of the diagnosticity of information (Alba, et al., 1991; Feldman & Lynch, 1988; Herr, et al., 1991; Lynch, et al., 1988; Lynch, 2006; Simmons, et al., 1991). When consumers perceive that they do not have enough information to separate the best alternative from the rest, they would not make a decision unless the brand is familiar.

The findings from my research offer fresh insight with respect to the role of familiar and unfamiliar brands. Familiar brands have greater advantage in online shopping than unfamiliar brands, particularly for experiential products like chocolates. The theoretical contributions from my work could be summarised as follows in three ways:

Firstly, the dissertation characterises the fundamental differences in reliance on brand familiarity as a cue to decisions in the online shopping environment. My study results support the framework that diagnostic information is critical for decision making and that brand familiarity plays a larger role when the shopping environment provides less diagnostic sensory information. My experimental designs pinpointed the role of the diagnosticity of non-brand information as the key to the different role of brand familiarity online versus in information rich offline environments. I did so by including an offline without taste "control" condition in all of my experiments. As I predicted, decision making in this environment largely paralleled decision making in the online environment. Both of those environments lacked diagnostic sensory information.

Secondly, and relatedly, my conclusions support the concept that familiar brands have a bigger business advantage over unfamiliar brands in the purchase environment where diagnostic information is limited. One of the factors that influence consumer decision making is the amount of information to which consumers are exposed. With the advent of the internet, we now have consumers making their purchase decisions in the online and offline environments. The online environment has brought opportunities and challenges. The challenge of the online environment is that some product categories have limited capacity to provide touch, smell and taste. In purchase situations of this nature, consumers rely on brand familiarity to make decisions or they would not make a decision if the brands are unfamiliar.

Thirdly, my results support the notion that brands are used as cues to reduce perceived risk. My dissertation provided empirical evidence of brand inferences by showing that when consumers are exposed to shopping environments with only familiar or unfamiliar brands,

consumers would rather spend more on familiar than unfamiliar brands. In such situations, consumers have to use the information available and one of the important heuristics used, is the brand name. My results imply that familiar brands have an advantage over unfamiliar brands in the online environments where certain types of information are not available.

This leads to the conclusion that it is a wise decision for firms to invest in building brands and brand familiarity. Choosing a relatively familiar brand is an important heuristic in consumer decision making, particularly in the online shopping environment. My findings provide practical implications for online retailers and manufacturers as I explore in the next section.

7.11. Implications for Manufacturers

E-commerce or selling products and services online has resulted in opportunities and challenges for businesses. Outcomes from my study have the following implications. Firstly, it can be inferred that manufacturers of unfamiliar brands or new products need to understand the challenges of channel choices, online versus offline. My study suggests that the business returns to brand familiarity are greater online than in enriched offline environments. In the online channel, manufacturers of familiar brands have higher probabilities to reach greater sales and revenue than unfamiliar brands.

What then, should the manufacturer of an unfamiliar brand do? To make money through the online channel, manufacturers of unfamiliar brands need a substantial promotional and advertising budget to build the brand and create awareness. Unfamiliar brands sold online need to find ways to enhance sensory information. The more sensory information is lacking and there are no other types of diagnostic information to compensate, the more one's brand need to be familiar to the target market.

Though I studied only "stimulus-based" choice environments where consumers did not have to remember brands to find them, in the real world, consumers have to know something about a product and remember it in order to think to buy it (Alba, et al., 1991). Brand familiarity also affects the probability of inclusion in consumers' consideration sets. Familiar brands have relative advantage in being part of the consideration set than unfamiliar brands.

I have noted in several places that some authors argue that information is inherently better online than offline (cf. Simonson & Rosen, 2014). There are circumstances when that may be true (e.g., if consumers perceive online reviews to be highly diagnostic, and these are more available online than offline). In such instances, I would expect the opposite implications for managers – less reliance on brand familiarity online than in offline channels.

However, in markets like chocolates that I studied where sensory information is critical, if the product or service is not familiar, the manufacturer of an unfamiliar brand has more incentive to spend money to build a brand if selling through online channels than if selling offline. The more a brand is well known or familiar to the target market, the greater chance it stands to be

in the choice set for brands which would be classified to be high on search attributes, manufacturers should consider providing non-search attribute evaluation criteria. To reduce online risks for new products, testimonials, opinion leaders, brand ambassadors would provide extra information to inform prospective buyers on the quality of unfamiliar brands.

7.12. Implications for Retailers

My findings also have implications for retailers seeking to maximize revenues and profits. Some retailers may sell a mix of familiar and unfamiliar brands (as in my Experiments 1 and 3) and some may specialize in familiar brands or in unfamiliar brands. In the case of mixed inventories, the retailer should expect faster inventory turns and more Rand sales from familiar brands than unfamiliar brands, but particularly in online environments lacking sensory information. Familiar chocolates sold online have an advantage of raising more sales than unfamiliar brands. For retailers who have a combination of familiar and unfamiliar brands, should increase the tilt of their merchandise mix to be relatively more heavily weighted to familiar brands versus unfamiliar ones if they are selling online than if they were making merchandising decisions for an offline brick and mortar store that provides access to sensory information.

Secondly and relatedly, for retailers, the results imply that it is hard to make money on unfamiliar brands in the online environment. For online retailers to make sales, they would rely on familiar brands. My results in this study indicate that businesses stand a better chance to raise more revenue online if they sell familiar brands than unfamiliar brands. My results

contradict to Anderson's (2005) long tail theory which proposes that the online channel increases the ability to sell and make profits from niche offerings (unfamiliar brands). The long tail theory states that internet-based e-commerce retailers or online retailers are able to stock large inventories than offered in conventional stores and because of these, the bulk of their sales are derived from the vast catalogues of less-popular titles and collectively sell more than the most popular titles (Anderson, 2004). In other words, the Long Tail theory claims that you can sell more unpopular things on the internet. This theory claims that the conditions of selling through an online channel refutes the Pareto rule which states that 80% of sales come from 20% of titles or consumers. A subsequent study showed that success or sales still concentrated on the fewer best-selling titles (Elberse, 2008) indicating the familiar brands or products evoke more sales than unfamiliar ones and further states that the customers buying unfamiliar items were the main purchasers of familiar items. It is however true that online shopping has increased customer's access to a broad range of brands, products and variety but it difficult to make profit from the tail (Elberse, 2008).

Thirdly, online retailers who are carrying unfamiliar brands should provide as much information as they can. The online environment has limitations where consumers are not able to touch and taste and smell products. Creative media are required to make the online shopping environment be as close as possible to the offline shopping environment. This is more relevant for credence and experience products (Alba, et al., 1997). The internet has altered product classifications as some products which were experience goods are search goods, e.g. CD's as consumer are able to listen to the music online before purchase (Klein, 1998) as the Internet may deliver experiential value to consumers (Jeong, Fiore, Neihm & Lorenz, 2008).

7.13. Limitations and Future Research

All research is limited in the degree to which one can generalize the study findings to new situations. My studies are no different, and there are many particulars of my experiments that might differ from other markets. For example, I studied only choices among chocolates, I collected data only in South Africa, and choices were hypothetical (i.e., consumers were asked to choose as if spending their own money, but they were not spending real money.

Nonetheless, I believe results from the experiments can be generalised as the study has external validity at the level of constructs (Lynch, 1999). The experimental constructs were designed to test the interaction effects of the offline and online shopping environments, which were manipulated in terms of the quantity and quality of information, in the choice of familiar and unfamiliar brands. I expect my findings to be generalised to other experience goods, upon conceptual replication of my study.

