

# **The Role of Consumer Knowledge in Consumer Evaluations of Brand Extension**

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A thesis submitted to Auckland University of Technology in  
partial fulfilment of the degree of Master of Business

2005

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## **Attestation of Authorship**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgments.

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Yun MA

# Acknowledgements

This thesis is dedicated to my parent, without whose continuous support, encouragement, and enthusiasm for higher learning, the work presented in this thesis would never have been undertaken.

I am very grateful to my supervisor, Mark Glynn, for his great interest in, and support of, the work that led to this thesis. He has taught me, primarily by his own example, how to conduct high-quality research, and gave me a lot of valuable comments, suggestions, and advice. I would also like to thank my secondary supervisor, Roger Boxer, for his assistance and encouragement.

I wish to express thanks to the lecturers in School of Computer and Information Science and in School of Business. They have shown great interest in the research and offered huge support in the data collection. I also want to thank all the participants for their time and patience.

Thanks are also due to my friends. I thank my fellow students for sharing their inspiring thoughts and those unforgettable days and nights in the postgraduate lab with me.

Last, a special thank you goes to my partner, David Wang, for always supporting me and believing in me.

The ethics application for this research has been approved by Auckland University of Technology Ethics Committee (AUTC) on 24<sup>th</sup> January 2005. The AUTC reference number is Glynn04211\_01022005.

## **Abstract**

This study examines the effects of two types of consumer knowledge, product and brand knowledge, on consumer fit perceptions between an extension and its parent brand, so as to further investigate the role of consumer knowledge in brand extension evaluations. Based on the reviewed literature four hypotheses were proposed. The first two hypotheses predicted that both product and brand knowledge has an impact of consumer perceived fit between an extension and its parent brand. The other two hypotheses proposed that product knowledge affect more on the fit perceptions between a functional brand and its extension, while brand knowledge affect more on the fit perceptions between a prestige brand and its extension. An experiment was performed to examine these hypothesized relationships. Two hypotheses related to brand knowledge are supported, while the other two hypotheses related to product knowledge are not supported statistically. The results reveal that product and brand knowledge have different effects on consumer fit perceptions between an extension and its parent brand in terms of different brand types, functional vs. prestige brand. The experimental findings demonstrate that brand knowledge has an impact on consumer fit perceptions between an extension and its parent brand, and its effect dominant in prestige brand extension evaluations.

# **1 Chapter I – Introduction**

## **1.1 Problem Orientation**

Brand extension, which involves introducing new products under existing brand names, has become a popular strategy since the 1980s (Aaker, 1990). Eighty two percent of new products are brand extensions and only 15 percent are totally new brands (Brand Strategy, 2004). This strategy is often more successful than building a new brand name for new product introductions (Zhang & Sood, 2002). Due to the advantages and importance of brand extensions, this strategy has received much attention in both academic and practical areas (e.g., Aaker & Keller, 1990; Barone, Miniard, & Romeo, 2000; Broniarczyk & Alba, 1994; Czellar, 2003). The focus of this study is on the role of consumer knowledge in brand extension evaluations.

There have been calls for more studies of consumer knowledge effects in brand extension evaluations (Czellar, 2003; Grime, Diamantopoulos, & Smith, 2002). As consumer knowledge has an impact on various kinds of consumer behaviour (Rao & Monroe, 1988; Selnes & Howell, 1999), it may also have an influence on brand extension evaluations. The role of consumer knowledge in brand extension evaluations has been explored by previous research (Broniarczyk & Alba, 1994; Muthukrishnan & Weitz, 1991). However, there is still some ‘confusion’ in the literature about this factor (Grime et al., 2002). Thus the purpose of this study is to further examine the role of consumer knowledge in brand extension evaluations.

The first chapter lays the foundations for this thesis. An introduction to the purpose of the study and the research problems, justification for the research, methodology, an outline of the thesis, definition of key terms, and delimitations are presented in this chapter. Firstly, the background of the research is given in the following section.

## **1.2 Background**

Brand extension has become a popular new product strategy, because of its attractive

advantages. It provides a cheap way to enter a new market with the decreased costs of gaining distribution and the increased efficiencies of promotional expenditures (Grime et al., 2002; Muroma & Saari, 1996), and enhances the success probability of new product introductions with immediate brand name recognition and transferences of positive attitudes toward the familiar brands to the extensions (Farquhar, Herr, & Fazio, 1990). In addition, the strategy of brand extensions is a way to capitalize the equity of brands by providing a new source of revenue (Hem & Iversen, 2003). However, it can also be a risky strategy. An unsuccessful extension, or even a successful extension, could cause damage to the original brand (Keller & Sood, 2003; Loken & John, 1993). In order to help marketing practitioners make more successful brand extension decisions and judgments, more research has already focused on brand extensions from different aspects. This thesis study investigates the relationship between consumer knowledge and fit perceptions in brand extension evaluations, and is expected to contribute to the brand extension literature by studying this single aspect of the brand extension evaluation process.

### ***1.2.1 The importance of fit perceptions in brand extension evaluations***

Consumer evaluations of brand extensions have been investigated in a number of ways. However, one of the widely accepted findings from previous brand extension research is that the consumer perception of fit between a new extension and its parent brand is the most important factor in determining brand extension evaluations (Aaker & Keller, 1990; Muroma & Saari, 1996; Zhang & Sood, 2002). This affects the consumer's attitude transfer between the original brand and its extension. It is generally agreed that when consumers perceive that the extension product is similar to or consistent with the original brand, they are more likely to transfer their positive attitudes toward the parent brand to the new extension product. In other words, when consumers have positive attitudes toward a parent brand, a higher level of fit between an extension and the parent brand perceived by consumers will lead to more positive evaluations of the extension by the consumers.

Even though the consumer fit perception is the most essential and direct factor that

influences the consumer's evaluation of a brand extension, the strength of this relationship may be moderated by other factors. For example, there is evidence showing that a positive consumer mood and brand advertising can improve a consumer's perception of fit between the original brand and the extension, thereby increasing the consumer's evaluation of the extension product (Barone et al., 2000; Bridges, Keller, & Sood, 2000; Lane, 2000). It has also been suggested in previous research that consumer knowledge, one of the consumer characteristics, may have an impact on consumer brand extension evaluations by moderating the effects of consumer perceived fit (Broniarczyk & Alba, 1994).

### ***1.2.2 The importance of consumer knowledge in brand extension evaluations***

As one of the major consumer characteristics, consumer knowledge is a very important factor in consumer behaviour research (Alba & Hutchinson, 1987). High and low knowledge consumers react differently in a variety of consumer behaviours, for example new product information learning, product evaluations and decision-making (Johnson & Russo, 1984; Rao & Monroe, 1988; Selnes & Howell, 1999). Consequently, some researchers in the brand extension area have suggested that high and low knowledge consumers may also react differently when evaluating a brand extension (Broniarczyk & Alba, 1994).

Some evidence of the influence of consumer knowledge on brand extension evaluations has already been found in some empirical research (Muthukrishnan & Weitz, 1991; Roux & Boush, 1996). However, some recent theoretical research shows that some confusion still remains about consumer knowledge in the brand extension evaluation literature, and more empirical studies are needed to focus on this factor (Czellar, 2003; Grime et al., 2002). These studies also propose that consumer knowledge plays its role in brand extension evaluations through the impact on consumer fit perceptions between an extension and its parent brand (Czellar, 2003; Grime et al., 2002). Thus the focus of this study is to further investigate the effects of consumer knowledge on consumer fit perception between a new extension and its parent brand empirically.

### **1.3 Purpose of the Research and Research Problem**

Although the role of consumer knowledge in consumer brand extension evaluations has been studied in previous research, little research has investigated whether there is any difference between the effect of product knowledge and the effect of brand knowledge. Consumer knowledge has been treated as one single variable in previous research. However, consumer knowledge is multidimensional (Brucks, 1986; Peter & Olson, 2005). As two different elements of consumer knowledge, product knowledge and brand knowledge were found to have different effects on some consumer behaviours (Fiske, Luebbehusen, Miyazaki, & Urbany, 1994). This suggests that the influences of these two different types of consumer knowledge on consumer fit perceptions may also have some differences. Thus the objective of this study is to investigate more deeply the role of consumer knowledge in brand extension evaluations, by treating product knowledge and brand knowledge as two different variables.

#### ***1.3.1 Research problem and research questions***

Consumer knowledge has been suggested as a factor that has an impact on consumer fit perception between an extension and its parent brand (Muthukrishnan & Weitz, 1991). However, as mentioned in the last section, it was treated in these studies as one single variable rather than two. This leaves “some confusion in the literature on whether consumer knowledge relates to the product, the brand, or both” (Grime et al., 2002, p. 1428). Thus the research problem of this study is: what are the roles of the two different types of consumer knowledge, product and brand knowledge, in consumer brand extension evaluations. More specifically, this study focuses on the effects of product and brand knowledge on consumer fit perceptions in brand extension evaluations. The research questions in this study are:

- Do both product knowledge and brand knowledge have an influence, on fit perception, or does only one of them have the impact?
- If both the product knowledge and the brand knowledge affect consumer fit perceptions, do they have equal influences, or do they play different roles?

## **1.4 Justification for the Research**

This thesis study is expected to contribute to the brand extension literature by investigating the effects of the product and brand knowledge in the consumer brand extension evaluation process separately. It is expected to provide a deeper understanding of whether and how different kinds of consumer knowledge affect the consumer fit perception between a new extension and its parent brand.

This research is considered important for the following reasons. Firstly, more studies on consumer knowledge are called for in the brand extension literature. As one of the major individual characteristics, consumer knowledge has been found to have an impact on various kinds of consumer behaviour, for instance, information processing, evaluation strategies, and decision-making (Brucks, 1985; Rao & Monroe, 1988). Hence, some researchers suggest that it may also affect consumer evaluations of brand extensions. Two different frameworks of consumer brand extension evaluations have been developed in two separate studies (Czellar, 2003; Grime et al., 2002). However, they both proposed that consumer knowledge is an important moderating variable, which has an impact on consumer perceived fit between an extension and its parent brand, in consumer brand extension evaluations.

Secondly, although some studies have already explored this variable, there is no study that considers consumer knowledge as two different types, product knowledge and brand knowledge. There is evidence that different kinds of consumer knowledge may have different effects on decision-making and purchasing behaviour (Brucks, 1986; Fiske et al., 1994). Consumers with high product knowledge evaluate brands more from the functional aspect, whereas those with high brand knowledge evaluate brands more from the symbolic aspect (Bei & Heslin, 1997). Thus it is necessary to treat these two kinds of consumer knowledge as two variables, in order to investigate whether or not they have different influences on the brand extension evaluations or not.

## **1.5 Methodology**

A positivist, quantitative research approach was adopted in this study, because the primary objective of this study was to test the hypothesized relationships between consumer fit perceptions in brand extension evaluations and two types of consumer knowledge (product and brand knowledge). Quantitative methods are appropriate when the research goals are to predict, verify, or to gain meaningful insights into hypothesized relationships among variables, while qualitative methods are appropriate when the research goals are to discover and identify new ideas (Hair, Bush, & Ortinau, 2003). Thus, considering the hypothesis testing goal of this study, a quantitative approach is employed in this research rather than a qualitative approach.

Along with the quantitative research approach, a descriptive research design was used in this study. First, a factorial experiment was designed to investigate the hypothesized relationships in this study. Then two pre-tests were conducted in order to select suitable brand stimulus for the experiment. A questionnaire was developed with pre-determined response options, and the data was collected through a student sample. Finally, Analysis of Variance (ANOVA) was used as the statistical tool to analysis the data.

More details of the research design and methods used in this study will be described in Chapter III.

## **1.6 Outline of the Thesis**

The paper is organized into five chapters. Chapter I provides an overview of the thesis reports. It outlines the background of the research, the research problem and questions; provides justification and an overview of the methodology; presents the definitions of key terms; and delimits the scope and boundaries of this study.

Chapter II builds up a theoretical foundation for the research. It presents the conceptual and empirical literature pertaining to brand extension, consumer perception of fit, and consumer knowledge in brand extension evaluation. In reviewing the relevant literature,

the dimensions of consumer fit perceptions are concluded and different effects of product and brand knowledge are addressed. Then, by integrating the literature of consumer fit perceptions in brand extension evaluations and the literature of consumer knowledge, the relationships between consumer perceptions of fit in brand extension evaluations and the two different kinds of consumer knowledge are proposed. Research hypotheses are formulated at the end of this chapter, based on the reviewed literature.

Chapter III details the research methodology employed for the study. It describes the research design, the development of measurement for each variable, and the procedure for the brand stimuli selection. This chapter also provides a description of questionnaire and sampling design, and discusses the data collection procedure and the analysis technique adopted for hypotheses testing.

The results and findings of the study are displayed in Chapter IV. Some preliminary analyses are performed to provide an overall feeling for the data. Manipulations are checked to ensure that controls in the experiment performed well. Then, the hypotheses are tested, using Analysis of Variance (ANOVA). This provides the answers for whether or not the hypothesized relationships of the study are supported statistically.

A discussion of the results derived from the study is provided in Chapter V. The discussion provides a detailed answer for the research problem and research questions outlined in this study. Then some implications of the study's findings are suggested for both brand extension evaluation theory and marketing practice. The limitations of the study and opportunities for future research are also provided. Finally, an overall conclusion is provided to finish the report.

## **1.7 Definitions**

There are several definitions of key terms which should be made clear, to help to understand the research.

*Brand extension:* "A brand extension is when a firm uses an established brand name to

introduce a new product” (Keller, 2003b, p. 577). According to Keller (2003b) brand extensions have two approaches: category extension and line extension. Category extension involves the use of an established brand name to enter a completely different product category. Line extension involves the use of an established brand name to enter a new market segment in the same product category. In this study, category extensions are the main focus. However, the results are also expected to be applicable to some line extensions.

*Consumer fit perceptions between an extension and its parent brand:* There is no established definition for this variable. In particular, the dimensions of the consumer perceived fit vary in the literature. Generally, it refers to the level of consumer perceived fit/similarity/consistency between an extension and its parent brand (Aaker & Keller, 1990). In this study, consumer perceived fit, consumer fit perception, and consumer fit perception between the extension and its parent/original brand refer to the same concept.

*Product knowledge:* Product knowledge and brand knowledge are two levels of consumer knowledge (Peter & Olson, 2005). Product knowledge employed in this research refers to information about product categories, either the most general category, or subcategories stored in a consumer’s memory.

*Brand knowledge:* brand knowledge in this study refers to the consumer knowledge about a brand, including brand name, attributes, benefits, concepts, images, everything that associated with the brand.

In the next chapter, Chapter II, these key definitions will be discussed in far more detail.

## **1.8 Delimitations**

The study intends to investigate the role of consumer knowledge in consumer brand extension evaluations. The other variables, such as consumer moods, advertising and involvements, which may also have an impact on brand extension evaluations, are not

the interest of this study.

In addition, the study focuses on the effects of two different kinds of consumer knowledge, product and brand knowledge, on consumer fit perceptions in brand extension evaluations. The direct relationship between these two aspects of consumer knowledge and consumer attitudes toward an extension is not the focus of this study. This is because, based on the reviewed literature, it is hypothesised in this study that consumer knowledge plays its role in a consumer brand extension evaluation through affecting consumer fit perceptions between the extension and its parent brand.

## **1.9 Conclusion**

In this chapter, the research problem and questions are addressed through a review of the background of the research. The core idea of this study is to investigate how the two different types of consumer knowledge (product and brand knowledge) play their roles in the consumer brand extension evaluation process. Two research questions were addressed, based on this research problem: do both these kinds of knowledge have an impact on consumer fit perceptions in brand extension evaluation, and is their influence equal or not? The main difference between this study and previous related research is that product and brand knowledge are treated separately, as two different variables, in this study. The results of this study are expected to provide more empirical evidence for the roles of consumer knowledge in the brand extension evaluation process.

The importance of this study was justified, and an introductory overview of the methodology presented. Each chapter of the thesis has been briefly described. Then, definitions of key terms and delimitations of the research were provided. In the next chapter, the answers to the research questions will be searched and a theoretical foundation for the research will be built up by reviewing the related literature.

## **2 Chapter II – Literature Review**

### **2.1 Introduction**

In the last chapter, it was pointed out that consumer knowledge has an impact on consumer fit perceptions between an extension and its parent brand in the consumer brand extension process. In this chapter, the literature, in which issues about the roles of consumer knowledge in brand extension evaluations have been identified, is reviewed. This includes the literature in both the brand extension and the consumer knowledge fields.

The literature review begins with an examination of previous research on brand extension. First, the definitions of brand extension and the fundamental theory of brand extension, categorization theory, are reviewed. The importance of consumer fit perceptions between an extension and its parent brand is addressed and the impact of consumer knowledge on the fit perceptions is explained. Secondly, the consumer fit perceptions between the extension and its parent brand are focused on. In particular, the dimensions of consumer fit perceptions are carefully re-examined. Some suggestions about the effects of consumer knowledge are made when reviewing the relationships between two types of brand (functional vs. prestige) and the two dimensions of fit. Then, the relationships between consumer knowledge and fit judgements are further investigated from the literature in the area of consumer knowledge. This includes a discussion on the influence of consumer knowledge in consumer behaviour, findings and gaps in previous research of consumer knowledge in brand extension evaluations, and the two types of consumer knowledge (product and brand knowledge) in brand extension evaluations. Finally, research hypotheses are developed, based on the literature review, and a summary concludes this chapter.

### **2.2 Definition of Brand Extension and Categorization Theory**

The terminology of brand extension has been used inconsistently in the literature

(Ambler & Styles, 1997; Grime et al., 2002). Sometimes a brand extension only refers to an extension that is introduced in a different product category (e.g., Aaker & Keller, 1990; Desai & Hoyer, 1993). However, sometimes the concept of brand extension is more inclusive. It also includes a line extension, which is the introduction of an extension in the same product category (Keller, 2003b). In this study, the more inclusive definition of brand extension was adopted, because in marketing practice these two types of extension are usually mixed up. They have been classified mostly because of theoretical research reasons (Ambler & Styles, 1997). Thus in this study, a brand extension is when a firm introduces a new product under an existing brand name (Keller, 2003b). This includes two approaches: The first one uses a current brand name for a new offering in the same product category, and is called a line extension. The other approach uses a well-known brand name to enter a completely different product category, and is called a category extension (Keller, 2003b).

Although the more inclusive definition of brand extension was used in this study, the focus of the study was on category extensions rather than line extensions. The reason for this is explained in the following section.

### ***2.2.1 Category extension vs. line extension***

The majority of the extension research has been on category extensions, rather than line extensions (Reddy, Holak, & Bhat, 1994). Studies of category extensions and line extensions have different focuses. While the category extension research has mainly focused on consumers' perception of fit and evaluations of extensions, the line extension research has focused more narrowly on the cannibalisation of and optimal entry times for line extensions (Grime et al., 2002). In this study, category extensions were used instead of line extensions, because consistent with previous research, the focus of this study was on consumer fit perception and evaluations of extension.

However, most results from category extension research may generalize to line extensions, and findings from line extension research may also apply to category extensions due to two reasons. First, although the classifications of these two

approaches are quite clear in theory, the boundaries are sometimes ambiguous because of the definition of a category (Ambler & Styles, 1997). For example, Panasonic's range of phones would not be regarded as category extensions, if Panasonic were defined more broadly as 'consumer electronics', and Sugarfree 'V' energy drink could be put in a new, narrower category of "diet drinks". Second, there is evidence that consumers' perception of fit is also important in the process of evaluating line extensions, though there is a difference from the category extension evaluating process. While both dimensions of consumer fit perception (product similarity and brand concept consistency) are important in the category extension evaluating process, product similarity is not very important in the case of line extension since the extension is in the same product category as the original brand (Desai & Hoyer, 1993). Therefore, in this study, the term of 'brand extension' mainly refers to the category extension, but the results were also expected to be applicable to a line extension, where consumer perceptions of fit are important.

### **2.2.2 Categorization theory**

Previous studies on brand extension are typically grounded in categorization theory (Aaker & Keller, 1990; Park, McCarthy, & Milberg, 1993; Park, Milberg, & Lawson, 1991). According to this theory, people are likely to develop structured knowledge, categories or schemata, abstracted from prior experience with objects to facilitate evaluations and judgments (Fiske, 1982). Different from a piecemeal process in which two instances are evaluated attribute-by-attribute, a categorization process involves comparison between a target instance and a previously defined category or schema. By grouping instances together which are alike in important respects, information processing efficiency and cognitive stability are enhanced (Cohen & Basu, 1987). If the target instance can be assembled as a member of the previously defined category, then the affect associated with this category can be quickly retrieved and applied to the target instance, since the affect is assumed to reside in the category (Cohen, 1982; Fiske, 1982; Sujon & Dekleva, 1987). According to this theory, consumers are likely to develop a set of expectations about products and brands abstracted from previous experience and knowledge and stored in memory. When a new extension product is introduced, it is

considered as a member of the original brand 'family' (category). Thus the affect, feelings, beliefs and attitudes associated with the original brand are expected to transfer to the new extension product.

