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**CONSUMER EVALUATIONS OF EXTENSION  
FIT AND ITS IMPACT UPON BRAND  
PERSONALITY**

**Ph.D Thesis**

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## ABSTRACT

While the use of extension strategies have been discussed to a great extent, there is a lack of empirical evidence into the affect extensions have upon core brand personality. The primary objective of this research is to address the apparent gap in the literature by empirically investigating the impact that extensions have on core brand personality. This study also seeks to examine the impact of extension fit upon consumer evaluations extensions.

After reviewing the literature, a conceptual framework linking to a set of hypotheses was developed, highlighting the impact of fit upon consumer evaluations of (a) brand personality and (b) the extension.

A before-after (with control) experimental design was chosen to test the research hypotheses. This type of design was selected due to the high level of control it possessed. Mail questionnaires were produced on the basis of the literature review (Chapter 2) and conceptual framework (Chapter 3). The research instrument was pretested and then presented to a sample of executive MBA students. A response of 102 matched cases was achieved.

Previously established scales were used in order to collect the data (e.g. Aaker's 1997 scale was utilised to measure brand personality). Recognised measure development procedures were then employed in order to verify the reliability and validity of the measures.

Finally, the hypotheses were tested via t – tests, ANCOVA and multiple regression analyses. The main findings suggest that whilst fit does significantly affect extension evaluations, it has little impact on brand personality. Specifically, there is no difference in brand personality evaluations due to good and poor levels of fit. However, higher levels of fit are associated with more favourable extension evaluations.

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## CHAPTER 1

### INTRODUCTION

Interest in the brand personality construct has developed over the last decade, as its strategic importance has become more apparent. Brand personality refers to "the set of human characteristics associated with the brand" (Aaker 1997, p. 347). Brand personality is important as it allows marketers to differentiate brands by making them more difficult to copy (Aaker 1996). Also, brand personality allows marketers to communicate with their customers about their brand more effectively (Plummer 1984/5). Extensions too have been seen to be important because of their ability to influence the chances of new product success (Reddy et. al. 1994; Sattler and Zatoukal 1998). Extension refers to the use of a current brand name to enter a new market segment in its product class or, whereby a current brand name is used to enter a completely different product class (Aaker and Keller 1990). In addition, extensions have been seen to be capable of enhancing or diluting the core brand (Batra et. al. 1993). Therefore, these extensions should play an important role in developing brand personality and thus warrant further investigation (Biel 1993).

#### 1.1 GENERAL OVERVIEW OF RESEARCH

The relationship between brand personality and extensions has been inferred (though not tested). Extensions that introduce new product features and or enter a new product category "can be primary drivers of a brand personality" (Aaker, 1996 p. 145). Moreover, together, brand personality and extensions are seen as affecting the overall, long-term equity of a brand (Aaker 1991; Batra et. al. 1993, Biel 1993).

Although brand personality has been referred to in the consumer behaviour research for many years (e.g. Gardner and Levy 1955; Malhotra 1981; Belk 1988), empirical research into the construct has remained limited (Aaker 1997). Similarly, while the use of extension strategies have been discussed to a great extent (Tauber 1988; Aaker

and Keller 1990, Sunde and Brodie 1993), there is a lack of empirical evidence into the effects extensions have upon brand personality. This thesis reports on work that addresses a particular gap in the literature through empirically investigating the effects of extension developments on brand personality. The use of an automobile manufacturer was employed in this work due to this market sector providing an opportunity for the research to be carried out as it is jointly funded by the ESRC (Economic and Social Research Council) and MIRA (Motor Industry Research Association). This industry setting is often used for studies and it is important to carry out research in this sector because the car industry is the single largest industrial sector in the world economy (Turnbull 1992). This sector is particularly appropriate as brands in this industry are attempting to develop their personalities (Bull and Oxley 1996).

The focus of the study is a major British 4 x 4 automobile brand. It has been suggested that this brand does have a distinct personality (Bull and Oxley 1996). Therefore, different types of extensions may indeed affect consumer evaluations of brand personality.

This chapter explains the importance of brand personality and extensions. Then, a discussion of the potential impact of extension fit upon (a) brand personality and (b) extension evaluations is provided. Next, the primary research objectives are proposed. Finally, an outline of each chapter is provided.

## **1.2 THE IMPORTANCE OF BRAND PERSONALITY**

Brand personality has become a critical issue to brand strategists and marketing managers. Consumers are now buying products and brands for reasons over and above their functional value, as they now consider a brand's symbolic value (Lannon and Cooper 1983; de Chernatony 1993). Sampson (1993, p.23) comments that, "brand choice is no longer about rational product attributes. It is, and will increasingly be, all about brand personality".

It has been suggested that the personality of a brand creates its desirability and individuals achieve recognition from peers via the brands or products they own

(Sampson 1993). Also, the majority of advertising agencies and managers of advertised brands now believe that their brands have human personality characteristics and that consumers can talk easily about brands as if they were people. Moreover, it has been proposed that these consumers can discriminate between brands in human terms (Alt and Griggs 1988).

Aaker (1996) has suggested that the brand personality construct can help managers in a number of ways. Particularly, it enables them to understand consumer perceptions and attitudes toward the brand. In today's highly competitive environment brand personality acts as a differentiation tool, especially in product categories where brands have similar product attributes and features. Additionally, brand personality can help to communicate a brand's identity by communicating a consistent image. Brand personality can also help to create brand equity; by the brand becoming a vehicle for consumers to express their self identity; or, by contributing to the relationship that exists between a brand and a person; or, by a brand's personality representing and cueing the brand's functional benefits and brand attributes. Moreover, brand personality acts as a central device used to drive consumer preference and usage (Biel 1993). An understanding of a brand's personality within a product field can also enhance a manager's understanding of the dynamics of that field and advertising can be suitably directed (Alt and Griggs 1988).

### **1.3 THE IMPORTANCE OF EXTENSIONS**

The high costs of new product launches have encouraged an increasing number of firms to use extensions for their new product development strategy (Tauber 1981; Aaker and Keller 1990; Laforet & Saunders 1994). By using well-known brands, the costs of launching a new product can be reduced drastically through marketing and distribution efficiencies (The Economist 1990; Muroma et. al., 1996). In this context, "well over one half of all new brands introduced in the 1980's were extensions marketed under existing brand names" (Loken and Roedder John, 1993, p. 77).

There are a number of benefits and pitfalls of using an extension strategy. Extensions capitalise on one of a company's most valuable assets, namely its brand name (Aaker and Keller 1990), the company moves into a new product category and/or market



segment from a position of strength (Tauber 1981). Extensions promote immediate consumer awareness, providing a relatively quick and cheap way to enter a new market (The Economist 1990). Moreover, the introduction of an extension can increase sales for the *parent* brand, due to the enhancement of consumer perceptions of brand values and image through increased communication (Tauber 1981,1988). Finally, brand extensions (i.e. category extensions) also tend to have a higher survival rate than new name products (Sullivan 1992).

Notwithstanding their benefits, extensions can be risky (Ries and Trout 1986; Sharp 1991). An extension may potentially dilute the brand name (Aaker 1990). For example, the negative publicity surrounding the acceleration problems of the Audi 5000 spilled over to the Audi 4000 (Chung and Lavack 1996). Specifically, the new product may create confusion or negative connotations in the minds of consumers and thus weaken the core values of the brand (Tauber 1981, 1988; Roedder John et. al. 1998). Moreover, if the extended product is closely connected with the original product, consumers may purchase the extended product at the expense of the company's other products, inducing a cannibalisation effect (Copulsky 1976; Buday 1989).

Research has suggested that the fit between the extension and the brand is important in consumer evaluations of extensions (Ambler and Styles 1997). Positive consumer evaluations of extension fit are achieved "when the consumer accepts the new product as logical and would expect it from the brand" (Tauber 1988, p. 28).

Extension research can be split into two major strands. There is the effect of fit on attitudes towards the extension itself (Aaker and Keller, 1990; Sunde and Brodie 1993; Bottomley and Doyle 1996) and the effect that fit has on the core brand (Romeo 1991; Keller and Aaker 1992; Loken and Roedder John 1993; Gürhan-Canli and Maheswaran 1998; Roedder John et. al. 1998). Favourable consumer evaluations of an extension require the core brand to have a good 'fit' with the new product (Aaker and Keller 1990; Ambler and Styles 1997; Barrett et. al. 1999). Thus, the better the 'fit' the easier it is to extend to new classes (Muroma and Saari, 1996). Furthermore, in extending a brand, good fit is important for positive consumer evaluations (i.e. enhancement) of the core brand (Keller and Aaker 1992).

Whilst establishing the effects of fit on extension evaluations are important to this work in determining the generalisability of previous studies; the particular gap that is addressed in this research investigates the effects of fit on core brand personality.

#### **1.4 EXISTING RESEARCH AND CONTRIBUTION**

The majority of extension research has focused on the consumer evaluations of an extension and the core brand (e.g. Aaker and Keller 1990; Nijssen et. al. 1996; Milberg et. al. 1997). This research covers new ground by focussing on brand personality as an alternative and complementary way of assessing the impact of extension fit on the core brand, whilst using established measurement procedures to evaluate the impact of extension fit on extension evaluations.

The benefits of this research encompass five main areas.

Firstly, in terms of theoretical development, it will link together two important but to date un-related areas, namely, the extension and brand personality constructs. The research will establish the effects of different levels of extension fit on core brand personality. It will also specify under what conditions a number of moderating variables will affect the nature/strength of relationship between extension fit and core brand personality and extension evaluations.

Secondly, this research whilst investigating the effects of extension fit upon brand personality evaluations also attempts to generalise previous research by establishing the impact of extension fit upon extension evaluations. This is considered necessary as it aids theory development by examining if good and poor levels of extension fit affect both brand personality and extension evaluations equally.

Thirdly, this research also adds to previous research by studying a specific and unique industry (i.e. automobile industry). The latter is important to show that the results of previous studies can be extended to wider product areas and ultimately knowledge development (Bottomley and Doyle 1996; Barrett et. al. 1999).

Fourthly, Aaker's (1997) scale was used in this work since no research to date had employed a rigorous set of procedures to develop a brand personality measure. As

Aaker's (1997) brand personality scale has received little replication to ascertain its use in other product areas and across different sample groups; this research also contributes to methodological development by testing the reliability, validity and dimensionality of Aaker's (1997) brand personality scale.

Finally, the findings will be of relevance to practitioners, who, whilst increasingly following extension strategies have little research evidence to assess their wider impact upon brand equity. The results of this research will be particularly relevant to companies owning similar types of brand (i.e. brands in the 4 x 4 market sector) and practitioners in general. Not only will the evaluations of different types of extension fit be made available; practitioners will also be able to judge what types of extension (if any) will effect brand personality (as the effect of different levels of fit on brand personality will be shown).

## **1.5 RESEARCH OBJECTIVES**

Given the research gap that has been identified and the importance of replication studies highlighted, there are two main objectives of this research.

Objective 1: To examine the impact of extension fit upon consumer evaluations of brand personality.

Objective 2: To examine the impact of extension fit upon consumer evaluations of extensions.

A third less significant but still important sub-objective has also been identified.

Sub-objective 3: To test Aaker's (1997) brand personality scale for reliability, validity and dimensionality.

## **1.6 RESEARCH OVERVIEW AND CHAPTER OUTLINE**

In order to fulfil the objectives outlined above, the research was conducted in the following sequence (Figure 1.1), thus shaping the structure of the thesis.

Chapter 2 provides a comprehensive review of the brand personality and extension literature. It highlights the increasing importance of brand personality and extensions as strategic tools in the marketplace. Following this, the automobile industry is examined, highlighting the need for extensions and the increasing importance of brand personality in this industry.

Chapter 3 draws on the literature in Chapter 2 to provide a conceptualisation of the impact of extension fit upon (a) brand personality and (b) extension evaluations. A conceptual framework is proposed where the main focus of the thesis is outlined. Following this, a set of research hypotheses is introduced corresponding to the linkages in the conceptual framework. These hypotheses specify the conditions under which brand personality is likely to be enhanced or diluted, and/or when a particular extension is likely to be favourably or unfavourably evaluated.

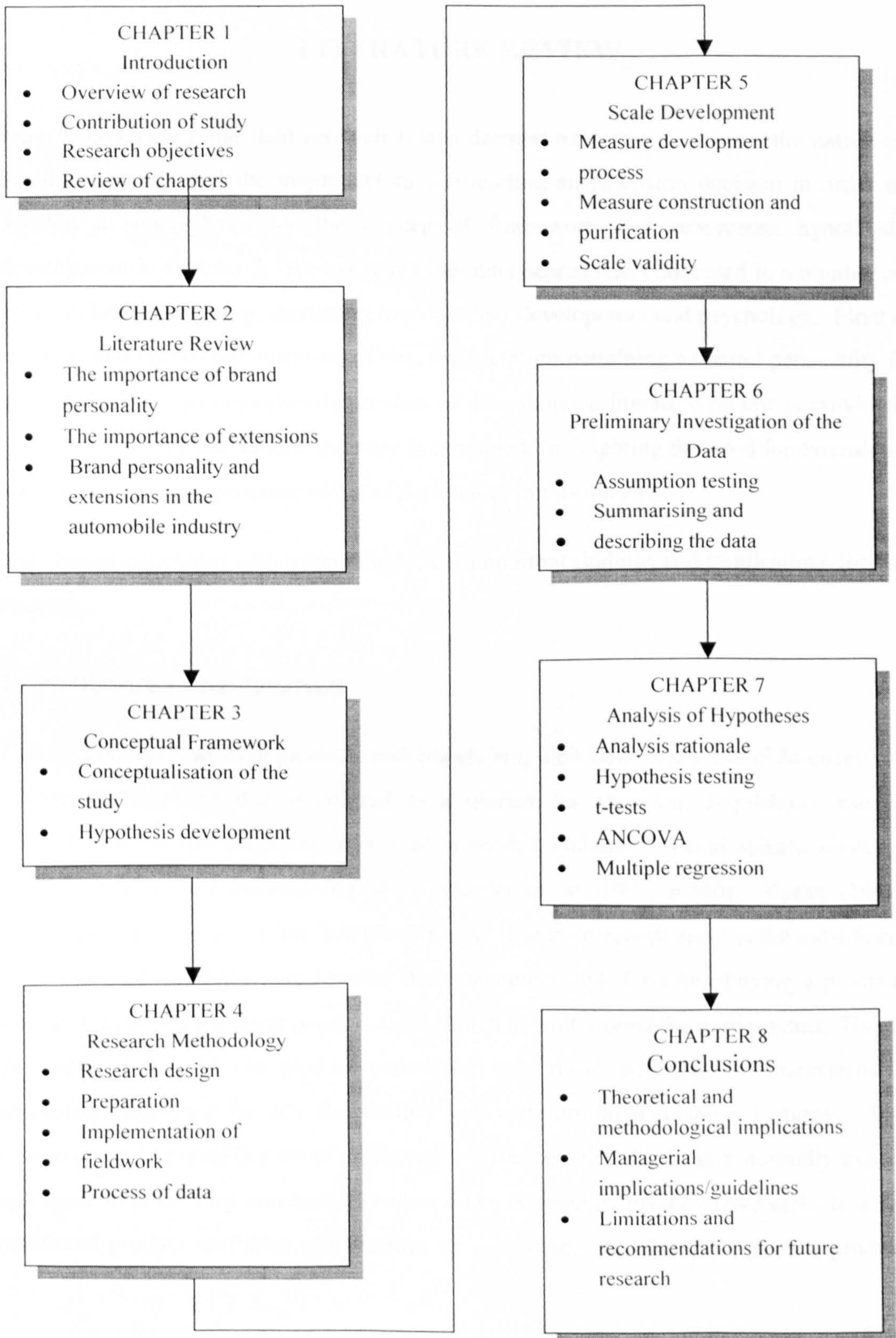
Chapter 4 outlines the research methods used in collecting the data for analysis. The research strategy that was adopted in this project, a before-after (with control) experimental design is given particular attention, as is the development of the self-completion questionnaire.

Chapter 5 describes the development of summated rating scales that were used in the questionnaire to collect the data. This chapter reports on the steps followed in the scale development process. It describes the construction and purification of the measures to establish reliability, uni-dimensionality, and validity of the scales.

Chapter 6 presents the findings of preliminary data analysis. It explores, summarises and describes the observations made from the data set. Specifically, exploratory data analysis was carried out in order to establish illuminating features in the data and to test that a number of assumptions were upheld, which were required for the statistical tests that followed.

Chapter 7 presents the findings from the quantitative data analysis. In order to fulfil the research objectives the conceptual framework and set of research hypotheses presented in Chapter 3 are tested via a series of t -tests, ANCOVA and the multiple regression analyses.

Chapter 8 briefly reviews the materials covered in previous chapters of the thesis and presents the final conclusions of consumer evaluations of extension fit and its impact on brand personality. The final chapter discusses the contribution of this work to the existing marketing literature in terms of theoretical and methodological implications. Drawing on this, the managerial implications of the study findings are discussed and recommendations for future research are presented.