The point of my thesis is that the relevant construct to consider in predicting the role of brands is not whether the channel is online or offline per se. What matters is how that channel for that particular product category provides diagnostic non-brand information. As noted, the onset of the internet and social media, online experts, reviewers, YouTube demonstrations, Facebook, blogs, online reviews and internet search results provide familiar and unfamiliar options, and this has changed the accessibility and diagnosticity of information before a product or service is acquired (Simonson & Rosen, 2014). Future research should explore the effects of these new sources of information on consumer decision making in the offline and online environments (Simonson, 2015 (in press)). Perhaps the question of the role of brand familiarity will turn on whether, in the online shopping; consumers base their decision on

reviews from other consumers and expert reviews and results in the erosion of the influence of brands, loyalty and persuasion (Simonson & Rosen, 2014).

Secondly, the role of branding in mitigating risk can be dependent on the product class and the degree to which it is dominated by search versus experience versus credence attributes. I would not be surprised if my results would not be automatically generalised to search goods. Further studies should include a wider variety of brands from various product categories especially search products as this could be done to provide increased confidence in the findings with regard to the role of brands in online and offline shopping environments. This is keeping in mind that the search and experience goods might be redefined as the online environment is turning an increasing range of products from experience goods to search goods whose quality can be rather accurately assessed before purchase (Simonson, 2015).

Thirdly, one might argue that to those who are brand loyal, these would be relatively insensitive to store formats. They will buy their preferred brand even without significant sensory information (Alba, et al., 1997).

7.14. Concluding Remarks

My dissertation results indicate that in situations where the diagnostic information is not readily available, in particular in the online shopping environment situations, where non-brand information is limited, familiar brands have relative advantage over unfamiliar brands. When consumers are low in knowledge, they may use mere familiarity as a heuristic in

selecting a brand (Hoyer & Brown, 1990). In the present research, brand familiarity played a larger role in an online than offline shopping environment if, and only if, the other information available is perceived to be better offline than online. The results concur with other findings which suggest that marketers should display real products to potential buyers and allow more sensory interactions in shopping environments (Bushong, 2010).

There are differences in how consumers make purchase decisions in the online and offline environments. Information available to consumers in the two environments is not the same and brand familiarity may be relatively more diagnostic online than offline. This study focused on the role of brands in consumer decision making in the online and offline environments. The study explored where branding is more important in the offline or offline. The main underlying factor is the fact that there is limited sensory information available to consumers in the offline environment. There are cases where sensory information is no different online and offline, and this was investigated in my thesis.

The conceptual point is that brand familiarity has a bigger role when the purchase environment is informationally impoverished. Though I did not investigate this case in my thesis, when information is richer online than offline, I would predict that brands would be less important to online choice than to offline choice.

In the quest to understand how the quality of information influences consumer decision making, the concept of diagnosticity should continue to be explored. Information is perceived

as diagnostic for judgment if it helps the consumer in consumer decision making. In my studies, brand familiarity is regarded as diagnostic for consumer decision making for both online and offline, but the weight of this information depends on whether other diagnostic information is available. The assumption is that familiar brands have a higher likelihood to be chosen than unfamiliar brands. My findings suggest that marketers need to develop strategies to increases brand familiarity and hence brand choice when selling online. This thesis has argued that when consumers make decisions either to buy online or offline, the quality of information they have about a brand in a particular shopping environment has tremendous impact on whether they will buy offline or offline and in their selective demand for familiar versus unfamiliar brands. In many cases, this can be mediated by the increased role of brand familiarity in choice online.

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APPENDIX I.: E-COMMERCE IN SOUTH AFRICA

This appendix gives a brief overview of e-commerce in South Africa: 1) the introduction of the chapter; 2) e-commerce in South Africa; 3) concluding remarks. This intended to give a very broad sense of the context for my study.

2.1. Introduction

This chapter provides an overview of the South African development of e-commerce. South Africa (SA) is a country with two worlds: both the developed and the developing economy. The discussion covers the government policies with regard to the Information Communication and Technology (ICT) sector in section 2.2, and the status of e-commerce in SA in concluding remarks in section 2.3. This is a short snapshot of e-commerce in SA and is not critical to the development of the dissertation hypothesis.

2.2. E-commerce in South Africa

Electronic commerce in its broadest sense includes "all business activities that use internet technologies including the Internet, the Web, and Wireless transmissions on mobile telephone networks" (Mbatha, 2013, p.11). Studies indicate that internet access, telephone and computer ownership are critical in the development of electronic commerce, and political factors have a powerful influence on the spread of the Internet (Hawkins, 2005). Government

policies or lack thereof have an influence on citizens' access to the Internet through tariffs and other non-economic policies. The Information and Communication Technology (ICT) sector is important to the South African economy as it is seen as the avenue to reduce inequality between the have and the have-nots. ICT sector contributes significantly to the GDP. There are over 2000 companies operating in the IT industry in SA. South African IT industry was valued at R77.1 billion in 2011 and is expected to grow to R116 billion in 2016 (Green Paper, 2014). On the African continent, SA leads in terms of internet penetration, delivery infrastructure and credit card usage. The following section reviews the South African government policies and Information Communication Technology (ICT).

2.3. Government Policies and Implementation of Information and Communication Technology.

Information technology includes the software and hardware used to store, retrieve and process data (Green Paper, 2014). In 1996, the government of SA passed the Telecommunications Act to improve nationwide access to telecommunications in SA and this was expected to translate to productive influences on healthcare, education, rural development, youth development and improvement in social service delivery (Singh, 2010). The main players were the Department of Communications, South African Telecommunications Regulatory Authority (SATRA), the Universal Service Agency (USAASA), the Department Science and Technology, and the Department of Trade and Industry. Later the Independent Communications Authority of South Africa (ICASA) was created in 2005. With all of these members, Information and Communication Technology in

SA faces issues from bureaucratic incompetence, contradictions, incoherence of government policies and its inconsistencies and short comings in implementation (Singh, 2010).

E-commerce policy started in 2000 when the government published a policy paper called "Green paper on e-commerce." The government of SA circulated the Green paper in 2000 on telecommunications that focused on promoting universal and affordable provision of telecommunication services (Singh, 2010). The Green paper set out rules to govern e-commerce with the objectives of bringing various prospects and opportunities of e-commerce to ordinary South Africans and building trust and confidence in the security and privacy of transactions performed electronically. E-commerce policy framework was further enhanced by the Electronic and Transactions Act (ECTA) in 2002 which laid out the legal framework of electronic transactions.

2.4. E-commerce: B2B:

E-commerce in SA has grown from R2 billion Rands spent on online shopping in 2010 to R2.8 billion in 2011 (Green Paper, 2014). The conclusion of a study done on South African businesses was that there was little empirical evidence on the benefits of ecommerce in SA apart from the reported improvements in communications (Molla & Heeks, 2007). On the other hand, the airline industry has fully embraced e-commerce with e-ticketing as online sales soared to R9 billion in 2011 (World Wide Worx, 2014). It is estimated that there are over 410, 000 small and medium enterprises with websites in SA. A recent study stated that the challenges that impede e-commerce adoption by businesses in SA revealed "lack of trust

in e-commerce including lack of privacy, high cost of e-commerce strategy, limited funds and lack of skills to manage e-commerce" (Mbatha, 2013,p.21).

2.3.3. E-commerce: B2C: Online Shopping in South Africa.

Online shopping in SA is in its infancy but is growing. One study estimated that the Internet economy was contributing about 2% to the Gross Domestic Product (GDP) and it estimated that e-commerce is growing at a rate of about 30% per year (World Wide Worx, 2014). The leading retail sites visited in SA include Kalahari, Amazon, bidorbuy, computicket, picknpay, eBay and Woolworths (Effectivemeasure, 2014). Research by Effectivemeasure (2014) reveals that the majority of online shoppers are from Gauteng Province, about 4% of them purchase weekly, 45% have a university undergraduate degree and 9% of them have average household income of R70,000 per month. It is worth noting that the shoppers use multiple devices for online shopping - mobile phones, tablets, iPads and computers. Internet usage has grown from 6.8 million in 2010 to 8.5 million users at the end of 2011 and the introduction of smart phones has contributed to easy access as more than 7.9 million South Africans access the internet using their cell phone (World Wide Worx, 2014). Online banking is one of the popular online activities and books are the main items purchased online in addition to airline tickets, events, hotel reservations and computer software. This indicates that at this stage there is low penetration of products with experiential and sensory qualities. Reasons for purchasing online include competitive prices, high quality of products, bigger selection of available products and greater product information (Effectivemeasure, 2014).