However, the transference is restricted by the perception of fit, similarity, or congruity between the original brand and the extension product. In categorization theory, the affect of a new stimulus can be retrieved, only when the stimulus fits into the category/schema with which the affect is stored (Cohen, 1982; Fiske, 1982; Sujan, 1985). Consequently, in the case of a brand extension, consumers' beliefs and feelings about the original brand are likely to be transferred, only when the extension product is perceived as a member of the original brand family. This proposition has been confirmed by a number of empirical studies in the brand extension area (e.g. Aaker & Keller, 1990; "Consumer Behaviour Seminar," 1987; Muroma & Saari, 1996; Park et al., 1991). The greater the fit/similarity perceived by consumers between the extension product and the original brand, the more likely that the affect associated with the original brand would be transferred to the extension product. Thus consumer perception of fit is the most important construct in a consumer evaluation of brand extension.

There is another indication from categorization theory, which is the indication about the effects of consumer knowledge in consumer evaluations of brand extensions. A category/schema is formed based on consumers' previous experience and knowledge (Fiske, 1982), thus consumer knowledge may have an effect on the use of categorization processing (Sujan, 1985). Expert consumers with more knowledge and prior experience seem to develop better-constructed knowledge than novice consumers. This consequently may influence the match between the target instance and the category. In other words, consumer knowledge may have an impact on consumer perceptions of fit between the extension product and the original brand in a brand extension evaluation process.

In sum, two suggestions were found when reviewing the categorization theory. First, the consumer attitudes transference from a brand to a new extension is restricted by the fit

perceptions between the extension and the parent brand. Thus the fit perception is the determinant factor in brand extension evaluations. Second, this determinant factor may be affected by consumer knowledge. Further literature about fit perceptions between an extension and its parent brand area and in the consumer knowledge area is reviewed, to investigate the relationship between the fit perceptions and consumer knowledge in brand extension evaluations. In the following section, consumer fit perceptions in brand extension evaluation is first reviewed.

### **2.3 Consumer Perceived Fit in Brand Extension Evaluations**

As “a central component in the categorization theory” (Zhang & Fitzgerald, 1997), the consumer perception of fit between an extension product and its parent brand is the most important construct in the consumer evaluation of a brand extension. It serves as a heuristic cue in a consumer brand extension evaluation process, because “one function of similarity is to allow people to make educated guesses in the face of limited knowledge (Medin, Goldstone, & Gentner, 1993). With a brand extension, the extension product is new to the consumers. If it is perceived as similar to the original brand, the consumers will make inferences or judgments about the new extension based on these similarities. The ‘perceived fit’ will be achieved when a consumer perceives that the new extension product is consistent with the parent brand, or a ‘family member’ of the brand name, and then the affect or attitude transference will be more likely to occur, to facilitate the brand extension evaluation.

The effects of fit perceptions in consumer brand extension evaluations have been confirmed by a number of empirical studies (e.g. Aaker & Keller, 1990; Muroma & Saari, 1996). It is widely accepted that fit perceptions between an extension and its parent brand determines consumer evaluations of brand extensions. There is a positive relationship between the fit perceptions and consumer attitudes toward the extension. The effect of fit perceptions on brand extension evaluations is not further tested in this study. However, it is taken as an assumption that extensions that have a higher level of fit will be evaluated more favourably by consumers.

### **2.3.1 Dimensions of fit**

Although the importance of the ‘perception of fit’ is generally accepted, there are still some considerable variances about its dimensions in the literature. The most popular concepts in the literature that have been used to define the dimensions of fit are ‘similarity’, ‘relatedness’, ‘typicality’, and ‘brand concept consistency’(Aaker & Keller, 1990; "Consumer Behaviour Seminar," 1987; Boush & Loken, 1991; Herr, Farquhar, & Fazio, 1996; Park et al., 1991). These concepts define the ‘perception of fit’ from different aspects, but they also have some overlaps. The purpose of this section is to review these concepts and address the differences and overlaps among them.

#### **2.3.1.1 Similarity**

‘Similarity’ has been used most frequently in previous research. In most research, it refers to how alike the original product and the extension product are in terms of features and attributes (e.g. Aaker & Keller, 1990; "Consumer Behaviour Seminar," 1987; Chakravarti, MacInnis, & Nakamoto, 1990; Smith & Andrews, 1995). The consumer similarity judgment involves comparing or matching the features between the original product category and the new extension product category. The more features that overlap or match between these two classes of products, the more likely it is that these two products will be perceived to belong to the same cognitive category. Besides shared features between two product classes, similarity also refers to shared benefits, which means that two products have a common goal (Chakravarti et al., 1990; Smith & Andrews, 1995). For example, cake and ice cream are two different kinds of products, but they may be linked to the same goal, to eat as dessert. In addition, ‘similarity’ can also refer to sharing same usage-situations, or being complementary in usage (Chakravarti et al., 1990; de Ruyter & Wetzels, 2000; Smith & Andrews, 1995). Finally, from a firm’s perspective, ‘similarity’ also refers to manufacturing synergies or the firm’s ability to transfer the marketing, operating or manufacturing capability from the original product to the new extension product (Aaker & Keller, 1990; Chakravarti et al., 1990; Smith & Andrews, 1995).

The most popular research about ‘similarity’ in brand extension evaluations is the study

of Aaker and Keller(1990). In this research, the authors empirically studied the bases of ‘similarity’, and the effects of ‘similarity’ on consumer brand extension evaluations. According to Aaker and Keller(1990), ‘similarity’ is based on three elements, COMPLEMENT, SUBSTITUTE, and TRANSFER. COMPLEMENT indicates the extent to which consumers view two product classes as sharing the same usage context. SUBSTITUTE is the extent to which consumers perceive two product classes can replace each other in satisfying the same need. TRANSFER is the extent to which the perceived ability or skill of a manufacturer that is required for the extensions overlaps with that of parent brands. Not all the hypotheses in Aaker and Keller’s (1990) study were supported. However, the study confirmed that consumer ‘perceived similarity’ plays an important role in brand extension evaluation. This can enhance the transferability of perceived quality of the parent brand to the extension, and directly affect the attitude toward the extension: the higher the level of similarity, the more favourable the attitude toward the extension.

Aaker and Keller’s (1990) research has been replicated several times by researchers from different countries (Bottomley & Doyle, 1996; Bottomley & Holden, 2001; Sunde & Brodie, 1993). Even though differing statistical results were obtained between these studies, they all concluded that consumers’ evaluations of brand extensions are determined primarily by the attitude toward the original brand and consumers ‘perceived similarity’ between the extension and its original brand. In other words, their empirical studies validated the importance of perceived similarity in consumer evaluations of brand extensions.

### **2.3.1.2 Typicality**

Boush and Loken (1991) use ‘typicality’ to measure the consumer’s perception of fit between the extension product and the original family-branded products. According to their study, when an extension shares more features of current family-branded products, it will be a more typical member of the family brand. Then the affect transference will be more likely to occur on this new extension (Boush & Loken, 1991). ‘Typicality’ refers to how representative the extension product category is of the original

family-branded products (Nedungadi & Hutchinson, 1985).

In some research, an extension product may be perceived as a typical member of the original brand family not only because it shares many physical features of the original product, but also because it represents the family brand image at a high level (Grime et al., 2002). This suggests that ‘typicality’ is a broader view of ‘similarity’. It also includes some non-product-related aspects, like the brand image.

As with the concept of ‘similarity’, empirical evidence was also found to support that ‘typicality’ has an impact on consumer brand extension evaluations (Boush & Loken, 1991). However, the notion of ‘typicality’ may be a more useful measurement of ‘fit perception’ when the original brand has more than one existing product, because it measures how representative this new extension is of the brand family. For example, it was found that the perceived ‘typicality’ of the extension interacted with brand breadth in a consumer evaluation of the brand extension process (Boush & Loken, 1991).

### **2.3.1.3 Relatedness**

‘Relatedness’ is another word used to describe the ‘fit’ between the extension product and the original brand. It refers to “the strength of the association between the brand’s parent category and the target extension category” (Herr et al., 1996, p. 139). The consumer attitudes transference is more likely to occur on extensions which are closely related to the parent categories (Herr et al., 1996).

Farquhar, Herr, and Fazio (1990) indicate that relatedness is a similar concept to ‘similarity’. It depends on the similarity of common features, complementarities in a common-usage situation, and substitutability in providing a common function (Farquhar et al., 1990; Herr et al., 1996). However, Herr et al. (1996) also point out that ‘relatedness’ is a more inclusive construct than ‘similarity’. The notion of ‘similarity’ only refers to the common physical features between the original product category and the extension category. It does not accommodate the notion of ‘conceptual coherence’. That is, sometimes two product categories are perceived to be related to each other

conceptually but not physically. For example CD players and digital cameras can be seen as related to each other, even though they have very different physical attributes. Thus Herr et al. (1996) conclude that ‘relatedness’ offers a broader view of ‘similarity’.

Like the concept of ‘typicality’, the notion of ‘relatedness’ defines consumer perceptions of fit in brand extension evaluations based firstly on the concept of ‘similarity’. But they both offer some idea that is more than the ‘similarity’ concept. These two concepts indicate that consumer perceptions of fit in brand extension evaluations include not only physical product similarities, but also consistencies at some non-physical levels, for example brand image level and product conceptual level.

#### **2.3.1.4 Brand concept consistency**

Although both concepts of ‘typicality’ and ‘relatedness’ capture some non-physical aspects of ‘fit’, the non-product aspects of ‘fit’ are accommodated more by the concept of ‘brand concept consistency’. A brand concept is the brand image, which is made up of specific associations that differentiate the brand from other competing brands (Bhat & Reddy, 2001). It is the unique abstract meaning that is derived from a particular configuration of product features (Park et al., 1991).

Park et al. (1991) reveal that when consumers evaluate a brand extension, they not only take into account information about the product feature similarity, but also the concept consistency between the brand concept and the extension. The brand concept consistency is more non-product-related, and is more about the brand image than the physical features. The more that consumers think the extension is consistent with the parent brand concept or image, the more favourable consumer attitudes are toward the extension. Thus those extensions, which are very different from the parent product category physically, can also be perceived as fitting with the parent brand, as long as they have consistent images and concepts with the parent brand. For example, in Park et al.’s (1991) experiment, they found that rings could be a good extension for Rolex but a bad extension for Timex, even if these two brands have the same parent product – watches. This was because rings were consistent with the ‘luxury and high status’ image

of Rolex, and inconsistent with the ‘durability and reliability’ image of Timex.

Compared with the notion of ‘similarity’, ‘brand concept consistency’ captures a totally different aspect of ‘fit’. However, it is believed to be equally important to the ‘similarity’ between the extension product and the original brand in a consumer brand extension evaluation process (Bhat & Reddy, 2001; Grime et al., 2002; Park et al., 1991). The concept of consumer fit perceptions in brand extension evaluations is incomplete without either ‘similarity’ or ‘brand concept consistency’.

### **2.3.1.5 Overlaps in these concepts**

The four concepts reviewed above are most frequently used to define the ‘perceived fit’ between an extension product and its original brand. They have differences between them as described before, but they also have some overlaps. Sometimes it is very difficult to clearly differentiate them from each other, especially between ‘similarity’, ‘typicality’, and ‘relatedness’ (Grime et al., 2002).

First, as mentioned before, ‘relatedness’ includes the three bases of ‘similarity’ (Farquhar et al., 1990; Herr et al., 1996). Muroma and Saari (1996) suggest that “similarity is closely connected with relatedness, in fact similarity measures relatedness at the level of product class and especially at the level of product and brand”. Second, the degree of ‘similarity’ between a new product and its original brand category attributes also influences the degree to which this new product is perceived as ‘typical’ of the category (“Consumer Behaviour Seminar,” 1987, p. 44). In addition, ‘Relatedness and typicality also have often been used as overlapping concepts in brand extension research’ (Muroma & Saari, 1996). This is because ‘typicality’ is used to represent how typical the new product category, is compared with the existing product category, while ‘relatedness’ means the extent to which these two product categories are related to each other. Finally, both the concepts of ‘typicality’ and ‘relatedness’ include some notions that are beyond the physical and product-related level. Measuring the ‘fit’ at the non-product-related level was discussed more deeply in the concept of ‘brand concept consistency’.

### **2.3.1.6 Two dimensions of fit**

Based on these differences and the overlaps of these four popular concepts of consumer perceived fit in the literature, two dimensions of fit are identified. It seems that the consumer's perception of 'fit' between the extension product and the original brand are measured by a number of dimensions, which are different but also overlap with each other. Although these dimensions of 'perceived fit' have different definitions, they all measure either the product-related or the non-product-related facet of fit.

Based on categorization theory, a brand can be seen as a 'cognitive category' or a 'schema' in the minds of consumers (de Ruyter & Wetzels, 2000; Smith & Andrews, 1995). The 'cognitive category' contains everything a consumer knows, believes, or infers about a brand (Bridges, 1992). This brand category/schema was identified as having two dimensions: product-related and non-product-related/image-related (Bridges, 1992; de Ruyter & Wetzels, 2000; Park et al., 1991). The product-related facet of a brand category refers to the physical product that is purchased, consumed or used, and about the performance of the product. On the other hand, the non-product-related or image-related facet of a brand category is about the brand's abstract and symbolic meaning, which is not related to the product's physical features or attributes. All four dimensions of fit discussed previously measure whether an extension fits with its parent brand from a product-related facet or from a non-product-related facet. It would be better to classify the 'perceived fit' along with the two-dimensions of a brand 'cognitive category'.

Thus regardless of 'similarity', 'typicality', 'relatedness' or 'brand concept consistency', two dimensions of 'perceived fit' are employed in current research. The product-related dimension of 'fit' refers to the consistency or similarity between an extension and its original brand at product level. The product level includes the products' shared physical features, attributes, usage-situations, and so on, which are all related to the products. The non-product-related dimension of 'fit' refers to the consistency or similarity at the image level. This includes shared brand image, brand personality, and so on, which are

related to a brand's image or symbolic meaning.

### **2.3.1.7 Different effects of two dimensions of fit**

Consumer perceptions of fit or fit perceptions in brand extension evaluations comprise two dimensions, product-related and non-product-related. However, the effects of these two dimensions of 'fit' are not equal in all brand extension evaluations (Park et al., 1991). According to Park et al. (1991), brands can be classified into types in terms of consumers' understanding of these brands. When a brand is understood primarily in terms of brand unique aspects that are related to product performance, and is expected to satisfy consumers' functional needs, solving their consumption problems, this brand is called 'functional brand'. When a brand is understood primarily in terms of consumers' expression of self-concepts or images, and is expected to satisfy consumers' symbolic needs, fulfilling their self-image and social identification, this type of brand is called 'prestige brand'(Park, Jaworski, & MacInnis, 1986; Park et al., 1991). Here the prestige brands do not only include those which are understood as expensive luxury brands, but also contain those which can be used to express a consumer's personality (Bhat & Reddy, 1998). From the categorization theory perspective, if a brand schema formed in a consumer's mind is more product-related, this brand is grouped as a functional brand. And vice versa, a brand with more non-product-related cognitive category facets is classified as a prestige brand.

Since consumers understand and form their 'cognitive category' about brands based on product-related and non-product-related facets, they may also assess the fit between a new extension and its parent brand from these two aspects. For a functional brand, consumers may evaluate its extension primarily from the product-related aspect, evaluating whether the new extension's features, attributes or performance fit or is similar to the original brand. Conversely, for a prestige brand's extension, consumers may evaluate whether it fits or is consistent with the symbolic meaning of the original brand prior to evaluating their product-related similarities. In other words, product-related dimension of fit is more important for a functional-oriented brand extension, whereas non-product-related dimension of fit has a greater impact on the

prestige-oriented brand extension (Park et al., 1991).

The different effects of fit on functional and prestige brand extension evaluations may further lead to different impacts of some other variables on these two types of extension evaluations. This is because these variables moderate the effects of consumer fit perception on brand extension evaluations.

### ***2.3.2 Fit perceptions are affected by other variables***

No matter which dimension has been used in previous studies, ‘similarity’, ‘typicality’, ‘relatedness’, or ‘brand concept consistency’, the importance of the ‘fit perception’ in a consumer brand extension evaluation has been confirmed through a substantial amount of empirical research (Aaker & Keller, 1990; Boush & Loken, 1991; Herr et al., 1996; Park et al., 1991). It is the key factor in a consumer brand extension evaluation process, but may be moderated by other variables such as, brand breadth, advertising contents, and advertising repetition, which have all been found to moderate the effects of fit in previous research (Boush & Loken, 1991; Klink & Smith, 2001; Lane & Jacobson, 1995). For example, brand breadth, “the variability among product types represented by a brand name”, was found to interact with ‘typicality’ in brand extension evaluations (Boush & Loken, 1991). According to Boush and Loken (1991), extensions of broad brands have higher typical ratings than extensions of narrow brands. The individual differences may also result in different perceptions of ‘fit’ between a new extension product and its original brand, as well as different attitudes towards to the new brand extension among consumers. This is because individuals’ personal characteristics may lead to different cognitive and consumption behaviours. For example, there is evidence that a consumer’s positive mood is also one of the moderating variables that influences one’s ‘fit’ perception and evaluation of a brand extension (Barone et al., 2000).

As one of the individual character variables, consumer knowledge may be another moderating variable that has an impact on the fit perception in a consumer brand extension evaluation process (Broniarczyk & Alba, 1994; Grime et al., 2002; Muthukrishnan & Weitz, 1991). There are two reasons for this. Firstly, in the

psychological literature, it is believed that knowledge and expertise have an impact on similarity judgment. Medin, Goldstone, and Gentner (1993) claim that similarity is flexible rather than fixed. Experts and novices may perceive the similarity differently based on their differences in knowledge level, because novices classify objects on the basis of superficial or surface features, whereas experts classify them on the basis of deeper underlying principles (Medin et al., 1993). Thus the fit perceptions in brand extension evaluations may also be different for expert and novice consumers. Secondly, in the consumer research literature, consumer knowledge has been found to have an impact on various kinds of consumer behaviours, for instance, information processing and decision-making (Beattie, 1982; Brucks, 1985; Marks & Olson, 1981). Thus as a kind of attitude formation process, consumer evaluation of a brand extension may also be affected by consumer knowledge.

Even though the influence of consumer knowledge has been explored by previous research, there is still a call in the literature for more study about this moderating variable (Czellar, 2003; Grime et al., 2002). As stated previously, different effects of fit on functional and prestige brand extension evaluations may further lead to different impacts of moderating variables on these two types of extension evaluations. Consumer knowledge may also play different roles in consumer brand extension evaluations for different parent brands. Thus the main objective of this study is to further examine the role of consumer knowledge in brand extension evaluation. The following section presents the theoretical rationale for including consumer knowledge as a moderating variable in the brand extension evaluation process, and its possible influences on fit perceptions.

## **2.4 Consumer Knowledge in Brand Extension Evaluations**

In the previous section, the importance of the consumer fit perception in a brand extension evaluation, and its dimensions, were reviewed. Consumer knowledge was indicated as being one of the moderating variables that have an impact on consumer fit perceptions in the brand extension evaluations process. In this section, the relationships between consumer knowledge and fit perceptions in brand extension evaluations are

further explored theoretically by reviewing the literature in the consumer knowledge area.

#### **2.4.1 *The influence of knowledge in consumer behaviours***

There has been a substantial amount of research on the effect of consumer knowledge on various stages of consumer behaviours (Muthukrishnan & Weitz, 1991). The conclusion in the literature is that consumers with high and low knowledge react differently in a variety of consumer behaviours, for example information processing, and evaluation strategies, decision-making (Rao & Monroe, 1988; Selnes & Howell, 1999). The differences between high and low knowledge consumer behaviours in related areas are reviewed. These findings and conclusions may have some indications on the role of consumer knowledge in brand extension evaluation behaviour.

By reviewing the literature, the differences between high and low knowledge consumers are addressed in three related areas, which are discussed separately in the following sections. Then, based on findings and conclusions in these related areas, suggestions of differences in brand extension evaluation are also given.