**Figure 1.1:** Overview of Thesis Structure

## CHAPTER 2

### LITERATURE REVIEW

Prior to conducting the field research it was deemed necessary to discuss the nature of brand personality and the major factors surrounding an extension decision in order to develop a sound basis for the conceptual framework and subsequent hypothesis development in Chapter 3. An extensive literature search was conducted in a number of areas including, branding, marketing, new product development and psychology. Firstly, products and brands are examined. Then, the literature pertaining to brand personality is presented. Next, a comprehensive review of the extension literature review is provided. Following this, the automobile industry is examined, highlighting the need for extensions and the increasing importance of brand personality in this industry.

The chapter concludes with a summary of the important findings and implications for the research.

#### 2.1 PRODUCTS AND BRANDS

This section looks at what products and brands are, their definitions and differences. A product is “anything that is offered to a market for attention, acquisition, use or consumption and that might satisfy a want or need; it includes physical objects, services, persons, places, organisations and ideas” (Kotler et. al. 1996, p.546). Kotler (1997) suggested that the product has five main levels. The *core benefit level* is the most basic level and consists of the core benefits that consumers look for when buying a product. The next level is the *generic product level*, which is built around the core product. This is the basic version of the product containing only those attributes or characteristics absolutely necessary for it’s functioning but with no distinguishing features. The *expected product level* is a set of attributes or characteristics that buyers normally expect and agree to when they purchase a product. The *augmented product level* seeks to offer additional product attributes and benefits, or related services that distinguish a product

from its competitors. Finally, the *potential product level* includes all of the augmentations and transformation that a product might ultimately undergo in the future.

A brand is an important part of the product and branding helps to differentiate a firm's product from that of its competitors (Kotler et. al. 1996). A brand is a "name, term, sign, symbol, design, or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition" (Keller 1998, p. 2). Brands help buyers to identify specific products that they do and do not like. Brands also help buyers to evaluate the quality of products and help to reduce their perceived risk of purchase (Dibb et. al. 1991). As most firms can successfully build products at the *expected product level*, competition increasingly takes place at the *augmented product level*. A brand is a product that "adds other dimensions to differentiate it in some way from other products designed to satisfy the same need" (Keller 1998, p. 4) and therefore its role is to satisfy the *augmented product level*. These differences in brands may be rational and tangible (i.e. related to the product performance of the brand) or more symbolic, emotional and intangible (i.e. related to what the brand represents) (Keller 1998). A brand has up to four levels of meaning (Kotler et. al. 1996). Firstly, the brand conveys meaning via the product's *attributes* which, for example, for an automobile brand may include 'well engineered', 'reliable', 'durable' and 'high prestige'. Secondly, customers do not buy attributes, they buy *benefits* for example; a reliable car provides the benefit of customers not having to spend money on breakdown services. Thirdly, the brand also says something about a buyer's *values*. For example, car buyers may value high performance, sportiness or value for money. Finally a brand projects a *personality*. For example, a car may be viewed as being rugged, sophisticated and/or competent. It has been suggested the most lasting and sustainable meanings of a brand is its values and personality (Kotler et. al. 1996). As competitors can copy attributes and benefits, companies must build their strategy around creating and protecting values and brand personality (Kotler et. al. 1996). Moreover, it has been suggested that extensions may enhance or dilute the values and personality that a brand has built up (Hankinson and Cowking 1992; Batra et. al. 1993). As differentiation is a major source of competitive advantage (Porter 1980) and brand personality (see Section 2.2.1 for definition) is the part



of the brand that “can serve as the foundation for meaningful differentiation” (Aaker 1996, p.150), it is important to study not only how extending the brand may effect its core values but, also, its personality. Although, research has frequently studied the effect of extensions upon the core values of the brand (e.g. Aaker and Keller 1990) there is a lack of research into their effect upon brand personality.

## **2.2 BRAND PERSONALITY**

This section looks at what brand personality is, its definition, its relation to human personality and existing research in this area.

### **2.2.1 What Is Brand Personality?**

Gardner and Levy (1955) made an initial contribution to brand personality by considering the character of the product or brand. They suggested that a brand name<sup>1</sup> is a complex symbol that represents a variety of ideas and attributes, of which; the net result is a public image and character or personality of the brand. The brand name acts as a shorthand device that communicates to consumers about what the brand is or does (Hankinson and Cowking 1992). Brand personality reflects how people really feel about the brand in terms of emotional and symbolic characteristics (Keller 1998). In this context brands have a personality that users value beyond functional utility (Landon 1974; de Chernatony and McWilliam 1989a) and consumers will use brands as symbolic devices to explain and express their own particular personality (de Chernatony and McWilliam 1990; de Chertnatony and Riley 1998a). Furthermore, brand personality is important as once it is well established it has been argued that to a greater degree, it is the emotional attributes that usually account for brand preference and usage rather than the rational ones (Sirgy 1982; Biel 1993; Sampson and Burke 1993). Therefore, it is becoming increasingly recognised that understanding peoples perceptions and attitudes toward a brand will help marketers to differentiate and communicate their brand’s identity (Aaker 1996).

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<sup>1</sup> A brand name is simply “that part of a brand which can be spoken, including letters, words and numbers – such as 7-Up” (Dibb et. al.1991, p. 218).

A review of the extant literature provided a number of comparable definitions of brand personality. Aaker (1997, p. 347) defined brand personality as "the set of human characteristics associated with the brand". Here, Aaker (1997) referred to human characteristics such as age, gender, socio economic class as well as classic human personality traits (e.g. warmth, concern, sentimentality). Similarly, brand personality has been defined as "the extent to which consumers perceive a brand to possess human characteristics or traits" (Alt and Griggs 1988, p. 9). Also, Batra et. al. (1993, p. 84) have defined brand personality as "the way in which a consumer perceives the brand on dimensions that typically capture a person's personality – extended to the domains of brands".

By exclusively using human personality scales when examining brands the researcher may be missing vital information (Aaker 1997). Human personality research has showed that most people do not behave consistently and predictably in all situations and when people interact with one another they vary their personality according to whom they are with (Alt and Griggs 1988). Perceptions of human personality are inferred by individual behaviour, physical characteristics, attitudes and beliefs, and demographic characteristics (Aaker 1997). However, brand personality is formed and influenced by any direct or indirect contact that the consumer has with the brand (Plummer 1984/5). Unlike the psychologists' view of people the major difference between human and brand personality is that most marketing professionals and academics believe that brands (particularly the successful ones) must maintain a consistent and predictable personality, even when the products themselves may change (Alt and Griggs 1988). Therefore, there is a need for a reliable, valid and generalisable brand personality scale.

### **2.2.2 Where Has Brand Personality Come From? Self Concept Theory.**

To facilitate the understanding of brand personality it is necessary to discuss its theoretical background and its development from self-concept theory. Individuals tend to relate the brand symbol to self-concepts (Dolich 1969; de Chernatony and McWilliam, 1989b; Morgan 1993). The latter is relevant to the study of consumer behaviour as many

purchases that are made by consumers are directly influenced by the image those individuals have of themselves (Grubb and Grathwohl 1967; Heath and Scott 1998). It has been suggested that individuals will accept brands with images similar to their perceived self-concept and reject brands with images dissimilar to their self-concept (Sirgy 1982). Moreover, the possessions we own contribute to the sense of self, i.e. we learn, define and remind ourselves of whom we are by our possessions (Belk 1988; Beggan 1992).

Self-concept is defined as “an attitude one holds about or toward one’s person (self), this attitude consisting of cognitive components (knowledge, belief), affective components (evaluations), and behavioural components (predispositions or tendencies to respond)” (Ross 1971, p. 39-40). It has also been defined as “the totality of the individuals thoughts and feelings having reference to himself as an object” (Rosenberg 1979, p. 7). Likewise, Grubb and Grathwohl (1971) have described self-concept as what one is aware of, one’s attitudes, feelings, perceptions, and evaluations of oneself as an object. The study of self-concept is of particular relevance because the image that individuals associate with themselves can dictate their specific purchase patterns; consumers may decide to buy (or not to buy) a product if they feel that the product will enhance (or is not consistent with) their own perceptions of themselves (Heath and Scott 1998). This process is referred to as image congruity (Dolich 1969; Sirgy 1982).

Social psychologists have recognised the possibility of multiple selves (Munson 1993), where individuals will modify their behaviour to some extent depending upon whom they are interacting with (Hampson and Coleman 1996). Sirgy (1982) suggested there are three main ways of looking at the self-concept. 'Actual' self refers to how a person views him/herself; 'ideal' self refers to how a person would like to perceive him/herself (e.g. model self); and 'social' self refers to how a person presents him/herself to others. Heath and Scott (1998) have also proposed that there were two other types of self. The 'perceived' self is how one sees oneself and the 'apparent' self is how people actually view the individual. Here, there is some confusion between 'actual' self and 'perceived' self, as they appear to measure the same construct. However, Heath and Scott (1998) referred to 'actual' self as being a composite of all the other concepts. Alternatively, Aaker (1999) suggested that it is the 'malleable' self-concept (i.e. any number of the self concepts) that can be made accessible at any given moment and influenced by both personality and situational factors.

By researching these differing self-concepts, marketers can develop effective methods of appealing to different target markets by targeting the various self-concepts of people.

Early researchers attempted to develop self-concept theory by linking it with the symbolic value of goods (e.g. Evans 1962; Lowe 1961; Grubb and Grathwohl 1967). Consumer goods are the tools that serve as symbolic communication devices and by using goods as symbols an individual can communicate meaning about himself to his peers (Grubb and Harrison 1967). It has been empirically shown that consumers of a specific brand would perceive themselves as having similar self concepts to other consumers of that brand and significantly different self concepts from owners of a competing brand (Grubb and Hupp 1968).

In summary, the personality of a brand enables a consumer to express his or her own self and therefore brand personality is important in being able to differentiate brands and to drive consumer preference and usage (Aaker 1997)<sup>2</sup>.

### 2.2.3 Differences Between Brand Personality and Brand Image

There is considerable confusion of the meaning and terminology used between brand personality and brand image and the terms have often been used interchangeably (Batra et. al. 1993; Aaker 1997). Its not surprising that there has been some confusion as the definition of brand image has not remained stable over the past thirty-five years (Dobni and Zinkham 1990). For example, Smothers (1993) did not appear to make a distinction between brand personality and brand image and suggested that brands like people can have an image or personality. Similarly, Blackston (1993) referred to both brand image and brand personality without making a clear distinction between the two. Prior confusion over the definition and measurement problems of brand personality can cause problems for those who associate the construct with brand image. Thus, it is not surprising that those who defined brand image with reference to personality did not define the latter concept in any detailed way (Dobni 1990).

Plummer (1985) did attempt to clearly describe brand image. He suggested that brand image consisted of three of essential features; physical attributes (e.g. green in colour), functional characteristics (e.g. cleans teeth more effectively), or, characterisation (e.g. youthful). This latter characterisation process was termed brand personality. Batra et. al. (1993, p. 83) echoed Plummer's (1985) sentiments and commented, "brand imagery is a more encompassing term including within it not merely brand personality but also the attributes and benefits or consequences that the user associates with the brand".

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<sup>2</sup> It should be noted that whilst previous research (e.g. Grubb and Hubb 1968; Heath and Scott 1998) has referred to the image that consumers have of themselves, when image has been measured, human personality characteristics have been used. As subsequent sections report that there are differences between brand personality and human personality (Section 2.2.6) it is brand personality characteristics that are considered more applicable to this research.

Additionally, Sampson and Burke (1993) suggested that brand image consisted of two facets, namely, brand identity and brand personality. They proposed that it is not sufficient to measure the rational attributes of a brand alone; the emotional attributes must also be measured to obtain the complete picture. Here, the brand's identity appeared to incorporate both of Plummer's (1985) concepts of physical attributes and functional characteristics.

To conclude, it appears that brand image consists of a number of elements of which brand personality is one essential component. As brands' physical attributes and functional characteristics are becoming increasingly similar (especially in the automobile industry) an effective way for brands to differentiate is through creating a distinctive personality (Keller 1998). For this reason the brand personality construct warrants further attention.

#### **2.2.4 Brand Personality - Existing Research**

Despite the interest in brand personality (e.g. Belk 1988, Malhotra 1988, Kleine et al 1993 and Plummer 1985) and the symbolic use of brands research into the construct has remained limited (Aaker 1997). Brand personality studies have been relatively ad hoc in nature and have been measured by using human personality scales (Kassarjian 1971, Biel 1993). Aaker (1997) advised that this might be due to the lack of agreement of what brand personality actually is, its definitions and its difference from related concepts (e.g. human personality and brand image).

Table 2.1 shows that there are some conceptual papers on the brand personality construct (e.g. Plummer 1985; Alt and Griggs 1988; Durgee 1988; Blackston 1992), but there is a lack of empirical studies (e.g. Batra et. al. 1993; Aaker 1997). Essentially, the vast majority of this research has sought to establish the human characteristics which consumers think various brands possess (Alt and Griggs 1988). There is also a shortage of specific brand personality scales and those that have been used have been taken from human personality scales developed by psychologists (Aaker 1997).

Plummer's (1985) work on brand personality described what was done at Young and Rubicam (USA) on the development of brand personality profiles. A brand personality profile was used to describe consumers' perceptions of brands. They developed a 50-attribute checklist from previous research in personality and in-depth interviews and used this to show that brand personality profiles could indeed discriminate between brands.

Alt and Griggs (1988) developed a set of brand personality scales by asking "experts" which human characteristics successful and unsuccessful brands possessed. Content analysis was used to reduce the list of personality traits into a number of common dimensions that represented the same underlying ideas. The scale originally consisted of 155 traits and six brands in three categories were selected for the study (e.g. washing up powder, lager and soft drinks). Factor analysis was carried out on 80 of the traits (many of the traits were made redundant due to similarities with each other or items which failed to load significantly on any factor). A four-factor solution accounted for less than 50% of the variance. The four dimensions were labelled as 'Extroversion', 'Social Acceptability', 'Virtue' and 'Potency'. After trying to replicate the factor structure in each product field, the 'Potency' dimension proved to be somewhat unstable as items that originally loaded on the fourth factor on the aggregated data now loaded on more than one factor. Thus, Alt and Griggs (1988) identified three (and possibly four) major dimensions of brand personality.

**Table 2.1 - Brand Personality Literature**

Author	Title	Topic	Methods Used
Aaker 1997	Dimensions of Brand Personality	Brand Personality Scale Development	Factor Analysis, Principle Components Analysis, Human Personality Traits, Ad Hoc Scales, Qualitative Research
Aaker 1999	The Malleable Self: The Role of Self- Expression in Persuasion	The Interaction Between Brand Personality and Self-Concept	Experimentation - ANOVA
Alt & Griggs 1988	Can a Brand be Checky?	Salient Human Characteristics Which Discriminate Between Brands	Experts Opinions - Human Personality Traits - Scale Development

Batra et. al. 1993	The Brand Personality Component of Brand Goodwill: Some Antecedents & Consequences	Similarity of Personality Between Product Categories	Human Personality Traits - Scale Development
Biel 1993	Converting Image Into Equity	Conceptual Paper	Previous Literature
Blackston 1992	Observations: Building Brand Equity by Managing the Brand's relationships.	Brand Relations	Qualitative Interviews
De Chernatony 1993	Categorising Brands: Evolutionary Processes Underpinned by Two Key Dimensions.	Brand Description. Functionality Vs Representationality	Principle Components Analysis
Durgee 1988	Understanding Brand Personality.	Conceptual Paper - Exiting Advertising	Qualitative Interviews - Cluster Analysis
Gardner & Levy 1955	The Product and the Brand.	Conceptual Paper. First Thoughts on the Symbolic Meaning in Products.	Previous Literature
Kirmani & Zeithaml 1993	Advertising, Perceived Quality and Brand Image.	Conceptual Paper. Perceived Quality & Role in Influencing Brand Image	Previous Literature
Musante et. al. 1999	Sport Sponsorship: Evaluating the Sport and Brand Image Match	Brand personality fit - modified use of Aaker's 1997 scale	Factor analysis, Regression analysis
Plummer 1985	How Personality Makes a Difference.	Conceptual Paper	Human Personality Traits, Checklists, Personality Profiles.
Sampson 1993	A Better Way To Measure Brand Image	Identifying Attributes That Define a Brand's Identity	Brand Positioning & Mapping
Smothers 1993	Can Products and Brands Have Charisma.	Conceptual Paper	Case Studies - Previous Literature
Siguaw et. al. 1999	The brand-personality scale	Brand personalities of restaurant brands	Application of Aaker's 1997 brand personality scale

When conceptualising and measuring brand personality Batra et. al. (1993) also used the trait approach. A trait is defined as “the basic human qualities of a person” (Mischel 1986, p. 116), or, as “any distinguishable, relatively enduring way in which one individual differs from others” (Guilford, 1973, p. 23). Drawing upon the work of Digman's (1990) 5 major human personality dimensions (extroversion, agreeableness, conscientiousness, neuroticism and intellect), Batra et. al. (1993) assessed how personality similarity between two product categories impacted on the transferability of a brand name when attempting an extension strategy. Fourteen brands representing seven product categories were selected for the study and the traits were derived from