The unemployment rate in SA in the second quarter of 2014 was 35.1% which is about 8.2 million people in a population of 53 million. The majority of the unemployed are Africans. Online retailers currently do not deliver to all households in SA. They deliver in specific areas and not to townships where most Africans live, due to inadequate or non-existent street names. The average monthly earnings in SA for December 2013 was are about R14, 911 per month (IRR, 2014) and for those who shop online, household income is above this income, indicating that online shopping penetration is very low.

3. Concluding Remarks

E-commerce is growing in SA as more consumers and companies are embracing the use of internet technology. The Internet is changing the landscape of doing business in SA. With the expected growth of e-commerce and online shopping, my research question becomes more relevant to the South African economy. Here and worldwide, it is imperative to understand the role brands play and will play in consumer choice as it has implications for retailers and manufacturers.

APPENDIX II: REVIEW OF CONSUMER BEHAVIOUR THEORIES

This section briefly discusses the main theories of consumer behaviour and how they have evolved over the years. This is an expanded version of the brief review in section 2.2, intended to show my understanding of the broader literature in consumer behaviour. The material in this section is not directly related to any of my predictions. The South African system is like the British system, where the thesis is the primary work product for a PhD. and so the thesis is used to demonstrate broader expertise beyond the specific research questions addressed.

Consumer behaviour became a separate field of study in the 1960's with two main broad paradigms, the positivist approach and the non-positivist approach (Pachauri, 2001). Consumer behaviour has been defined as "activities people undertake when obtaining, consuming and disposing of products and services." (Blackwell, et al., 2006, p.4.). It has been argued that understanding and predicting consumer behavior is a critical input in the segmentation strategies of firms and for the development of their marketing strategies.

The non-positivist approach became popular in the 1980's. As a mainly qualitative research approach, it focuses on the symbolic and subjective experiences with no single unified world view (Anderson, 1983, 1986; Pachauri, 2001). The non-positivist approach has been

criticised as arguments are discussed at a level abstracted away from key marketing concepts and practical issues of concern to marketers (Hunt, 1993; Kavanagh, 1994).

Bounded Rationality Perspective and Behavioural Decision Theory

In the late 1970's, consumer researchers from the positivist approach understood economists to argue that consumers are rational beings. Furthermore, it was assumed that rationality required that consumers obtain complete information on the alternatives, make trade-offs of costs versus benefits of searching that allow for computing trade-offs for each alternative, and select the alternative that maximizes utility (Bettman, 1979). An economist argued that buyers seek the most utility or satisfaction according to prices and that the lower the price of a product, the higher the sales (Marshall, 1890). The consumer was seen trying to "optimise" – to use complete information to choose the alternative that was highest in expected utility.

The general decision making model was criticised and a more realistic perspective was advanced – consumers were not "rational" but they are "boundedly rational" (Simon, 1955). The argument was that decision makers have limitations on their abilities for processing information. Limitations include limited working memory and limited computational capabilities (Bettman, el al., 1998). The theory of bounded rationality advocated that consumers use heuristics to limit information processing and this also depends on the availability and processability of information (Bettman, 1979). This perspective evolved into what is sometimes now called "behavioural decision theory," which emphasizes the role of the external environmental factors in the process of information learning, which causes

behaviour (Pachauri, 2001). Various studies led to the understanding that consumer behaviour as a combination of consumer psychology (motivation, perception, learning, attitudes, demographic factors), sociology (social class, family, reference groups, cultural anthropology), and consumer (behavioural) economics. Consumer behaviour models include the personality, attitudinal and situational influence perspectives. In conclusion, the boundedly rational choice theory has contributed greatly to the prediction of consumer decisions (Bettman, et al., 1998).

Generic Decision-Making Perspective

Many researchers build models about the decision making process as an activity that occurs inside the black box (Yoon, et al., 2012). The "black box" phenomenon indicates that the consumer decision process has an input, process (black box), and output stages (Schiffman, et al, 2010; Howard, 1969). The models based on behavioural science state that what happens in the black box can only be inferred from the output, if the black box is the actual buying decision (Sammer & Wüstenhagen, 2006). The input stage factors of the black box include "personal factors (demographics, marketing mix factors (product, price, place, promotion), psychological factors (motivation, attitudes, learning), sociocultural factors (culture, subculture, class) and social factors (family, reference groups, opinion leaders, social roles) and situational factors (environment, present mood, time, buying purpose)" (Schiffman, et al., 2010. p.37).

A generic model of decision making under high involvement, found in many textbooks, states that consumers go through a process that starts with problem recognition, followed by search for information, alternative evaluation, choice, post-acquisition evaluation and learning from feedback (Schiffman & Kanuk, 2007). Problem recognition occurs when a discrepancy develops between an actual and a desired state due to product depletion, failure of the previously purchased product to meet expectations, or changes in goals, aspirations, or circumstances.

At the search stage, the actions are taken to identify and obtain information to solve a consumer's problem. The search can be internal, (i.e., the retrieval of information from long-term memory) or external, acquiring information from outside sources. Some of these sources are outside the control of marketers, such as friends and books. Other external information is marketer-dominated, such as information available in advertisements, packages, in-store displays, brochures, the price, the type of store in which the product is sold and now how the information is provided on the Internet.

The factors that influence external search include the ease of acquiring external information, brand loyalty, time available, perceived risk and attitudes toward shopping, education levels, income levels, culture and social class. The first two of these will figure prominently in the research proposed here: information and brand loyalty. As the perceived risk of a purchase decision increases, consumers search for more information in order to cope with uncertainties about the potential positive or negative consequences (Park & Stoel, 2005). Internal search involves search of memory for information acquired from personal experience or by observing others use the product, both for alternatives for inclusion in the "consideration set"

(Alba, et al., 1991; Nedungadi, 1990; Mitra & Lynch, 1995; Park & Stoel, 2005) and for information about the considered alternatives (Ahluwalia & Gürhan-Canli, 2000; Feldman & Lynch, 1988; Lynch, et al., 1988).

There is a trade-off between internal and external search. If search costs are high, people may make inferences to fill out incompleteness of information rather than searching externally. But, on the other hand, if other information is available or if motivation is low, people abide by a "principle of concreteness" (Slovic, 1972), relying on the information present at the time of decision.

After search comes an evaluation stage. The consumer compares options and forms beliefs, attitudes and intentions about the alternatives under consideration. The goal is to gain information needed to make the final choice. The evaluation stage refers to a weighting of the pros and cons of alternatives in the consideration set.

The choice stage occurs when the consumer makes a choice among the alternative brands and services and stores. The distinction between "evaluation" and "choice" stages is somewhat artificial, coming from an era when it was understood that people weighed information about each alternative considered to form some overall evaluation, then compared those evaluations. Research shows that there are many ways that people may combine information in the choice stage, only some of which involve use of overall evaluations (Bettman, 1982). Lynch and Srull (1982) stated that in the real world, consumers often make choices in which

some or all of the relevant information is directly present when the choice is made or is recalled from memory.

Following choice, the consumer receives feedback that leads to satisfaction or dissatisfaction, and learning that influences how similar choices will be made in the future. When consumers buy products and services, they have certain expectations with regard to the benefits that will be derived from consumption. The consumers are either satisfied or dissatisfied, either their expectations are met or not met or this has impact on re-purchase behaviour. When the gap is large between expectations and the product's performance, the greater is the consumer's dissatisfaction. The degree of satisfaction from a decision at time *t* affects decision making on the next occasion *t+1* (Alba et., 1991). Satisfaction leads to curtailed external search on the next buying occasion, as the consumer relies on preferences for the satisfying products and services now stored internally in memory rather than searching for external information.