##### **2.4.1.1 *Differences in cognitive structures, capabilities of analysis, inference, and memory***

A substantial number of studies have focused on the impact of consumer knowledge on consumer behaviours since the 1980s (Bettman & Park, 1980; Brucks, 1985; Johnson & Russo, 1984; Rao & Monroe, 1988). These studies investigated the effects of consumer knowledge from different aspects. For example, Bettman and Park (1980) find the effects of prior knowledge and experience on choice processes, Johnson and Russo (1984) investigated the knowledge effects on new product information learning, Brucks (1985) studied the effects on pre-purchase information search, Rao and Monroe (1988) focused on the knowledge effects on strategies of using product information cues in product evaluations, and Sujana (1985) examined the effects on strategies of evaluation processes. They conclude that consumers who are high in knowledge differ from consumers who are low in knowledge, in terms of information processing, evaluation

strategies, and decision-making. These different behaviours between high and low knowledge consumers are due to consumer differences in cognitive structures, capabilities of analysis, inference, and memory.

According to Alba and Hutchinson (1987), consumer knowledge has two major components: familiarity, which is defined as the number of product-related experiences that have been accumulated by the consumer, and expertise, which is the ability to perform product-related tasks successfully. Consumers who have higher familiarity are expected to have a more stable, complex and well-developed cognitive structure of product knowledge (Marks & Olson, 1981). Product familiarity also increases consumers' ability to encode and remember information (Johnson & Russo, 1984). Expert consumers are more selective in what information is needed for making a choice. Because they are more knowledgeable, they have a better understanding of what attributes should be examined and are more efficient in information search (Bettman & Park, 1980; Brucks, 1985). In addition, better cognitive skills enable expert consumers to search for sensory information cues, which requires more inference and domain specific product knowledge, more efficiently than novice consumers who rely more on written information cues (Selnes & Howell, 1999). All these conclusions from previous studies indicate that consumers who are high in knowledge level have better cognitive structures, and capabilities of analysis, inference, and memory, than those low in knowledge level.

#### **2.4.1.2 Differences in the internal knowledge transfer**

When consumers learn new things, they not only rely on external information sources such as advertising and product experience, but also on a process of internal knowledge transfer from familiar to novel domain (Gregan-Paxton & John, 1997). In this process, consumers learn about a new product by transferring their knowledge of a similar type of product to the new one. This internal knowledge transfer is useful in several consumer behaviour domains, for example in the country-of-origin effects and the brand extension literature.

However, the transfer process is affected largely by expertise (Gregan-Paxton & John, 1997). According to Gregan-Paxton and John (1997), in the knowledge transfer process consumers firstly access the similarities between the new product and the familiar product. If the similarities are perceived by consumers, their knowledge, attitudes, and beliefs about the familiar product will be easily transferred to the new product. This is a category-based transfer. However, if similarities are not perceived, the knowledge transfer between the familiar and novel products will be more difficult, or the process of learning about the new product will follow other strategies, instead of internal knowledge transfer. Since expert consumers have better cognitive structures and analysis skills, they are more likely to identify the similarities between the novel and familiar products than novice consumers. Thus the category-based knowledge transfer is more likely to be triggered in expert consumers' evaluations than in those of novice consumers. Based on this theory, in a case of brand extension, expert consumers are more likely to identify the similarities or consistencies between the new extension and its parent brand, and then are more likely to transfer their attitudes and beliefs toward the parent brand to the new extension.

#### **2.4.1.3 Differences in similarity judgments between brands**

In research of consumers' similarity judgments between brands, consumer knowledge has also been found to have an influence on the judgment process (Bijmolt, Wedel, Pieters, & DeSarbo, 1998). Consumers' familiarities with different brands enable them to identify the similarities and dissimilarities between the two brands, based on deep cues rather than surface cues such as general product category attributes.

When consumers compare a new brand and a current brand, their knowledge, for example, brand knowledge, attribute knowledge, and experience knowledge, will make the similarity judgment significantly different between high and low knowledge consumers (Baker, Hunt, & Scribner, 2002). Likewise in the fit perception between an extension product and its parent brand, brand knowledge, attribute knowledge, and experience knowledge may also lead to different reactions between expert and novice consumers.

#### **2.4.1.4 Differences in fit perception in brand extension evaluations**

Since high knowledge consumers are different from low knowledge consumers in terms of cognitive structures, capabilities of analysis and inference, memories, internal knowledge transfer, and similarity judgment, they may also have different ‘fit’ perceptions and brand extension evaluations due to the differences between their knowledge levels. Firstly, consumers organize information about products hierarchically with the product category node at the highest level, then subcategories, then brands, and finally the attributes and other information associated with each brand. The degree of expertise determines how well the information will be organized hierarchically (Cowley & Mitchell, 2003). Consumers who are lacking in knowledge have more difficulty with forming well-developed complex and hierarchical cognitive structures. Thus, when evaluating a new extension product, a novice consumer may only be able to categorize it into a very broad product category, but not the subcategory, or even its original brand group, due to his/her limited cognitive structures.

Secondly, Sujan’s (1985) research on the effects of consumer knowledge on evaluation strategies, indicates that expert consumers with more developed category knowledge in memory are more sensitive to the consistency and inconsistency between incoming information and category knowledge. However, for novice consumers, it is difficult to detect consistency and inconsistency as clearly as experts can. This indicates that in brand extension evaluations, expert consumers may perceive the ‘fit’ or ‘inconsistency’ between the extension and the original brand more correctly than novice consumers.

#### **2.4.2 Previous research of consumer knowledge in brand extension evaluations**

The role of consumer knowledge in brand extension evaluations has already been explored in previous research. These studies investigated the effects of consumer knowledge on fit perceptions and extension evaluations both theoretically and empirically. In this section, some of these studies are reviewed. Gaps and new research problems are indicated based on the conclusions and findings of these studies.

#### **2.4.2.1 Theoretical Research of consumer knowledge in brand extension evaluations**

In a model of evaluation of line extensions, proposed by Desai and Hoyer (1993), expertise is identified as one of the factors which moderates the process of ‘matching’ between the line extension and the original brand concept. Since expert consumers have a better understanding of brand concept, they should be able to notice the relationships between different attributes more clearly than novice consumers. As a result, they are more likely to identify any inconsistency/dissimilarity between a line extension and the brand concept. In the model, a line extension will be rejected if the consumer perceives that is not consistent with the brand concept. Thus Desai and Hoyer (1993, p. 602) claim that “experts would accept less number of line extensions than novices”.

However, the model contains a few limitations. First, this model was developed based only on line extensions, and extensions crossing product categories were excluded. Only the one aspect of perceived fit (non-product-related facet) between the extension and its original brand has been taken into account, because in a line extension, product similarity is not very important as the extension is in the same product category. Thus, this model may not be fully applicable to category extensions. Furthermore, this model is only a proposed model, and it has not been tested through any empirical study. Thus its validity and generalisability is still unknown.

#### **2.4.2.2 Empirical research of consumer knowledge in brand extension evaluations**

Besides the theoretical model, in the literature there is also some empirical evidence on the influence of consumer knowledge in brand extension evaluations. For example, Muthukrishnan and Weitz (1991) found that expert and novice consumers react differently to brand extension on the basis of the type of perceived similarity between the extension and the original brand. They divided the consumer perceived similarity into two types: similarity based on deep cues (factors that may account for the performance of the product in the original category and may also be related to the performance in the new category), and similarity based on surface cues (factors that are

not related to the performance of products). In the empirical study, the authors found that expert consumers with higher product knowledge have the ability to accurately identify similarity both when it is based on deep and surface cues. On the other hand, novice consumers can only detect similarity when it is based on surface cues. Thus when a new extension product is introduced based on deep cue similarity, novice consumers would be able to perceive the similarities between the new extension and its parent brand, but would not have a favourable attitude towards it as expert consumers do.

In the research conducted by Roux and Boush (1996), consumer knowledge can significantly improve quality perceptions of brand extension. By focusing specifically on the luxury brands, Roux and Boush (1996) conclude: what consumers really know about a brand (the expertise) facilitates them to predict evaluations of the quality of an extension; and to what extent consumers are familiar with the brand helps them to predict their likelihood of actually purchasing the brand extension. Although the authors did not investigate whether consumer knowledge has a direct impact on consumer 'fit' perceptions in luxury brand extensions, they confirmed that given the generally favourable attitude toward luxury brands, evaluations of their extensions are dominated by perceived 'conceptual fit' (the conceptual consistency aspect of 'fit') between the brand and the extension.

There is another brand extension study which has examined the influence of consumer knowledge in extension evaluations. Broniarczyk and Alba (1994), concluded in their research that the influence of brand-specific associations not only moderates the effect of brand affect and product category similarity, but also dominates these two effects in a brand extension evaluation. But this powerful influence of brand-specific association is the under boundary condition of brand knowledge. That is, brand-specific associations will moderate or even dominate the effect of brand affect only for expert consumers. The reason for this is that novice consumers with low brand knowledge may not be able to identify the brand-specific associations correctly. Therefore, the influence of brand-specific association is weak for them when compared with expert consumers.

### **2.4.2.3 Findings and gaps in previous research**

The findings in these studies show that consumer knowledge does have an impact on consumer brand extension evaluations. Consumer knowledge seems to have a positive relationship with extension evaluations by moderating the fit perceptions between an extension and its parent brand. However, there is still some confusion in the literature (Grime et al., 2002). These studies revised previously measured different aspects of consumer knowledge. Muthukrishnan and Weitz's (1991) research measured consumer knowledge about product category, and did not take the knowledge about particular brands into consideration. Roux and Boush (1996) measured the consumer knowledge about the brand specifically, and did not take product knowledge into account. In Broniarczyk and Alba's (1994, p. 227) research they did not measure any kind of consumer knowledge, but they did say that "brand knowledge serves as a potent boundary condition". They seem to focus on brand knowledge. However, in their experiment, they selected computer engineers with masters or doctoral degrees as expert consumers of computers, and undergraduate business students as novice consumers. Thus, the experts in their experiment might be potentially high in knowledge about both product category and brands.

Grime et al. (2002) pointed out that previous research did not clarify whether the consumer knowledge influencing on extension evaluations relates to the product, the brand, or both. Product knowledge and brand knowledge seem to be different sides of consumer knowledge. Should they really be treated as a single construct or should they be considered separately in terms of the influences on consumer fit perceptions in brand extension evaluations? Do they both affect the consumer evaluations of brand extensions, or does only one of them? Are both these effects in the evaluation process equal, or different? These are questions that have not been addressed in previous research.

### **2.4.3 Product and brand knowledge in brand extension evaluations**

Consumer knowledge is multidimensional, and can be classified and measured by the

content (Brucks, 1986). Consumers construct knowledge hierarchically, at different levels in their memories. “No one level of knowledge captures all the possible meanings of an object, and event, or behaviour. Each level of meaning is useful for certain purposes, but not all purposes” (Peter & Olson, 2005, p. 72). Thus the different types or levels of consumer knowledge may have different effects on decision-making and purchasing behaviour (Brucks, 1986; Fiske et al., 1994). In line with this conclusion, they may also affect consumer evaluation of a brand extension differently. There is a need to make clear which type of consumer knowledge affects the evaluation process. In a brand extension evaluation, the effect of one level/type of consumer knowledge may be more important than another. However, first of all, we have to understand how many types/levels of consumer knowledge are available in a consumer’s memory, which may impact on their evaluation of brand extension.

#### **2.4.3.1 Classifications of consumer knowledge**

There is no consistent way to classify consumer knowledge into different types and levels in the literature. Hastie (1982, p. 72) distinguishes consumer knowledge between ‘generic product knowledge’ and ‘individual product knowledge’. ‘Generic product knowledge’ contains “general information about classes of product, instances exemplifying the products, the existence of different types of products, and information about the attributes or dimensions that are relevant and important in making decisions concerning the products.” On the other hand, ‘individual product knowledge’ includes “information such as prices, colour, taste, durability, features, etc. of each product”. In summary, ‘generic product knowledge’ is general knowledge about the product category, whereas ‘individual product knowledge’ is specific knowledge about a particular product.

Later, Brucks (1986) proposed an eight-category typology of consumer knowledge which included terminology (knowledge of the meanings of terms used within a domain), product attributes (knowledge of which attributes are available for evaluating a brand), general attribute evaluation (knowledge of the overall evaluation for an attribute), specific attribute evaluations (knowledge of specific criteria used to evaluate

an attribute), general product usage (knowledge of how the product can be used), personal product usage (memories of usage experiences), brand facts (overall evaluation of a brand), and purchasing and decision making procedure (knowledge of the purchasing process). However, as suggested by Brucks (1986), this eight-category typology of consumer knowledge is a further classification of ‘generic product knowledge’ and individual product knowledge’. The first six categories are about ‘general product knowledge’, and the seventh category, the brand facts, is the same as ‘individual product knowledge’. The only one that cannot be grouped into either ‘generic product knowledge’ or ‘individual product knowledge’ is the last category, which is named purchasing and decision-making procedure. This one is the knowledge of rules for taking action, it is the procedure knowledge (Brucks, 1986).

Although Hastie (1982) and Brucks (1986) proposed two different typologies of consumer knowledge, generally there are two classifications with which they both agree: knowledge of general product and knowledge of particular brand.

There are also other ways to classify consumer knowledge. For example, Brucks (1985), Mitchell and Dacin (1996) classify it into subjective and objective knowledge. This method of knowledge classification usually relates to how to measure consumer knowledge, particularly the knowledge of product category, in a data collection method (Flynn & Goldsmith, 1999; Kanwar, Grund, & Olson, 1990). Thus the review of this kind of knowledge classification will be presented in a later chapter, when the measurement of knowledge is discussed. At present, it is the classification of general product knowledge and particular brand knowledge that is considered to relate more to the research questions.

#### **2.4.3.2 Product knowledge and brand knowledge**

Two types of consumer knowledge are employed in this study: product knowledge and brand knowledge. This is because firstly, two levels of consumer knowledge (knowledge about the general product and knowledge about the particular brand) were identified by reviewing the old ways of consumer knowledge classification (Brucks,

1986; Hastie, 1982). Secondly, these two types of consumer knowledge are emerged in a recent consumer knowledge model (Peter & Olson, 2005).

In Peter and Olson's (2005) model, consumer knowledge was categorized hierarchically in four levels: the product class, product form, brand, and model/features. These four levels of knowledge are categorized hierarchically, from the most inclusive and general knowledge of the product class, to the most specific information about the specific models and features under a brand name. The product class and product form knowledge are both about product category information. The differences are: the product class knowledge is about the more inclusive and broader category knowledge, for example computers, and the product form knowledge is about subcategory knowledge, for example laptop computers. Thus in this study, these two kinds of knowledge are grouped together as 'product knowledge'. 'Product knowledge' refers to information about product categories, either the most general category, or subcategories stored in a consumer's memory. In addition, in an event of brand extension, consumer product knowledge includes both parent product knowledge and extension product knowledge. The reason is that before the new extension and the parent brand are combined together, consumers should already have some knowledge about the extension product and parent product. Information about both these products may affect consumers' abilities to assess the similarities between them (Czellar, 2003).

Since the topic of this study is brand extensions, and the brands concerned in the study may have only one single product, or several products/models, consumer knowledge about brand and model/features is grouped as one construct, 'brand knowledge' in the current research. 'Brand knowledge' refers to consumer knowledge about a brand, including brand name, attributes, benefits, concepts, images, and everything that is associated with the brand. It is the personal meaning about a brand stored in consumer memory. It is more abstract and intangible than product knowledge, and does not really relate to the actual physical product (Keller, 2003a).

### **2.4.3.3 Different influences of product knowledge and brand knowledge**

In previous consumer research, Fiske, Luebbehusen, Miyazaki, and Urbany (1994) have studied the different effects of 'brand knowledge' and 'product knowledge'. They found that these two constructs affect information search behaviour very differently. Thus, in this study, product knowledge and brand knowledge are also considered as two separate variables in order to investigate their roles in brand extension evaluations separately.

These two types of consumer knowledge were found to play different roles in brand evaluations. In Bei and Heslin's (1997) research, they found that consumers who choose brands that give more value for the price are knowledgeable about the product category. The term of 'more value' in their study means the best balance between the product quality and price. This tends to be the functional aspects of the product. Those consumers who choose famous and more expensive brands consider the consistency between the brand images and their personalities, egos, or interests more than the functional aspects of products. These findings indicate that consumer product knowledge and brand knowledge play different roles in brand evaluations. Product knowledge can help consumers to evaluate brands from a product-related aspect, while brand knowledge helps consumers to evaluate brands from a non-product-related facet.

Consequently, product and brand knowledge may play different roles in brand extension evaluations. Since product knowledge helps consumers to evaluate from a product-related aspect, consumers with high product knowledge may more easily notice the product-related fit, or similarities between the new extension product and the parent brand product. On the other hand, brand knowledge may help consumers to detect the symbolic meaning consistency between the new extension product and the parent brand. As discussed earlier, the importance of two dimensions of fit varies between the functional brand and the prestige brand. The product-related fit is more important for a functional brand, whereas a non-product-related fit is more important for a prestige brand. Therefore, the importance of two kinds of consumer knowledge may also vary between the functional brand and prestige brand.

In summary, the relationship between consumer knowledge and fit perceptions in brand extension evaluations is investigated by reviewing the literature in both the brand extension and consumer knowledge fields. In reviewing the fit perceptions in brand extension evaluations, two dimensions of fit (product-related vs. non-product-related) are identified. Furthermore, it is suggested that these two dimensions of fit have different effects on the extensions of two types of brands (functional vs. prestige). In reviewing the literature about consumer knowledge, the previous findings of the effects of knowledge on consumer behaviours indicate that consumer knowledge may have effects on brand extension evaluations. Moreover, consumer knowledge is classified into two types: product and brand knowledge. These two types of knowledge may have different effects on consumer fit perceptions in brand extension evaluations. Hypotheses about these relationships are proposed in the following section.

**Table 2-1 Summary of related literature on key topics**

Topic	Major findings	Relevant literature
The importance of fit	<ul style="list-style-type: none"> <li>▪ The higher level of fit perceived by consumers, the more likely that consumer positive attitudes toward a brand will be transferred to its new extension.</li> </ul>	e.g. Aaker & Keller, 1990; Boush & Loken, 1991; Herr et al., 1996; Muroma & Saari, 1996; Park et al., 1991
Dimensions of fit	<ul style="list-style-type: none"> <li>▪ <i>Similarity</i>: how alike the original product and the extension product are in terms of features and attributes.</li> <li>▪ <i>Typicality</i>: how representative the extension product category is of the original family-branded products.</li> <li>▪ <i>Relatedness</i>: the strength of the association between the brand's parent category and the target extension category.</li> <li>▪ <i>Brand concept consistency</i>: the match between the specific image of the brand and the extension product.</li> </ul>	e.g. Aaker & Keller, 1990; Bottomley & Holden, 2001; Chakravarti et al., 1990; Sunde & Brodie, 1993 Boush & Loken, 1991  Farquhar et al., 1990; Herr et al., 1996  Bhat & Reddy, 2001; Park et al., 1991
The effects of knowledge on consumer behaviours	<ul style="list-style-type: none"> <li>▪ Difference in cognitive structures, capabilities of analysis, inference, and memory.</li> <li>▪ Difference in the internal knowledge transfer</li> <li>▪ Difference in the similarity judgments between brands.</li> </ul>	Bettman & Park, 1980; Brucks, 1985; Johnson & Russo, 1984; Rao & Monroe, 1988; Sujan, 1985  Gregan-Paxton & John, 1997 Baker et al., 2002; Bijmolt et al., 1998
The effects of knowledge on brand extension evaluations	Conceptualisation evidence: <ul style="list-style-type: none"> <li>▪ Difference between expert and novice in accepting number of line extensions.</li> </ul>	Desai & Hoyer, 1993
	Empirical evidence: <ul style="list-style-type: none"> <li>▪ Expert consumers identify similarity when it is based on both deep and surface cues. Novice consumers can only detect similarity when it is based on surface cues.</li> <li>▪ Expertise and familiarity with a brand enable consumers to predict evaluations of the quality of an extension, and to predict their likelihood of purchase intention.</li> <li>▪ Consumer knowledge increases the effect of brand-specific associations in extension evaluations.</li> </ul>	Muthukrishnan & Weitz, 1991  Roux & Boush, 1996  Broniarczyk & Alba, 1994
Different effects of product and brand knowledge	<ul style="list-style-type: none"> <li>▪ Product and brand knowledge have different effects on brand evaluations.</li> </ul>	Bei & Heslin, 1997

## 2.5 Hypotheses

As reviewed in previous sections, consumer knowledge seems to be a factor that plays a role in consumer brand extension evaluations, by influencing on the consumer fit perception between the extension product and the original brand. In addition, it is generally accepted that higher consumer perceived fits lead to higher consumer evaluations of a new brand extension product, as consumers hold positive attitudes toward the original brand. Hence, in this study, the effects of consumer knowledge on brand extension evaluations will be investigated by examining the relationship between consumer knowledge and consumer fit perceptions in extension evaluations. It is assumed in this study that if consumer knowledge has a positive relationship with consumer perceived fit, it indicates that consumer knowledge would have a positive relationship with the consumer evaluation of a brand extension.