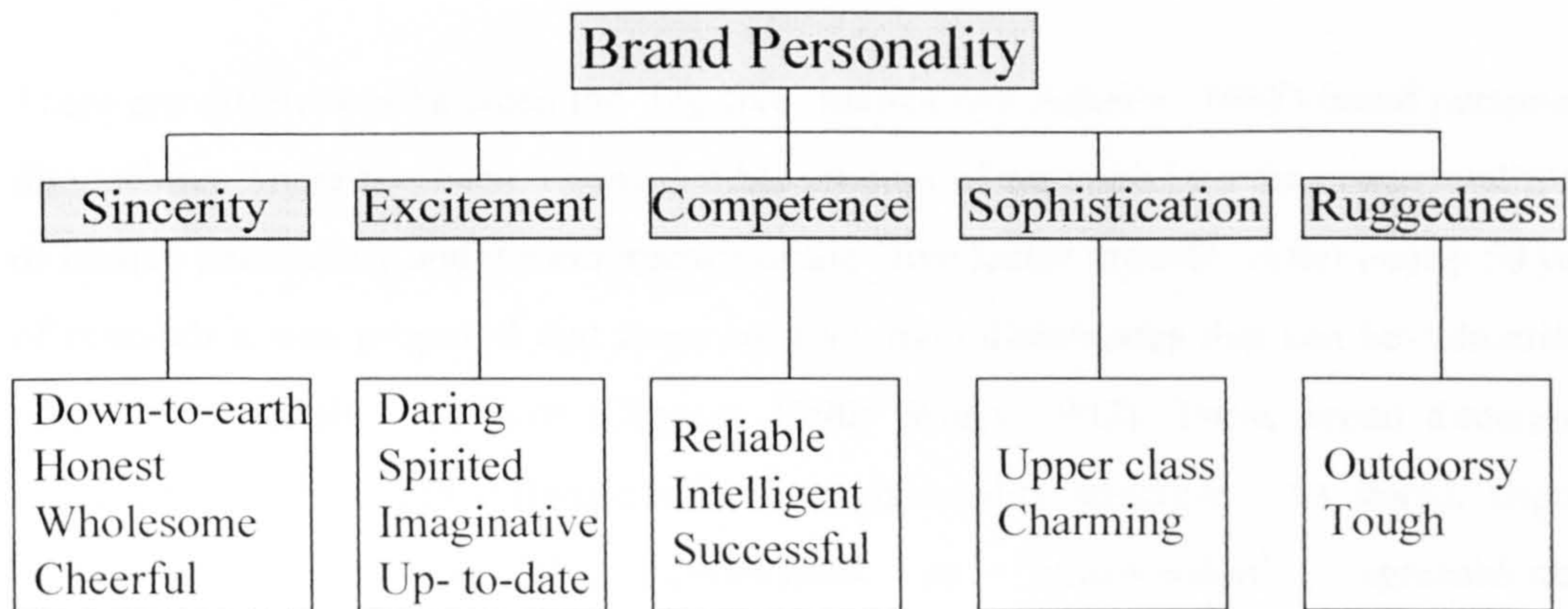


Anderson's (1968) list of trait words (555). A list of 14 traits was chosen for the final study. These were derived from Marketing faculty/doctoral students of which factor analysis produced 7 main dimensions of which two traits were chosen for each factor. It was appropriate to use marketing faculty/doctoral students because they provided expert opinions about which set of traits should be included in the final study. From a sample of 107 respondents (recruited from a university campus) it was found that personality similarity as well as attribute similarity did have a significant impact on the transferability of the brand name to a different category. However, this study (like previous studies) is limited as only human personality traits were used in the measurement of personality similarity and thus may not have captured all of a brand's personality dimensions. To address this gap Aaker (1997) developed a brand personality scale which is discussed below.

### **2.2.5 The Aaker (1997) Brand Personality Scale**

It is only recently that a brand personality framework and scale has been developed and validated in the context of brands (e.g. Aaker 1997). Specifically, by drawing upon the so-called 'Big Five' dimensions of human personality (Digman 1990, Goldberg 1981, Briggs 1992), Aaker (1997) developed a brand personality scale. By using factor analysis five personality dimensions were identified: 'sincerity', 'excitement', 'competence', 'sophistication' and 'ruggedness' (see Figure 2.1). The final brand personality scale (BPS) consisted of 42 traits; which had been derived from 309 original traits taken from human personality traits from psychology, personality scales used by marketers and original qualitative research. Aaker (1997) has taken previous brand personality research a step further by introducing a scale that is stable and generalisable across different types of consumers and across brands from a variety of product categories. In total 37 different brands were used across 23 product categories ranging from toothpaste to cars. Aaker's BPS has received limited independent testing to date.

Figure 2.1 - Aaker's Brand Personality Framework



Source: Aaker (1997)

However, Musante et. al. (1999) used a modified version of Aaker's (1997) brand personality scale to measure the perceived image fit between a sport and a brand (see Section 2.2.3 for an explanation of fit). Common factor analysis found four distinct factors, namely, exciting, wholesome, rugged and sophisticated that explained 68% of the variance. The 'competent' factor was originally eliminated following the advice of a number of sport researchers and by reviewing the relevant literature, which suggested that this factor was not appropriate in a sports setting. Their results suggested that perceptions of a brand's 'fit' with a particular sport would increase as the personalities between the brand and the sport become more congruent.

## 2.2.6 Differences Between the 'Big Five' Human Personality and Aaker's 1997

### Brand Personality Dimensions

There are differences between the 'big five' human and Aaker's (1997) brand personality dimensions. There has been a considerable amount of research into the conceptualisation of human personality and the emergence of the "five factor model". After nearly 50 years of research it was proposed that there are five main dimensions that can best describe a person's personality structure (Digman 1990; Briggs 1992). These broad dimensions characterise individual's differences in their personality structure. As stated, Digman (1990) identified the five dimensions as 'extroversion', 'agreeableness', 'conscientiousness', 'neuroticism' and 'intellect'. Many academics agree that there are 5 main dimensions and use similar expressions (e.g. Goldberg 1981; Hogan 1983; Briggs 1992). However when compared to Aaker's (1997) dimensions some differences exist (see Figure 2.2). Arguably, the first three brand personality dimensions, namely, 'sincerity', 'excitement' and 'competence' are similar to the first three human personality dimensions, specifically, 'agreeableness', 'extroversion' and 'conscientiousness'. For example, 'agreeableness' and 'sincerity' both capture the idea of warmth and acceptance; 'extroversion' and 'excitement' capture the ideas of sociability, energy and activity; whilst 'conscientiousness' and 'competence' both encapsulate responsibility, dependability and security. The brand personality dimensions of sophistication and ruggedness are clearly different from neuroticism and intellect in that they tap into a dimension that individuals desire but do not necessarily have.

Therefore, the literature on brand and human personality indicates although there are similarities between the two, brand personality is clearly different from human personality as it also focuses on other brand specific dimensions that human personality scales are unable to measure. As a result, it is more relevant to use a brand and not human personality scale when seeking to measure a brand's personality.

**Figure 2.2 - Differences Between the Traditional Model of Human Personality and Aaker's Brand Personality Scale.**

<u>Brand Personality</u>		<u>Human Personality</u>
Sincerity	←————→	Agreeableness
Excitement	←————→	Extroversion
Competence	←————→	Conscientiousness
Sophistication		Neuroticism
Ruggedness		Intellect

N.B. ←————→ = Similar dimensions

### 2.2.7 Summary of Brand Personality Literature

Brand personality has developed from human personality work and from self-concept theory. Although there has been considerable work done upon human personality, there is a lack of research into the brand personality construct. Brand personality is an important element of brand image. Moreover, a clear and distinctive brand personality should enable a brand to form a competitive advantage through effective differentiation.

As extensions have been shown to influence core brand evaluations, the personality built up by a brand may also be affected by this type of strategy (see Chapter 3, p.55-56). Hence extensions are discussed in the next section.

## 2.3 EXTENSIONS

Chapter 1 discussed the importance, benefits and risks associated with extensions. This section of the literature review briefly discusses extensions and their relation to the NPD process. The key concepts and findings from the extension literature are then introduced. Next, different types of extensions are defined. After that, the diversity of extension definitions is discussed. Following this, the key concept of extension fit is considered in more detail, along with its potential effects on extension and core brand evaluations. Then, a number of moderating variables that affect the nature/strength of the relationship between fit and extension/core brand evaluations are examined. Finally, other important issues surrounding the success of an extension that have been investigated using methods other than measuring consumer evaluations are discussed.

### 2.3.1 Extensions and NPD

New product development is a crucial activity for companies and describes “the process by which a new product is developed” (Craig and Hart 1992, p. 3). However, new product development is a risky strategy as the product may not be accepted (Reddy et. al 1994). It has been suggested that 30-35% of all new products fail (Booz et al. 1982). Developing extensions is a type of new product development (Ambler and Styles 1997). An extension refers to the introduction of a new product into new markets or product categories that is marketed under a well-known and established brand name (Aaker 1990, Aaker and Keller 1990, Gürhan-Canli and Maheswaran, 1998). This type of strategy is popular as it is thought to reduce the risk of new product failure (Reddy et. al 1994). Booz et al. (1982) first suggested that new products could be categorised into six groups based on their degree of newness. The figures (identified in brackets referring to the proportion of new products within the six groups) on these groups have been updated by Giffin and Page (1996) and are:

- New to the World. New products that create an entirely new market. (16%)
- New to the Company. New products that for the first time, allow a company

to enter an established market. (16%)

- Additions to Existing Product Lines. New products that supplement a company's established product lines. (11%)
- Improvements in/Revisions to Existing Products. New products that provide improved performance or greater perceived value and replace existing products. (34%)
- Repositions. Existing products targeted to new markets or market segments. (9%)
- Cost Reductions. New products that provide similar performance at lower cost. (14%)

Extensions can fall into a number of these categories (see Section 2.3.2 for extension definitions). A brand name may be used for a new to world product to increase its acceptance (e.g. Sony Walkman). New to the company products are similar to brand extensions in that new product lines or a new market segment is entered (e.g. Harley-Davidson Aftershave). Obviously, line extensions are additions to existing product lines where companies try to tap specific subsegments of the market, to defend the product line from attack, to provide increased variety (e.g. Cherry Coke).

Cooper and Keinschmidt (1987) suggested that it is important for the new product to fit with the existing 'resources', 'skills' and 'experiences' of the company. In the extension literature the importance of the fit between the extension and the core brand is a key element in indicating an extensions success (Aaker and Keller 1990) (see Section 2.2.4). The synergy that fit can create may indeed stifle the quest for innovative new products (Craig and Hart 1992). Less innovative products are more familiar, less uncertain, may have better synergy and should have a higher success than more innovative products (Keinschmidt and Cooper 1991). Although extensions may stifle innovativeness the factors surrounding their success are still extremely important due to their proliferation and it has been suggested that over one-half of all new products introduced in the 1980's were extensions (Loken and Roedder John 1993).

### 2.3.2 Extension Definitions and Literature

There is a need to differentiate between the different extension concepts, since the literature has used extension definitions and terminology inconsistently (Ambler and Styles, 1997). For example, Tauber (1981, p. 36) used the term "brand franchise extensions" and described this as taking a brand name familiar to the consumer and applying it to a product in a new category (i.e. new product class). Farquhar (1989) described two types of brand extension. A *line* extension is a new product that uses an existing brand name in one of the firm's existing categories (e.g. the Freelander by Land Rover). A *category* extension, on the other hand refers to a new product that uses an existing brand name when entering a product category that is new to the firm (e.g. Caterpillar and Fashion Clothing). Aaker and Keller (1990, p. 27) also distinguished between two types of extension, namely "...a line extension, whereby a current brand name is used to enter a new market segment in its product class (e.g. Diet Coke) and ... a brand extension, whereby a current brand name is used to enter a completely different product class (e.g. NCR photocopiers)". Here, the line extension differed from Farquhar's (1989) definition in that market segmentation became more of an issue, but the brand extension definition is similar. Aaker and Keller (1990) also referred to 'extension' as the general term describing both brand and line extensions. Given the pre-eminence of Aaker and Keller's (1990) article in sparking further research and debate, their terminology is adopted herein<sup>3</sup>.

### 2.3.3 The Extant Literature

The literature available on extensions has shown that the vast majority of research has focussed on consumer evaluations of extensions and the core brand as indicators of success.

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<sup>3</sup> Although it was deemed necessary to show that there are different types of extensions and that there is often confusion and inconsistency in the terminology used, the current thesis focuses on extension fit and not the type of extension in its conceptualisation (see Chapter 3 for a more detailed discussion).

Studies on new product development success have used both financial and non-financial indicators of success (Hart 1993). During the last decade there have been a number of extension studies addressing consumer evaluations of an extension and the impact of different types of extension on the core (original) brand (e.g. Aaker and Keller 1990; Romeo 1991) as an indicator of success.

There has also been a small amount of research that has not focussed on consumer evaluations as an indicator of success (e.g. Sullivan 1992; Lomax et al. 1996). The majority of the extension literature has concentrated upon brand extensions and not line extensions (e.g. Aaker and Keller, 1990; Sunde and Brodie, 1993; Bottomley and Doyle, 1996). This is paradoxical as most extensions are line and not brand (Reddy et. al., 1994). Table 2.2 shows the extent of brand extension research compared to line extension research and serves to highlight the greater breadth and depth of work devoted to the former. In this context, brand extension research appears to have been derived from Aaker and Keller's (1990) seminal work on consumers' 'fit' and quality evaluations of brand extensions (e.g. Sunde and Brodie's 1993 replication of and Bottomley and Doyle's 1996 testing of Aaker and Keller's 1990 model). In contrast, line extension research has tended to focus more narrowly on issues such as cannibalisation of and optimal entry times for line extensions. Table 1 also shows that the majority of studies have used actual brands and considered hypothetical extensions; however, there is also a considerable amount of research using hypothetical brands and hypothetical extensions. Most of these studies have used an experimental design that has attempted to investigate issues such as the factors contributing to favourable consumer evaluations of an extension or the potential negative impact of extensions on the core (original) brand. Finally, the types of respondent used in previous research have mostly been university students, with only a small number of investigations studying "actual" (non-student) consumer populations.



Table 2.2 - Brand and Line Extension Research

Author	Areas of Research	Types of Products	Respondents
<b>Brand Extension Research</b>			
Aaker and Keller 1990	Consumer evaluations of fit and quality of brand extensions	Hypothetical extensions of actual brands	Undergraduate students
Ambler and Styles 1997	Managers evaluations of extensions (studied both brand and line extensions)	Actual brands and extensions	Brand/marketing managers
Barrett et. al. 1999	Testing Aaker and Keller's (1990) model	Hypothetical extensions of actual brands	New Zealand residents
Bhat and Reddy 1997	Dimensions of fit between a brand and its extension	Hypothetical extensions of actual brands	Graduate business students
Bottomley and Doyle 1996	Testing Aaker and Keller's (1990) model	Hypothetical extensions of actual brands	Undergraduate students
Boush and Loken 1991	Consumer evaluations of similarity and typicality	Hypothetical brands and extensions	University students
Broniarczyk and Alba 1994	Consumer knowledge, category similarity and brand associations	Hypothetical extensions of actual brands	Undergraduate students
Chakravarti et al. 1990	Consumer evaluations of similarity and fit	Hypothetical extensions of actual brands	Students
Consumer Behaviour Seminar 1987	Consumer evaluations of brand extension similarity	Fictitious brands	Students
Dacin and Smith 1994	Brand portfolio characteristics	Fictitious brands	Type unknown
Gail 1993	Consumer evaluations of involvement and expertise	Hypothetical extensions of actual brands	Type unknown
Gurhan-Canli and Maheswaran 1998	Dilution, enhancement and typicality of extensions	Actual brands – hypothetical attribute information	Undergraduate students
Han and Schmitt 1996	Product category fit or company characteristics – comparison of Hong Kong and U.S. consumers	Hypothetical extensions of actual brands	Undergraduate students and working professionals
Kardes and Allen 1991	Variability and inferences about brand extensions	Hypothetical brands and extensions	MBA students
Keller and Aaker 1992	Sequential introduction of brand extensions	Hypothetical brands and extensions	University employees
Klink and Smith 1997	The effects of fit and marketing actions on brand extensions	Hypothetical extensions of actual brands	Graduate students
Loken and Roedder John 1993	Dilution of the brand via a brand extension introduction	Hypothetical brands and extensions	Women consumers
McWilliam 1993	The development of brand typologies	Actual brands and extensions	Marketing practitioners