The Cognitive Perspective

In the 1980s, the cognitive perspective of understanding consumer behaviour emerged, which stressed the role of information processing in consumer decision making (Biehal & Chakravarti, 1983; Lynch & Srull, 1982). The cognitive perspective of consumer behaviour was further expanded by the concept of high and low involvement in decision making, and it was argued that this process involves extensive or active information processing (Engel, Blackwell & Miniard, 1986). Consumer decision making is seen as an output of processing information as a part of the rational problem solving and decision making processes

(Pachauri, 2001). One of the core ideas in information processing theory is that of the "difficulty of consumers' decision making being influenced by how information is made available in the environment" (Bettman, et al., 1979, p.52). Information stored in memory must first be retrieved before it can be considered in making a particular decision (Lynch & Srull, 1982).

According to Alba et al., (1991), research on consumer decision making from a cognitive perspective addresses four main questions:

1. Which of the available brands or alternatives are considered, and why?

2. What information is processed in evaluating each brand considered, and why?

3. How are these inputs combined to arrive at a final choice?

4. How do memories of past decisions alter the answers to questions 1, 2, and 3? Alba et al., (1991, p. 2),

With respect to the first of these issues, theories on information search in general acknowledge that it is not rational to search for complete information on all alternatives. Broadly, the main idea is that the consumer who has searched *n* alternatives should compare the difference in expected value of the best of *n* alternatives versus the slightly larger expected value of the best of $n + 1$ alternatives. If the cost of searching for the last $(n + 1)$ alternative is too big relative to the expected benefit, search terminates (Hauser & Wernerfelt,

1990; Ratchford, 1982; Stigler, 1961, 1962; Weitzman, 1979). This dissertation does not address consideration set formation.

Though not the focus of this dissertation, much work on consumer decision making has focused on the third of these questions: How are the inputs combined to arrive at a final choice? Consumers choose different combination rules and rely on different heuristics depending on task difficulty. The "consumers' choice and the particular choice combination rule used to make the choice depend on i) the number of alternatives and attributes, ii) some specific attribute values which are difficult to process, iii) the uncertainty about the values of many attributes, and, iv) when the number of shared attributes are smaller" (Bettman, et al., 1979, p. 51). Consumers use compensatory and non-compensatory models. A compensatory strategy is one in which a good value on one attribute can compensate for a poor value on another and consumers engage in trade-offs among attributes (Bettman, et al., 1998). On the other hand, the non-compensatory rule is where a positive evaluation on one attribute cannot make up for a poor value on another. For example, if one is looking for house, and a swimming pool is an important attribute, the lack of it or the poor state of one will not be substituted, even though the price for a house would be fair. For a low-involvement choice like buying staple foods like bread, consumers use conjunctive, elimination by aspects, and lexicographic heuristic rules. Work on choice stage combination rules, compensatory and noncompensatory rules (e.g., Payne, Bettman & Johnson, 1988) are not the focus of my research, and are not discussed further.

My thesis is more focused on the second and the fourth of the issues identified by Alba, et al. (1991) as discussed above which are framed as follow: 3) how are these inputs combined to

arrive at a final choice? and 4). How do memories of past decisions alter the answers to questions 1, 2, and 3? To explore the question of what information is processed in evaluating each brand under consideration, I am interested in brand name and price, and how the use of these cues varies across shopping environments with different non-brand sensory information. Branding is itself a topic related to the fourth question of how memories of past decisions dictate what information is evaluated for considered brands. I would note that when consumers rely on brands as a shortcut to make decisions, rather than searching for information on more fundamental "engineering" attributes of products, this can be construed as broadly consistent with bounded rationality.

Social Cognitive Perspective

Of the many social sciences that have influenced consumer behaviour researchers, psychology has had the greatest impact in understanding consumer decision making. In the late 1970's and 1980's, a separate stream of consumer research emerged that came not from a critique of economic conceptions of rationality but from social psychological work on basic cognitive processes influencing person perception, stereotyping, and a variety of other social phenomena. In this work, there was no focus on how "rational" decisions are, but rather on describing how memory, attention, comprehension, and related basic cognitive processes determined social judgments. The psychological factors studied include "motivation, attitude, learning, beliefs, emotions and perception"(Sciffman, et al., 2010), p.37). Concepts and findings from this literature were applied to better understand consumer decision making.

The focal topics in the social cognitive approach include understanding the roles of consumer attitudes, persuasion, information processing and memory and attention in choice (Alba, et al., 1991; Lynch & Srull, 1982; Simonson, et al., 2001). This is due to the fact that consumers use heuristics like brand familiarity to make a brand choice rather than collecting all the information about the product and brand categories, evaluating all the information and then making a decision.

In this dissertation, I rely more on the literature from the social cognition perspective – emphasizing underlying psychology– rather from behavioural decision theory. In particular, I rely on the accessibility-diagnostic framework (Feldman & Lynch, 1988) for a theory of what determines the weight of an input (such as brand familiarity) in decisions. That framework was discussed in Section 3.4).

Consumers are faced with alternatives that are constantly changing due to new technologies and competitive pressures and there is often a great deal of information available from many sources like the Internet (Simonson & Rosen, 2014). It is critical to understand the determinants of how attention is devoted to information that is perceived to be relevant to current goals, or "diagnostic," in Feldman and Lynch's (1988) terms. At a given moment, information can be available in the consumer's memory as well as in the external environment, and consumers make decisions depending on the available information

Decisions can be either "stimulus-based", "memory-based" or "mixed." When all information is available externally, this is considered to be a stimulus-based decision (Lynch & Srull,

1982). For example, if the consumer stays on a single web page to make a choice, and gets all necessary information from that web page, she is not using memory to generate a consideration set and thus she may rely on the attribute information explicitly provided rather than prior knowledge. On the other hand, a decision made using only information available in memory is a memory-based decision. "Mixed" decisions use both information from memory and information from external sources.

Consider a consumer who is choosing online from a set of alternatives on a web page. Information available externally on the web page may be incomplete and inferences may be made about missing information (Huber & McCann, 1982; Jaccard & Wood, 1986). For example, if information about product quality is presented for a plasma TV, the consumer may infer quality from the brand name "Samsung." Consumers may wish to have a complete set of information about the brands and attributes they choose to consider, but this is not normally the case. When there is missing information, decision makers respond in a variety of ways and consumers infer the missing value based on other available information (Dick, Chakravarti & Biehal, 1990; Kardes, Cronley, Kellaris & Posavac, 2004)

Decisions that are based on information from memory are influenced by the characteristics of the memory. Consumers will use information from memory to make a choice when some or all of the information options had to be retrieved from memory, particularly if that information is both accessible and more diagnostic than other accessible information (Feldman & Lynch, 1988). Any given cue (such as brand name) will be weighted less in decision making the more accessible and the more diagnostic the alternative (non-brand) information that occurs to the consumer.

This raises the question of what determines whether the consumer perceives that non-brand information (available externally or internally) is sufficiently diagnostic. Here we may speak of the "quality" of other information. According to Bettman, et al., (1991), the quality of information is an important aspect in decision making and there are two issues to consider: the availability and processability of information. Processability refers to the ease with which information can be comprehended and used. Availability refers to the level of access a consumer has to process the information. For example, a consumer might be in the market to buy a vehicle. In an offline environment, the consumer can test drive the car to assess and evaluate the leather seats, the comfort of the car, or the performance. In the online environment, the consumer would not be able to assess the performance information and would have to rely on Consumer Reports or the information provided by the seller. Processability of information is a function of the way the information is presented, organised and formatted to facilitate processing.

The focus of this dissertation is on how decision making differs offline versus online. One of the key differences is in the nature of the information displays. Information displays can be organised in a manner that can have a major impact on consumer decision-making. When consumers rely on external rather than internal search, the format used to present information affects the processing of that information and information can be presented in matrix format, by brand or by attribute (Bettman & Zins, 1979). Information providers should understand how consumers utilize information presented in different formats and how different types of choice task affect consumers' reactions and perceptions of product performance (Bettman & Zins, 1979). The proceeding sections gave an overview of consumer behaviour and how consumer research has progressed with new theories and concepts of understanding consumer decision making. The last part of the review focussed on the importance of the information

consumers have or are exposed to and how this influences their decision making. This research did not consider information format but focused on the influence of the type of information and its effect on how consumers use brand information in their choices. The proceeding section reviewed the main theories of branding and how brands influence consumer decision making.