Prior research on the influence of consumer knowledge concludes that consumer knowledge has a positive relationship with consumer fit perceptions between the extension and the original brand (Broniarczyk & Alba, 1994; Muthukrishnan & Weitz, 1991). Although the authors of these studies treat consumer knowledge as a single construct, they seem to have preference in terms of product knowledge and brand knowledge. Muthukrishnan & Weitz (1991) measured only product knowledge, whereas Broniarczyk & Alba (1994) and Roux & Boush (1996) considered only brand knowledge. Consumers with higher consumer knowledge are more likely to notice the deep-cue similarities between the extension and the original brand (Muthukrishnan & Weitz, 1991). They are also more likely to identify the 'fit' between the extension and brand-specific associations from the original brand (Broniarczyk & Alba, 1994). The different measurements of consumer knowledge and similar conclusions in previous research indicate that both consumer product knowledge and brand knowledge may affect consumer fit perceptions positively. Therefore, the first set of hypotheses is proposed as:

H<sub>1a</sub>: Consumers with a higher level of PRODUCT knowledge will have a higher level of ratings on fit perceptions between a parent brand and its extension product.

H<sub>1b</sub>: Consumers with a higher level of BRAND knowledge will have a higher level of ratings on fit perceptions between a parent brand and its extension product.

However, the effects of product and brand knowledge on consumer fit perceptions in brand extension evaluations may not be equal when the parent brands are different. That is, product and brand knowledge play different roles in functional vs. prestige brand extension evaluations. The reasons are, firstly, that two dimensions of fit play different roles in these two kinds of brand extension evaluations (Park et al., 1991). In a functional brand extension evaluation, consumers will pay more attention to the product-related fit. When a new extension is introduced, consumers will assess whether or not the new extension fits with the parent brand in terms of physical product similarities, performance similarities etc. However, they will assess the non-product-related fit more in a prestige brand extension. They will consider more about whether the new extension fits with the symbolic meanings of the parent brand.

Secondly, product and brand knowledge helps consumers to assess brands from different facets. Product knowledge is the information about the general product category and the physical products, which is stored in a consumer's memory. It helps consumers to evaluate brands from a product-related aspect. However, brand knowledge is the more abstract and intangible information about a brand's personal meaning, for example, the brand's personality and the brand's symbolic meaning. It helps consumers to evaluate brands from the non-product-related side (Bei & Heslin, 1997). Thus, product knowledge may be more important for the product-related fit perception, while brand knowledge may be more important for the non-product-related fit perception. In other words, consumers with higher product knowledge would have more ability to detect the product-related fit between an extension and its original brand. And those with higher brand knowledge would be more likely to identify the non-product-related fit between an extension and its original brand.

Combining these two reasons together, it can be proposed that consumer product knowledge would be more important in a functional brand extension evaluation, where non-product-related fit is dominant. Consumer brand knowledge would play a more important role in a prestige brand extension evaluation, because non-product-related fit is more important for prestige brands. Hence Hypothesis 2a and 2b are proposed as:

H<sub>2a</sub>: For a functional-oriented brand, PRODUCT knowledge plays a more important role in consumer fit perceptions between the original brand and extension product than BRAND knowledge in the brand extension evaluation process.

H<sub>2b</sub>: For a prestige-oriented brand, BRAND knowledge plays a more important role in consumer fit perceptions between the parent brand and extension product than PRODUCT knowledge in the brand extension evaluation process.

## **2.6 Conclusion**

In order to investigate in-depth the relationships between consumer knowledge and consumer fit perception in brand extension evaluations, two sets of hypotheses are proposed based on reviewing previous literature in both the brand extension and consumer knowledge fields.

The differences between this study and previous research on the effects of consumer knowledge in consumer brand extension evaluations are: first, the roles of consumer knowledge in brand extension evaluations were investigated through examining the relationship between consumer knowledge and fit perceptions. Second, based on Park et al.'s (1991) functional vs. prestige brand theory, two types of brand extensions are considered separately. The reason for this is that two dimensions of fit (product-related vs. non-product-related) may play different roles in the two types of brand extensions. Third, this study pointed out that two types of consumer knowledge, product category knowledge and brand knowledge may have different impacts on consumer fit perceptions between a new extension and its original brand in the consumer brand extension evaluation process. Consequently, the impact of two types of consumer

knowledge (product category vs. brand knowledge) on consumer fit perception may be different for two types of brand extension evaluation processes (functional vs. prestige).

In order to empirically test these relationships highlighted in the hypotheses, details of research design, methods, the data collection, and the plan of analyses are discussed in the following chapter.

## **3 Chapter III – Methodology**

### **3.1 Overview**

In the previous chapter, it was found that consumer knowledge was one of the moderating variables in consumer brand extension evaluations. Two facets of consumer knowledge, product and brand knowledge, were found to have effects on consumer fit perceptions in brand extension evaluation processes. In addition, their effects may be different in terms of different types of brands (functional vs. prestige). The effects of product knowledge may be more significant on the fit perceptions between a functional brand and its extension, because product-related fit is more important in this type of brand extension. In contrast, the effects of brand knowledge may be more important on the fit perceptions between a prestige brand and its extension, since non-product-related fit is more important here.

The objective of the research was to test the hypothesized relationships between four variables. There was one dependent variable: consumer fit perception in a brand extension evaluation, and three independent variables: (1) brand type, functional vs. prestige brand; (2) product category knowledge, high vs. low product category knowledge consumers; (3) brand knowledge, high vs. low brand knowledge consumers.

Quantitative research methods were employed in this research, because this was a hypotheses-testing study rather than an exploratory study. A factorial experiment was designed to investigate the hypothesized relationships between variables. The factorial experiment is a suitable design when the interest of the research is to investigate the relationships between one dependent variable and two or more independent variables (Graziano & Raulin, 2000).

This chapter is organised as follows: first, the detail of the experimental design is presented. Then the measurement of each variable is developed, based on reviewed

literature. Thirdly, the procedure of selecting stimulus brands and extension products, and manipulations of the experiment are described. The questionnaire design and administration, and the sampling and data-collection procedure follow next. Then the consideration of research validity and reliability is discussed. This is followed by a plan of analyses, which provides an overview of how the data is analysed in the hypotheses testing. The collected data is cleaned and screened before the actual analyses. Finally, there is a conclusion for this chapter.

### **3.2 Research Design**

As highlighted in the introduction, there were three independent variables in this study. Thus the overall design was a 2 (product category knowledge) x 2 (brand knowledge) x 2 (brand types) mixed factorial design. Consumer product category knowledge was a between-subjects factor at two levels, consumers with high product category knowledge vs. consumers with low product category knowledge. Consumer brand knowledge was also a between-subjects factor at two levels, consumers with high brand knowledge vs. consumers with low brand knowledge. Brand type was a within-subjects factor involving whether the original brand is a prestige brand or a functional brand. It was designed as a with-subjects factor, because of two reasons. First, the with-subjects design can provide greater sensitivity to the effects of the independent variables. Second it assures equivalence of groups at the start of the experiment (Graziano & Raulin, 2000).

### **3.3 Measurement of Variables**

The measurements of variables are crucial to the research. It affects the validity of the research. Thus in this section, measures of all construct were developed, based on careful reviewing of the definition of the variables and previous related research. Special attention was paid to the measure of product knowledge, because there was no widely agreed method to measure this variable in the literature.

### **3.3.1 Dependent variable**

Consumer fit perceptions between the new extension and its parent brand was the dependent variable in this research. This was measured by three items on seven-point scales. As mentioned previously, consumer perceived fit in the brand extension evaluations has two dimensions, product-related and non-product-related. The three measuring items tried to capture both dimensions of this variable. The first item measured the consumer fit perception on the product-related side (the subjects were asked to evaluate the degree of similarity between the extension and the original brand product, 1 = not at all similar to 7 = highly similar). The second item asked subjects whether the extension was related to the original brand's name and image (1 = not at all related to 7 = closely related). The third item measured the subjects' overall feelings of fit between the extension and its original brand (1 = not at all fits to 7 = closely fits). The subjects were also asked to give reasons for their fit perceptions, which served as an indicator of the possible bases of fit. However, this question would not be used in statistical analyses and hypotheses testing.

### **3.3.2 Independent variables**

There were three independent variables in the research: brand type (prestige vs. functional brand), product knowledge, and brand knowledge. The brand type was a manipulated factor, which was to be determined in the pre-test. Two real brands were to be selected through a pre-test. One was to serve as the prestige brand, while the other one was to serve as the functional brand. Thus there is no need to measure this variable. More detail about the selection of these two brands will be discussed later. In this section, the development of product and brand knowledge measures is discussed in turn.

#### **3.3.2.1 Product knowledge**

There is substantial research that has studied product knowledge, but there is no developed and generally accepted measurement for this factor. As mentioned in the literature review chapter, some researchers classify consumer knowledge into different dimensions to find the best way to measure the knowledge. To find a suitable measure

for product knowledge for this research, these different ways of classifying knowledge in the product knowledge literature are reviewed here.

Most of the researchers designed measures based on Alba and Hutchinson's (1987) two components of consumer knowledge concept. According to them, consumer knowledge has two major components: familiarity and expertise. "Familiarity is defined as the number of product-related experiences that have accumulated by the consumer", product-related experience includes advertising exposures, information search, purchasing, and product usage in various situations, choice and decision making (Alba & Hutchinson, 1987).

Besides these two components of consumer knowledge, there is another popular way to classify consumer knowledge, both subjective and objective (Brucks, 1985). Subjective knowledge is how much an individual thinks he/she knows about the product, while objective knowledge is about how much an individual really knows. It is also believed that subjective and objective knowledge only measure the expertise of the product knowledge, not the familiarity (Mitchell & Dacin, 1996). Thus some researchers claim that the measure of product knowledge should include familiarity, as well as subjective and objective expertise (Cowley & Mitchell, 2003; Philippe & Ngobo, 1999).

However, there is a dispute in the literature about whether the subjective or objective expertise should be treated as two separate constructs, or one. Some researchers have claimed that subjective and objective knowledge differs in its effects on consumer behaviour, especially in the effects on information search, thus they should be treated as two different constructs (Brucks, 1985; Park & Srinivasan, 1994). However, some others believe that subjective and objective knowledge are related to each other strongly enough to be treated as a single construct (Mitchell & Dacin, 1996; Rao & Monroe, 1988). Measure one (subjective or objective) should be able to represent the other one. In this study, measuring items of product knowledge were designed to capture the familiarity and subjective knowledge of expertise.

There were several reasons for choosing subjective knowledge rather than objective knowledge in the current research. First, these two kinds of knowledge measures are correlated positively. High objective knowledge consumers would also have high subjective knowledge. The confidence of consumers who think they are high in subject knowledge would come from their high objective knowledge. Second, even though there is evidence showing that objective and subjective knowledge is sometimes conceptually and empirically different, there is also research which suggests that they may be equally valid under some circumstances (Kanwar et al., 1990). Kanwar et al. (1990) suggest that objective and subjective knowledge is equally valid for measuring the knowledge of people who have had formal training. In this study, university students were selected as the subjects. They should be consumers who accepted enough formal training. Third, in selecting the measures of knowledge, researchers also need to carefully consider alternatives of measuring and the context/question of the research (Cole, Gaeth, & Singh, 1986; Park & Srinivasan, 1994). Subjective knowledge is more related to consumers' self-confidence in decision-making abilities (Brucks, 1985; Kanwar et al., 1990). It is usually used by marketing practitioners in new products evaluations (Flynn & Goldsmith, 1999). Thus subjective knowledge would be the appropriate measure of consumer knowledge. Fourth, subjective knowledge is easier to measure than objective knowledge.

Therefore, the measuring items for consumer product knowledge developed in this study were intended to capture familiarity and subjective knowledge. Eight items were used and recorded on seven-point disagree-agree scales (1 = strongly disagree to 7 = strongly agree). These items were developed based on Alba and Hutchinson's (1987) conceptual definition of familiarity. Some subjective knowledge items were borrowed from subjective knowledge measurements developed by Flynn and Goldsmith (1999).

### **3.3.2.2 Brand knowledge**

Keller (1993, p. 3) defines brand knowledge as "consisting of a brand node in memory to which a variety of associations are linked". He also built up a conceptual framework of brand knowledge, which included two dimensions, brand awareness and brand image.

The measures of brand knowledge were developed based on this framework. The items were borrowed from previous research, which also developed the items based on the framework (Chen & He, 2003). Eight items were used and the first two items were the measurements of brand awareness. The other six were the measurements of brand image. They measure the type, favourability, strength, uniqueness, congruence, and leverage respectively (Chen & He, 2003; Keller, 1993). All the items were recoded on seven-point agree-disagree scales (1 = strongly disagree to 7 = strongly agree).

### **3.4 Stimulus Materials and Manipulations**

Pre-testing usually involves the identification of real brands that conform to the experimental manipulations, but also control for extraneous variables (Broniarczyk & Alba, 1994). Two pre-tests were conducted to identify two real brand names and to generate possible extension categories for these two brands. The questionnaires for these two pre-tests are attached in Appendix A and B.

#### **3.4.1 Pre-test 1**

The objective of this pre-test was to identify two brand names that would be used as the parent brands in the experiment. There were some controls in the experiment, in order to investigate the hypothesized relationships more efficiently and clearly. Thus it was necessary to select the suitable brands in a careful and objective way.

In order to select the brands that could satisfy the designed experiment, six criteria needed to be considered when choosing the brands. The six criteria were:

First, two brands were needed in the experiment. One brand was a functional brand, and the other was a prestige brand. Brand type was the manipulated factor in the experiment. Relationships between product knowledge and brand knowledge were designed to be investigated under the two brand conditions, functional vs. prestige. Thus the two brands under consideration had to be able to represent these two kinds of brands. This was the most important criterion in this research.

Second, consumers should have relatively positive attitudes towards these two brands.

This was required so as to control the effects of brand affect. In the brand extension literature, brand affect can interact with consumer fit perceptions in influencing the consumer brand extension evaluations (Aaker & Keller, 1990; Bhat & Reddy, 2001). When the fit between the extension and the original brand is achieved, they are more likely to transfer their positive attitudes to the extensions. Thus the effect of brand affect should be held constant. However, this criterion was not as important as the first criterion. After all, the consumer evaluation of a brand extension was not a variable which was directly included in the experiment. It was considered indirectly through the effects of fit perceptions in the study.

Third, the brands and product categories should be familiar to the subjects. This is because if most subjects did not know the stimulus brands and product categories, it would be very difficult to find high brand and product knowledge consumers.

Fourth, subjects would have knowledge variation about the products under these two brand names and the brands as this study investigates the differences between high and low knowledge consumers in brand extension evaluations.

Fifth, they would be strongly identified with one or few products (they had relatively narrow product lines under their names). For example, Sony is considered as a very broad brand name, as it has products ranging from TVs, CD players, and cameras, to mobile phones. Nokia could be considered as a relatively narrow brand name, because it is strongly associated with mobile phones. 'Brand breadth' was found to have an impact on consumer evaluations of brand extension (Boush & Loken, 1991; Dacin & Smith, 1994; Sheinin & Schmitt, 1994). Thus this criterion was required in order to control the effects from 'brand breadth'.

Finally, the results of hypotheses testing would be improved if these two brands came from the same product category. If the two brands came from the same product category, the differences between the functional and prestige brands could be examined more clearly.

### **3.4.1.1 Selection procedure**

The starting point was the selection of a set of brands based on the researcher's understanding of functional vs. prestige brands. In this set of brands, half of them were expected to be understood as functional brands by subjects, whereas the other half of brands were expected to be understood as prestige brands. Twenty brand names were selected. The next step was to use pre-tests to narrow these brands to two appropriate brands, which met all the criteria for the experiment.

Then 45 business students, who were undertaking postgraduate programs in a large university, participated in pre-test 1. Participants were asked to list the thoughts that represented their understanding of the meaning associated with the 20 brand names. In addition, their attitudes, familiarity, and opinions on functional vs. prestige image about these brands were evaluated on three 9-point scales. It might be unrealistic to require one subject to answer all the questions about all 20 brands. Therefore, to ensure that the subjects listed as many thoughts as they could about each brand in a short time, and to avoid boredom and fatigue, these 20 brand names were divided into two groups with 10 brands in each group. The subjects were randomly assigned to each group and each subject only answered questions about 10 brands.

The selection procedure followed the six criteria stated earlier. The most appropriate brands would be the two which met all six criteria. Four steps were used to find the most appropriate brands for hypotheses testing.

The first step was to group these 20 brands into prestige vs. functional groups. There was a prestige image evaluation about every brand in the list. The measurement was a 9-point scale (1=not at all prestige image to 9=very high prestige image). The median point 5 (in the 9-point scale) served as the split point. Brands with a mean score of more than 5 would be considered as prestige brands, whereas those with a mean score of less than 5 were functional brands. The association statements from subjects were taken into account as the additional consideration. If most of the association statements were

related to functional aspects, then the brand would be considered as a functional brand, and vice versa.

The second step was to delete the brands that subjects did not like. The attitude evaluation measures were also on a 9-point scale with 1 = dislike, 5 = neither dislike nor like, to 9 = like. The middle point of 5 on the scale was also taken as the split point. Brands with a mean score of more than 5 were considered as brands with which most subjects hold positive attitudes. Brands with a mean score of less than 5 were considered as failing to meet the second criterion, and they were to be deleted from the list.

The third step was to delete the brands that subjects were not familiar with. Similar to the first two measurements, a 9-point scale was also used for the consumer familiarity evaluation (1=very unfamiliar, to 9=very familiar). A middle point split was also used to separate these brands into two groups, consumer familiar brands and consumer unfamiliar brands. Brands with a mean score of familiarity of more than 5 were considered as brands familiar to subjects, whereas those with a mean score of less than 5 were considered to be brands unfamiliar to subjects. Those brands that consumers were not familiar with were to be deleted.

In the final step, the brands that were not deleted from the previous two evaluations would be examined further, following the rest of the criteria. The three remaining criteria were: knowledge variation, strong identification with one or few products, and two brands in the same product category. The most appropriate two brands would be the two that satisfied all six criteria and had the highest and lowest image scores. The selection in this step started from the brands with the lowest and highest prestige image evaluation. If the brands with the lowest and highest prestige image met the other criteria, then the examination would stop. If not, the brands with the second lowest and highest prestige image scores would be examined. The examination would stop until the brands that could satisfy all criteria were found.

### 3.4.1.2 Results of pre-test 1

The mean scores of prestige image, familiarity and attitude toward all 20 brands were computed, and the results are presented in Table 3-1 below. Following the four-step of the selection procedure, the 20 brands were firstly grouped into prestige vs. functional groups. The brands were ranked by their prestige image evaluations in the table. There were 15 brands with prestige image means of over 5.0. By using the middle point split, they were grouped as prestige brands, whereas the remainder of the 5 brands, with a mean of less than 5.0, were classified as functional brands.

**Table 3-1 Mean Score of Prestige Image, Attitude, and Familiarity of the 20 Brands**

Brand	Prestige Image Test		Attitude Test	Familiarity Test
	Mean	Conclusion	mean	mean
Rolex	8.50	Prestige Brands	6.24	5.92
Levi's	6.79		7.25	7.70
Apple	6.74		6.58	6.70
Elizabeth Arden	6.63		5.32	5.74
Nokia	6.54		7.28	8.20
Burberry	6.52		5.39	4.18*
Lee Jeans	6.04		6.38	6.60
Nike	5.83		5.16	8.16
Line 7	5.72		4.36*	5.50
Gillette	5.63		6.15	6.65
Energizer	5.61		6.45	6.75
Fisher & Paykel	5.48		5.79	5.71
Wilson	5.47		5.78	5.56
Hallmark	5.35		5.39	5.20
Dell	5.04		5.08	6.44
Prince	4.80	4.76*	3.86*	
'V' energy drink	4.75	Functional Brands	6.20	7.28
Compaq	4.53		5.05	6.05
Dirty Dog	3.30		3.50*	3.79*
Slazenger	3.29		4.32*	4.05*

\* are the brands that did not meet the attitude or familiarity criteria, and had been deleted for further consideration

Then, judging the likeability means of each brand, there were four brands that did not satisfy the second criterion. Brands that were suitable for the experiment should be those towards which most of the subjects have positive attitudes, to hold the factor of brand affect constant in this experiment. As stated, those with an average likeability of less than 5 were considered as disliked brands for the subjects. There were four of them:

LINE 7, PRINCE, DIRTY DOG, and SLAZENGER. They were deleted from further selection.