Milberg et. al. 1997	The impact of alternative branding strategies and managing negative feedback	Actual brands and hypothetical extensions	General public
Muroma and Saari 1996	Brand extension fit	Actual brands and hypothetical extensions	Students/adult education centre
Muthukrishnan and Weitz 1991	Product knowledge	Actual brands and hypothetical extensions	Undergraduate students
Nakamoto et. al. 1993	The effect of advertising on brand extensions	Hypothetical brands and extensions	Type unknown
Nijssen 1996	Managers evaluations of brand extensions	Hypothetical extensions	Managers
Park et. al. 1996	Composite branding alliances	Actual brands and hypothetical extensions	Graduate business students
Park et. al. 1989	Brand extensions, brand associations and memory structure	Actual brands and extensions	MBA students
Park et al. 1993	Associative brand extension strategies	Actual brands and hypothetical extensions	MBA students
Park et al. 1991	Similarity and brand concept consistency	Actual brands and hypothetical extensions	MBA students
Park et al. 1994	Brand equity and extensions	Actual brands and extensions, and/or hypothetical extensions	Consumers
Rangaswamy et. al. 1993	Brand equity and extensions	Actual brands and hypothetical extensions	Graduate and undergraduate students
Roedder John et. al. 1998	Dilution and brand extensions	Actual brands and hypothetical extensions	Women consumers
Romeo 1991	The effects of negative information on the evaluations of brand extensions	Actual brands and hypothetical extensions	Undergraduate students
Roux and Boush 1996	Familiarity and expertise in luxury brand extension	Actual brands and hypothetical extensions	Women consumers
Sattler and Zatloukal 1998	Success of brand extensions	Actual brands and hypothetical extensions	Undergraduate students
Serra et. al. 1999	Brand extensions and image consistency	Actual brands and hypothetical extensions	Undergraduate students
Sheinin and Schmitt 1994	Brand extensions and new product concepts	Actual brands - hypothetical attribute information	MBA students
Smith and Andrews 1995	Customer certainty and the impact of fit on consumer evaluations	Actual brands and hypothetical extensions	Product/marketing managers
Sullivan 1992	When to introduce brand extensions	Actual brands	Panel data gathered on brands

Sunde and Brodie 1993	Replication of Aaker and Keller's model	Actual brands and hypothetical extensions	Undergraduate students
Thompson 1997	Brand extensions and co-branding	Actual brand and hypothetical co-brand	Type unknown
<b>Line Extension Research</b>			
Ambler and Styles 1997	Managers evaluations of extensions (studied both brand and line extensions)	Actual brands and extensions	Brand/marketing managers
Kirmani et. al. 1999	Ownership, stretch direction, brand image and branding strategy in line extensions	Actual brands and hypothetical extensions	Owners and non-owners of the brands, undergraduate students
Lomax et al. 1996	Cannibalisation of line extensions	Actual brands and extensions	Panel data - consumer purchases
Reddy et al. 1994	Success determinants of line extensions	Actual brands	Data from various sources
Speed 1998	Line extensions or second brands	Actual brands and extensions/second brands	Managers
Wilson and Norton 1989	Optimal entry time for a product line extension	Model development	No Respondents

### 2.3.4 Fit and Its Dimensions

Current research has suggested that consumers' perception of fit is a major consideration when attempting to introduce an extension (Boush and Loken, 1991). The idea of fit can be traced back to Tauber (1981, p. 38) who identified a "rub-off of perceived superior know-how, effectiveness or appropriate imagery," and indicated that there should be "a benefit of the parent brand that is the same benefit offered and desired in the new franchise extension". Perceived fit is achieved "when the consumer accepts the new product as logical and would expect it from the brand" (Tauber 1988, p. 28). Aaker and Keller (1990) suggested that perceptual fit is whether a consumer perceives the new item to be consistent with the parent brand.

Although it is generally agreed that fit is vitally important, there is considerable conflict concerning its dimensions (Muroma and Saari, 1996). Researchers have conceptualised and operationalised perceived fit in different ways (Bhat and Reddy, 1997). Specifically, according to the literature, fit is comprised of a number of dimensions including similarity, typicality, relatedness and brand concept consistency (Aaker and Keller, 1990; Farquhar et. al., 1990; Boush and Loken, 1991; Park et. al., 1991; Gürhan-Canli and Maheswaran, 1998). However, similarity, typicality and relatedness are often confused in discussions of fit and there appears to be little distinction between them (Muroma and Saari, 1996).

The most frequently referred to dimension of fit is 'similarity' (Muroma and Saari, 1996; Bhat and Reddy, 1997). Similarity refers to how alike the current and the new product classes are in terms of features, attributes or benefits (e.g. Consumer Behaviour Seminar, 1987; Aaker and Keller, 1990; Boush and Loken, 1991; Park et. al., 1991; Broniarczyk and Alba, 1994). The Consumer Behaviour Seminar (1987) concluded that the greater the similarity between the current and the new product, the greater the transfer of positive or negative beliefs to that new product.

The 'relatedness' or 'typicality' of the new product class to the existing product class has also been mentioned as a dimension of fit (Farquhar et al., 1990; Boush and Loken, 1991; Gürhan-Canli and Maheswaran, 1998). Typicality has been defined as how representative the extension category is of the family brand (Nedungadi and Hutchinson, 1985). It has also been viewed as "the degree to which category members (e.g. different products manufactured by Sony or Sanyo) are representative of the family brand image" (Gürhan-Canli and Maheswaran 1998, p. 486). As there is a lack of concrete distinctions between similarity, relatedness and typicality, it is extremely difficult to clearly differentiate between these concepts (e.g. Muroma and Saari, 1996 suggest that similarity is a measure of the 'relatedness' of the two product classes).

It has been further suggested that consumers also assess fit in terms of 'brand concept consistency' between the brand concept (i.e. the "image" portrayed by the brand) and the extension (Park et al., 1991; Serra et. al., 1999). The degree to which an extension is seen

as consistent with the brand concept is believed to be equally important as the similarity between the product classes (Park et al., 1991; Bhat and Reddy, 1997; Serra et. al., 1999). Brand concept consistency is clearly different from the similarity and relatedness of the product category as it considers how a brand image affects consumer perceptions of fit rather than how fit is affected by the similarity of product features, attributes or benefits. At the same time, brand concept consistency possesses some comparability with the ideas of typicality offered by Gürhan-Canli and Maheswaran (1998) who inferred that extensions need to be congruent with the family brand image in order to be positively evaluated (i.e. the extension should have a similar image to the core brand).

In attempting to reconcile the different views on fit, Bhat and Reddy (1997) have proposed that fit may be comprised of two dimensions, namely, (a) similarity between the product category of the parent brand and its extension (product category fit), and (b) similarity between the image of the parent brand and its extension (brand image fit).

In summary, there is a lot of confusion in the literature about the dimensions of fit and it has been conceptualised and measured in a number of different ways (for discussion of implications for current research see Section 4.5.4.3, Footnote 8).

### **2.3.5 The Effect of Fit on Consumer Evaluations of an Extension**

Favourable consumer evaluations of an extension require the new product to have a good 'fit' with the core brand (Aaker and Keller, 1990; Ambler and Styles, 1997; Barrett et. al., 1999). Moreover, the better the 'fit' the easier it is to extend to new classes (Muroma and Saari, 1996). Research has indicated that attitude towards a brand extension was more favourable when consumers had a perception of good fit (Aaker and Keller, 1990; Sunde and Brodie, 1993; Bottomley and Doyle, 1996). However, there is a lack of investigative research into the effect that fit will have on a line extension. This may be because earlier research (e.g. Consumer Behaviour Seminar, 1987) considered similarity between the product categories as the only dimension of fit, to the exclusion of brand image similarity. From this perspective, line extensions by their very definition will always have good fit and thus researchers may have found no need to investigate them.

### 2.3.6 The Effect of Fit on Consumer Evaluations of the Core Brand

Apart from its effect on the extension itself, there is evidence to suggest that fit also has an effect on the *core* brand. Specifically, in extending a brand, good fit has been seen to be important for positive consumer evaluations (i.e. enhancement) of the core brand (Keller and Aaker, 1992). Although there is some discussion of enhancement and its basic components in the literature, there is a lack of clear definition of the construct (Aaker, 1990; Gürhan-Canli and Maheswaran, 1998). However, a number of studies have suggested that when compared to the original reaction to the core brand, enhancement refers to a more favourable evaluation of the core brand after the introduction of an extension (Keller and Aaker, 1992; Gürhan-Canli and Maheswaran, 1998). It has been suggested that if an extension is introduced with a good fit, is aimed at the appropriate consumer segments and is extended to the most relevant categories the core brand should be enhanced (Aaker and Shansby 1982; Aaker 1990). Indeed, the majority of the literature reviewed has suggested that the most important condition for core brand enhancement is the fit between the core brand and the extension (e.g. Aaker and Keller, 1990; Sunde and Brodie, 1993; Bottomley and Doyle, 1996).

Conversely, a wrong extension decision may create damaging associations and confuse potential customers (Ries and Trout 1986; Loken and Roedder John 1993; Park et al. 1993, 1996). An extension's major strength, capitalising on an established brand name, can also be its number one weakness: potential *dilution* of the brand in the long run (Tauber 1981). Dilution is defined as "a negative change in consumer beliefs" (Roedder John et. al. 1998) and occurs when specific extension associations (e.g. an extension of BMW which shows a lack of technological development) are inconsistent with family brand beliefs (Loken and Roedder John 1993; Park et. al. 1993; Roedder John et. al. 1998). Once again there is a lack of research into the effects of fit on core brand evaluations for line extensions.

### 2.3.7 Moderating Variables

The literature has suggested that there are five key moderating variables that are expected to affect the nature/strength of the relationship between fit and consumer evaluations of (a) an extension, and (b) the core brand. These are core brand quality, consumer knowledge, branding strategy, portfolio characteristics and credibility/competence. The following section considers each moderating variable in turn.

#### 2.3.7.1 Core Brand Quality

Perceived quality is defined as "a global assessment of a consumer's judgement about the superiority or excellence of a product" (Zeithaml, 1988, p. 3). There is conflicting evidence on whether high quality perceptions of the core brand increase consumer evaluations of an extension (due to the transfer of positive quality associations from the core brand to the extension). For example, while Bottomley and Doyle (1996) found support for a *direct* effect of core brand quality, Aaker and Keller (1990) provided evidence to suggest that there was no direct link from the perceived quality of the core brand to extension evaluations. However, using core brand quality to predict extension evaluations may not be sufficient when used in isolation (Aaker and Keller, 1990). It has been suggested that the level of fit *moderates* the transfer of core brand quality to the extension (Aaker and Keller, 1990; Bottomley and Doyle, 1996). Contrastingly, it has also been proposed that the impact of fit on an extension is *moderated by* the level of core brand quality (Keller and Aaker, 1992).

There have also been different views as to how core brand quality affects the relationship between fit and core brand evaluation evaluations. Aaker and Keller (1990) found that good fit and high quality were necessary for favourable core brand evaluations. Contrastingly, Keller and Aaker (1992) suggested that the higher the level of quality, the lower the impact of fit on the core brand; in other words a high quality brand should be able to extend further from its product category/image than a lower quality brand.

### 2.3.7.2 Consumer Knowledge

The level of consumer knowledge is also expected to moderate the effect of fit on extension and core brand evaluations (Muthukrishnan and Weitz, 1991; Broniarczyk and Alba, 1994; Roux and Boush, 1996). Consumer knowledge is made up of two major components, namely familiarity and expertise (Alba and Hutchinson, 1987); familiarity is the number of product-related experiences accumulated by the consumer and expertise is the ability to perform product-related tasks successfully. Again, there is some confusion in the literature on whether consumer knowledge relates to the product, the brand, or both. For example, whilst Muthukrishnan and Weitz (1991) investigated the role of *product* knowledge, Roux and Boush (1996) and Broniarczyk and Alba (1994) considered *brand* knowledge. However, there appears to be little substantive distinction made between the two (as both use Alba and Hutchinson's (1987) definition of consumer knowledge).

For present purposes, it is sufficient to note that consumers high in knowledge differ in terms of decision processes and strategies from consumers low in knowledge (Bettman and Park, 1980; Johnson and Russo 1984; Brucks 1985). Moreover, 'experts' and 'novices' differ in their reactions to brand extensions (Broniarczyk and Alba, 1994). Roux and Boush (1996) proposed that consumer familiarity should result in more refined and complete knowledge structures (e.g. consumers have a better ability to recognise and understand brand images) and a better ability to recall the product. Thus, more knowledgeable consumers will have a clearer idea of whether a potential extension is reasonable or not (i.e. whether or not it 'fits' in with the original brand). Consumers with such knowledge will also be sensitive to inconsistencies between a brand and a less plausible extension (Broniarczyk and Alba, 1994; Kirmani et. al., 1999; Spence and Brucks, 1997). Gail (1993) also proposed that "expert" consumers would tend to restrict their view of the parent brand's extension possibilities to the brand's specific field of competence (i.e. the products it most typically manufactures). Conversely, non-expert consumers would tend to assess the brand's field of competence as being broader and consequently may accept an extension with poor fit.



### 2.3.7.3 Composite Branding Strategy

The use of two brand names to enhance the acceptance of a brand extension has been frequently proposed in the literature (Park et al. 1993, 1996; Milberg et al. 1997; Thompson 1997). Such *composite* branding strategies<sup>4</sup> involve combining two brand names to create a new product extension (e.g. Weight-Watchers by Heinz) and can be used to influence consumer evaluations of an extension (Park et. al. 1996).

It has been suggested that the effect of fit on extension and core brand evaluations is moderated by the type of branding strategy used (Park et. al. 1996). When a composite branding strategy is used, consumers will make categorisation judgements both about the parent (original) and co-brand (Milberg et al. 1997). In this context, “there should exist a direct positive relationship between consumers' attitudes associated with parent- and co-brands and their attitudes toward extensions bearing both parent- and co-brand names” (Thompson 1997, p. 164). Furthermore, using a composite branding strategy to introduce an extension can help prevent dilution (negative consumer beliefs) of the parent brand (Park et al. 1993; Milberg et al. 1997; Kirmani et al. 1999). It can also improve consumer evaluations of extensions that belong to dissimilar product categories (Milberg et al. 1997). This is due to consumers being able to transfer the associations linked with the new (associated) brand name to the new extension category, while at the same time enjoying the benefits from the core brand (Milberg et al. 1997). In this context, a firm is more likely to consider a composite branding strategy when the fit between the core brand and the proposed extension is poor (Park et. al. 1993). When there is good fit, a composite branding strategy should not really be needed as positive associations will be transferred to the extension from the core brand.

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<sup>4</sup> Other writers also consider this type of strategy but use different terminology; for example, Thompson (1997) refers to 'co-branding'; Park et. al. (1993) suggests the term 'associative' brand extension strategies; and Milberg et al. (1997) uses the term 'sub-branding' strategy.

#### 2.3.7.4 Portfolio Characteristics

Dacin and Smith (1994) proposed that the number of products and the different categories with which the brand is associated constitute 'portfolio characteristics'. They found that fit was not as important a variable once the brand has been extended into multiple product categories. In other words, a brand with many products across many categories in its portfolio may find it less risky to extend. Extending a single product brand into a new category is a more risky strategy (Kardes and Allen, 1991); if the extension has poor fit, then the potential negative effects upon the original brand will be greater than if the brand has already been extended into multiple product categories (Dacin and Smith, 1994).

The impact of fit upon consumer evaluations of extensions also decreased as portfolio relatedness decreased (i.e. where the products in the portfolio are less related in terms of the product categories entered) (Kardes and Allen, 1991; Keller and Aaker, 1992; Dacin and Smith, 1994)<sup>5</sup>. Therefore, when the products in a brand's portfolio are highly related, fit should have a greater impact on extension and core brand evaluations than when the portfolio of products are more diverse.

#### 2.3.7.5 Credibility/Competence of the Company

Company characteristics may also affect the nature/strength of fit on extension and core brand evaluations. In particular, consumer evaluations of the 'certainty' or 'competence' that a company can provide an extension that meets their expectations could affect the impact of fit on extension and core brand evaluations. (Aaker and Keller 1990; Smith and Andrews 1995). A number of researchers have considered similar constructs. For example, Keller and Aaker (1992) used the term 'company credibility', whilst Smith and Andrews (1995) referred to 'certainty' and Aaker and Keller (1990) referred to 'competence'. In general these constructs refer to the extent to which consumers believe

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<sup>5</sup> Portfolio relatedness refers to the diversity of products that are affiliated with a brand (Dacin and Smith, 1994). Therefore, the more diverse the products, the less the relatedness of the products in the portfolio.

that a company can deliver products and services that satisfy customer needs and wants (Keller and Aaker 1992). Although not specifically addressing the moderating affects of company credibility, Keller and Aaker (1992) suggest that an interaction occurs between company credibility and fit. Similarly, Smith and Andrews (1995) empirically showed that the effect of fit on consumer evaluations of an extension is moderated by consumer certainty<sup>6</sup>. Thus, when a customer believes that the company has the ability to provide the new product, the fit between the core brand and the new extension should have less of an impact on consumer evaluations (of the extension and the core brand).

### **2.3.8 Other Variables that May Affect the Success of an Extension and Its Impact Upon the Core Brand**

Other possible moderating variables exist but have been omitted from Section 2.3.7 for four reasons. Firstly, some variables are not in the framework as the research in this area is not concerned with consumer evaluations (e.g. cannibalisation, timing of extension introductions, other company characteristics). A number of variables have also been left out due to inconclusive research evidence and/or because they have been seen to have potentially confounding effects upon other variables (e.g. involvement, motivation, risk, type of consumer). In addition, other variables (e.g. advertising and positioning) are omitted as their effect is indirect (e.g. a form of communication process seeking to influence consumers perceptions of fit, consumer knowledge etc.). The justification for excluding these variables is further developed in following sections (see Section 2.3.8.1 – 2.3.8.5).