APPENDIX III: REVIEW OF GENERAL E-COMMERCE STUDIES

This section is an add-on to section 2.5 of Chapter 2 and briefly discussed the major differences between offline and online shopping environments and online adoption behaviour studies from the Information Systems discipline which is not the focus of my study. This is intended to show my understanding of the broader literature in e-commerce.

E-Commerce Studies

With the Internet, several models and theories have been propagated to understand online consumer behaviour, emphasizing themes largely unrelated to my focal issues. These models include the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB). Based on Fishbein and Ajzen's Theory of Reasoned Action (TRA), TAM assumes that beliefs about the computer system influence attitudes, which in turn lead to intention, and then generate behaviour to use a system (Stafford, Stafford & Schkade, 2004; Shang, Chen & Shen, 2005). Both TRA and TAM assert that the influence of external variables upon user behaviour is mediated through user beliefs and attitudes. Beliefs relate to a person's subjective assessment that performing some behaviour will result in specific consequences whereas attitudes relate to an individual's positive or negative affective feelings about performing the behaviour (Shang, et al., 2005). TAM is widely applied to explain the usage behaviour of information technology and these models (TAM, TRA, TPB) are significant

predictors of actual participation in e-commerce (Kim, et al., 2008) The main constructs are perceived usefulness of using online information system and the attitude to information technology as both have effects on the behavioural intention and real behaviour (Lin, Wang & Hwang, 2010). TAM emphasized more that the consumer behaviour was influenced more easily by the conditions of the information system which ignored the social and personal psychological factors that influence consumer behaviour (Lin, et al., 2010).

The Theory of Planned Behaviour (TPB) aims to understand and predict behaviour. Fishbein & Ajezen (1975 in Liang & Lim, 2011) had suggested that intention can be understood by stipulating that action is influenced by attitude, subjective norms and cognitive control. Behaviour is therefore the result of reasoned processes influenced by those three constructs; attitudes (positive or negative perception and evaluation of behaviour), subjective norm (perception of whether people important to the individual think the behaviour should be performed), and cognitive control (cognitive belief that one's individual behaviour is under one's own control) (Liang & Lim, 2011). The critique of the theory is that some elements are missing from the model, like past behaviour (Sommer, 2011). A great deal of research has been devoted to understanding consumer's online channel adoption, especially from the Information Systems discipline (Yang, Lu & Chau, 2013). This dissertation did not use the TAM or TRA or TPB but focused on brand familiarity and the Accessibility-Diagnosticity Model (Feldman and Lynch 1988), discussed in section (3.5.), and (3.7) respectively.

E-Commerce and Online Shopping

Like the internet, the development of information and communication technology (ICT) has the capacity to transform the economic and social development of countries (Bollou, 2006). Electronic commerce (EC) has been defined as the delivery of information, products and services (Hu, Shima, Oehlmann, Zhao, Takemura & Matsumoto, 2004) or simply the use of the internet to sell products or services (Doern & Fey, 2006). E-commerce is divided into business to business (B2B), business to consumers (B2C), consumer to consumer (C2C), business to government (B2G), consumer to government (C2G) and government to citizens (G2C). Despite the existence of different varieties of e-commerce, the two that are most important are B2C and B2B e-commerce (Rohm, Kashyap, Brashear & Milne, 2004) and this dissertation focused on B2C.

The use of e-commerce in both B2C and B2B commerce facilitates the reduction of both administrative and transactions costs (Rohm, Kashyap, Brashear & Milne, 2004; Rohm, et al., 2004; Sharma & Gupta, 2003; Elia, Lefebvre, & Lefebvre, 2007). The Internet has the capacity to reach customers quickly and directly through e-mail and offers the option to companies to sell directly to consumers (Dumrongsiri, Fan, Jain, & Moinzadeh, 2008). For buyers, the use of the internet and e-commerce reduces search costs, makes prices more transparent and competitive (Rohm, et al., 2004) and communication between suppliers and buyers is instant and cheap through e-mails and websites. E-commerce allows companies and individuals to have access to international markets and facilitates the integration of developing countries into the global economy (Okoli & Mbarika, 2003; Elia, et al., 2007).

Broad Differences between Offline and Online Shopping Environments

The following passages discuss the broad and main differences between Offline and Online shopping environments and how these might influence online consumer behaviour.

1. Location and Physical Evaluation before Purchase

All consumers have an experience of shopping offline for this traditional format of shopping has been around for centuries. The traditional or offline retailing is based on a physical store where the vendor interacts with the customer, the merchandise is displayed, and customers can examine products, sample, purchase and take home purchased items immediately (Chun & Kim, 2005). For the online shopping environment, there is physical remoteness from products as there is no direct examination of the product at the purchase location (Kim, et al., 2008; McCabe & Nowlis, 2003; Haubl & Trifts, 2000; Wood, 2001; Alba, et al., 1997). On the other hand, customers have to travel to and from the store and incur costs related to time and transportation. Operating hours and days of operation for offline shopping environments are often too limited, except for 24 hours outlets. For many years, location has been an important factor in retailing success but online shopping has reduced the importance of location and consumers can shop 24 hours, 7 days a week.

2. Consumer Benefits and Challenges of Online Shopping.

With the advent of the internet, the initial research papers looked at the trade-offs between online and offline shopping environments. The suggestions made where that consumers would not shop online unless the utility provided by online formats match or exceed the traditional formats (Alba, et al., 1997). Below are some of the general identified benefits and challenges of shopping online:

1. **Streamlined Processes**: The internet has created the ability for businesses to streamline processes and increase productivity. The internet has created new ways of creating and delivering products and services on global scale (music sold online).

2. Access to Global Markets and the outlets are open 24/7 (Liang & Lim, 2011; Chu, et al., 2010; Chun & Kim, 2005). The internet transcends time and geographical constraints.

3. Convenience and Efficiency. Convenience and efficiency are the benefits from e-commerce as geographical limitations are overcome as the whole world becomes accessible (Chu, et al., 2010; Shang, et al., 2005). People can shop online without leaving the comfort of their homes as e-commerce eliminates travel and its associated cost. Online and offline retail formats differ the utility (personal safety, entertainment, cost) consumers obtain from the shopping experience.

4. ***The Internet is an Effective Marketing Tool.*** Online catalogues, new products and services can be advertised on the internet. The delivery and transfer of information has dropped as there are no publishing and postage costs as these are reduced.

5. Wider Alternatives: a broader selection of products as there is virtually infinite "shelf pace" as there are no physical constraints to product display (Alba, et al., 1997; Chun & Kim, 2005). Online consumers have the opportunity to search for products and services from different merchant online. In the offline environment, this would require to move from store to the other. In the online environment, this can be done in one sitting.

6. Competitive Pricing Structure: Shang, et al. (2005) indicated that one of the benefits of e-commerce is competitive pricing. In the early stages of e-commerce, online retailers feared price competition and comparison shopping and online retailers were not willing to let their prices be compared easily with other websites (Lynch & Ariely, 2000). This has changed as online consumers are able to compare prices easily (Scarpi, Pizzi, & Visentin, 2014). Consumers can visit different online merchant websites or other websites which compare prices e.g. www.pricecheck.co.za. Consumers can use shopbots which are internet based services which provide "one-click" access to price and product Information from competing retailers (Smith & Brynjolfsson, 2001).