In the third step, the subjects' familiarity with the 20 brands was also compared. The results suggested that not many subjects were familiar with BURBERRY, PRINCE, DIRTY DOG, or SLAZENGER. The unfamiliarity with these brands would cause difficulty in finding high knowledge consumers for these brands. Thus they did not meet the fourth criterion, and were deleted for further selection as well.

After the first three steps of screening, there were still 15 brands remaining for further selection. The comparison began with the highest and lowest prestige image ratings, ROLEX and COMPAQ. The other three criteria, knowledge variation, narrow brand breadth, and the same product category, were taken into account.

After comparing the rest of the 15 brands, APPLE and COMPAQ brands were found to satisfy all six criteria. APPLE was selected to represent the prestige brand instead of ROLEX and LEVI'S which had a higher prestige image than APPLE, because APPLE is in the same product category as COMPAQ, the computer category. Most of the associations of APPLE generated by the subjects were non-product related, such as 'fun', "young", and "creative" indicating that it was understood as a prestige brand by the subjects. COMPAQ was selected to represent the functional brand, because it had the lowest prestige image evaluation and its associations generated by the subjects were mostly product related (e.g. computer, quality computer). In addition, a statistical test indicated that there were significant prestige image differences between the COMPAQ (4.53) and APPLE (6.74) brands ( $t = 3.714$ ,  $p\text{-value} = 0.002$  less than 0.05). Finally, COMPAQ and APPLE were also considered to satisfy the other two criteria. Both Compaq and Apple brands are strongly associated with computers, and have relatively narrow product lines. As a high technology product, the computer is a category in which technical knowledge varies widely.

In conclusion, COMPAQ and APPLE satisfied all six criteria and were therefore

selected as two suitable brands, which would be used in the experiment.

### **3.4.2 Pre-test 2**

The purpose of the second pre-test was to generate potential extensions of the two brands (COMPAQ and APPLE) that were selected in pre-test 1. Twenty business students were asked to generate some possible extension products that were in different product categories from existing products of these two brands. They were also asked to write down some explanations for why these particular products should be introduced to these two brands. Each extension idea was coded and their frequencies were calculated. The most frequent ideas for each brand generated by the subjects were selected as the possible extension product in the hypotheses testing experiment, so that the hypotheses testing would be based on stimuli that would be deemed plausible by the subjects.

#### **3.4.2.1 Results of pre-test 2**

There were in total 15 extension ideas generated for APPLE. Game console was finally selected as the extension product for the APPLE brand. There were two reasons for this. Firstly, a game console was the most popular extension idea generated by subjects (with the highest frequency of 9), compared with others. Secondly, in the first pre-test, subjects indicated that APPLE was associated with a “fun, young, and creative” image. A game console would be a good product to fit with this image. Some subjects in pre-test 2 had similar suggestions in their explanations for extension ideas.

A mobile phone (with the highest frequency, 11, compared with other extension ideas) was the most popular extension idea for COMPAQ. Some subjects indicated that mobile phones, particularly those programmed with PC, or Internet functions, would be a good new product for COMPAQ, because this brand produces high quality computers and these should be already-have technologies for the COMPAQ manufacturer.

In summary, the game console was selected to be APPLE’s extension product, while the mobile phone was picked to be COMPAQ’s extension product for the experiment.

### **3.5 Questionnaire Design and Administration**

After the pre-tests, two brands (APPLE and COMPAQ) and their extension products (the game console and the mobile phone) were selected for the experiment. In this section, the questionnaire about these two brands and their extensions was designed, based on the measurement items developed in the previous section.

#### **3.5.1 Questionnaire design**

There were three items for measuring consumer perceived fit between the extension and its parent brand (as presented in 3.4.2.1). In the questionnaires, four fit perceptions were measured. They were: fit perception between the game console and the Apple brand, between the mobile phone and the Compaq brand, between the mobile phone and the Apple brand, and between the game console and the Compaq brand. The first two fit perceptions were dependent variables used for hypotheses testing. The other two fit perceptions served as manipulation checks. They were used to test whether these two extension products (the Apple game console and the Compaq mobile phone), generated from pre-test 2, were really appropriate for its parent brand. If they were, these two fit perceptions (fit perceptions between the game console and APPLE, and fit perceptions between the mobile phone and COMPAQ) should have a higher value than the other two fit perceptions (fit perceptions between the mobile phone and APPLE, and fit judgements between the game console and COMPAQ). Each of the fit perception measures was followed by an open-ended question, which only served as an indication or explanation of the fit perception. It neither joins into the hypotheses testing nor affects the hypotheses testing. All the questions about fit perceptions were in Section 6 of the questionnaire.

Eight items were developed to measure product knowledge. As mentioned previously, these items measured the familiarity and subjective knowledge. Knowledge of three product categories was measured in the questionnaire; product knowledge about computers, game consoles, and mobile phones. This was located in Section 1, Section 2, and Section 3 of the questionnaire. Product knowledge about computers was product

knowledge of the parent product in this experiment. The other two kinds of product knowledge were extension product knowledge. In this study, the independent variable, product knowledge, was a combination of parent and extension product knowledge. Thus a data transformation about the product knowledge was needed for the analyses. This will be discussed in more detail in the analysis chapter.

Sections 4 and 5 in the questionnaire were measures of brand knowledge. Section 4 measured brand knowledge about APPLE, while Section 5 measured brand knowledge about COMPAQ. Eight items were used to measure brand knowledge. Thus questions 1 to 8 in these two sections were brand knowledge measures. The 9<sup>th</sup> question in each of these two sections was about the prestige images of these two brands. It served as the manipulation check for the choice of prestige vs. functional brand. If the manipulation was successful, the APPLE brand should have a significant higher value for prestige image than the COMPAQ brand.

All the questions use seven-point Likert scales, except for the open-ended questions. A sample of the questionnaire is attached in Appendix C.

### **3.5.2 Administration**

The questionnaire was assessed by two postgraduate staff from the Faculty of Business of Auckland University of Technology, for content validity, wording, grammar, clarity, the flow of the questions, and the suitability of instructions. Following this, five master's students were asked to complete the questionnaire in order to check for issues such as ambiguity, flow of the questions, and any other problems on the questionnaire itself.

Questionnaires were handed out to the subjects and collected back by the researcher as soon as they had been completed. More details about the data-collection procedure will be presented in the following section.

## **3.6 Subjects and Procedure**

A student sample was used in this research. Computer students and business students were selected at the Auckland University of Technology. The sampling design and sample size used for current research are explained in this section.

### **3.6.1 Sampling design**

A student sample was used in this study, as the students are conveniently available to provide the information. The current Auckland University of Technology students in the School of Computer and Information Sciences and in the School of Business were used as the sampling frame.

There were two reasons for using a student sample in this research. First, a student sample is convenient to obtain, and the response rates are usually high. Second, it was easier to control to ensure that both knowledgeable and non-knowledgeable consumers would be obtained for the hypotheses testing. As one of the independent variables, product knowledge about computers was a very important variable in the research. To achieve a more successful hypotheses testing, both high computer knowledge consumers and low computer knowledge consumers were required for the research. This was achieved more easily by using the student sample. Students from computer and information sciences were selected to serve as the potential knowledgeable subjects, while business students were selected to serve as the potential subjects who have a lower level of knowledge about computers. However, the final determination of high and low knowledge subjects was based on product category measurement in the questionnaire. The sampling design was only to ensure that both kinds of subjects would be obtained.

### **3.6.2 Sample size**

The sample size was initially planned to be 160. This was based on previous related research (Muthukrishnan & Weitz, 1991; Roux & Boush, 1996). The sample sizes in these two research were 106 (Muthukrishnan & Weitz, 1991) and 180 (Roux & Boush, 1996). Since the primary objective of the current research was hypotheses testing, rather

than generalizing effects to a given population, obtaining a probabilistic sample was not a specific objective. The sample size of 160 was calculated based on 20 subjects for each experimental condition (8 experiment conditions for a 2 x 2 x 2 experimental design). From 160 respondents, 80 were selected from business students, and the other 80 were selected from computer students.

### **3.6.3 Experimental procedure**

Students were contacted in their classes with the permission of their lecturers. Questionnaires were handed out by the researcher in the classes, and then were collected as soon as they had been completed by the participants. Ten classes of students (204 students) were reached. Seven classes (104 students) were from the School of Computer and Information Sciences. Three classes (100 students) were from the School of Business. More students were reached than for the planned sample size. There were three reasons for this change: firstly, students may have been absent from the classes at the time of data collection. Secondly, the same student may attend two different classes that were selected. Thirdly, students may refuse to participate. Thus more students were reached, to ensure that the number of subjects met the planned sample size.

## **3.7 Ethical Considerations**

Any research that involves human participants should consider ethical issues to protect people's privacy, rights, and freedoms. Three ethical issues have been addressed for the current research: informed and voluntary consent, respect for rights of privacy and confidentiality, and accuracy of interpretations. An ethical approval was obtained from Auckland University of Technology Ethics Committee (AUTEK) before the research was implemented.

The survey was conducted by following the ethical principles. First was the informed and voluntary consent. The participants in this study were university students. They were reached in their classes with the permission of their lecturers. The researcher firstly informed the subjects about this research. In addition, agreement of participation

to the research was obtained before the subjects completed the questionnaire. For those who did not want to participate, their desires were respected. Second was the privacy and confidentiality issue. Subjects were told that the information that they provided would be kept confidential, and that their privacy would be protected. No demographic question was included in the questionnaire. The participants will not be identified through the information they provided. The collected data will not be accessed by any other person, except for the researcher. Third was the accuracy of interpretations. Neither misrepresentation nor distortion appeared when reporting the data collected during the research. The statistical accuracy of the data collected was neither misrepresented, nor was the significance of the results overstated by altering the findings.

### **3.8 Research Validity and Reliability**

#### **3.8.1 Construct validity**

Construct validity refers to the degree to which instruments truly measure the constructs which they are intended to measure (Churchill, 1979). Multi-item measures were used for all the variables that are interested, as they are much better than single-item measures (Churchill, 1979; Peter, 1981). Following the three-steps suggested by Churchill (1979) construct validity was achieved.

The first step in the procedure for developing better measures was to specify the domain of the construct. This involves delineating what is included in the definition and what is excluded. The second step was to generate items, which capture the domain as specified. This can be achieved by searching the literature. As discussed in Section 4.4 “Measurement of Variables”, the measurement for each variable was developed through carefully reviewing definitions and the literature.

The third step was to purify the measure. This step examined whether all the items measure one thing instead of two or more, and tested the reliability of each measurement. Two statistical tests can be used to complete these two jobs, factor

analysis and Cronbach's alpha. In a factor analysis, if all the items are loaded on one factor, it indicates that they all measure the same concept. Cronbach's alpha can indicate the reliability of items statistically. The closer the alpha value is to 1.00, the greater the reliability of the items in the instrument. The results of factor analyses and reliability tests for all the variable measurements will be discussed in Chapter IV.

### **3.8.2 Reliability of the research**

Reliability of the research refers to the degree to which a research design and its procedures can be replicated with the similar conclusions (Hair et al., 2003). Through reference to Chapter III, Methodology, in which the research design, and data collection procedure for this research is described in detail, in addition to the attached sample of questionnaires (both for pre-tests and main experiment) a researcher would be able to replicate this study.

## **3.9 Plan of Analysis**

Analysis of variance (ANOVA) was employed for the hypotheses testing. In hypotheses 1a, and 1b, product knowledge and brand knowledge were expected to have positive relationships with consumer fit perceptions in brand extension evaluations. To support these two hypotheses, there should be main effects for product category knowledge on fit perceptions and for brand knowledge on fit perception in the ANOVA table. The direction of main effect for product category knowledge should be that higher product knowledge consumers had higher level of fit perceptions between the extension and its parent brand. In addition, the main effect for brand knowledge should have a similar direction, with higher brand knowledge consumers giving higher level of fit perceptions.

Hypothesis 2a predicted that for a functional brand, product knowledge should be more important than brand knowledge in influencing consumer fit perceptions between the functional brand and its extension. To support this, there should be a significant brand-type-by-product-knowledge interaction in the ANOVA table. Consumer fit perceptions in the functional brand extension evaluation should be significantly higher

for consumers with high product knowledge than those with low product knowledge. However, the difference between high and low product knowledge consumers for fit in the prestige brand extension evaluation should not be as significant as the one for fit perception of the functional brand extension.

Hypothesis 2b proposed that brand knowledge plays a dominant role in a prestige brand extension evaluation. To support this, there should be a significant brand-type-by-brand-knowledge interaction in the ANOVA results. There should be a significant simple effect of brand knowledge on fit perceptions of prestige brand extension, and there should be a less significant effect or no such effect on the fit perceptions of functional brand extension.

### **3.10 Cleaning and Screening**

The collected data were screened before conducting the analysis. To obtain good quality data for hypotheses testing, all the questions should be completed, except for the four open-ended questions. These four open-ended questions only served as indications or explanations of fit perception. The relationships between interested variables can be analysed without the answers to these four questions. Since the uncompleted open-ended questions do not affect the analysis, they are not considered as a missing value in this study.

Firstly, the accuracy of data entry was checked manually. The questionnaires were numbered for easy reference. After the first time entry, the data was checked case-by-case, question by question. In order to confirm the accuracy of the data, the checking was carried out twice.

All the returned questionnaires (for the main experiment) were checked to ensure that the quality of the data was good enough for analysis, and that missing values are below a reasonable percentage for each questionnaire. Any questionnaire or question in the questionnaire with too many missing values should be deleted (Hair, Anderson, Tatham, & Black, 1998). Most of the questionnaires were completed without any missing value

(unfinished open-ended questions are not missing values). Most of the questionnaires were completed without any missing values (unfinished open-ended questions are not missing values). There was no questionnaire that contained a large number of missing values. Thus no questionnaire was excluded. The quality of the data on all questionnaires was good enough for the analysis. Further analyses, and remedies for the missing values, will be discussed more in the following chapter.

### **3.11 Conclusion**

The main purpose of this study was to investigate the hypothesized relationships between one dependent (fit perceptions) variable and three independent variables (brand type, product knowledge and brand knowledge). Accordingly, a quantitative research method was employed for this study, and a factorial experiment was designed for hypotheses testing. COMPAQ and APPLE were chosen as two parent brands in the experiment, and mobile phones and game consoles were selected as their extension products through two pre-tests. The measures of each variable were carefully developed, based on reviewing related literature and concepts. Data collection was conducted through questionnaires, and screened.

As planned, the data was analysed by using ANOVA. SPSS software was employed to conduct the analysis. How the data was analysed, and the results of analysis and hypotheses testing will be discussed in the following chapter.

## **4 Chapter IV – Results and Findings**

### **4.1 Introduction**

Chapter III detailed the methodology for the research. A factorial experiment was designed to test hypotheses. In this chapter, the collected data and patterns of results are presented and analysed, and the hypotheses are tested.

Some preliminary analyses are conducted before the hypotheses testing. These include some descriptive statistics about the data, remedy for missing data, and the reliability and validity of the measurements used for the experiment were tested. Next, manipulation checks are conducted. Four hypotheses of the study are tested with ANOVA. Then a discussion of the effects of manipulation check results on hypotheses testing is presented. Finally, a brief conclusion about the results and findings of the study is presented.

### **4.2 Preliminary Analyses**

In order to ensure the reliability and validity of the results, some preliminary analyses were carried out before the hypotheses testing. The respondent rate of the data collection was firstly profiled. Another phrase was presented through the descriptive statistics. Then an analysis of missing data was followed. Finally the construct validity was assessed through factor analyses and Cronbach's alpha reliability tests.

#### **4.2.1 Respondent rate**

The questionnaires were handed out in 10 randomly selected classes as planned (7 computer classes and 3 business classes). There were 204 students enrolled in these 10 classes, and 131 questionnaires were collected back. Out of these 204 students, 52 students (30 computer and information sciences students and 22 business students) were absent from the classes at the time that the questionnaires were handed out. From the 152 students that were in the classes, 19 were repeated in two different classes.

Therefore, only 133 students were reached by the researcher. From the 133 questionnaires that were handed out, 2 were rejected. Thus 131 (63 from computer students, and 68 from business students) questionnaires were collected back, out of the 133. The response rate was 98%.

#### **4.2.2 Descriptive statistics**

The basic characteristics of the data were examined first to obtain a good feel of the data before conducting the hypotheses testing. The descriptive statistics of the 54 Likert-scale questions were computed and are shown in Table 4-1.

As shown in Table 4-1, on the 7-point scales, the mean values of product knowledge about computers were mostly around 4.0, except for two questions (questions No. 2 and No. 7). These two questions had mean values of over 6.0, which was higher than the other 6 items. Likewise, out of the 8 questions that measured product knowledge about mobile phones, the same two questions (No. 18 and No. 23) had higher mean values than the other 6 items. This indicated that these two items might cause some difficulties regarding the validity of the product knowledge measurement.

The mean values of product knowledge about game consoles were mostly around 3.0, whereas the mean values of product knowledge about mobile phones were mostly around 5.0. This suggested that the subjects had average low product knowledge about game consoles, but high product knowledge about mobile phones. This may be due to the fact that the game console is not a commonly used product for students, particularly for female students, whereas the mobile phone is a popular product category.

In the two measures of brand knowledge, Apple and Compaq, the same items (No. 26 and No. 35) also had higher mean values than the other 7 items. This suggests that this item in brand knowledge measurement may not measure the same thing as the others. The reliability and validity of all the measurements was tested statistically, and this will be discussed in later sections.

**Table 4-1 Descriptive Statistics**

<b>Variables</b>	<b>Quest No.</b>	<b>Items</b>	<b>Mean</b>	<b>Std.</b>
Product knowledge of Computers	07	I have a computer currently	6.6	1.2
	02	I have used a computer very frequently in the	6.3	1.3
	04	I always know where to find relevant	4.8	1.6
	08	I know how to judge the quality of a computer	4.3	1.7
	05	I consider myself highly knowledgeable about	4.0	1.5
	01	I pay a lot of attention to advertisements for	3.9	1.6
	03	I am consulted by my friends or relations all the	3.8	1.8
	06	I consider myself an expert on computers	3.4	1.8
Product knowledge of Game Consoles	12	I always know where to find relevant	3.3	2.1
	15	I have a game console currently	3.1	2.5
	10	I have used a game console very frequently in	3.0	2.0
	09	I pay a lot of attention to advertisements for	3.0	2.0
	16	I know how to judge the quality of a game	3.0	2.0
	11	I am consulted by my friends or relations all the	2.9	1.9
	13	I consider myself highly knowledgeable about	2.8	1.8
	14	I consider myself an expert on game consoles	2.6	1.8
Product knowledge of Mobile phones	23	I have a mobile phone currently	6.7	1.1
	18	I have used a mobile phone very frequently in	6.4	1.3
	20	I always know where to find relevant	5.5	1.5
	17	I pay a lot of attention to advertisements for	5.1	1.6
	24	I know how to judge the quality of a mobile	5.1	1.6
	21	I consider myself highly knowledgeable about	4.7	1.5
	19	I am consulted by my friends or relations all the	4.6	1.7
	22	I consider myself an expert on mobile phones	4.1	1.7
Brand knowledge of Apple	26	I can correctly identify Apple as having been	5.0	1.9
	27	I think Apple can give me various kinds of	4.0	1.5
	28	overall. I like the Apple brand	4.0	1.6
	29	I have strong feelings about the Apple brand.	4.0	1.5
	30	I think the Apple computer is unique to me	4.0	1.7
	31	I will not feel difficult if I am asked to give the	3.7	1.6
	32	Overall. I think the Apple brand is high on	3.5	1.5
	25	when I intend to buy a computer, I recall Apple	3.1	1.8
Prestige Image of Apple	33	Apple conveys a high prestige image	5.0	1.2
Brand knowledge of Compaq	35	I can correctly identify Compaq as having been	5.0	1.7
	36	I think Compaq can give me various kinds of	4.5	1.3
	34	When I intend to buy a computer. I recall	4.4	1.6
	37	overall. I like the Compaq brand	4.2	1.5
	40	I will not feel difficult if I am asked to give the	4.1	1.5
	38	I have strong feelings about the Compaq brand.	4.0	1.5
	39	I think the Compaq computer is unique to me	3.8	1.4
	41	Overall. I think the Compaq brand is high on	3.8	1.5
Prestige Image of Compaq	42	Compaq conveys a high prestige image	3.7	1.4
Fit perception of Apple Game Console	44	Do you think a game console is related to the	4.0	1.8
	45	Overall. do you think a game console fits into	3.9	1.7
	43	Do you think an Apple game console is similar	3.6	1.6
Fit perception of Apple Mobile phone	48	Overall, do you think a mobile phone fits into	3.6	1.8
	47	Do you think a mobile phone is related to the	3.4	1.7
	46	Do you think an apple mobile phone is similar to	3.2	1.7
Fit perception of Compaq Game Console	51	Overall, do you think a game console fits into	3.3	1.6
	49	Do you think a Compaq game console is similar	3.2	1.6
	50	Do you think a game console is related to the	3.2	1.5
Fit perception of Compaq Mobile phone	54	Overall, do you think a mobile fits into the	3.7	1.8
	53	Do you think a mobile phone is related to the	3.4	1.7
	52	Do you think a Compaq mobile phone is similar	3.2	1.7

The mean values of the two Brands prestige image (Apple = 5.0 vs. Compaq = 3.7) indicated that, as expected, Apple had a higher prestige image than Compaq.