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<sup>6</sup> Han and Schmitt (1996) also show that an interaction occurs between fit and consumer certainty (using company size as a proxy for consumer certainty). They suggest that consumers may judge whether the company behind the extension is trustworthy and reliable.

### **2.3.8.1 Cannibalisation of the Core Brand**

It has been suggested that the level of similarity between the extension and core brand can affect cannibalisation (Copulsky 1976). Line extension research has shown that cannibalisation exists (Lomax et al., 1996; Reddy et al. 1994). Cannibalisation has been defined as, "gaining sales for a new product by diverting them from an existing product" (Kerin et al., 1978, p. 25). A company can accept certain levels of cannibalisation providing there are incremental benefits. Buday (1989) suggests these incremental benefits may be immediate consumer awareness, reduced marketing expenditure and increased distribution efficiencies. These benefits are the ones that would not have been enjoyed if the new product had not been developed and need to be offset against the potential cannibalisation effects when deciding whether or not to extend (Kerin et. al 1978). Extending to similar categories or within the same category may cause cannibalisation due to consumers choosing the new extension as a substitute for the core brand. Copulsky (1976, p. 125) comments, "cannibalism results from too close an identification of a new product with the launching company's older products and established markets. New appeals to new market segments will avoid eating one's own market share". Therefore, it appears logical that an extension with good fit would also invite cannibalisation.

### **2.3.8.2 Timing of Extension Introduction**

An abundance of research has been conducted into the optimal entry time for a new product; the majority of the findings support the advantages of early market entry (e.g. Porter 1980; Robinson and Fornell 1985; Urban et al. 1986; Lambkin 1988). However, there are only a small number of studies on the optimum point of entry for an extension and these show contrasting views for brand and line extensions. Wilson and Norton (1989) and Reddy et al (1994) show that it is best (in terms of maximising profits for the total product line over the relevant time horizon) to introduce a line extension at a time early in the life cycle of the original product. In contrast, Sullivan's (1992) investigation of brand extensions indicated that early-entering brand extensions do not perform as well

on average (in terms of market share and failure rates) as either early-entering new name products or late-entering brand extensions. At present there is a lack of research into the effects that timing has on consumer evaluations of the extension and the core brand.

### 2.3.8.3 Other Company Characteristics

Reddy et al. (1994) also propose that other company characteristics such as a firm's marketing competency (i.e. as marketing competency increases, the chance of extension success increases), the amount of advertising support (i.e. the more money spent, the greater the chance of success of the extension) and the size of the company (i.e. the higher the number of employees the greater the chance of extension success), contribute to the success of an extension. However, Reddy et. al. (1994) focused on market share rather than consumer evaluations as the measure of success. There is no evidence to suggest that a firm's general marketing competency and amount of advertising support will play a critical role in *directly* affecting consumer evaluations of an extension and the core brand. Such influence, if any, is likely to be channelled via consumer's perceptions of fit, core brand quality, etc, which are already represented in the text. Advertising and positioning are not included as moderating variables as they are considered to be indirect effects that merely seek to prime or influence consumers perceptions of fit, quality and knowledge (see Nakamoto et. al. 1993; Pryor and Brodie 1998; Sheinin 1998).

### 2.3.8.4 Consumer Involvement

There is inconclusive and limited evidence to suggest that consumer involvement will moderate the relationship between fit and extension/core brand evaluations. Whilst Nijssen et. al. (1995) found significant differences between high and low involvement extension products, Gail (1993) found the link to be very weak. Furthermore, Gail (1993) found consumer knowledge to be a much stronger explanatory variable than involvement. There is also confusion in the literature as to the differences between involvement, motivation, risk and knowledge. These variables certainly seem to overlap and may indeed measure the same construct. For, example, Knox et. al. (1999, p.265) suggested

that “involvement with a product can be regarded as the extent to which consumers’ product knowledge is related to their self knowledge”. Additionally, McWilliam (1993, p.409) suggests that a high involvement brand “carries with it the risk that the buyer might make the wrong decision”. Therefore, for the reasons mentioned above, involvement, motivation and risk are not considered in the current research (also see, Gürhan-Canli Maheswaran 1998).

### 2.3.8.5 Type of Consumer

There is limited evidence to suggest that the type of consumer (i.e. adoption behaviour) can moderate the relationship between fit and extension/core brand evaluations (see Klink and Smith 1997). For example, Klink and Smith (1997) showed that fit was less important for innovators than for later adopters although there does not appear to be any other research of this type to back up their findings. Also, the type of consumer is not considered in the current research as it may have potential confounding effect upon consumer knowledge (i.e. later adopters should have more knowledge than innovators).

### 2.3.9 Summary of Extension Literature

To conclude, the literature has shown that the ‘fit’ between the core brand and the extension is extremely important in extension and core brand evaluations. As far as this research is concerned, it is the level of extension *fit* and not the *type* of extension, which is the most important concern (see Section 3.3 for further discussion). Consequently, the constructs in the proposed framework (see Figure 3.1) are expected to impact upon both brand and line extensions. It has also been identified that a number of moderating variables are expected to affect the nature/strength of the relationship between fit and consumer evaluations of an extension and the core brand.

The following section focuses on the automobile industry. In particular it considers the use of brand personality and extensions within this industry and also reviews automobile research into personality.

## **2.3 AUTOMOBILE INDUSTRY**

Due to the involvement of MIRA (Motor Industry Research Association) and the ESRC (Economic and Social Research Council) the Automobile Industry was the chosen sector of study. This industry is often used for studies (e.g. Ross 1971; Lapersonne et. al. 1995; Heath and Scott 1998) and it is important to carry out research in this sector because, as stated by Turnbull (1992), “the car industry is particularly important because it is the single largest industrial sector in the world economy and has traditionally lead the way in establishing patterns of work organisation for other sectors”, (which is also back up by Lamming 1993 and Womack et. al. 1990).

This sector is particularly appropriate when attempting to study the impact of extension fit upon core brand personality and extension evaluations. In particular, brands in this industry are attempting to develop their personalities (Bull and Oxley 1996) and continually seeking extension opportunities (Walker 1995).

The automobile industry sector is also considered suitable as it is characterised by high consumer involvement in all aspects of the product: high interest in the purchase decision, high symbolic value, high hedonic value and high risk (Lapersonne et. al. 1995; Aaker 1996; Chanaron 1998). It has been suggested that when evaluating and interpreting another person’s identity individuals will observe the car driven (Aaker 1996). This product class is also somewhat different than most consumer goods categories in that the product is bought at very long intervals, retailers of new cars predominantly only sell one brand and the different amount of product features and options are extensive (Lapersonne et. al. 1995).

### **2.3.1 Technology and Innovation**

From its origins just over 100 years ago in Germany and France, the motor vehicle has become arguably the most fundamental single influence upon modern life. However, since its creation, the basic concept of the motor vehicle itself has not changed greatly.

Chanaron (1998) argued that there has been little technological change of the motorcar since the 1920's and that technical advancements no longer have priority. He suggested that the emphasis has shifted to quality and frequent renewal of external aesthetics rather than on innovation. Technology has been stifled by the multiple regulations that surround it (e.g. pollution regulations) and the pressures to offer a range of models and variants rather than technological advancement.

Chanaron (1998, p. 598) commented, "in just over one century, the automobile has imposed itself as the symbol-product, even the fetish, of the consumer society". In fact, this may be due in part to the limitations of mass production and the striving for economies of scale in fragmented markets; which has led to a concentration of assemblers and a gradual convergence of designs (Lamming 1993; Chanaron 1998). In parallel with this development has been the apparent demise of innovation and genuine fundamental product differentiation (Abernathy et. al. 1981; Lamming 1993). Moreover, UK car manufacturers appear to have been spending more on their marketing and sales structure than they do on actually making cars (Mitchell 1996).

### **2.3.2 The Industry**

The motor industry is one of the few that truly merits the term global. Firms are now achieving common standards of excellence in whatever country they operate (Maynard 1998). The European car market is now entering its maturity phase and it is predicted that there is limited growth potential (Haslam & Johal 1995). Low cost competition has forced European manufacturers to cut production costs and to spend more on marketing (Branton 1998). As a result, companies are aiming to succeed in global markets and are changing their marketing strategies, for example, Jaguar attempted to drop its British image in favour of a high-tech offering (Barrett 1996). Due to limited growth potential and increasing amounts being spent on marketing, companies have been looking at new ways to extend their brand (Beenstock 1999). There has also been an increased emphasis on brand personality, which is used to try and differentiate products with similar features and standards (Freeman 1996).



### **2.3.3 Extension Strategies and the Increasing Importance of the Symbolic Nature of the Brand - Customer Satisfaction**

The majority of automobile manufacturers now have extensive product lines (e.g. Ford Fiesta, Ford Mondeo, Ford Focus). Furthermore, a number of the more narrowly focused companies are extending their lines to new boundaries (Barrett 1997). For example, Mercedes-Benz and Land Rover have introduced smaller and cheaper versions of their famous up-market vehicles (i.e. 'A' Class, Freelander). It has been suggested that this type of leverage may put the values of a brand at risk by diluting the prestige image associated with a particular brand (Walker 1995; Simonian 1997). Even though there is pressure for smaller cars which consume less fuel and increased consumer demand for smaller versions of prestige cars, profits in the short term from cashing in on the core brand may result in the dilution of their quality and luxury status in the long run (Barrett 1997).

Although line extensions are the norm, a number of automobile manufacturers have introduced a number of brand extensions to complement their lines. Examples include mountain and racing bikes by BMW, Mercedes, Porsche, Lotus and Volvo; extensive product accessories by Land Rover, BMW and Mini which have included items such as clothing, footwear, watches, stationery, scents etc. The majority of these items are sold through the dealerships and the automobile companies operate on a franchise basis, although, Rover has produced branded Mini goods, which are available in retail outlets in Japan (Mound 1996; Marsh 1996). Harley-Davidson is another example of a brand that has extended its product line to new boundaries. There is Harley clothing and accessories including jackets, boots, gloves, bathing suits, silk underwear and toiletries (Aaker 1996). Firms such as Ford and Volkswagen have also considered leveraging their brands to banks and extending beyond car loans and into the financial services area (Barrett 1996).

Increasingly, the primary aim of the successful automobile manufacturer has been to create customer satisfaction (Brookes and Little 1997; Main 1998). In the 1950's, there were only a handful of automotive brands and these did not sell many product lines. Today, there are many automotive brands and each sell a great deal more vehicle lines. In

this consumer driven environment firms have needed to differentiate their products and have attempted to create variety within their product mix by introducing line extensions of their core brand (Lienert 1998; Prasad 1998). However, the difference between brands is difficult to identify because all cars are now of a similar standard; and when a company has an idea for a new type of extension rivals replicate it almost immediately (O'Sullivan 1995).

Therefore, brand managers have increasingly considered the symbolic value of the car and its expression of social status (rather than technological advancements) to make one brand different from another (Chanaron 1998). Building the emotional qualities of a brand and consistently reflecting them in all forms of marketing communication is a powerful form of protection against competitors with 'me too' products (Curtis 1996). Some companies have been through radical changes in order to provide a consistent image and personality (Meetrings and Whale 1997). For example Rover had a dozen badges in its portfolio over four decades and made ten different models ranging from the 38 year old Mini to Range Rover. The company image ranged from the cute Mini to the rugged Land Rover, the executive Rover 800 to the fun Rover 200. In 1996 Rover decided to segment the line-up into a series of new divisions that gave each model a specific brand and identity, for example, the new Mini was branded Mini and not Rover.

Many firms are attempting to 'delight' the customer by focusing upon their needs (e.g. BMW, Daewoo, Volkswagen, Rover, Mercedes-Benz) (Main 1998). Initiatives such as providing internet sites on the world wide web to improve marketing communications are at the forefront of marketing strategy (Sumner Smith 1996). Brand marketers are trying to create distinctive positions and personalities for their new lines. The customers' ownership experience with the brand and not just the product's physical features are now the focus (Jones 1997). Companies such as Land Rover and Jeep attempt to reinforce their brand personality by frequently holding off-road days where owners can turn up to put vehicles through their paces and to test its off-road ability (Freeman 1996).

Many firms are adopting brand management strategies where specific personnel are put in charge of a specific brand. Companies such as General Motors are using sophisticated

segmentation models to be certain that it is maximising the equity of its brand by directly appealing to specific buyer needs (Wagoner 1996). For example, the Ford Motor company changed its structure by assigning brand managers to each of its 16 product lines with the belief that each vehicle line will have more efficient brand supervision, from product development to pricing (Connelly 1997; Snowdon 1996). Brand management is also filtering through to car showrooms. Companies such as Rover, Ford, Volvo, Nissan and Audi have been trying to stamp a stronger corporate look on their showrooms following Daewoo's decision to own all of its retail outlets in the UK. Here, the manufacturers are attempting to gain complete control of an environment where a strong brand identity is now needed (Dwek 1996).

Arguably, it is these types of development that has led to the increased emphasis on building distinct personalities for brands. For example, the Rover Group suggested that "a brand has a clearly defined personality which includes a set of values that give distinction to a product, or a group of products, and which adds value to a particular group of customers" (Bull and Oxley 1996, p. 239). Land Rover realised that the emotional and symbolic values that the brand represents to customers is an important distinguishing factor between different brands. Bull and Oxley (1996) suggested that the work done on brand personality showed that Land Rover had six main values including 'individualism', 'authenticity', 'freedom', 'adventure', 'guts' and 'supremacy'. They also suggested that when conducting product clinics, customers who saw the Land Rover without badging questioned the four wheel drive capability, but when they were shown the vehicle badged, all doubts were removed (Bull and Oxley 1996). Harley-Davidson is another example of a brand that is concerned with the emotional and symbolic needs of the customers (Aaker 1996). This brand is associated with "a macho, American-loving, freedom-seeking person who is willing to break out from societal norms of dress and behaviour" to express part of their own personality (Aaker 1996, p. 141).

### 2.3.4 Automobile Industry Research Into Personality

Early personality research in the automobile industry attempted to link an individual's self-concept with the symbolic value of the product or brand (Grubb and Grathwohl 1967). Specifically, Evans (1959) showed that shoppers and non-shoppers of particular products differed in terms of their personality variables. His study identified 'shoppers' who were classified into individuals who visited dealers of different makes before buying a new car and 'non-shoppers' who were those individuals who visited only one dealer before buying a new car. Both groups of consumers each contained equal numbers of Ford and Chevrolet owners. The cars that they owned were highly similar (e.g. body styles, engine sizes, additional extras) which suggested that shopping was not done to simply find particular product features. A psychological test was implemented to measure the respondents' personality needs. Ten main variables were used (e.g. achievement, dominance, aggression etc.). The personality profiles showed considerable differences between shoppers and non-shoppers; but, contrary to expectations there were no differences found between the owners of Ford and Chevrolet cars. However, this research was limited in that only small samples of 20 owners and 20 non-owners were used in the study. Also, there may have been no difference between the owners of Ford and Chevrolet cars as only human personality measurements of the actual respondents and not their perceptions of a brand's personality were considered.

Additionally, Westfall (1962) identified that a product or brand would have to match a consumer's personality before he/she would buy it. Automobiles were selected for analysis and different models of the same product were chosen (e.g. convertibles, compacts, standards). Westfall (1962) also predicted that the owners of these three types of cars would differ in personality. The Thurstone Temperment Schedule was used to measure personality variables (this was widely used at the time and has demonstrated the ability to differentiate among different groups of people). Respondents were asked 140 questions which probed 7 major characteristics. The study showed that there were differences in the personality of convertible car owners on the one hand, and standard and compact car owners on the other. However, as in Evans (1962) study there was not

sufficient evidence available to show that there was a significant difference in the images of Ford and Chevrolet owners. Once again, this may be attributed to only the human personality measurements of actual respondents being measured and not actual brand personality.

In contrast to the findings presented above, Birdwell (1968) empirically showed that an automobile owner's perception of his/her car is congruent with his perception of himself/herself. He found that the average perceptions of specific brands and car types were different for owners of different sorts of cars. He suggested that automobiles are often extensions of the owner's image of themselves.

Grubb and Hupp (1968) also proposed that consumers of a specific brand would hold self-concepts similar to those they attribute to other consumers of the same brand. Furthermore, consumer self-concepts of a particular brand would be significantly different from the self-concepts they attributed to consumers of competing brands. They studied Volkswagen and Pontiac makes of motor vehicle. From a list of 98 descriptive words (compiled from previous personality scales and current advertising of the brand's involved) 112 respondents listed those traits, which best described the owners of each make. This process led to the selection of 8 traits for each product. The two sets of traits were then put together to form a scale that had 16 traits. This scale was then administered to 45 Volkswagen owners and 36 Pontiac owners. The results showed that the consumers of the two different brands of automobiles perceived themselves significantly different and held stereotypical perceptions of the owners of each brand. Moreover, they perceived themselves to be similar to others who owned the same brand and quite different from the owners of competing brands.

Additionally, Ross (1971) supported Grubb and Hupp's (1968) results. A semantic differential scale of 15 adjectives was used as a measurement instrument (derived from previous research). From a sample of 200 university students it was found that subjects preferred the brand of automobile, which was perceived to be more rather than less similar to their own self-concept.