7. E-fulfilment: Online retailers have challenges in product delivery. E-fulfilment is limited as customers have to wait to have the product delivered though some products bought are delivered immediately (Chun & Kim, 2005; Wood, 2001; Schoenbacher & Gordon, 2002)

like music, online tickets, air time recharge for cell phones. For the products which are non-digital, customers wait for their purchases to be delivered for them to gather the experiential information that is present during the in-store purchase environment and online retailers have to deal with return policies and managing outback shipments and returned products (Wood, 2001, Schoenbacher & Gordon, 2002).

8. ***Greater Access to Information at Lower Search Costs*** (Petrescu, 2011; Chu et al., 2010; Xing, 2008; Chun & Kim, 2005; Alba, et al., 1997; Shang, et al., 2005). The issue is that consumers are exposed to more information online (Shanka, et al., 1999). Alba, et al. (1997) indicated the main attraction of electronic shopping was the reduction in search costs for products and product related information. One of the main distinctions between online and offline retails formats is that in the online setting, consumers are able to find price, product and store information much easier and faster than the traditional retail format (Petrescu, 2011). The other concept is that we are "moving towards an age of nearly perfect information due to review sites, shopping apps on smartphones, social media, access to experts "(Simonson & Rosen, 2014, p, 10-11). The information provision is the focus of this dissertation.

It has been hypothesized that consumer shopping behaviour in online stores may be fundamentally different from that of the traditional retail setting (Alba, et al., 1997). For example, by physically touching products in an in-store environment, consumers gain additional information that is not provided through the sense of vision in the online

environment (softness, weight, texture of a towel) (McCabe & Nowlis, 2003). The sections review the broad factors influencing online consumer choice.

Factors Influencing Online Shopping

The internet has become an important channel for companies to provide product information and offer direct sales to customers (Shang, et al., 2005). Online sales are relatively low compared to traditional offline retailing (Shang, et al., 2005). Consumer decision making differs between online and offline environments due to perceived risk, product risks, interactivity and the quantity and quality of information which is available in the environment. The discussion before highlights the main factors in the consumer decision making issues for the offline and online environment. Comparing to offline shopping situations, in online shopping, products are less likely to be evaluated by touch, smell and other sensual cues (Alba, et al., 1997).

Consumer Confidence and Trust.

Consumer confidence and trust has been identified as one of the major factors contributing to the slower online shopping adoption rates (The E-business Handbook, 2005). Surveys indicate that online shoppers value honesty, respect and reliability. Offline, shoppers can infer these characteristics are present as the shop keepers recognize customers and can win and restore the trust of customers when things go wrong or when they are out of stock or incorrect goods are delivered. In the e-commerce environment, stores do not offer this luxury and many Internet users do not trust online retailers. In the online environment, the buyer and

the seller do not interact face to face, but through a computer or cell phone or some other technology-enhanced device, and this can have implications for trust (Hoffman, Novak, & Peralta, 1999).

APPENDIX IV: TABLE 6: SAMPLE OF RANDOMIZED SHEET

Chocolate Study Randomization	
PARTICIPANT NUMBER	**ASSIGNED CONDITION**
1	2
2	1
3	3
4	2
5	3
6	1
7	2
8	1
9	3
10	1
11	3
12	2
13	3
14	1
15	2
16	2
17	1
18	3
19	2
20	1
21	3
22	1
23	1
24	3
25	1
26	2
27	3
28	3
29	2
30	1

APPENDIX V: EXPERIMENT 1

The Tables below give the results of the pre-test which separated familiar and unfamiliar brands. The detailed discussion is section 4.2.

Table 7: Pre-Test Experiment Results: Familiar Brands (highest means or average score)

Cadbury Dairy Milk	4.96
Cadbury Lunch Bar	4.96
Nestle Kit Kat	4.94
Cadbury Dairy Milk Top Deck	4.94
Cadbury Chomp	4.90
Cadbury Diary Milk Whole Nut	4.88
Ps	4.88
Aero	4.80
Flake	4.79
Jungle Energy Bar	4.60
Ferrero Collection	4.38
Lindt Lindor	4.37
Nestle Smarties	4.23
Toblerone	4.15
Snickers	4.13
M&M	4.13
Nosh	4.10

Table 8: Pre-Test Experiment Results: Moderate and Unfamiliar Brands (highest means or average score)

Black Cat	3.81
Niki	3.46
Lindt Swiss Tradition	3.04
Bounty	2.79
Beacon All-In-One	2.69
Beacon Supreme	2.62
Woolworths Mountain Bar	2.37
Kinder Beueno	2.29
Canderel Crisps	2.00
Cote d'Or Double Lait	2.00
Marks Spencer Swiss Chocolate	1.98
Daim	1.52
Amor	1.48
Walker Soft Toffee Chocolates	1.42
Bianco	1.27

Table 9: Familiar Brands: The Following Brands were Clearly very Familiar to Subjects

Brand of Chocolate	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1
Aero	47	4	1	0	0
Lunch Bar	50	2	0	0	0
Smarties	32	7	7	5	1
Chomp	49	1	2	0	0
Jungle Energy Bar	37	13	0	0	2
Kitkat	51	0	0	1	0
Ferrero	35	9	4	1	3
Flake	46	3	2	0	1
Toblerone	38	3	1	1	9
Cadbury Milk Top Deck	49	3	0	0	0
Cadbury Dairy Milk	31	0	1	0	0
Cadbury Dairy Milk Whole Nut	49	2	0	0	1

Table 10: Unfamiliar Brands: The Following Brands were Clearly very Unfamiliar to Subjects

Brand of Chocolate	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1
Bianco	1	1	1	5	44
Amor	0	1	8	6	37
Chocolate Fondue	0	1	2	7	42
Cupido	0	0	0	1	51
Daim	0	0	4	4	40
Marks & Spencer Swiss Chocolate	4	5	8	4	31
Marula Turkish Delight	1	1	1	3	46
Ritter Sport	1	0	1	3	47
Stock Merci	0	1	0	1	50
Walker Soft Toffee Chocolate	1	1	6	3	41
Sugar Free	0	0	1	1	50

Table 11: Experiment 1: Brands

Familiar Brands	Price (Rands)	Familiar Brands	Price (Rands)
Kinder	4.99	Top Deck	4.19
Bounty	5.99	Chomp	2.95
Daim	12.00	KitKat	5.99
Cote d'Or	12.00	LunchBar	4.99
Canderel	20.99	PS	4.99

Table 12. Post-Test Tasting Experiment: Ratings Template

Consumer Decisions for Chocolate[7]

Chocolate Brand	RATINGS						
	-3 Strongly Dislike	**-2** Dislike	**-1** Slightly Dislike	**0** Neither Like or Dislike	**+1** Slightly Like	**+2** Like	**+3** Strongly Like
1 Kinder (Unfamiliar)							
2 Bounty (Unfamiliar)							
3 Cadbury Top Deck (Familiar)							
4 Chomp (Familiar)							
5 Daim (Unfamiliar)							
6 Kitkat (Familiar)							
7 Lunchbar (Familiar)							
8 Ps (Familiar)							
9 Cote d'Or (Unfamiliar)							
10 Canderel (Unfamiliar)							

[7] Brand names and labeling of familiarity were not included on the sheet filled out by participants. Participants tasted the 10 samples in the same random order noted in the template above.

1. Participant Informed Consent Form for Experiment 1

Consumer Decisions for Chocolates

Thank you for agreeing to participate in this study. **You must be able to taste small samples of each of 10 brands of chocolates** without injury and that you have shopped online (internet banking, buying books, groceries, etc.) in order to participate in this study. You will be shown information about 10 brands of chocolates being sold at their regular prices and given the opportunity to say which brands you would choose. You are not obligated to purchase the brands you select, but it will be your option to purchase them at the posted prices at the end of the study.

Your task is to pick 5 bars of chocolates which you would buy from your own money. You can buy 5 bars of the same brand, or you can buy some combination of up to five brands BUT the total bought should be 5 bars. Choose any combination from the 10 brands. The entire study will take 5 to 15 minutes. Please do not discuss the quality of the chocolates or any information on the chocolates to other people. It is important that each participant gives unbiased answers when participating. Your task is to buy chocolates. You are free to leave the experiment at any time. You will be given one of the chocolate bars as a small thank you at the end of the study.