#### **4.2.3 Remedy for missing data**

Missing data in multivariate analysis can sometimes be a problem. Thus it is necessary to carry out a missing data analysis before the hypotheses testing. The purpose of the missing data analysis was to address the issues raised by missing data. In this study, there were 16 cases (questionnaires), which had a total of 25 values missing. Eleven of these 16 cases had only one value missing. One case had the highest number of missing values (6 values missing), but still only 11 percent of all values were missing. Excluding the four open-ended questions, there were 54 Likert-scale questions. Of these, 21 had missing values. But none of them were missing over 3 percent of all values. Only 3 out of these 21 questions had over 2 values missing, and other questions only had one missing value. Overall, only 0.35 percent of the data values were missing. The percent of missing data was under reasonable percentage; hence, no question or case was eliminated.

However, completed data was required for the analyses in this study, thus a remedy was necessary for these missing values. There are several approaches for dealing with missing data. Selecting an appropriate approach for the analysis depends on the randomness of the missing data (Hair et al., 1998). Little's MCAR test (Little, 1988) results (Chi-square = 8.495, p-value = 1.000) suggest that the missing data in this research was missing completely at random (MCAR). For missing data with MCAR feature, several remedies are available, including delete case(s) or variable(s), case substitution, or mean substitution approach (Hair et al., 1998). Since most of the variables and cases only had one missing value, the mean substitution approach was selected for this study. By using the SPSS software, missing values for each question in the data set were replaced by the mean value of that question, based on all valid responses. Following tests and analyses were conducted by using the new data with missing values replaced.

#### **4.2.4 Construct validity tests**

Construct validities of all variables were tested to check whether all the items really measure the right concept consistently. This was the third step to achieve construct validity mentioned in the methodology chapter (the section “Construct Validity”), to purify the measures. Two tests were performed to test the construct validity factor analysis and Cronbach’s alpha reliability test.

Exploratory factor analysis was performed for each measure, to test the unidimensionality of the measure. There are three product knowledge measures, two brand knowledge measures, and four fit perceptions measures. The results of factor analysis could confirm whether or not the theorized items used actually measure the same thing.

Firstly, the suitability of the data for factor analysis was assessed. First, the sample size of this study was 131, over the minimum acceptable level of 50. In addition, ratios of observations to variables are 16-to-1 for the three product knowledge measures and two brand knowledge measures, and 43-to-1 for the four fit perceptions measures. With a minimum 5-to-1 ratio, the adequacy of the sample size was satisfied (Hair et al., 1998). Next, a visual examination of the correlation matrix for each measure revealed a considerable number of correlations among items. Thirdly, Bartlett’s test of sphericity for the presence of correlations among items and the Kaiser-Meyer-Olkin (KMO) test for measuring sampling adequacy were carried out. To confirm that the data is suitable for factor analysis, Bartlett’s test has to have a significant p-value ( $<0.05$ ), and KMO has to reach the minimum value of 0.5 (Hair et al., 1998).

As shown in Table 4-2, the statistical values of Bartlett’s test and KMO test for all measures met the minimum requirements. This indicates that the data was suitable for factor analyses. After the assessment of data suitability, Principal Component Factor Analysis with VARIMAX orthogonal rotation was performed for the measures of product knowledge, of brand knowledge, and of fit perceptions in turn.

**Table 4-2 Results of Bartlett's Test and KMO Test**

<b>Measures</b>	<b>Bartlett's Test</b>	<b>KMO Test</b>
Product Knowledge of Computer	p < 0.000	0.83
Product Knowledge of Game Console	p < 0.000	0.91
Product Knowledge of Mobile Phone	p < 0.000	0.85
Brand Knowledge of Apple	p < 0.000	0.86
Brand Knowledge of Compaq	p < 0.000	0.90
Fit Perception of Apple Game Console	p < 0.000	0.69
Fit Perception of Apple Mobile Phone	p < 0.000	0.73
Fit Perception of Compaq Game Console	p < 0.000	0.72
Fit Perception of Compaq Mobile Phone	P < 0.000	0.72

#### **4.2.4.1 Factor analyses for product knowledge**

The measurement of product knowledge was used for three product categories, computers, game consoles, and mobile phones. Factor analysis was conducted for each of these three product knowledge measures. If the construct was valid, all the question items in each product category measure should be loaded on one factor. The results of factor analysis for each product category measure are displayed in Table 4-3.

As shown in Table 4-3, only the loading results of game console knowledge measure were as expected. All eight question items were loaded on the same factor. For the measure of computer knowledge, contrary to what was expected, the 8 question items were loaded on 2 factors instead of one. Two items, questions 2 and 7, were loaded independently on the second factor. The same situation occurred for the measure of mobile phone knowledge. There were two items (questions 18 and 23), which were loaded independently on the second factor. When reviewing the questions, it is apparent that both questions 2 and 18 were product usage questions, which asked how frequently the product (computer or mobile phone) had been used in the past 12 months. Both questions 7 and 23 were product ownership questions, which asked whether the consumer has the product currently or not. As pointed out in the previous section, these four questions had higher means than all the other questions. The results of these two factor analyses further suggested that these two items (product usage and product ownership) in the product category knowledge measurement may not adequately

measure the knowledge differences between high and low knowledge consumers. Both consumers with high and low knowledge may have, and use, computers and mobile phones very frequently.

**Table 4-3 Factor Analyses results for Product Category Knowledge**

Variables	No	Questions	Factor loadings	
			Factor 1	Factor 2
Product knowledge items about computers	01	Attention to ads	0.71	
	02	Product usage		0.84
	03	Decision making	0.72	
	04	Information search	0.72	
	05	Self-rating knowledge	0.86	
	06	Self-rating expertise	0.83	
	07	Product ownership		0.82
	08	Quality judgment	0.76	
<b>Cumulative Variance (%)</b>			45.01	65.12
Product knowledge items about game consoles	09	Attention to ads	0.88	
	10	Product usage	0.90	
	11	Decision making	0.76	
	12	Information search	0.81	
	13	Self-rating knowledge	0.94	
	14	Self-rating expertise	0.90	
	15	Product ownership	0.83	
	16	Quality judgment	0.91	
<b>Cumulative Variance (%)</b>			75.39	
Product knowledge items about mobile phones	17	Attention to ads	0.66	
	18	Product usage		0.83
	19	Decision making	0.73	
	20	Information search	0.59	
	21	Self-rating knowledge	0.88	
	22	Self-rating Expertise	0.90	
	23	Product ownership		0.87
	24	Quality judgment	0.81	
<b>Cumulative Variance (%)</b>			45.23	69.85

Since these two items were questioned when measuring two product categories, they were eliminated from the construct. Even though question items were loaded on the same factor when measuring game console knowledge, the two items (product usage and product ownership question) were also eliminated for the game console measure to keep the measurement consistent for all three product categories in this experiment. After the elimination, factor analyses were run again for the 6-item measurement.

After the elimination, another factor analysis was run for the new 6-item product knowledge measure. As expected, all the items in each of the three measures were loading a single factor. The 6-item product knowledge measurement explained more than 61 percent of the variance in measuring computer knowledge, about 77 percent in measuring game console knowledge, and about 65 percent in measuring mobile phone knowledge.

#### 4.2.4.2 Factor analyses for brand knowledge

The brand knowledge construct measured knowledge of two brands, APPLE and COMPAQ. If the brand knowledge construct was valid, there should only be one factor for each measure as well. The results are displayed in Table 4.4 below.

**Table 4-4 Factor Analyses Results for Brand Knowledge**

Variables	No	Questions	Factor loadings	
			Factor 1	Factor 2
Brand Knowledge of Apple	25	Brand recall	0.84	
	26	Brand awareness		0.65
	27	Type	0.70	
	28	Favourability	0.81	
	29	Strength	0.77	
	30	Uniqueness	0.70	
	31	Congruence		0.66
	32	Leverage	0.72	
		<b>Cumulative Variance (%)</b>	34.15	61.55
Brand Knowledge of Compaq	34	Brand recall	0.79	
	35	Brand awareness	0.67	
	36	Type	0.87	
	37	Favourability	0.88	
	38	Strength	0.88	
	39	Uniqueness	0.80	
	40	Congruence	0.72	
	41	Leverage	0.81	
		<b>Cumulative Variance (%)</b>	65.06	

Contrary to what was expected, only brand knowledge of COMPAQ's measure was loaded one factor. Two factors emerged for the measure of APPLE. Questions 26 and 31 were loading independently from the other 6 items. Question 26 asked about the brand awareness. Question 31 measured the 'congruence' of the Apple brand. The results indicated that the 'brand awareness' item may measure different things from the other

items. As mentioned in the 'Descriptive Statistics' section, both 'brand awareness' questions for the two brands had higher mean values (both were 5.0) than the other questions. This may be due to both high and low brand knowledge consumers having previously seen or heard about the brand. The knowledge difference could not be understood from this 'awareness' item. Thus it was eliminated from the construct. According to Keller (1993), the congruence of brand associations affects how easily an existing association can be recalled, and an additional association can become linked to the brand. However, the question was 'I will not feel any difficulty if I am asked to give my overall feeling about the Apple brand'. There seems to be some confusion between the question used to measure 'congruence' and the definition of this concept. This may be why the 'congruence' item was loading independently from the others in measuring knowledge of APPLE. Thus the 'congruence' item was also eliminated from the measurement. To keep the consistency of the measurement, these two items (brand awareness and congruence) were both eliminated for both APPLE and COMPAQ. This left 6 items remaining in the brand knowledge measurement. Factor analyses were run again to test the validity of the new 6-item measurement.

Following elimination, all six question items in the same variable were loaded on one factor. The cumulative variance reading showed that about 57 percent of variance for brand knowledge of APPLE, and about 73 percent of variance for brand knowledge of COMPAQ were explained by this 6-item measurement.

#### **4.2.4.3 Factor analyses for fit perception between an extension and its parent brand**

The factor analysis for the construct of fit perceptions between an extension and its parent brand was shown in Table 4-5. The question items in each of the four fit perception measures (fit perception of Apple game console, of Apple mobile phone, of Compaq game console, and of Compaq mobile phone) were loading on the one factor. The results suggested that the 3-item fit perception measurement was valid. It was measuring what it was intended to measure.

In summation, the validity of both original 8-item measurements developed for product

knowledge and brand knowledge were questioned in the factor analyses. Two items were eliminated from each measurement to increase the validity of these two constructs. In the following analyses, both product and brand knowledge variables used the scores of the new 6-item measurements. The fit perceptions used the scores of the 3-item fit perception measurement.

**Table 4-5 Factor Analyses results for Fit Perceptions**

Variables	No	Questions	Factor Loadings
			Factor 1
Fit Perception of Apple Game Console	43	Product similarity	0.79
	44	Image relatedness	0.86
	45	Overall judgment	0.83
<b>Cumulative Variance %</b>			68.75
Fit Perception of Apple Mobile Phone	46	Product similarity	0.75
	47	Image relatedness	0.82
	48	Overall judgment	0.84
<b>Cumulative Variance %</b>			80.06
Fit Perception of Compaq Game Console	49	Product similarity	0.86
	50	Image relatedness	0.83
	51	Overall judgment	0.90
<b>Cumulative Variance %</b>			80.45
Fit Perception of Compaq Mobile phone	52	Product similarity	0.90
	53	Image relatedness	0.94
	54	Overall judgment	0.88
<b>Cumulative Variance %</b>			81.89

#### 4.2.4.4 Cronbach's alpha reliability tests

After factor analyses, the reliabilities of the new measurements were tested statistically. Cronbach's coefficient alpha is the most recommended and the most popular measure to assess the internal consistency of a set of items (Churchill, 1979; Sekaran, 2003). The alpha value ranged between 0 and 1. The closer the alpha value is to 1, the greater the reliability or internal consistency of the items in the construct. Table 4-6 reported the results of the reliability tests for all the variables.

The minimum acceptable level for the alpha value is 0.7 (Hair et al., 1998; Peter, 1979). As displayed in Table 4.6, all the alpha values for all variables exceeded the minimum acceptable level, and most of them were over 0.8. This suggested that all the items have a high level of internal consistency in the instrument.

**Table 4-6 Cronbach's Alpha Reliability Tests Results**

<b>Number of Items</b>	<b>Measures</b>	<b>Cronbach's Alpha</b>
6	Product knowledge about Computer	0.85
6	Product knowledge about Game Console	0.94
6	Product Knowledge about Mobile Phone	0.88
6	Brand knowledge of Apple	0.84
6	Brand knowledge of Compaq	0.92
3	Fit perception of Apple Game Console	0.77
3	Fit perception of Apple Mobile Phone	0.88
3	Fit perception of Compaq Game Console	0.88
3	Fit Judgement of Compaq Mobile Phone	0.89

### **4.3 Manipulation checks**

This study used experimental design to test hypotheses. The purpose of an experiment is to manipulate some factors or variables in order to eliminate rival hypotheses involving confounding variables (Graziano & Raulin, 2000). Thus, unsuccessful manipulations in an experiment could affect the interpretation and inference of the experiment. As mentioned in Chapter III, there were some manipulations in this study. They were made through two pre-tests. The purpose of this section was to test whether or not these manipulations were successful. Manipulation checks were conducted with respect to the parent brand's type (prestige vs. functional), and the appropriateness of the extension product generated for each brand.

#### **4.3.1 Prestige vs. Functional brand**

The first control in this experiment is about the two parent brands. Apple was selected to serve as the prestige brand, whereas Compaq was selected to serve as the functional brand. The manipulation check was conducted by comparing prestige image evaluations between these two brands. Statistical results (with  $F = 53.895$  and  $p\text{-value} < 0$ ) suggest that there are prestige image differences between the Apple brand and the Compaq brand. The mean of Apple's prestige image evaluation (4.962) was higher than that of Compaq's (3.748). This suggested that, as expected, APPLE is understood as a prestige brand by the subjects, and COMPAQ is understood as a functional brand by the subjects.

### **4.3.2 Appropriateness of extensions of the prestige and the functional brand**

In pre-test 2, one extension was generated for each brand. The game console was generated as a good extension product for the Apple brand, whereas the mobile phone was expected to fit into the Compaq brand. Fit perceptions between the mobile phone and the Apple brand, and between the game console and the Compaq brand were measured in order to do the manipulation check.

The fit perception between the game console and the Apple brand (mean = 3.82) was higher than the fit perception between the mobile phone and the Apple brand (mean = 3.38). With a p-value of 0.01 ( $< 0.05$ ), the differences between these two fit perceptions for the Apple brand were significant. The manipulation for the extension of the Apple brand was successful.

However, for the comparison between the fit perception of the Compaq mobile phone and the fit perception of the Compaq game console, the significant difference was not found (with a p-value of 0.14). Although the fit perception of the Compaq mobile phone (mean = 3.46) was a little higher than the fit perception of the Compaq game console (mean = 3.21), the difference was not statistically significant. Thus the manipulation for the Compaq extension product was not as good as expected. This insignificant difference found in the manipulation check could further influence the hypotheses testing, especially on analyses for the functional brand.

Similar results were found when the fit perceptions between the Apple game console and the Compaq game console, and fit perceptions between the Compaq mobile and the Apple mobile were compared. There was strong evidence that the fit perception of the Apple game console was higher than the fit perception of the Compaq game console, with a p-value of 0.000. However, there was no evidence that fit perceptions between the Compaq mobile phone and the Apple mobile phone were significantly different, with a p-value of 0.674. These results suggested that a game console could be a good

extension for the Apple brand, and better than a mobile phone. For the Compaq brand, consumers perceived that there would be no difference if Compaq introduced a game console or a mobile phone. Even though the mean value of fit perceptions of a Compaq mobile phone was higher than that of a Compaq game console and Apple mobile (3.46 vs. 3.21 and 3.38), the differences were not statistically significant as had been expected. These insignificant differences may further impact on the analyses of hypotheses testing.

#### **4.4 Hypotheses testing**

In the previous section, the preliminary analyses provided an overall feel for the data, remedied the missing value, and purified the constructs. The manipulation check assured the controls in the experiment. In this section, the testing results of the four hypotheses proposed, based on the reviewed literature, are presented and discussed. Before the statistical test, the raw data was transformed to conduct the ANOVA analysis. In addition, the assumptions underlying the ANOVA were also checked.

##### **4.4.1 Data transformation**

The raw data had to be transformed before doing the hypotheses testing. Multi-items were used to measure all the variables. Thus firstly, the mean of those items used to measure each variable was calculated to represent these variables.

Next, because in an ANOVA analysis independent variables should be categorical data, both of the continuous variables, the brand knowledge and the product knowledge, which were designed as independent variables, had to be transformed to categorical variables. Median split technique was employed for the transformation. This technique is the most popular method to split a variable score that is measured by a continuous scale into two groups (Irwin & McClelland, 2003). For the independent variable, brand knowledge, subjects with mean scores over the median were classified into “high brand knowledge group”, whereas those who had mean scores less than the median were classified into “low brand knowledge group”.

As mentioned in the literature review chapter, product knowledge in this study includes product knowledge about both the parent product and the extension product. Thus for the independent variable of product knowledge, it was actually the combination of two variables – product knowledge of parent product and product knowledge of extension product. In transferring the data of this independent variable, the median split was firstly used to split the high vs. low parent product knowledge groups and the high vs. low extension product knowledge groups separately. Then, subjects with both high parent product knowledge and high extension product knowledge were classified as “high product knowledge group”, and the others were classified as “low product knowledge group”.

#### **4.4.2 Checking the assumptions**

There are some important assumptions underlying analysis of variance. Multivariate analysis usually requires that the assumptions underlying the statistical techniques be tested. If the assumptions underlying multivariate analysis are violated, they may affect the statistical procedure and interpretation of the results (Hair et al., 1998).

There are three assumptions in analysis of variance: (1) the data for each experiment condition (8 conditions) must be an independent random sample, (2) the population variance must be the same for all experiment conditions – constant variance, and (3) the data for each experiment condition has to come from a normal population (Norusis, 2002). For this study, the independence assumption was satisfied during the experimental design. Subjects were randomly assigned to high vs. low product knowledge groups, and high vs. low brand knowledge groups. The constant variance assumption was checked, using Levene’s test. In a Levene’s test the null hypothesis is that the error variance of the dependent variable is equal across groups. Thus if the null hypothesis was rejected the constant variance assumption would be violated. In this study, a p-value of 0.111 obtained in the Levene’s test indicated that the constant variance assumption was satisfied. Histograms and normal Q-Q plots were made for each of the groups. All of the groups had relatively normal distribution. The analysis of variance is not heavily dependent on the normality assumptions, in practice (Norusis,

2002). As long as the data are not extremely non-normal, the analysis should be satisfactory. The normality assumption was also satisfied. In conclusion, in this study all three assumptions underlying analysis of variance were satisfied.

#### 4.4.3 Test of Hypothesis 1a

Hypothesis 1a proposed that consumers with high product knowledge would have higher ratings for the fit perception between an extension and its parent brand. Thus the independent variable, product knowledge, should have a significant main effect on the dependent variable, consumer fit perceptions. In addition, the relationship between these two variables should be positive. Table 4-7 shows the overall ANOVA results. As shown in the table, the main effect of product knowledge was not significant with an F value of 0.286 and a p-value of 0.59. This suggested that product knowledge did not have a significant impact on consumer fit perceptions in brand extension evaluation. Although the mean score of fit perception for the high product knowledge group was slightly higher than the mean score of fit perception for the low product knowledge group ( $\bar{X}_{\text{high}} = 3.707$  vs.  $\bar{X}_{\text{low}} = 3.607$ ), the difference was not statistically significant, judging by the p-value of 0.59. Since the expected significant impact from product knowledge was not found on consumer fit perceptions in brand extension evaluation, Hypothesis 1a was not supported in this experiment.