A more recent study by Heath and Scott (1998) empirically investigated the New Zealand motor vehicle market to address the relationship between self-concept and image congruence. The latter refers to the process by which consumers purchase brands that they believe possess symbolic images similar to the image they hold of themselves. Two physically similar products with different brand names were chosen (i.e. Mazda 323 and the Ford Laser). Motor vehicle owners were the chosen respondents (361 responses were received). The research instrument comprised of 13 trait and 11 statement-based questions. Previous research by Grubb and Hupp (1968) and Lee (1990) was used to develop the research tool and the adjectives for the statements were generated by a group of experts for each motor vehicle. The results showed that there was no difference in the self-concept scores of owners of different brands of physically similar products, which has contradicted the underlying theory associated with image congruence. However, this research has major limitations in that the population was skewed to older people who may possess similar images anyway. Once more, this may be attributed to only the human personality measurements of actual respondents being measured and not actual brand personality.

In summarising the literature on personality in the automobile industry it is clear that consumers do indeed perceive their cars to be congruent with their perceptions of themselves. However, due to the type of measurement used there have been contrasting findings as to the difference in self concept evaluations of owners of similar brands. Although a number of studies have suggested that consumers of different brands of automobiles perceived themselves significantly different, other research has found no significant difference.

Despite the contrasting findings the type of tests have not been carried out using brand personality scales. As stated earlier the majority of researchers have simply measured the images that respondents have of themselves, or, of other owners of the same brand and of owners of competing brands. They have not considered the personality characteristics that are actually associated with a brand. The development of a brand's personality is very important to companies (see Section 2.3.3). As previously discussed, brands must

maintain consistent and predictable personalities. Therefore, it is the brand personality and not human personality measure that is most appropriate for the current research.

## **2.4 SUMMARY**

The literature review carried out has identified much valuable information for the current research. This chapter has attempted to provide a review of the personality, extension and automobile industry literature.

It has been shown that brand personality is important to both researchers and practitioners. A brand personality scale has been developed by Aaker (1997). As automobile companies are attempting to differentiate by developing distinctive brand personalities an investigation to establish how different types of extension fit will impact upon brand personality needs to be carried out. It has been suggested that brand personality needs to be relatively consistent and enduring over time (Aaker 1996; Aaker 1997). Therefore, how will the introduction of contrasting types of extension (i.e. in terms of degrees of fit) effect brand personality? An analysis of how far brands can extend without harming their personality and whether an extension can enhance a brand's personality is of particular importance to today's brand strategists.

Chapter 3 addresses these issues by introducing the conceptual framework of consumer evaluations of extension fit and its impact upon brand personality.

## CHAPTER 3

### CONCEPTUALISATION OF THE STUDY

This chapter develops a theoretical basis for the main empirical investigation. First, justification for focussing on the consumer perspective in this research is discussed. Next, the transfer of brand associations and the reliance on categorisation theory as the theoretical rationale behind the extension decision is considered. Following this, the conceptual framework is presented highlighting the impact of extension fit upon (a) brand personality and (b) extension evaluations. This conceptualisation has been constructed from insights provided by the brand personality and extension literature presented in Chapter 2. Subsequently, justification for the proposed conceptual framework is discussed and a set of research hypotheses is introduced corresponding to the linkages in the conceptual framework. These hypotheses specify the conditions under which extension fit is likely to enhance or dilute brand personality and whether the extension is likely to be favourably or unfavourably evaluated.

#### 3.1 WHY FOCUS ON THE CONSUMER PERSPECTIVE?

The majority of extension research has focused on the consumer perspective and their evaluations of an extension and the core brand (e.g. Aaker and Keller 1990; Nijssen et. al. 1996; Milberg et. al. 1997). Likewise, brand personality by its very definition focuses on a consumer perspective (see Section 2.1.1 in Chapter 2). There are three main reasons why particular attention has been given to consumer evaluations. Firstly, consumer evaluations are important, as they are believed to be a key element in indicating extension and core brand success (Aaker and Keller 1990; Boush and Loken 1991). Secondly, it has been generally accepted that consumer evaluations can provide useful predictions of brand preference and choice (Bass and Wilkie 1973). Thirdly, favourable consumer evaluations are thought to be essential in developing the equity of a brand (Pitta and Katsanis 1995). Brand equity is defined as the "added value" that a brand endows to a



product (Farquhar et. al. 1990, p. 856); this added value can be viewed from the perspective of the firm, the trade or the consumer. It is possible to measure extension and core brand success in a number of ways, such as market share, profitability or number of years the extension/core brand has survived (Reddy et. al. 1994; de Chernatony et. al. 1998). This research concentrates on the more popular consumer perspective due to its extensive empirical testing in extension research (e.g. Aaker and Keller 1990; Gail 1993) and due to the fact that brand equity is closely tied to the development of a competitive advantage in the eyes of the consumer (Nakamoto et. al. 1993).

### **3.2 CONCEPTUAL BACKGROUND**

It has been suggested that brands need to satisfy consumers' functional (i.e. quality, reliability) and representational (i.e. emotional and symbolic) needs (de Chernatony and McWilliam 1990). Moreover, consumers need to hold positive beliefs and favourable attitudes towards the core brand (frequently operationalised as quality perceptions of the core brand) for the extension to be successful; such beliefs and attitudes are known as 'brand associations' and serve to differentiate one brand from another (Aaker 1990; Aaker and Keller 1990; Farquhar and Herr 1993). Brand associations reflect "the unique meanings associated with a brand name" (Rangaswamy et. al. 1993, p. 62) and extension evaluations will depend upon the prominence of such associations in the extension context (Keller and Aaker 1992; Glynn and Brodie 1998; Farquhar et. al. 1992). Keller (1993) has classified brand associations into attributes (descriptive features that characterise a product or service, e.g. physical characteristics or product packaging), benefits (the personal value consumers attach to a product or service, e.g. a car which is more economical in petrol or a product which promotes exclusivity) and attitudes (consumers' overall evaluation of the brand, e.g. "like" or "dislike"). There has to be a transfer of favourable associations from the core (original) brand to the extension for the latter to be successful (Aaker and Keller 1990; Pitta and Katsanis 1995).

Extension research has typically relied on 'categorisation theory' as the underpinning theoretical rationale behind its investigations (Park et al. 1993, 1996). Categorisation

theory helps to explain the cognitive processes by which extensions will be favourably or unfavourably evaluated and their potential effects upon the core brand (Rangaswamy et al. 1993). When extending a brand name, the transfer of brand associations is largely determined by categorisation judgements (Park et al. 1989, 1991). A category exists whenever people treat two or more distinguishable objects equally (Mervis and Rosch 1981; Boush and Loken 1991; Boush 1993). Evaluative concepts such as brand names can help to define membership in a particular category (Consumer Behaviour Seminar 1987). Upon encountering a brand name a consumer will form a summary description in his/her memory that represents the category with which the brand and its existing products are associated (Thompson 1997). The extension will then be perceived as a member or non-member of the existing brand category. With categorisation theory underpinning extension research it has been shown that when consumers perceive there to be good fit with the existing brand category, then they will accept the new extension and the core brand associations will be transferred to it (Chakravarti et al. 1990; Park et al. 1991). It is the *fit* construct that is at the heart of the proposed conceptual framework as discussed below.

### **3.3 CONCEPTUAL FRAMEWORK**

Despite the importance, benefits and risks associated with extensions, the literature in this area tends to be fragmented and characterised by an absence of conceptual frameworks to guide empirical work. This research covers new ground by not only combining the key concepts from the extension literature but by also introducing brand personality into the conceptualisation process. This work aims to show that when exposed to certain types of extension fit, consumers will have different perceptions of brand personality and of the extension.

Early extension research identified that line extensions were less risky than brand extensions due to the greater similarity of the new product to the existing product (Consumer Behaviour Seminar 1987). However, making a distinction between brand and line extension can be problematic when seeking to operationalise this construct. For

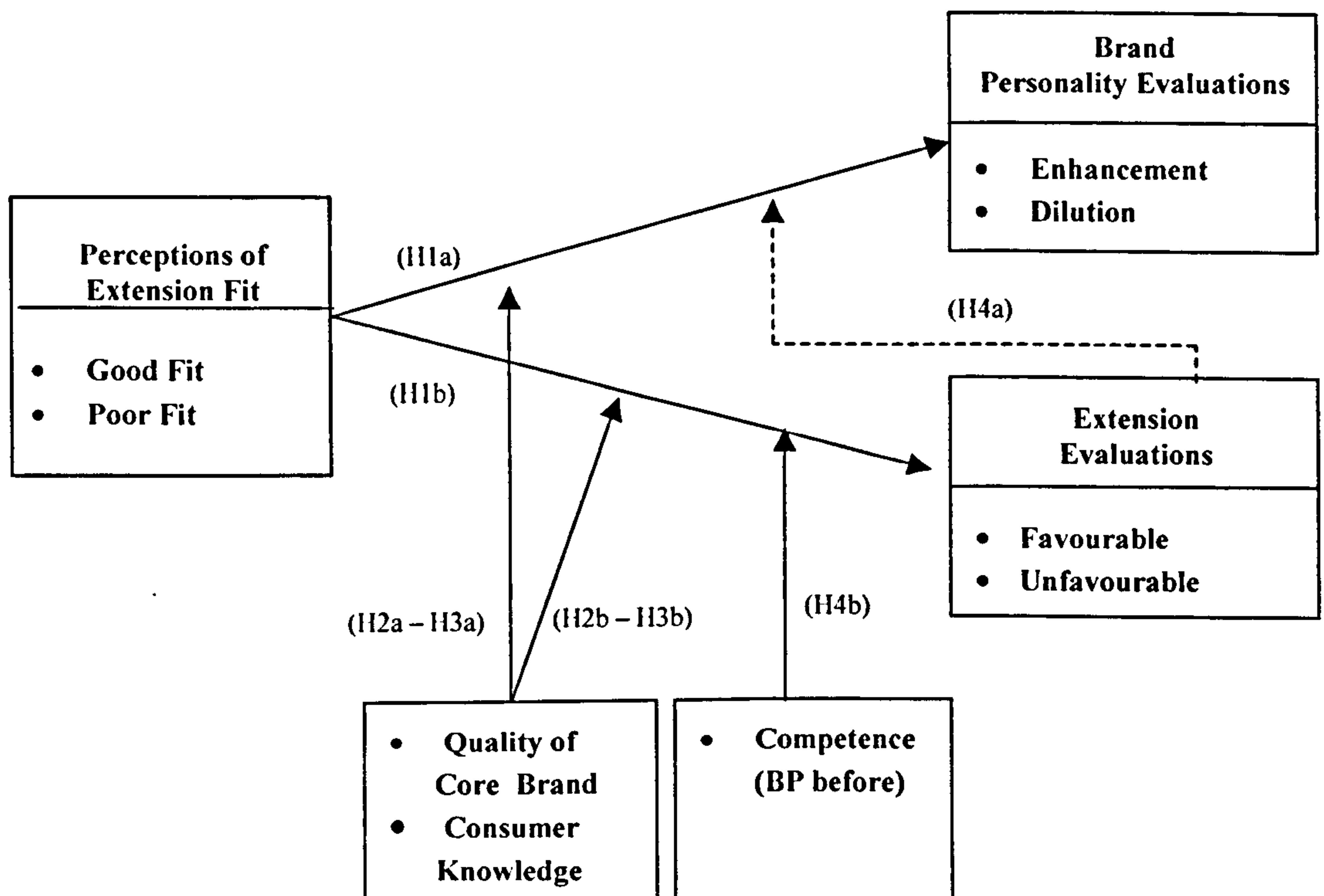
example, it could be argued that an inappropriate line extension for Cadillac (e.g. a basic, small 'budget' car) may cause greater dilution of the core brand than a more suitable brand extension introduction (e.g. expensive, designer clothing). As such it is customers' perception of 'fit' between the core brand and the extension rather than the type of extension that is the critical issue addressed in this research.

Figure 3.1 shows the impact of extension fit upon (a) brand personality and (b) extension evaluations. The proposed framework is largely based on insights from the literature previously summarised in Table 2.2. *Evaluations* of core brand personality and the extension rely heavily upon perceptions of *fit* (Park et. al. 1991; Aaker and Keller 1990). Additionally, a number of moderating factors affect the relationship between fit and evaluations of brand personality and the extension, namely, *quality of the core brand and consumer knowledge* (Muthukrishnan and Weitz 1991; Keller and Aaker 1992). Also, *extension evaluations* moderate the relationship between fit and brand personality evaluations. Similarly, evaluations of the brand personality dimension *competence* 'before' the extension introduction is expected to moderate the relationship between fit and extension evaluations. Finally, Figure 3.1 highlights the main effects perceptions of fit have on (a) *brand personality evaluations* (enhancement/dilution) and (b) *extension evaluations*, (favourable/unfavourable) (Ries and Trout 1986; Aaker 1990; Aaker and Keller 1990)<sup>7</sup>.

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<sup>7</sup> The conceptual framework has identified the key constructs that affect brand personality and extension evaluations. Some moderating variables discussed in Chapter 2 have been left out of the conceptualisation process due to their inappropriateness in the current research setting. For example, portfolio characteristics could not be assessed, as an actual brand in the automobile industry was the focus of the research. Additionally, composite branding was not considered as the conceptual framework was built on the basic principle that good and poor levels of extension fit would have a different impact on brand personality and extension evaluations. A composite brand should only be considered with poor fit and thus was not included the conceptualisation.

Figure 3.1 - CONCEPTUAL FRAMEWORK



Where: BP – Brand Personality

In the following sections, the elements of the model are described in more detail. The hypotheses generated relate to the specific linkages within the proposed framework.

### 3.3.1 The Impact of Fit Upon Brand Personality and Extension Evaluations

The majority of extension research has focused on consumer evaluations of an extension and the core brand (e.g. Aaker and Keller 1990; Nijssen et. al. 1996; Milberg et. al. 1997). This research focuses on brand personality as an alternative way of assessing the impact of an extension on the core brand. A number of researchers have assessed core brand evaluations by measuring their quality perceptions (e.g. Aaker and Keller 1990). As it

has been identified (see Chapter 2) that brand personality is an increasingly important type of core brand evaluation it is expected that extension fit will effect brand personality in similar ways (i.e. in terms of enhancement or dilution of the core brand). Such an approach complements previous measures by utilising the latest brand personality scale (e.g. Aaker 1997).

As identified in Chapter 2, fit refers to whether a consumer perceives an extension to be consistent with the parent brand (Aaker and Keller 1990). It has been shown that extensions can modify core brand perceptions (Gurhan-Canli and Maheswaran 1998) and that extensions can dilute/enhance the core brand (i.e. whether it is viewed in a more positive or negative light) (Loken and Roedder John 1993). Specifically, in extending a brand, good fit has been seen to be important for positive consumer evaluations (i.e. enhancement) of the core brand (Aaker and Keller 1990; Keller and Aaker 1992; Sunde and Brodie 1993; Bottomley and Doyle 1996). On the other hand, an extension that exhibits poor levels of fit will create damaging associations and potentially dilute the core brand (Ries and Trout 1986; Loken and Roedder John 1993; Park et al. 1993, 1996). Since extensions are seen to be key drivers of brand personality (Aaker 1996) it is expected that the perceived level of fit should also affect respondents' perceptions of brand personality in similar ways. Hence:

H1<sub>a</sub>. An extension with good fit will result in greater brand personality enhancement than an extension with poor fit.

Apart from its effect on brand personality, as previously discussed there is substantial evidence to suggest that fit has an effect on extension evaluations. Favourable consumer evaluations of an extension require the core brand to have a good 'fit' with the new product (Aaker and Keller 1990; Ambler and Styles 1997; Barrett et. al. 1999). Moreover, the better the 'fit' the easier it is to extend to new classes (Muroma and Saari 1996). Research has indicated that consumer evaluations of an extension are more favourable when consumers have a perception of good fit (Aaker and Keller 1990; Sunde and Brodie 1993; Bottomley and Doyle 1996). Therefore:

H1<sub>b</sub>. An extension with good fit will be evaluated more favourably than an extension with poor fit.

### 3.3.2 Moderating Variables

The literature review identified a number of key moderating variables that will affect the nature/strength of the relationship between fit and consumer evaluations of an extension and the core brand. For reasons articulated above (see Section 3.3.1) the moderating variables adopted in the conceptual framework should also affect brand personality.

#### 3.3.2.1 Core Brand Quality

As identified in Chapter 2 there are contrasting views as to role of quality of the core brand and extension fit (see Section 2.2.6.1). Keller and Aaker's (1992) observation (that the impact of fit on the core brand and the extension is moderated by the level of core brand quality) is adopted here and represented in the proposed conceptual framework<sup>8</sup>.

Specifically, it is expected that the perceived quality of the core brand will moderate the relationship between fit and consumer evaluations of both brand personality and the extension. As the quality of the core brand gets higher, consumers should have more faith in the ability of the brand to produce an extension and therefore fit should become less important.

Specifically:

H2<sub>a</sub>. The higher the core brand quality evaluations, the lesser the impact of fit on brand personality evaluations.