Before asking you to participate, we have four questions to ask to determine if you are eligible to participate.

1. Have you made a purchase over the internet in the past year? (Buying books, CD, internet banking, air tickets, etc.)

   ___Yes ____No

2. Do you eat chocolates and are you able to try 10 small samples?

   ___Yes ____No

3. Are you allergic to milk, nuts or other chocolate ingredients?
   ___Yes ___No

4. Are you diabetic?
   ___Yes ___No

Only those answering Yes to questions 1 and 2 and No to Questions 3 and 4 will be invited to participate. Those who are eligible and choose to participate will sign the form below.

I have read the research description, procedures and compensation. My participation is completely voluntary and I hereby agree to participate in this study and the University of Witwatersrand and researcher will not be liable for any damage or injury or loss or damages while participating in this study. I understand that my responses in choosing chocolates will not be connected with any identifying information about me and that my responses are entirely confidential. I further understand that **I cannot participate in this study more than one time**. If I have any questions about the study, I can contact the researcher, Yvonne Kabeya Saini at Yvonne.saini@wits.ac.za.

Name: _____

Signature_____

Date: _____

Contact Details: _____

2. Participant Instructions for Experiment 1

Consumer Decisions for Chocolate

Thank you for agreeing to participate in this study. **You must be able to taste small samples of each of the 10 brands of chocolates without injury. You cannot participate if you have an allergy to chocolate or to nuts present in some chocolate candies. Also, you must** have shopped online (internet banking, buying books, groceries, etc.) in order to participate in this study

You will be shown information about 10 brands of chocolates being sold at their regular prices and given the opportunity to **say which brands you would choose**. You may be asked to taste small samples of each of the 10 brands before choosing. You are not obligated to purchase the brands you select, but it will be your option to purchase them at the posted prices at the end of the study.

Your task is to pick 5 bars of chocolates which you would buy from your own money. You can choose 5 bars of the same brand, or you can choose some combination of up to 5 brands BUT the total should be 5 bars. Choose any combination from the 10 brands.

The entire study will take 5 to 15 minutes. Please do not discuss the quality of the chocolates or any information on the chocolates to other people. It is important that each participant gives unbiased answers when participating. Further you **cannot participate in this study more than one time.**

You will be presented with a list of chocolates. Your task is to choose chocolates. You are free to leave the experiment at any time. You will be given one of the chocolate bars as a small thank you at the end of the study.

Thank you

3. Post-Test Tasting Experiment: Participant Informed Consent

Consumer Decisions for Chocolates

Thank you for agreeing to participate in this study. **You must be able to taste small samples of each of 10 brands of chocolates. You cannot participate if you have an allergy to chocolates or to nuts present in some chocolates. Also, you must** have shopped online (internet banking, buying books, groceries, etc.) in order to participate in this study.

You will be asked to TASTE small samples of 10 brands of chocolates. Then you will be given the opportunity to RATE your preference of the 10 brands of chocolate; +3 as the most preferred and -3 as the least preferred.

The entire study will take 5 to 15 minutes. Please do not discuss the quality of the chocolates or any information on the chocolates to other people. It is important that each participant gives unbiased answers when participating. Further you **cannot participate in this study more than one time.**

You will be presented with a list of chocolates. You are free to leave the experiment at any time. You will be given one of the chocolate bars as a small thank you at the end of the study.

Before asking you to participate, we have four questions to ask to determine if you are eligible to participate.

5. Have you made a purchase over the internet in the past year? (Buying books, CD, internet banking, air tickets, etc.)

   Yes No

6. Do you eat chocolates and are you able and willing to taste small samples 10 brands of chocolate?

   Yes No

7. Are you allergic to milk, nuts or other chocolate ingredients?
   Yes No

8. Are you diabetic?
   Yes No

Only those answering yes to questions 1 and 2 and No to Questions 3 and 4 will be invited to participate. Those who are eligible and choose to participate will sign the form below.

I have read the research description, procedures and compensation. My participation is completely voluntary and I hereby agree to participate in this study and the University of Witwatersrand and researcher will not be liable for any damage or injury or loss or damages while participating in this study. I understand that my responses in choosing chocolates will not be connected with any identifying information about me and that my responses are entirely confidential. I further understand that **I cannot participate in this study more than one time**. If I have any questions about the study, I can contact the researcher, Yvonne Kabeya Saini at Yvonne.saini@wits.ac.za.

Name: _____

Signature_____

Date: _____

Contact Details: _____

4. Post-Test Tasting Experiment: Participant Instructions

Consumer Decisions for Chocolate

Thank you for agreeing to participate in this study. **You must be able to taste small samples of each of 10 brands of chocolates. You cannot participate if you have an allergy to chocolates or to nuts present in some chocolates. Also, you must** have shopped online (internet banking, buying books, groceries, etc.) in order to participate in this study.

You will be asked to TASTE small samples of 10 brands of chocolates. Then you will be given the opportunity to RATE your preference of the 10 brands of chocolate; +3 as the most preferred and -3 as the least preferred.

The entire study will take 5 to 15 minutes. Please do not discuss the quality of the chocolates or any information on the chocolates to other people. It is important that each participant gives unbiased answers when participating. Further you **cannot participate in this study more than one time.**

You will be presented with a list of chocolates. You are free to leave the experiment at any time. You will be given one of the chocolate bars as a small thank you at the end of the study.

Thank you

APPENDIX VI: EXPERIMENT 2

TABLE 13: EXPERIMENT 2: ALL UNFAMILIAR BRANDS CHOICE TEMPLATE

Chocolate Study												
CONDITION												
NUMBER												
GENDER	**Male**	**Female**										
BRANDS			**kinder**	**bounty**	**nikki**	**all-in-one**	**daim**	**nosh**	**woolies**	**supreme**	**cote'dor**	**canderel**
ORDERED												
Chocolate Study												
CONDITION												
NUMBER												
GENDER	**Male**	**Female**										
BRANDS			**kinder**	**bounty**	**nikki**	**all-in-one**	**daim**	**nosh**	**woolies**	**supreme**	**cote'dor**	**canderel**
ORDERED												

TABLE 14: EXPERIMENT 2: ALL FAMILIAR BRANDS CHOICE TEMPLATE

Chocolate Study												
condition												
number												
gender	**male**	**female**										
brands			**dairy milk**	**aero**	**top deck**	**chomp**	**flake**	**kitkat**	**lunch bar**	**ps**	**jungle energy**	**ferrero**
ordered												
Chocolate Study												
condition												
number												
gender	**male**	**female**										
brands			**dairy milk**	**aero**	**top deck**	**chomp**	**flake**	**kitkat**	**lunch bar**	**ps**	**jungle energy**	**ferrero**
ordered												

1. Experiment 2: Participant Instructions

Consumer Decisions for Chocolate

Thank you for agreeing to participate in this study. **You must be able to taste small samples of each of 10 brands of chocolates. You cannot participate if you have an allergy to chocolates or to nuts present in some chocolates. Also, you must** have shopped online (internet banking, buying books, groceries, etc.) in order to participate in this study.

You will be shown information about 10 brands of chocolates being sold at normal prices and you may be asked to taste small samples of each of 10 brands. Then you will be given the opportunity to **say which brands you would choose to buy** if buying with your own money.

Assume that you had R100. Your task is to choose which brands of chocolates you would buy from the R100.

The entire study will take 5 to 15 minutes. Please do not discuss the quality of the chocolates or any information on the chocolates to other people. It is important that each participant gives unbiased answers when participating. Further you **cannot participate in this study more than one time.**

You will be presented with a list of chocolates. Your task is to choose which brands of chocolates you would buy from the R100. You are free to leave the experiment at any time. You will be given one of the chocolate bars as a small thank you at the end of the study.

Thank you

APPENDIX VII: SUPPLEMENTARY ANALYSES IN EXPERIMENT 2

Cross-price elasticity of demand for familiar and unfamiliar brands.