**Table 4-7 Analysis of variance results**

Source of variation	Sum of Squares	df	Mean Square	F	p-value
Product Knowledge	0.612	1	0.61	0.286	0.59
Brand Knowledge	24.464	1	24.65	11.448	0.00
Brand Type * Product Knowledge	1.935	1	1.94	0.906	0.34
Brand Type * Brand Knowledge	13.914	1	13.91	6.511	0.01
Brand Type * Product Knowledge * Brand Knowledge	0.399	1	0.40	0.187	0.67

**Dependent variable: consumer fit perceptions between an extension and its parent brand.**

The insignificant relationship between product knowledge and consumer fit perceptions seems to suggest that in a brand extension evaluation, consumers with high product knowledge and low product knowledge would not have different reactions on fit

perceptions between an extension and its parent brand. However, it should be kept in mind that the expected significant differences between manipulated extension products were also not found in this experiment. This could have an impact on the hypothesis test results. Thus the conclusion could not be made simply on the analysis of this hypothesis test. More discussion about the effect of the manipulation in this experiment will be presented in later sections.

#### **4.4.4 Test of Hypothesis 1b**

Hypothesis 1b predicted that consumers with higher levels of brand knowledge will be more likely to perceive the fit between a parent brand and its extension product than consumers with lower levels of brand knowledge. In other words, brand knowledge will positively influence consumer fit perceptions in brand extension evaluations. Thus a positive main effect of brand knowledge was expected in the ANOVA results.

As shown in Table 4-7, brand knowledge had a significant impact on consumer fit perceptions, as predicted. With an F value of 11.45 and a p-value of 0.00, the expected main effect of brand knowledge was confirmed statistically. In addition, the direction of the brand knowledge effect was consistent with the hypothesized one. That is, the mean of fit perceptions in the high brand knowledge group (3.97) was greater than that in the low brand knowledge group (3.34). Consistent with Hypothesis 1b, brand knowledge could help consumers to perceive the fit between a new extension and its parent brand. Therefore Hypothesis 1a was supported in the ANOVA test.

Overall, in this experiment the significant effect of product knowledge on fit perception was not found, whereas brand knowledge was found to have an impact on fit perceptions as predicted. Furthermore, in this study, it was expected that the effects of product and brand knowledge would be unequal in different conditions. Thus in the second sets of hypotheses, another independent variable, brand type, was taken into account. Interactions were expected in the 2 (functional vs. prestige brand) x 2 (high vs. low product knowledge consumer) x 2 (high vs. low brand knowledge consumer) mixed-design analysis of variance. The mean scores for the different experimental

conditions are shown in Table 4-8. The tests for the second sets of hypotheses are described in the following sections.

**Table 4-8 Consumer fit perceptions under different conditions**

Brand Type	High Product Knowledge		Low Product Knowledge	
	High Brand Knowledge	Low Brand Knowledge	High Brand Knowledge	Low Brand Knowledge
Functional Brand	3.56	3.67	3.54	3.12
Prestige Brand	4.30	3.30	4.49	3.27

#### **4.4.5 Test of Hypothesis 2a**

Hypothesis 2a predicted that for a functional brand, product knowledge would play a more important role in consumer fit perceptions between the original brand and the extension product, than brand knowledge in the brand extension evaluation process. That is, consumers with high product knowledge should have significant higher level of fit perceptions than consumers with low product knowledge in the functional brand extension evaluation. However, in the prestige brand extension evaluations, the fit perceptions difference between high and low product knowledge should not be as significant as in the functional brand extension evaluation. In other words, there should be a significant brand-type-by-product-knowledge interaction.

However, as shown in Table 4.7, the expected interaction was not found in the ANOVA test, with an F value of 0.906 and a p-value of 0.342. That means with different brand types, the fit perceptions were not different between high product knowledge consumers and low product knowledge consumers in this experiment. Although the mean ratings of consumer fit perceptions of high product knowledge ( $\bar{X}$ =3.6) were greater than that of low product knowledge consumers ( $\bar{X}$ =3.3) in functional brand extension, the difference was not statistically significant. For consumer fit perceptions in prestige brand evaluations there was hardly any difference between high and low product knowledge consumers ( $\bar{X}$ =3.80 vs.  $\bar{X}$ =3.88). Since no statistical significance was found, hypothesis

2a was not supported in the experiment. Again, the unsupported hypothesis results may be affected by the insignificant manipulation of functional brand extension.

#### **4.4.6 Test of Hypothesis 2b**

Hypothesis 2b proposed that for a prestige brand, consumer brand knowledge would have more effects on fit perceptions than consumer product knowledge. That is, that brand knowledge should be significantly more important than product knowledge, in consumer fit perceptions in prestige brand extension evaluations.

In the ANOVA test, a significant brand-type-by-brand-knowledge interaction was found with an F value of 6.511 and a p-value of 0.01, as shown in Table 4.7. Since the brand-type-by-brand-knowledge interaction was statistically significant, the brand knowledge effect was interpreted within different brand types. As expected, in the prestige brand extension evaluation, consumers with high brand knowledge had a significantly ( $F = 26.81$  and  $p\text{-value} = 0$ ) greater mean rating of fit perception ( $\bar{X} = 4.40$ ) than consumers with low brand knowledge ( $\bar{X} = 3.28$ ), whereas in the functional brand extension evaluations, the difference between high and low brand knowledge consumers was not significant ( $\bar{X}_{\text{high}} = 3.550$  vs.  $\bar{X}_{\text{low}} = 3.395$ ,  $F = 0.83$  and  $p\text{-value} = 0.36$ ). Hence, Hypothesis 2b was supported in the ANOVA test.

In conclusion, both  $H_{1b}$  and  $H_{2b}$  were supported in this experiment, whereas  $H_{1a}$  and  $H_{2a}$  were not supported. That is, the two hypotheses related to brand knowledge were supported, but the other two, which were related to product knowledge, were not supported. It must be remembered that the insignificant manipulation found in the manipulation check was for the extension product of functional brand. As predicted in the hypotheses, the effect of product knowledge on consumer fit perceptions should be dominant in the functional brand extension condition. Thus, these two unsupported hypotheses related to product knowledge may be due to the insignificant manipulation of functional brand extension. This effect will be further discussed in the next section.

#### **4.4.7 Effects of the manipulation check**

During the hypotheses testing, product knowledge was not found to have any significant influence on consumer fit perceptions of either the functional or the prestige brand extension. The results seem to suggest that product knowledge does not affect consumer fit perceptions in brand extension evaluations, which was contrary to the findings of previous research (Muthukrishnan & Weitz, 1991). However, the conclusion cannot be made that product knowledge does not have any impact on consumer fit perceptions in brand extension evaluations from this experiment, because one of the controls in the experiment was not significant, as expected in the manipulation check.

As mentioned in the section on ‘Manipulation Checks’, subjects did not give higher level of fit perceptions for a Compaq mobile phone than for a Compaq game console or an Apple mobile phone. Thus, compared to a game console, a mobile phone was not a better extension for Compaq. Furthermore, it was not considered to be a better extension for the Compaq brand than for the Apple brand. In addition, although consumers with high product knowledge ( $\bar{X}=3.56$ ) had higher mean fit perceptions ( $\bar{X}=3.67$ ) for the Compaq mobile phone than consumers with low product knowledge, the difference was not statistically significant ( $F=0.491$ ,  $p\text{-value}=0.485$ ).

By checking the four open-ended questions in the questionnaires, some explanations were found. The open-ended questions asked subjects to provide some suggestions for why they thought these two products (game console and mobile phone) were good or not good to be an extension for Apple or Compaq. Similar suggestions were provided for both the Compaq game console and the Compaq mobile phone. Several subjects indicated that game consoles and mobile phones could hang with the Compaq brand because they were both technology products. On the contrary, a game console could hang with the Apple brand, not only because it was computer related or a high technology product, but also because a game console was a product for fun which was consistent with Apple’s image, and Apple makes good software and graphics. Thus a mobile phone could fit with Compaq only because it is a high technology product, like a computer and a game console. The fit between a mobile phone and the Compaq brand

were only based on the surface cues, which both high and low product knowledge consumers could identify (Muthukrishnan & Weitz, 1991). This might be why the expected effects of product knowledge cannot be found in this experiment.

In the hypotheses testing, though the statistically significant effects were not found for product knowledge, the direction of high and low product knowledge consumers' fit perceptions were as expected, especially for the functional brand extension (Compaq mobile phone). Hence to some degree, the results of this experiment were consistent with the expectation and the findings in the literature review (that consumers with high product knowledge are more likely to identify the product-related fit between an extension and its parent brand, especially for a functional brand).

In conclusion, the expected effects of product knowledge were not found in this experiment. However, we cannot conclude that product knowledge does not affect consumer fit perceptions in brand extension evaluation, or that product knowledge does not have more effects on consumer fit perception between a functional brand and its extension, because the insignificant manipulation of functional brand extension masked the effects of this factor in the experiment.

## **4.5 Conclusion**

This chapter analysed the data, and tested the hypotheses. Two of the hypotheses about consumer brand knowledge were supported in the experiment. As expected, brand knowledge had a positive relationship with consumer fit perceptions. It played dominant roles in the prestige brand extension. That is, in the prestige brand extension, consumer brand knowledge affected more than product knowledge on consumer fit perceptions.

However, the other two hypotheses about product knowledge were not supported statistically. This could be due to the manipulation of functional brand extension in the experiment. Thus conclusions about the testing of these two hypotheses have to be treated with caution.

In the following chapter, these findings will be discussed regarding the research problems of this study. In addition, the conclusions, implications, and limitations will also be presented.

## 5 Chapter V – Discussion and Conclusion

### 5.1 Introduction

This study investigated the effects of consumer knowledge on consumer fit perceptions between an extension and its parent brand. Two research questions have been addressed in this study. Firstly, do both product knowledge and brand knowledge have an impact on consumer fit perceptions in brand extension evaluations? Secondly, if both product and brand knowledge affect consumer fit perceptions, do they have equal influences or do they play different roles? Four hypotheses were formulated based on the literature. First, two hypotheses proposed that product knowledge and brand knowledge have a positive relationship with consumer fit perceptions in brand extension evaluations. In the second set of hypotheses, brand type was taken into account. Hypothesis 2a proposed that product knowledge plays a dominant role in a functional brand extension evaluation. It affects consumer fit perception between a functional brand and its extension more than brand knowledge. On the other hand, Hypothesis 2b proposed that consumer fit perceptions between a prestige brand and its extension will be affected more by consumer brand knowledge than by product knowledge.

A factorial experiment was designed to test these research questions. Data was collected from students at a university in New Zealand. ANOVA analysis was used to test the hypotheses.  $H_{1b}$  and  $H_{2b}$ , which were related to brand knowledge and prestige brand, were supported in the hypotheses testing. However, the hypotheses which related to product knowledge and functional brand,  $H_{1a}$  and  $H_{2a}$ , were not supported.

These results and findings are discussed further in this chapter. Then, implications of this study for theory and for marketing practice are provided. Limitations of the study and indications for future study are also discussed. Finally, an overall conclusion for the study is presented.

## **5.2 General discussion**

Four hypotheses were proposed to investigate the effects of consumer knowledge, including product knowledge and brand knowledge, on consumer fit perceptions in brand extension evaluations. The results of the hypotheses tests supported two of the hypotheses, while the other two were not supported. These results provided some valuable insights for understanding the moderating role of consumer knowledge in consumer brand extension evaluations.

### ***5.2.1 The role of consumer knowledge in brand extension evaluations***

In the literature reviewed in Chapter Two consumer knowledge is suggested as one of moderating factors, like consumer mood, advertising, brand breadth, and so on, which have an impact on consumer brand extension evaluations through moderating the effects of consumer fit perceptions on brand extension evaluations (Czellar, 2003; Grime et al., 2002). The effects of consumer knowledge have already been explored by some empirical studies (Broniarczyk & Alba, 1994; Muthukrishnan & Weitz, 1991; Roux & Boush, 1996). The findings from previous research also suggests that consumer knowledge has an impact on consumer fit perceptions in brand extension evaluations (Muthukrishnan & Weitz, 1991).

The results and findings of this study further confirm that consumer knowledge is an influencing factor that plays a role in consumer brand extension evaluations. It appears to have an impact on consumer fit perceptions between an extension and its parent brand. In support of Hypothesis 1b, positive relationships were found between consumer knowledge and the consumer fit perceptions. Higher knowledge seems to give consumers more and better abilities to access the fit between an extension and its parent brand. However, the results from this study also suggest that the effects of consumer knowledge on consumer fit perceptions in brand extension evaluations should be explained more carefully than simply concluding that higher consumer knowledge leads to higher level of fit perceptions. Different types of consumer knowledge (product vs. brand knowledge) may play different roles in different brand extension evaluations.

### **5.2.2 *The role of product knowledge in brand extension evaluations***

The major difference between this study and previous research about consumer knowledge in brand extension evaluations was that two kinds of consumer knowledge, product and brand knowledge, were treated as two separated variables in this study. In the literature, product knowledge and brand knowledge have been found to have different effects on consumer behaviours, such as information search and brand evaluations (Bei & Heslin, 1997; Fiske et al., 1994). Thus it was proposed that they might also have different effects on consumer fit perceptions in brand extension evaluations.

Hypothesis 1a and Hypothesis 2a were intended to examine the effects of product knowledge on consumer fit perceptions. In Hypothesis 1a, it was proposed that product knowledge has a positive relationship with consumer fit perceptions. That is, consumers with high product knowledge were expected to have higher level of fit perceptions in brand extension evaluations. More specifically, in Hypothesis 2a, product knowledge was expected to play a dominant role compared with brand knowledge in influencing consumer fit perceptions between a functional brand and its extension. This was because functional brand was understood primarily in terms of product-related aspects by consumers and fit perceptions between a functional brand and its extension would be assessed more from the product-related facet (Park et al., 1991).

However, these two hypotheses about product knowledge were not supported by the results of the study. Contrary to what was expected for Hypothesis 1a, no significant effect was found for product knowledge on consumer fit perceptions. Although the mean score for the observed fit perceptions of the high product knowledge group was a little higher than that of the low product knowledge group, the difference was not statistically significant. Likewise, the expected significant effect of product knowledge on consumer fit perceptions between the functional product and its extension in Hypothesis 2a was also not found. These results seem to imply that product knowledge does not have any impact on consumer fit perceptions in brand extension evaluations.

However, conclusions about the roles of product knowledge have to be treated with caution in this study. As designed, the extension was manipulated in this experiment. However, the manipulation check suggested that the extension product (mobile phone) of the functional brand in this experiment was not judged significantly better than the other extension (game console) by the subjects as had been expected. As discussed earlier, both mobile phones and game consoles seem to fit with the parent brand product – computer based on surface cue. And both high and low product knowledge consumers have the ability to assess the surface similarities between an extension and its parent brand (Muthukrishnan & Weitz, 1991). This may be why significant effects of product knowledge were not found in this study.

Therefore, although neither of the hypotheses about product knowledge was supported in this study, it cannot be concluded that product knowledge does not have any impact on fit perceptions in brand extension evaluations. The role of product knowledge was not clearly examined in this study. Future research may replicate the study by improving the extension product manipulation to investigate the effects of product knowledge on fit perceptions again.

### ***5.2.3 The role of brand knowledge in brand extension evaluations***

While the role of product knowledge has not clearly been revealed in this study, some valuable findings about brand knowledge were generated. Both hypotheses about brand knowledge were supported, indicating that brand knowledge does have an impact on consumer fit perceptions in brand extension evaluation. Its effects seem to be important on the fit perception between a prestige brand and its extension.

In Hypothesis 1b, it was proposed that brand knowledge would have a positive relationship with consumer fit perceptions in brand extension evaluations. As expected, there was strong evidence in the ANOVA analysis that high brand knowledge consumers had a higher level of fit rating than low brand knowledge consumers. It was demonstrated that consumer fit perceptions in brand extension evaluations were affected

by consumer knowledge about the brand.

Furthermore, in support of Hypothesis 2b, the results suggest that the effect of brand knowledge is more important in a prestige brand extension than in a functional brand extension. There were two indications in this finding. First, that brand knowledge had more effects on the consumer fit perceptions between a prestige-brand and its extension than product knowledge. That is, in a prestige brand extension, consumer fit perceptions between the prestige brand and its extension are affected by consumer knowledge, but not by product knowledge. Second, although brand knowledge was found to have significant effects on fit perceptions between the prestige brand and its extension, the significant effects of brand knowledge were not found on fit perceptions between the functional brand and its extension. This suggests that while brand knowledge plays an important role in prestige brand extension evaluations, it does not have much influence on the fit perception in a functional brand extension.

In addition, as shown in Table 4-8, among 8 experimental groups, all the estimated means of the high brand knowledge groups were higher than the estimated means of the low brand knowledge groups, with the exception of one group. In judging the fit between the prestige brand and its extension, regardless of whether these high brand knowledge consumers had high or low product knowledge, they always had a significantly higher mean of fit perceptions than consumers with low brand knowledge. The estimated mean difference of fit perceptions between high and low brand knowledge consumers in the low product knowledge group was 1.00 (4.30 vs. 3.30), a little higher than the mean difference between high and low brand knowledge consumers in the high product knowledge group, which was 1.22 (4.49 vs. 3.27). This seems to suggest that brand knowledge may be even more important when consumers have low product knowledge. In judging the fit between the functional brand and its extension, when consumers all have high product knowledge, fit perceptions between high brand knowledge and low brand knowledge consumers do not differ (high = 3.56 vs. low = 3.67). When consumers all had low product knowledge, the high brand knowledge group had a higher estimated mean of fit perceptions (3.54) than the low

brand knowledge group (3.12), even if the difference was not statistically significant. Thus this result seems to suggest that in functional brand extension evaluations when consumers all have low product knowledge, their fit perceptions may be affected by their brand knowledge.

In summation, the results of this study demonstrate that brand knowledge has an impact on consumer fit perceptions between an extension and its parent brand. However, the effects of brand knowledge mainly work on the fit perceptions between a prestige brand and its new extension. In prestige brand extension, it is brand knowledge that plays the dominant role in brand extension fit perceptions, not product knowledge. Even if the effects of product knowledge were not found in this study, it can still be concluded that when studying the role of consumer knowledge in brand extension evaluations, product knowledge and brand knowledge should be treated as two separate variables. The results of this study demonstrate that brand knowledge does not have an equal influence for all brand extension evaluations.

### **5.3 Implications**

Although not all the hypotheses were supported in this study, other findings of the study have implications for theory and practice. In this section, contributions of this study to the body of knowledge in the brand extension evaluation area are firstly discussed. Then some implications for marketing practice are presented.

#### ***5.3.1 Implications for theory***

Based on reviewed literature, this study further investigated the role of consumer knowledge in consumer brand extension evaluations by classifying consumer knowledge into product and brand knowledge, two separate variables. Several implications for theory in the brand extension evaluation area have been generated from the findings of this study.

First, the results of this study confirm that consumer knowledge is one of the factors that has an impact on consumer fit perceptions between an extension and its parent

brand. Consumer knowledge is proposed as one of the moderating factors that influences the strength of the relationship between fit perception and consumer evaluations of an extension in two different conceptual frameworks about consumer brand extension evaluations (Czellar, 2003; Grime et al., 2002). Consistent with previous related research (e.g. Broniarczyk & Alba, 1994; Muthukrishnan & Weitz, 1991), the results of this study further demonstrate that consumer knowledge has an impact on consumer fit perceptions between an extension and its parent brand. However, different from previous related research, in this study, consumer knowledge was not treated as a single construct. Two dimensions of consumer knowledge, product and brand knowledge, have been studied separately. This generated another implication for theory.

The second and most important implication from this study is that product knowledge and brand knowledge have different effects on consumer fit perceptions in brand extension evaluations. Product knowledge and brand knowledge are two different dimensions of consumer knowledge. Previous studies have found that they have different influences on consumer behaviours (Bei & Heslin, 1997; Brucks, 1986; Fiske et al., 1994). However, in the literature of consumer brand extension evaluations, limited studies have investigated the effects of product and brand knowledge separately. This has led to some confusion in the consumer brand extension evaluation literature – whether these two variables both affect consumer perceived fit or only one of them, and whether they have equal influences or not (Grime et al., 2002). Thus in this study, product and brand knowledge were treated as two different variables, in an attempt to clarify the confusion in the literature.

Different effects of product knowledge and of brand knowledge were found in this study. Brand knowledge was found to have an influence on consumer fit perceptions, but its effects were found to be dominant only in prestige brand extension. The effect of brand knowledge was not significant in functional brand extension. In other words, in a prestige brand extension evaluation, consumers with higher knowledge about the brand are more likely to identify the fit between the prestige brand and its extension than

consumers with lower brand knowledge. Even those consumers with high brand knowledge but low product knowledge about the parent product and the extension product may be more likely to identify the fit than consumers with low brand knowledge but high product knowledge. Product knowledge does not seem to have an important role in a prestige brand extension. On the other hand, in a functional brand extension evaluation, effects of brand knowledge were not found to be as significant as in the prestige brand extension evaluation. The expected significant effects of product knowledge in the functional brand extension evaluation were not found in this study, but as discussed, this may be due to the non significant result found in the manipulation check of the functional brand extension. Overall, this study suggests that product knowledge and brand knowledge do play different roles in consumer brand extension evaluations. They do not have equal influences in all the brand extension evaluations.