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<sup>8</sup> Keller and Aaker's (1992) observation was adopted in the conceptual framework as extension fit was believed to be the key construct affecting core brand personality and extension evaluations.

H2<sub>b</sub>. The higher the core brand quality evaluations, the lesser the impact of fit on extension evaluations.

### 3.3.2.2 Consumer Knowledge

It has been acknowledged (see Section 2.2.6.2 in Chapter 2) that consumer knowledge of the core brand will also affect the relationship between fit and core brand and extension evaluations (Muthukrishnan and Weitz 1991; Broniarczyk and Alba 1994; Roux and Boush 1996). Consumers that are high in knowledge should have a better ability to judge extension fit than consumers low in knowledge. Also, consumers with high knowledge are more critical when evaluating extensions and their effects on the core brand. This is attributable to consumers high in knowledge being more capable of evaluating whether that particular brand has the competence to deliver the new product (Alba and Hutchinson 1987; Gail 1993). Consumers low in knowledge may not have the ability or desire to evaluate whether the new extension is acceptable or not. Similarly, a consumer with high knowledge should have a greater capacity to discriminate between an extension's fit and judge the core brand accordingly (Serra et. al. 1999). In part, this has been shown by Kirmani et. al. (1997) who suggested that owners (who are usually high in knowledge) are more likely to experience dilution effects from a poor fitting extension than non-owners (who are usually lower in knowledge). Similarly, Gail (1993) suggested that consumers with high knowledge restrict their view of the core brand's field of competence to the products it most typically manufactures. Conversely, consumers with low knowledge tend to believe the brand's field of competence as being broader. Thus consumers low in knowledge should not have as extreme views of unsuitable extensions as do consumers high in knowledge. Therefore, fit should have a greater impact on brand personality and extension evaluations as the level of knowledge gets higher.

Thus:-

H3<sub>a</sub>. The higher the consumer knowledge evaluations, the greater impact of fit on brand personality evaluations.

H3<sub>b</sub>. The higher the consumer knowledge evaluations, the greater impact of fit on extension evaluations.

### 3.3.2.3 Extension Evaluations

Consumer evaluations of the extension should affect the relationship between fit and brand personality evaluations. It has been shown that favourable extensions can have a positive effect on the core brand (Keller and Aaker 1992; Loken and Roedder-John 1993). However, the effect of unsuccessful extensions on the core brand has received contrasting views (Leong et. al. 1997). Whilst Loken and Roedder-John (1993) found that failed extensions diluted the core brand, Keller and Aaker (1992) found no significant dilution from an un-favorable extension. Furthermore, there is a lack of research into the moderating effect that extension evaluations have on the nature/strength of the relationship between fit and brand personality evaluations. To reconcile this issue it is proposed that as extension evaluations become more favourable the impact of fit upon brand personality should become less important due to the positive associations transferring from the extension to brand personality.

Therefore:-

H4<sub>a</sub>. The more favourable the evaluations of an extension the lesser the impact of fit on brand personality evaluations.

### 3.3.2.4 Competence

Finally, consumer evaluations of competence in the core brand should also affect the relationship between fit and extension evaluations<sup>9</sup>. Consumer evaluations of the

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<sup>9</sup> There does not appear to be any difference between the competence and credibility of the brand. In the literature the two terms are used interchangeably (e.g. Smith and Andrews 1995). In this research competence is referred to as the brand's perceived ability to deliver a product that meets consumer expectations.



competence of the core brand should affect its ability to extend (Aaker and Keller 1990). The more competent the brand is seen as being the greater the range of products to which it should be able to extend (Keller and Aaker 1992). As competence perceptions become more favorable, fit should have less of an impact upon extension evaluations as consumers should be more willing to accept extensions that have poorer fit as they will have increased confidence in the brand being able to deliver a poor fitting extension (Smith and Andrews 1995). As competence perceptions become less favorable extensions will need to have better fit levels to stand a chance of being accepted.

Consequently:-

H4<sub>b</sub>. The more favorable the competence evaluations the lesser of an impact of fit on extension evaluations.

### **3.4 SUMMARY**

This chapter has introduced the conceptual background for the study by developing a framework of the constructs that are hypothesised to affect brand personality and extension evaluations. The conceptual framework proposes that brand personality and extension evaluations are particularly affected by extension fit. A number of moderating variables have also been hypothesised to affect the nature/strength of the relationship between fit and brand personality and extension evaluations.

By developing theory driven hypotheses, the study can go beyond a purely descriptive investigation. This is consistent with the study's research objectives and its intended contribution (see Chapter 1, Section 1.5). To achieve these objectives against the theoretical background developed in this chapter, it is necessary to collect empirical data. The next chapter describes the methodology used for data collection.

## CHAPTER 4

### METHODOLOGY

This chapter provides a detailed description of the methodology used to achieve the research objectives, in the form of a research design. The latter is a basic plan of which the purpose is to guide data collection and analysis. This includes the data collection methods and forms, the sampling frame and the data collection procedures that have been followed.

#### 4.1 A QUANTITATIVE FOCUS?

Whilst qualitative research is relatively exploratory and seeks to provide insights and understanding of the problem setting, quantitative research is statistically based and therefore can quantify data and provide conclusive results (Malhotra 1999). As qualitative research is usually exploratory in nature, it was not considered appropriate as there have been many extension studies (see Chapter 2) that have provided the theoretical understanding for the conceptual framework (see Section 3.3 in Chapter 3). It is the objectives of this research that have driven the quantitative focus. In order to examine the effects of extension fit upon core brand personality and extension evaluations a set of research hypotheses was developed in Chapter 3. To subsequently test these hypotheses a quantitative focus was deemed necessary in order to provide the hard data with which to test the hypotheses (Hankinson and Cowking 1992; Malhotra 1999).

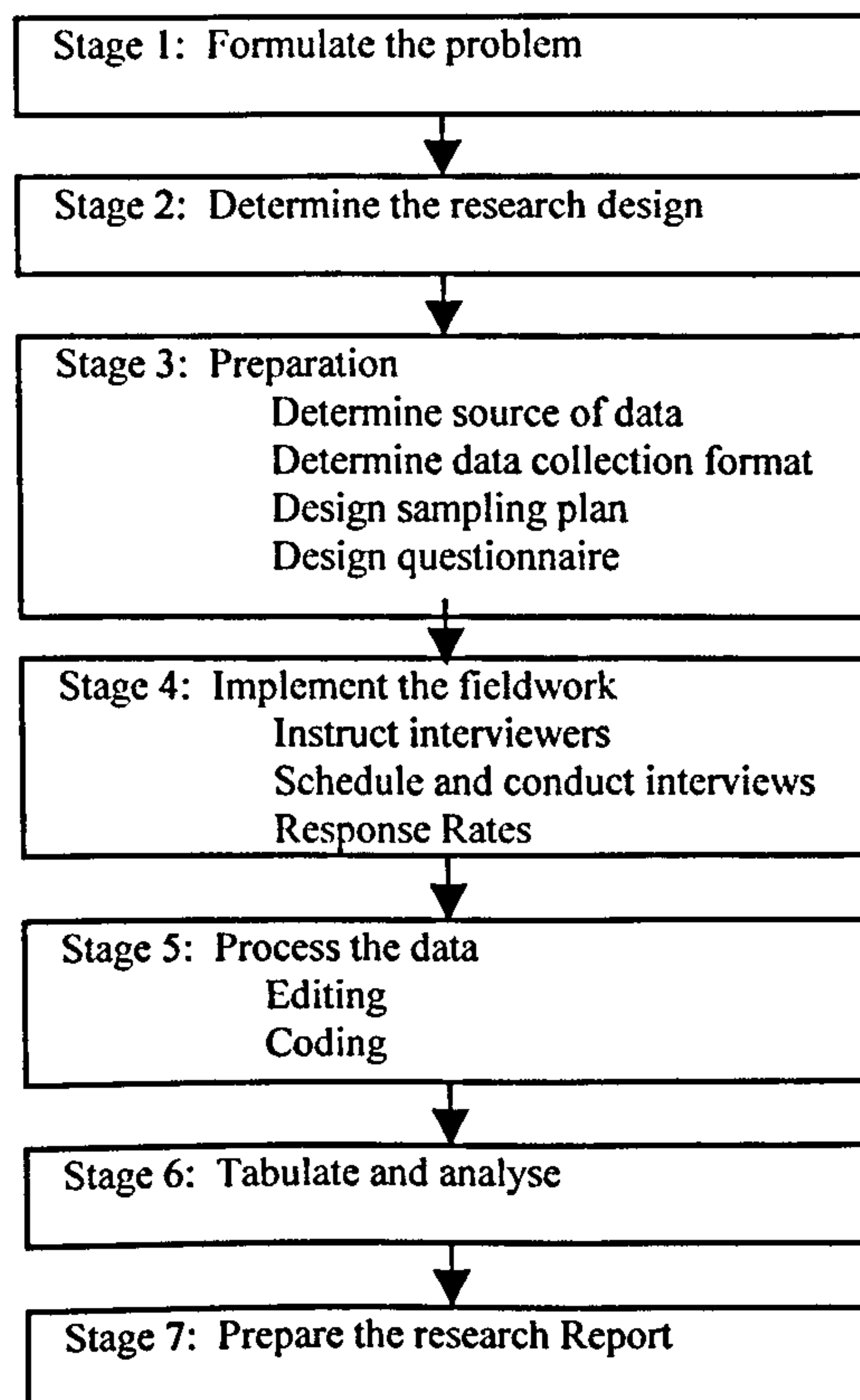
There has also been an increase in the use of quantitative methods as a means of tackling marketing problems (Hussey and Hooley 1995). Moreover, with the development and popularity of brand image studies has come the increased use of

statistical data processing methods (Inglis and Johnson 1996). Research into consumer evaluations of extensions and the core brand have tended to use similar research designs and methods. The majority of the literature covered in Chapter 2 has also used quantitative rather than qualitative methodologies (e.g. Aaker and Keller 1990; Bottomley and Doyle 1996; Milberg et. al. 1997; Serra et. al. 1999). These studies have consistently used experimental designs that have evaluated an extension and/or its affects on the core brand.

## **4.2 THE RESEARCH PROCESS**

There are several steps to be considered when conducting research. The literature has considered similar research processes that have provided a general framework to follow when designing and implementing a study (e.g. Dillon et. al. 1994; Churchill 1999; Malhotra 1999). The framework of sequential steps can be misleading as they can often interact and occur at the same time. The steps represent a general order but decisions 'early' in the process must be made in conjunction and with the consideration of 'later' decisions. Moreover, there are often frequent reviews of earlier decisions in the light of later decisions (Tull and Hawkins 1993). Although the research frameworks offered are very similar, the process offered by Dillon et. al. (1994) was adopted in the present study (see Figure 4.1).

This chapter deals predominantly with stages 2-5. Formulating the research problem is discussed briefly as it was dealt with in Chapters 1-3. Tabulating and analysing the data is discussed in Chapters 5 – 8. Finally, preparation of the research report is not discussed, as the thesis contained herein is its documentation.

**Figure 4.1 - The Research Process**

Source: Dillon et. al. (1994)

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### 4.3 FORMULATE PROBLEM

Defining the research problem is the most critical part of the research process (Tull and Hawkins 1993). Only when the problem is appropriately defined can research provide relevant information (Churhill 1999). The research problem has been identified in Chapter 1 (see Section 1.5) where the objectives of the research have been described. Following the literature review in Chapter 2, a set of specific research questions was developed. A conceptual model was then presented and a set of research hypotheses was proposed in Chapter 3. The hypotheses were largely derived from existing literature.

#### 4.4 DETERMINE THE RESEARCH DESIGN

The objectives of the study helped to guide the research design and are listed in Table 4.1.

**Table 4.1 – Research Objectives**

<b>Number</b>	<b>Research Objective</b>
1	To examine the impact of extension fit upon consumer evaluations of brand personality.
2	To examine the impact of extension fit upon consumer evaluations of extensions.
	<b>Sub-Objective</b>
3	To test Aaker's 1997 brand personality scale for reliability, validity and dimensionality.

When deciding upon the most appropriate research design, alternative courses of action must be considered. There are three basic types of research design (Dillon et. al. 1994). Firstly, exploratory research puts the emphasis on the discovery of ideas and insights. Secondly, descriptive research focuses on accurate descriptions with which something occurs or the relationship between two or more variables. Finally, causal research is concerned with determining cause and effect between two or more variables.

Exploratory research was not considered necessary since the extensive literature covered in Chapter 2 provided sufficient ideas and insights with which to develop the conceptual framework and set of hypotheses. As indicated in Table 4.1 the first two major research objectives were to assess the impact of extension fit upon brand personality and extension evaluations. Therefore a descriptive research design was not suitable as it would not be able to establish causality (Churchill 1999). The objectives of this research clearly indicate that a causal design is needed in order to establish how changes in one variable cause changes in another variable (i.e. to see how different levels of extension fit affect brand personality).

#### **4.4.1 Experimentation**

Experimentation was the chosen research design as it provides more convincing evidence of causal relationships than exploratory or descriptive designs (Malhotra 1999). The type of experiment used depended upon (a) the level of control needed over extraneous factors, and (b) the practicalities of carrying out the experiment. Since the research objectives sought to assess the impact of extension fit on brand personality and extension evaluations, a manipulation of extension fit was required. Only after fit had been appropriately manipulated could the true cause and effect of the former be established. A high level of control over extraneous factors was desired to enable the true effect of the experimental manipulation to be realised. In Chapter 3 it was identified that a number of variables were expected to affect the nature/strength of the relationship between fit and brand personality and extension evaluations. Specifically, the level of core brand quality and consumer knowledge evaluations were seen as potentially moderating factors that could affect the impact of fit on evaluations of brand personality and the extension. Also, extension evaluations should moderate the relationship between fit and brand personality evaluations. Similarly, evaluations of the brand personality dimension competence 'before' the extension introduction was expected to moderate the relationship between fit and extension evaluations. It was decided to include these particular measures in the research design to improve the sensitivity of the experiment (Boniface 1995).

#### **4.4.2 Specific Design**

A before-after with control experimental design (c.f. Mitchell and Jolley 1996) was used to test the research hypotheses. This design was considered an experimental ideal (Churchill 1999) for a number of years and was chosen due to the high level of control it possessed in terms of being able to account for extraneous factors (Dillon et. al. 1994; Churchill 1999; Malhotra 1999). The after-only and before-after designs were eliminated for further investigation due to their lack of control over extraneous factors. Additionally, the four-group six-study design was eliminated due to the large number of respondents that would be needed to carry out the design sufficiently. The before-after with control group experimental design was chosen as it allows one to

study individual cases of change due to before and after measurements (Churchill 1999). This is considered appropriate as actual differences in brand personality and extension evaluations can be measured and do not have to be estimated as in the after-only type design. However, this type of design is not without its problems. Interactive testing is not controlled for (Malhotra 1999). The pretest may make individual cases respond to the experimental treatment due to them being sensitised (Churchill 1999). Thus, the result will include the impact of the experimental treatment and a component due to the interactive testing effect. For example, respondents as a result of being tested may pay more attention to their evaluation of brand personality than they would have done had they not been tested.

In implementing the before-after with control group experimental design three groups of executive MBA students at Loughborough University were initially asked to complete Aaker's (1997) brand personality scale (BPS) as applied to a major automobile brand; respondents were also asked to provide information on their perceptions of core brand quality and consumer knowledge using established scales (Keller and Aaker 1992; Lichtenstein et. al. 1990; Sanjay et. al 1993; Smith and Park 1992; Srinivasan and Ratchford 1991). Subsequently, two groups (randomly selected) were exposed to two extensions (one per group), while the third group served as control. The brand personality scale was then administered one week later to all three groups; the two experimental groups were also asked to provide their views on the fit and quality of the extensions using the scales of Keller and Aaker (1992) and Dodds et. al. (1991). Figure 2 summarises the experimental design in standard notation.

**Figure 4.2 - Experimental Design**

		$t_1$		$t_2$	
EG <sub>1</sub> :	(R)	O <sub>1</sub>	X <sub>1</sub>	O <sub>2</sub>	where EG: experimental group CG: control group O: measurement (BPS administration) X: experimental treatment (exposure to extension) R: randomisation t: time
EG <sub>2</sub> :	(R)	O <sub>3</sub>	X <sub>2</sub>	O <sub>4</sub>	
CG :	(R)	O <sub>5</sub>	-	O <sub>6</sub>	

Source: Mitchell, M. & Jolley, J. (1996)

### 4.4.3 Experimental Validity

The two main goals of this experiment are to draw valid conclusions regarding the effects of extension fit upon brand personality and extension evaluations and to make valid generalisations to a larger population of interest (Malhotra 1999). The first goal concerns internal validity, which is defined as “the determination of whether the experimental manipulation actually produced the differences observed in the dependent variable” (Dillon et. al. 1994, p. 184). External validity is applicable to the second goal and is defined as “the determination of whether the research findings of a study (cause-and-effect-relationships) can be generalised to and across populations of persons, settings, and times” (Dillon et. al. 1994, p. 184).

Extraneous factors pose threats to internal and external validity and need to be controlled for (Dillon et. al. 1994). However, a control for internal validity may endanger external validity and vice versa and therefore care needs to be taken when deciding upon the appropriate experimental design (Churchill 1999).