The hypotheses were to measure the quantity of familiar and unfamiliar brands when the other type is at high price minus low price as stated below:

H_{90}*:* The difference in cross-price elasticities of demand for familiar versus unfamiliar brands will not differ across the three shopping environments

H_{9A}*:* Consumers will show higher cross-price elasticity of demand for familiar than for unfamiliar brands, but particularly so in the online condition and offline without taste condition and less so in the offline with taste condition

Cross elasticity of demand was measuring the responsiveness in the quantity of familiar brands when a price change occurred in the unfamiliar brands. For products which are substitute goods, the cross elasticity is positive and that of complements are negative. When the cross elasticity of demand is zero, then the products are not related. These studies are relevant in that they provide insights on the effects of price deals on unit sales of competitive brands in the retail line (Blattberg & Wisniewski, 1989). The price changes induce brands switching and these concepts are relevant in this study exploring how price changes influence the choice of familiar and unfamiliar brands in the different shopping formats.

The cross elasticity of demand for the familiar brands calculated the percentage change in demand for unfamiliar brands for a 1 percentage point increase in the price of the familiar brands. Percentage change in quantity of unfamiliar brand when familiar brand is at high price v. low price = (Qunfamiliar when familiar high price – Qunfamiliar when familiar low price)/.5*(Qunfamiliar when familiar high price – Qunfamiliar when familiar low price). Percentage change in price of unfamiliar brand = (PUnfamHi – PUnfamLo)/ .5*(PUnfamHi – PUnfamLo). This calculated the quantity of each type of brand sold at high price minus the quantity sold at the low price. It was expected these cross-elasticities to be positive.

The data for the analysis of cross-price elasticity for familiar and unfamiliar brands discarded subjects who never bought unfamiliar or familiar brands because one could not calculate elasticity for them. The analysis dropped subjects who did not buy at least one familiar or unfamiliar brand. The final data had 30 subjects for the online environment, offline with taste, 32, offline without taste 30 and 42 were males and 50 females.

The test H_{9A}, price elasticity, however, is the interaction of familiar v unfamiliar x by condition. The test of H_{9A}, predicted that the vertical gap between the solid line for unfamiliar brands and the dashed line for familiar brands would be greater in the online and offline without taste condition and not in the offline with taste condition.

The results departed from my prediction in two ways. Firstly, I expected the solid line of unfamiliar brands to lie below the dotted line of familiar brands, reflecting more price sensitivity for unfamiliar brands. Secondly, the dotted line of familiar brands was expected to be a flat line indicating little change due to shopping environment, because people already understand the quality of familiar brands. It was expected that more unfamiliar brands would

be bought in the online and offline with taste environments when the price for unfamiliar is low and the price of familiar is high. Consumers in my study had to order a fixed quantity of five units and because I expected consumers to be willing to order more unfamiliar brands at lower prices, I expected that demand for familiar brands would increase when prices of unfamiliar brands increases. However, I expected this pattern to occur in the online environment and offline without taste environment, but less so in the (online with taste) environment where there was abundant non-brand information about product quality. Please see figure 10.

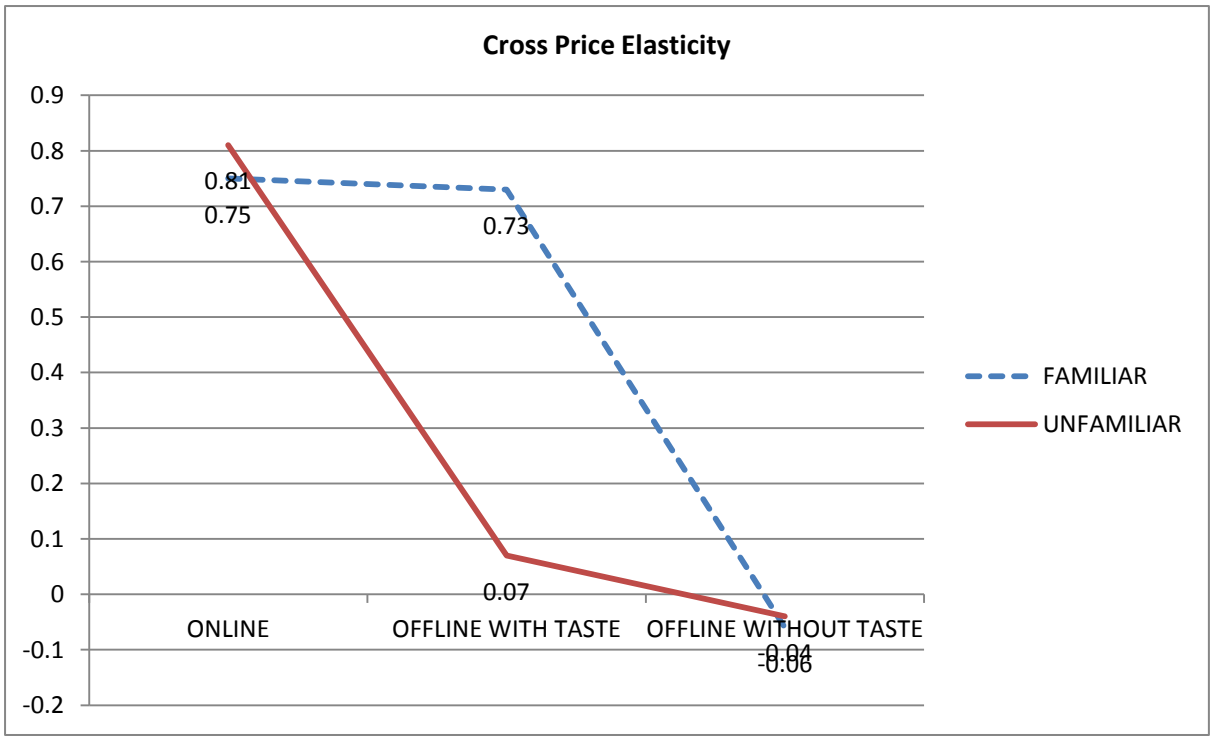

Figure 10: Descriptive Means for Cross-Price Elasticity of Demand for Familiar and Unfamiliar Brands

Looking at Figure 10, the results show some effects. First, subjects' cross price elasticity was higher for familiar brands (M = .47) than unfamiliar brands (M = .27), and a nonsignificant main effect. F (1, 86) = .57, p>.45. When familiar and unfamiliar brands self-price elasticity were pooled together, condition was marginally significant, F (2, 86) = 2.83 =06. The cross price elasticity means for the environments were. 78 for online and this was the highest, followed with offline without taste .40, offline without taste, -.05. The means were higher for the online condition, closer to the offline with taste condition than the offline without condition, far from prediction.

The H_{9A} test of however, is the interaction of familiar v unfamiliar x by condition. This interaction did not follow the predicted pattern as shown in Figure 10. I predicted that in the offline with taste condition where people had diagnostic information besides brand name, there should be little vertical gap between the solid line for unfamiliar brands than for familiar brands. I expected that in the other two conditions, online and offline without taste, people would show higher cross-price elasticity for the unfamiliar brands than for the familiar brands. In other words, I expected that the solid red curve above (unfamiliar brands) would lie above the dashed blue curve (familiar brands), except in the offline with taste condition. Instead, the red curve was lower than I expected across the board. In the offline with taste condition, the gap was (0.07-0.73=-.66); in the online condition it was only (0.75-0.81=-0.06), and in the offline without taste condition it was (-0.06-.0.04=0.1). The gap was higher in the offline with taste condition instead of the online and offline with taste conditions. A planned contrast showed that this first difference for the offline with taste condition was greater than the average of the other two gaps, but not statistically significant (F (1, 86) = 1.68, p = .20) (Quadratic). I had also expected that the last two gaps for the online condition

and the offline without taste condition would be equal. A planned contrast found that these two gaps did not differ significantly ($F(1, 86) = 0.00$, $p = .96$) (linear).