Thirdly, different effects of brand knowledge and product knowledge on consumer fit perceptions were found in terms of different types of brand extensions, functional vs. prestige brand. This suggests that consumers evaluate functional and prestige brand extensions differently. That brand knowledge affects fit perception between a prestige brand and extension more than product knowledge may be due to the non-product-related fit being more important than the product related fit in a prestige brand extension. On the other hand, when evaluating a functional brand extension, consumers may assess the product-related fit more than the non-product-related fit. Therefore, in future research about consumer brand extension evaluations, functional brands and prestige brands may need to be considered separately.

### ***5.3.2 Implications for practice***

This study suggests that consumer knowledge has an impact on consumer fit perceptions in brand extension evaluations. Furthermore, consumer product knowledge and brand knowledge have different influences on fit perceptions in a functional brand and a prestige brand. These findings may also have implications for marketing practice in the areas of branding, promotion, and positioning.

Brand knowledge plays a more important role than product knowledge in the fit perceptions between a prestige brand and its extension. When a firm extends its prestige brand, consumers with high brand knowledge are more likely to identify the symbolic consistency between the new extension and the prestige brand than low brand knowledge consumers. The findings suggest that when promoting a new extension of a prestige brand, providing more non-product-related or symbolic information about the new extension should be more efficient than providing product-related information. Furthermore, in positioning the new extension, the firm should emphasise the symbolic meaning of the new extension, which is, of course, consistent with the symbolic meaning of the parent brand, rather than position it functionally.

Conversely, for an extension of a functional brand, the findings suggest that providing more product-related information about the extension may be better than providing non-product-related information. In addition positioning this new extension based on the functional meaning, which is consistent with the parent brand, should help consumers to perceive the fit or similarities between the new extension and the parent brand.

In general, when extending a prestige and a functional brand, a firm should use different marketing strategies to promote and position their extensions. For a prestige brand, it may be better to educate consumers with knowledge about the brand and provide more non-product-related information about the extension in order to help more consumers to identify the fit between the prestige brand and the new extension. While for a functional brand, it would be better for a company to educate consumers with more product-related information in order to help more consumers to accept the new extension.

## **5.4 Limitations of the Study and Future Research**

This study has a number of limitations that need to be acknowledged. First, although the brands and their extensions used in this experiment were selected carefully based on the two pre-tests, the selected extension (mobile phones) for the functional brand (Compaq) was not significantly better than other extensions (Compaq game consoles and Apple

mobile phones) in the manipulation check. As discussed, this may be the reason that non significant effects of product knowledge were found in this study. The non significant result found in the manipulation check of the functional brand extension may mask or reduce the effects of product knowledge in the experiment.

Second, the results generated in this study were derived from the information provided by the student sample used. In the brand extension literature, most of the related studies also use student samples. Although the student sample has advantages such as convenience and a high response rate, it only represents one group of consumers – students. However, in the real market, consumers are not only students. Thus the sample's representative of the whole population of consumers is limited. In addition, the sample used was confined to the Auckland region and may also not be representative of consumers in other regions or countries. Thus future research could replicate this study by using a different type of sample in other regions.

Third, in this study only one brand was used for each type of brand (functional vs. prestige), and only one product category (computer) was used. Thus generalisability of the results may be limited to these brands and these product categories. Future research could choose more than one brand for each type of brand, and use different product categories, to test the generalisability of the results.

Fourth, this study examined the effects of product knowledge and brand knowledge on the consumer fit perceptions in brand extension evaluations, but did not investigate the direct effects of product and brand knowledge on the consumer brand extension evaluations. The role of consumer knowledge in brand extension evaluations was studied through investigating the relationship between consumer fit perceptions in brand extension evaluations and consumer knowledge. However, the direct relationship between consumer knowledge and brand extension evaluations was not considered in this study. According to the conceptual framework of the extension evaluation process developed by Czellar (2003), consumer knowledge, particularly product knowledge about the parent brand and the new extension, may also have direct effects on consumer

attitude toward extension other than the moderating effects on fit perceptions. In addition, consumer attitudes toward a new extension may also have effects on consumer knowledge. When consumers form an attitude toward a new extension, this attitude and new knowledge about the extension may then have a reciprocal effect on their original knowledge about the parent brand and the extension product category. Thus future research could further study the direct relationship between consumer knowledge and consumer attitude toward extensions. The direct relationship includes two aspects. On the one hand, it refers to the possible direct effects of consumer knowledge on consumer attitude toward a brand extension. On the other hand, it refers to the fact that consumer attitude toward the new extension may have reciprocal effects on consumers' original knowledge about the parent brand and the extension product category.

Moreover, this study investigated the effects of product and brand knowledge in two different brand types, functional vs. prestige brand. However, Bhat and Reddy (1998) suggest that functionality and symbolism may be two ends of a continuum instead of two separate elements of brand positioning. That is, there would be some brands which are accepted by consumers based on both functional and symbolic appeal. This study only selected two brands that were understood by consumers mainly on functional appeal and mainly on prestige appeal, and did not consider a brand in which both functional and symbolic appearance are of equal importance. Future research could take the third type of brand into account, and examine the effects of consumer knowledge in this type of brand extension.

Finally, consumer knowledge is only one of the variables that has an impact on consumer fit perceptions in brand extension evaluations. There may be more variables related to consumer characteristics that have some influences on consumer brand extension evaluations, for example consumers' age and self-monitoring, and involvement (Czellar, 2003). These consumer characteristics may interact with each other when they affect consumer brand extension evaluations. For example, high involvement may be related to high brand knowledge, because consumers with high involvement may be willing to learn more about the brand, hence, store more brand

knowledge in their memories. Future research could study more about consumer characteristic factors and about the integrative effects of these factors on consumer fit perceptions in brand extension evaluations.

## **5.5 Overall conclusion**

The principle objective of this study was to further investigate the roles of consumer knowledge in brand extension evaluations. The literature search revealed that consumer knowledge plays moderating roles in the brand extension evaluation process. It affects the evaluation process through influencing the consumer fit perceptions between the extension and its parent brand. The consumer knowledge literature also suggests that consumer knowledge consists of two different dimensions, namely product knowledge and brand knowledge. These two different types of consumer knowledge have different effects on consumer behaviour. However, limited previous studies on extension evaluations have investigated the effects of product and brand knowledge separately. Thus the focus of this study was to further investigate the roles of consumer knowledge in brand extension evaluation, by treating product and brand knowledge as two separate variables.

Based on an analysis of the reviewed literature, it was proposed that both product and brand knowledge have positive relationships with consumer fit perceptions in brand extension evaluations. Furthermore, it was proposed that different types of consumer knowledge, product and brand knowledge, have different effects on consumer fit perceptions in terms of different types of parent brands. Product knowledge may play a dominant role in the consumer fit perceptions of a functional brand extension, whereas brand knowledge may play a dominant role in the fit perceptions of a prestige brand extension.

Results of the analysis supported the two hypotheses related to brand knowledge, while the other two hypotheses related to product knowledge were not supported statistically. In support of the two brand knowledge hypotheses, the results suggest that brand knowledge has an impact on consumer fit perceptions, but its effect is dominant in a

prestige brand extension evaluation. In a functional brand extension evaluation, brand knowledge did not have significant effects on fit perceptions as in the prestige brand extension evaluation. The proposed relationships between product knowledge and consumer fit perceptions were not found in the statistical analysis. The insignificant effects of product knowledge on consumer fit perceptions in brand extension evaluations may be due to the insignificant result found in the manipulation check of the functional brand extension used in the experiment. Thus it cannot be concluded that product knowledge did not have an impact on consumer fit perceptions in brand extension evaluations, based on the statistical results of this study.

However, this empirical study provides some valuable insights on the influence of consumer knowledge on consumer fit perceptions in brand extension evaluations. Theoretically, it suggests that consumer knowledge does have an impact on consumer fit perceptions. But the effects of this factor should be explained separately in terms of product and brand knowledge. In terms of practice, the findings of this study indicate that a firm should use different marketing strategies to promote and position their extensions for functional and prestige brands. In particular, for a prestige brand, the study suggests that marketers should provide more non-product-related information when promoting the new extension, to help consumers to identify the symbolic meaning consistency between the extension and its parent brand.

Overall, the study provides some further insights into the role of consumer knowledge in brand extension evaluations. It demonstrates that the two types of consumer knowledge, product and brand knowledge, have different effects on consumer fit perceptions in brand extension evaluations.

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## Appendices:

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## Appendix A: Questionnaire of Pre-test 1

### Pre-test 1(Form A)

#### Question 1:

Following are some brand names. Please write down some associations (or your understanding of the meaning associated with the brand name) next to each brand.

**Brand:**

**Association:**

Nokia

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Nike

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Dell

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“V” Energy Drink

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Dirty Dog

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Rolex

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Lee Jeans

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Prince

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Burberry

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Fisher & Paykel

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For the following two questions, just circle the number that corresponds most closely to your view.

**Question 2:** Please indicate your attitude towards the following brands:

	Dislike								Like
Nokia	1	2	3	4	5	6	7	8	9
Nike	1	2	3	4	5	6	7	8	9
Dell	1	2	3	4	5	6	7	8	9
Dirty Dog	1	2	3	4	5	6	7	8	9
'V' Energy Drink	1	2	3	4	5	6	7	8	9
Rolex	1	2	3	4	5	6	7	8	9
Lee Jeans	1	2	3	4	5	6	7	8	9
Prince	1	2	3	4	5	6	7	8	9
Burberry	1	2	3	4	5	6	7	8	9
Fisher & Paykel	1	2	3	4	5	6	7	8	9

**Question 3:** Please indicate your familiarity about following brands

	Very Unfamiliar								Very Familiar
Nokia	1	2	3	4	5	6	7	8	9
Nike	1	2	3	4	5	6	7	8	9
Dell	1	2	3	4	5	6	7	8	9
Dirty Dog	1	2	3	4	5	6	7	8	9
'V' Energy Drink	1	2	3	4	5	6	7	8	9
Rolex	1	2	3	4	5	6	7	8	9
Lee Jeans	1	2	3	4	5	6	7	8	9
Prince	1	2	3	4	5	6	7	8	9
Burberry	1	2	3	4	5	6	7	8	9
Fisher & Paykel	1	2	3	4	5	6	7	8	9

**Question 4:** Do any of the following brands convey a prestige image?

	Not at All								Very Much
Nokia	1	2	3	4	5	6	7	8	9
Nike	1	2	3	4	5	6	7	8	9
Dell	1	2	3	4	5	6	7	8	9
Dirty Dog	1	2	3	4	5	6	7	8	9
'V' Energy Drink	1	2	3	4	5	6	7	8	9
Rolex	1	2	3	4	5	6	7	8	9
Lee Jeans	1	2	3	4	5	6	7	8	9
Prince	1	2	3	4	5	6	7	8	9
Burberry	1	2	3	4	5	6	7	8	9
Fisher & Paykel	1	2	3	4	5	6	7	8	9

**Thank you very much!**

**Pre-test 1 (Form B)**

Question 1:

Following are some brand names. Please write down some associations (or your understanding of the meaning associated with the brand name) next to each brand.

**Brand:**

**Association:**

Compaq

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Line 7

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Wilson

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Levi's

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Energizer

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Elizabeth Arden

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Apple

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Hallmark

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Slazenger

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Gillette

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For the following two questions, just circle the number that corresponds most closely to your view.

**Question 2:** Please indicate your attitude towards the following brands:

	Dislike								Like
Compaq	1	2	3	4	5	6	7	8	9
Line 7	1	2	3	4	5	6	7	8	9
Wilson	1	2	3	4	5	6	7	8	9
Levi's	1	2	3	4	5	6	7	8	9
Energizer	1	2	3	4	5	6	7	8	9
Elizabeth Arden	1	2	3	4	5	6	7	8	9
Apple	1	2	3	4	5	6	7	8	9
Hallmark	1	2	3	4	5	6	7	8	9
Slazenger	1	2	3	4	5	6	7	8	9
Gillette	1	2	3	4	5	6	7	8	9

**Question 3:** Please indicate your familiarity about following brands

	Very Unfamiliar								Very Familiar
Compaq	1	2	3	4	5	6	7	8	9
Line 7	1	2	3	4	5	6	7	8	9
Wilson	1	2	3	4	5	6	7	8	9
Levi's	1	2	3	4	5	6	7	8	9
Energizer	1	2	3	4	5	6	7	8	9
Elizabeth Arden	1	2	3	4	5	6	7	8	9
Apple	1	2	3	4	5	6	7	8	9
Hallmark	1	2	3	4	5	6	7	8	9
Slazenger	1	2	3	4	5	6	7	8	9
Gillette	1	2	3	4	5	6	7	8	9

**Question 4:** Do any of the following brands convey a prestige image?

	Not at All								Very Much
Compaq	1	2	3	4	5	6	7	8	9
Line 7	1	2	3	4	5	6	7	8	9
Wilson	1	2	3	4	5	6	7	8	9
Levi's	1	2	3	4	5	6	7	8	9
Energizer	1	2	3	4	5	6	7	8	9
Elizabeth Arden	1	2	3	4	5	6	7	8	9
Apple	1	2	3	4	5	6	7	8	9
Hallmark	1	2	3	4	5	6	7	8	9
Slazenger	1	2	3	4	5	6	7	8	9
Gillette	1	2	3	4	5	6	7	8	9

**Thank you very much!**

## Appendix B: Questionnaire of Pre-test 2

Instruction:

Suppose the following two computer brands are planning to introduce new products. Please write down possible products for each brand that you think are reasonable for them to introduce. These new products should be different from the existing products of each brand, and in completely new product categories. Next to each possible new product, please write down a word or phrase that explains why you think the brand should go into that product category.

Possible Extension:

Reason:

Apple

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Compaq

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**Thank you very much!**

## Appendix C: Questionnaire of the Experiment



Thank you for agreeing to complete the questionnaire. The information you provide on this form is confidential. You will not be individually identified and your responses will be used only for statistical purposes.

Instructions: Please read each item and **CIRCLE** the number that most accurately reflects your opinion

### Section 1 About Computers

	Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
I pay a lot of attention to advertisements for COMPUTERS.	1	2	3	4	5	6	7
I have used a COMPUTER very frequently in the past 12 months.	1	2	3	4	5	6	7
I am consulted by my friends or relations all the time in the purchase of COMPUTERS.	1	2	3	4	5	6	7
I always know where to find relevant information about COMPUTERS.	1	2	3	4	5	6	7
I consider myself highly knowledgeable about COMPUTERS.	1	2	3	4	5	6	7
I consider myself an expert on COMPUTERS.	1	2	3	4	5	6	7
I have a COMPUTER currently.	1	2	3	4	5	6	7
I know how to judge the quality of a COMPUTER.	1	2	3	4	5	6	7

### Section 2 About Game Consoles

	Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
I pay a lot of attention to advertisements for GAME CONSOLES.	1	2	3	4	5	6	7
I have used a GAME CONSOLE very frequently in the past 12 months.	1	2	3	4	5	6	7
I am consulted by my friends or relations all the time in the purchase of GAME CONSOLES.	1	2	3	4	5	6	7
I always know where to find relevant information about GAME CONSOLES.	1	2	3	4	5	6	7
I consider myself highly knowledgeable about GAME CONSOLES.	1	2	3	4	5	6	7
I consider myself an expert on GAME CONSOLES.	1	2	3	4	5	6	7
I have a GAME CONSOLE currently.	1	2	3	4	5	6	7
I know how to judge the quality of a GAME CONSOLE.	1	2	3	4	5	6	7

**Section 3 About Mobile Phones**

	Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
I pay a lot of attention to advertisements for MOBILE PHONES.	1	2	3	4	5	6	7
I have used a MOBILE PHONE very frequently in the past 12 months.	1	2	3	4	5	6	7
I am consulted by my friends or relations all the time in the purchase of MOBILE PHONES.	1	2	3	4	5	6	7
I always know where to find relevant information about MOBILE PHONES.	1	2	3	4	5	6	7
I consider myself highly knowledgeable about MOBILE PHONES.	1	2	3	4	5	6	7
I consider myself an expert on MOBILE PHONES.	1	2	3	4	5	6	7
I have a MOBILE PHONE currently.	1	2	3	4	5	6	7
I know how to judge the quality of a MOBILE PHONE.	1	2	3	4	5	6	7

**Section 4 About The APPLE Brand**

	Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
When I intend to buy a computer, I recall APPLE as a choice to think about.	1	2	3	4	5	6	7
I can correctly identify APPLE as having been previously seen or heard.	1	2	3	4	5	6	7
I think APPLE can give me various kinds of benefits.	1	2	3	4	5	6	7
Overall, I like the APPLE brand.	1	2	3	4	5	6	7
I have strong feelings about the APPLE brand.	1	2	3	4	5	6	7
I think the APPLE computer is unique to me compared with all the other computer brands.	1	2	3	4	5	6	7
I will not feel difficult if I am asked to give the overall feeling about the APPLE brand.	1	2	3	4	5	6	7
Overall, I think the APPLE brand is rated high on almost every aspect crucial to me.	1	2	3	4	5	6	7
APPLE conveys a high prestige image.	1	2	3	4	5	6	7

**Section 5 About The COMPAQ Brand**

	Strongly Disagree		Neither Agree nor Disagree			Strongly Agree	
When I intend to buy computers, I will recall COMPAQ as a choice to think about.	1	2	3	4	5	6	7
I can correctly identify the COMPAQ brand as having been previously seen or heard.	1	2	3	4	5	6	7
I think COMPAQ can give me various kinds of benefits.	1	2	3	4	5	6	7
Overall, I like the COMPAQ brand.	1	2	3	4	5	6	7
I have strong feelings about the COMPAQ brand.	1	2	3	4	5	6	7
I think the COMPAQ computer is unique to me compared with all the other computer brands.	1	2	3	4	5	6	7
I will not feel difficult if I am asked to give the overall feeling about the COMPAQ brand.	1	2	3	4	5	6	7
Overall, I think the COMPAQ brand is rated high on almost every aspect crucial to me.	1	2	3	4	5	6	7
COMPAQ conveys a high prestige image.	1	2	3	4	5	6	7

**Section 6 New possible products for APPLE and COMPAQ**

Suppose that both two brands are now introducing two new products, 'Game Console' and 'Mobile phone'. Please rate how much these two new extension products fit with these brands.

1 Do you think an APPLE game console is similar to an APPLE computer?	Not at all Similar							Highly Similar
	1	2	3	4	5	6	7	
2 Do you think a game console is related to the APPLE brand name and image?	Not at all Related							Closely Related
	1	2	3	4	5	6	7	
3 Overall, do you think a game console fits into the APPLE brand family?	Not at all fits							Closely Fits
	1	2	3	4	5	6	7	
4 In what ways do you think a game console fits or does not fit with the APPLE brand name? Please write down some comments here:								
1 Do you think an APPLE mobile phone is similar to an APPLE computer?	Not at all Similar							Highly Similar
	1	2	3	4	5	6	7	
2 Do you think a mobile phone is related to the APPLE brand name and image?	Not at all Related							Closely Related
	1	2	3	4	5	6	7	
3 Overall, do you think a mobile phone fits into the APPLE brand family?	Not at all fits							Closely Fits
	1	2	3	4	5	6	7	
4 In what ways do you think a mobile phone fits or does not fit with the APPLE brand name? Please write down some comments here:								

1 Do you think a COMPAQ game console is similar to a COMPAQ computer?	Not at all Similar							Highly Similar
	1	2	3	4	5	6	7	
2 Do you think a game console is related to COMPAQ brand name and image?	Not at all Related							Closely Related
	1	2	3	4	5	6	7	
3 Overall, do you think a game console fits into the COMPAQ brand family?	Not at all fits							Closely Fits
	1	2	3	4	5	6	7	
4 In what ways do you think a game console fits or does not fit with the COMPAQ brand name? Please write down some comments here:								
1 Do you think a COMPAQ mobile phone is similar to an COMPAQ computer?	Not at all Similar							Highly Similar
	1	2	3	4	5	6	7	
2 Do you think a mobile phone is related to the COMPAQ brand name?	Not at all Related							Closely Related
	1	2	3	4	5	6	7	
3 Overall, do you think a mobile phone fits into the COMPAQ brand family?	Not at all fits							Closely Fits
	1	2	3	4	5	6	7	
4 In what ways do you think a mobile phone fits or does not fit with the COMPAQ brand name? Please write down some comments here:								

**Thank you very much!**