### 4.4.4 Extraneous Factors

To enable the effects of extension fit to be truly realised a high level of control over extraneous factors was needed (Dillon 1994). The before-after with control design allows control of a number of extraneous variables. Specifically, it accounts for history, maturation, main testing effect, statistical regression and instrument variation. Indeed, these influences should affect all groups equally and by simply measuring any differences between before and after in the control group and taking this into account in the experimental groups a clearer effect of extension fit can be shown. Churchill (1999) suggests that the extraneous factors that the before-after with control group design accounts for are:

**History** - specific events, external to the experiment but occurring at the same time that may affect evaluations of brand personality and the extension. For example, the introduction of a new extension at the same time that the experiment was being conducted may affect responses.



**Maturation** - refers to changes occurring within the respondents that are not due to the effect of the extension. For example, respondents may change their attitudes due to feeling tired or bored over the duration of the experiment or when filling out a questionnaire.

**Testing** - the actual process of experimentation itself may affect responses. For example, with a before-after with control design respondents may have the desire to be consistent with the measurements before and after the experimental stimulus is given to them. Also, when respondents have to report their attitudes they may fill out the questionnaire with the responses that they feel the interviewer is looking for.

**Instrument variation** - changes in measuring instruments may account for differences in measurements. As self administered questionnaires were chosen to collect the data instrument variation should not really be a problem. However, it is possible that minor variations in the administration of the questionnaires could take place as help in getting the questionnaire filled out was sought. For example, if respondents were given slightly different instructions when filling out the questionnaire their responses may be affected. However, this potential effect can be minimised by providing clear instructions for the administrators of the questionnaire.

**Statistical regression** - extreme cases of the items being measured may actually move closer to the average during the course of the experiment, due to them being monitored. For example, respondents may initially have extreme views of brand personality, but due to them being aware of being monitored they may alter their views and move closer to the average after the experiment.

Selection bias is in evidence when there is no way of certifying that the groups of test units were equivalent before being tested. It was eliminated with the before-after with control design due to the random assignment of individuals to groups. However, the before-after with control design does not account for experimental mortality, which is the loss of test units whilst the experiment is in progress (Churchill 1999; Malhotra 1999). With the before-after with control design it is possible that respondents might not fully complete the experiment. This can be controlled for by ensuring adequate administration procedures are followed. For example, with a questionnaire the

respondents can be told of the importance of the research or offered an incentive (see section 4.6.2).

#### 4.4.5 Types of Extension to be Manipulated

In order to test the hypotheses developed in Chapter 3 (see Section 3.3.1 & 3.3.2) extension fit needed to be manipulated. Firstly, one expert from Loughborough University in experimental design/export marketing and one from marketing, along with experts from the automobile industry (i.e. one brand and one marketing manager at Land Rover, and also two automobile industry experts from the Motor Industry Research Association) produced a list of potential extensions. It was decided that an ATV (All Terrain Vehicle) extension would possess good levels of fit and that an aftershave poor levels of fit. A pre-test was conducted to check that the two types of extension chosen for the study differed substantially in terms of extension fit. Twenty randomly selected subjects (in Loughborough town centre) who did not participate in the main experiment were asked to evaluate how well the extension (i.e. ATV or aftershave) fitted with the core brand. Ten subjects rated the ATV extension and ten subjects rated the aftershave extension. Each subject was only given one extension to evaluate as initial (and not compared) reactions to the extension were considered to give unbiased evaluations of extension fit. They were given the following instructions "If brand X was to introduce an ATV (or aftershave) what would your opinion be of..." They were then asked to rate each item on the fit scale (used in the questionnaire). When respondents were unclear what the new introductions were, a brief explanation of the ATV or aftershave was given to ensure subjects were indeed responding to the desired types of extension. The mean ratings did indeed indicate that the ATV had significantly ( $< 0.001$ ) better extension fit (mean=4.73) than the aftershave extension (mean=2.13)<sup>10</sup>.

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<sup>10</sup> It is acknowledged that by using the ATV and the aftershave extensions there may be a male focus to the research. However, this was not considered a particular problem as females may wish to buy both of these extensions (i.e. they may purchase aftershave for their partners). Therefore, both these types of extension are believed to be applicable to both males and females.

Since the manipulation of fit appeared to be successful it was decided to develop descriptions of both types of extension. The descriptions were developed with advice from researchers at Loughborough University and industry experts from the company being investigated so as to manipulate good and poor levels of fit. Care was taken not to make the extensions unrealistic. Firstly, the idea that the brand in question was considering introducing a new type of extension was introduced. This was then followed by a product description. Associations similar to that of the core brand were emphasised for the ATV. The aftershave extension had mostly associations similar to the core brand, but also a set of associations that did not fit with the core brand (i.e. mid-market and price range). The extensions then had a list of product features (see Appendix 4.2 & 4.3 for a description of the extensions). There was no picture of the extension made available as this may have primed consumer evaluations and confounded results, due to people responding purely to the picture rather than the theoretical idea of extending to a particular type of extension (Sperber et. al. 1979; Herr et. al. 1983; Pryor and Brodie 1998; Serra et. al. 1999).

## **4.5 PREPARATION**

### **4.5.1 Source of Data**

As noted above, the units of analysis (respondents) were executive MBA students. They were chosen for four main reasons. Firstly, the research tool could be administered in a controlled research setting and the responses gained at a given point in time. This was important to ensure control over when the questionnaires were completed. If questionnaires were mailed to respondents there could have been different time periods when they were completed which may have affected results. For example, the brand involved may have introduced an extension or advertising campaign during the time that it took some respondents to complete the questionnaire. Secondly, there was 157 potential MBA students available to complete the questionnaire which was regarded sufficient to enable the relevant statistical analysis to be undertaken (see Chapter 7). Thirdly, reasonably high response rates could be achieved due to the control over administering the research tool. Finally, executive MBA students also fitted the decision criteria of a potential market. A market is

defined as “an aggregate of people who as individuals or in organisations, have needs for products in a product class and who have the ability, willingness, and authority to purchase such products” (Dibb et. al. 1991, p. 66). Executive MBA students are business executives/managers who fit the brand’s customer profile and are individuals that have the ability, willingness and authority to purchase the motor vehicles that the brand sells. It should be noted that the executive MBA students are currently working towards a postgraduate degree. Other units of analysis were considered and include actual customers of the brand in question, people in the street, customers of competitor brands or undergraduate students. However, it would have been very hard to fully complete a controlled experiment if using customers of the brand, people in the street and customers of competitor brands as units of analysis as the responses gained needed to be given at a specific point in time. Also, considerable expense would be incurred by using these units of analysis. For these practical reasons these groups were not considered appropriate. Undergraduate students whilst being easier to control in the experimental situation may not have the ability to purchase the brand in question and therefore were considered less appropriate than executive MBA students.

A potential limitation of using MBA students as the units of analysis is that the sample may suffer from a lack of representiveness of the general population (Barrett et. al. 1999; Sheinin and Schmitt 1994) and the external validity of the experiment may be compromised (Sternthal et. al 1994). However, Calder et. al. (1981) have argued that when conducting theory application (i.e. using theory to explain events beyond the research setting) as opposed to effects application (i.e. effects obtained are expected to mirror findings in the real world) it’s the theoretical explanation that is expected to be generalisable and not the particular effects obtained. Therefore, student samples are more desirable when conducting theoretical research due to their homogeneous properties and the ability to falsify theory (Calder et. al. 1981). The executive MBA sample is ideal as it can be used to test the theory whilst also being representative of the target buying population due to MBA students being executives who fit into the definition of a potential market.

### **4.5.2 Data Collection Format**

Survey interviewing methods were chosen as the technique to collect the data. A survey describes the "methods of gathering information from a number of individuals in order to learn something about a larger target population" (Dillon et. al. 1994, p. 138). This involved the use of a structured questionnaire which individuals were asked to fill out. Self-administered surveys are considered to have a number of benefits. The advantages include wider distribution, better likelihood of thoughtful reply, no interviewer bias, central control and most importantly time and cost savings (Cavusgil and Elvey-Kirk 1998). The main disadvantages of using a self-administered questionnaire are low response rates and non-response bias (Faria et. al. 1990). It was anticipated that low response rates could be overcome by presenting self-administered questionnaires to MBA students at the beginning of their class for them to complete. As it is difficult to assess response bias for attitudinal data as no factual information exists to which the data can be compared (Mathews and Diamantopoulos 1995), primary attention was given to acquiring the support of the MBA students and by carefully designing an adequate research instrument. This method eliminates interviewer bias and yields better quality data to sensitive questions (i.e. opinions of the brand) and ensures that each respondent present receives a questionnaire (Dunning and Calahan 1973/4).

### **4.5.3 Sampling Plan Design**

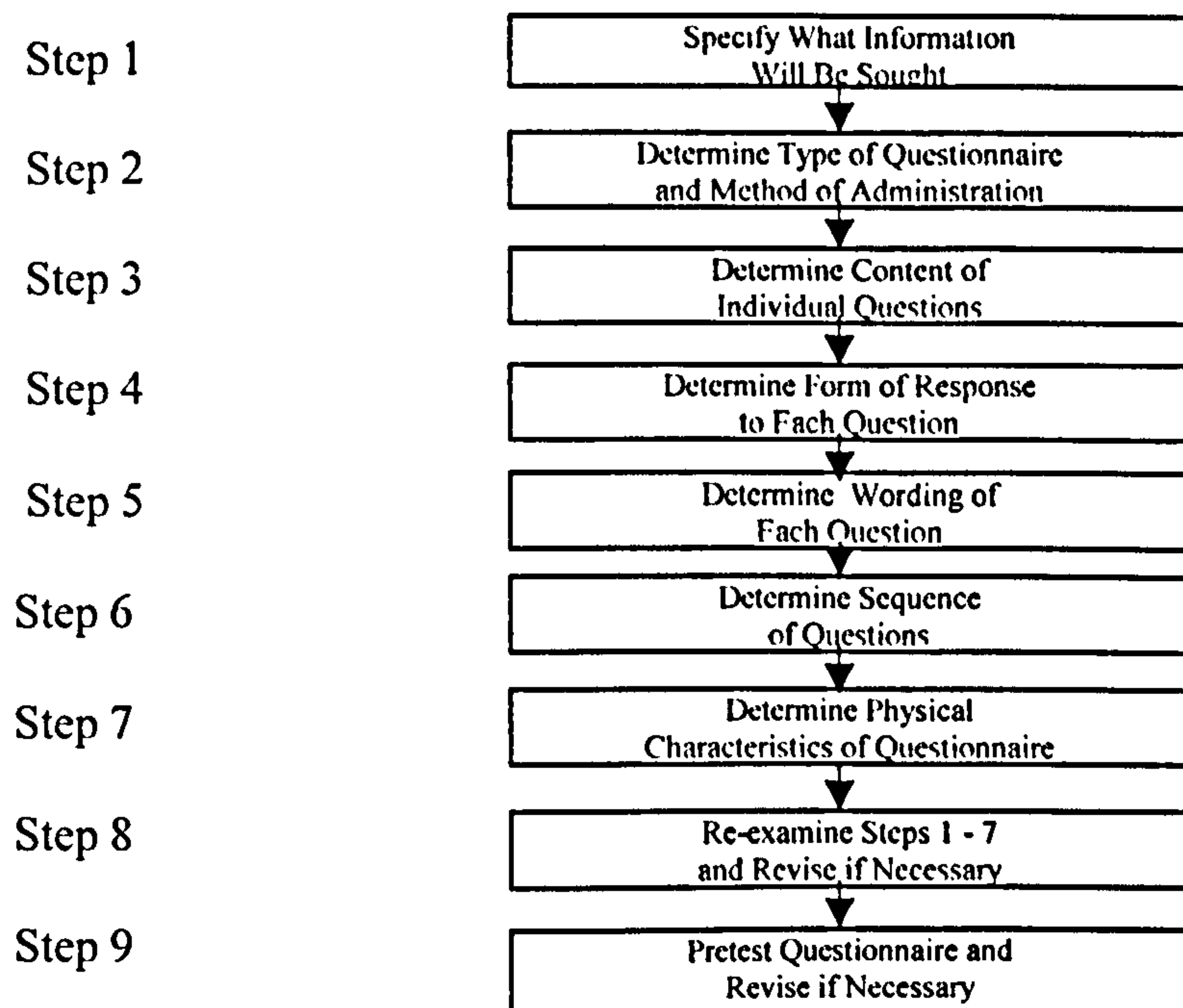
The first basic step in designing a sampling plan is to define who the target population is (Churchill 1999). The population in this research was considered to be very broad and was defined as any person in the UK who can form an opinion on the brand in question and who have the ability, willingness, and authority to purchase the brand under investigation. As previously discussed MBA students (Section 4.5.1) fitted these criteria. The sampling plan was primarily driven by the research objectives (Table 4.1). With the first two objectives seeking to assess the impact of extension fit on brand personality and extension evaluations, MBA students as a sample population were considered appropriate as they benefit from homogeneity (Sheinin and Schmitt 1994). The latter is useful when studying hypothetical situations as is the case in this

research (Lynch 1982). Therefore, given the conceptually driven nature of this research, the choice of sample appeared adequate (Calder et. al. 1981). Also, as the third (less important) sub-objective of this research was to test Aaker's (1997) brand personality scale for reliability, validity and dimensionality an MBA student sample was also deemed suitable as the brand personality scale to date has not received independent testing for this type of sample.

The set of inferential procedures known as parametric statistics used for hypothesis testing require a sufficient sample size to enable the techniques to work correctly as the procedures are susceptible to small sample problems. Furthermore, many inferential procedures make the assumption that the variables of interest are normally distributed (Diamantopoulos and Schlegelmilch 1997). As Malhotra (1999) has suggested that samples of 30 or more can be approximated by the normal distribution it was decided that the minimum required sample size was therefore 90 (i.e. minimum of 30 per experimental condition).

#### **4.5.4 Questionnaire Design**

The procedure suggested by Churchill (1999) for developing a questionnaire was utilised in the present study (Figure 4.3). Similar approaches are advocated by other authors in the methodological literature, for example, Tull and Hawkins (1993), Aaker et. al. (1997) and Malhotra (1999).

**Figure 4.3 - Procedure for Developing a Questionnaire.**

Source: Churchill, G. A. (1999)

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#### 4.5.4.1 Information Sought

Deciding what information will be sought was guided by the research objectives (see Chapter 1, Section 1.5) and the conceptual framework offered in Chapter 3. Furthermore, the hypotheses generated (Chapter 3, Section 3.3) not only guided the information sought but also in a large part determined the type of question and form of response used to collect it. Table 4.2 provides a list of the broad issues that were included in the measurement instrument.

**Table 4.2 - Issues To Be Included In the Measurement Instrument**

<b>Constructs</b>	<b>Information Requirements</b>
Brand Personality	Perceptions of specific personality traits, before and after an extension introduction
Competence	Competence perceptions of core brand (measured using BP before dimension – competence)
Fit	Suitability or appropriateness of different types of extension
Quality	Quality perceptions of the core brand and the extension
Consumer Knowledge	Levels of perceived knowledge of the core brand
Background Information	Classification variables including, occupation, sex, marital status, age academic qualification, hobbies and interests

#### **4.5.4.2 Type of Questionnaire and Method of Administration**

Given that the experimental design required a 'before' and 'after' measurement (see Figure 4.2) it was decided that two questionnaires were necessary. A single questionnaire was deemed inappropriate due to respondent fatigue and the potential for non-response to the second measurement of brand personality. For example, with only one questionnaire, respondents would have to complete the brand personality scale twice. With two questionnaires respondent fatigue was reduced thus increasing the chance of response. The first questionnaire was needed to initially measure brand personality, consumer knowledge, quality of the core brand and background information. The second questionnaire initially offered the experimental stimuli (i.e. ATV or aftershave). In the case of the control group, the experimental stimulus was obviously not provided. This was followed by respondent perceptions of brand personality, extension fit and extension quality for the two experimental groups; whilst the control group only measured respondent perceptions of brand personality.

The questionnaires in this study were distributed to MBA students at the beginning of their class and they were asked to fill them out immediately. This was done to ensure that all the respondents present would fill out the questionnaire rather than take it home and forget about it or take too long to fill it out. Asking respondents to



individually (without referring to other people) fill out the survey at a specific point in time also ensured that they indicated their individual feelings and attitudes. Furthermore, respondents would not be able to seek further information or consult others, which could have potentially affected their responses. The questionnaire was administered at the start rather than the end of the class to ensure respondents were attentive rather than fatigued.

As previously discussed (see Section 4.1) the type of data needed for this study was quantitative in nature and therefore required a structured questionnaire. Structure was essential as a high level of comparability between cases was needed to measure the effects of extension fit on brand personality and extension evaluations. Additionally, as relatively lengthy measurements of attitude were needed it was felt that a structured questionnaire would be the most appropriate. Finally, as the analysis of the before/after with control experimental design entailed the matching of the two questionnaires respondents needed to remember individual reference numbers so that they could indicate these on the second questionnaire.

#### **4.5.4.3 Content of Individual Questions**

The next step in the process is to determine the individual question content.

When deciding upon individual question contents, several questions have to be asked: 1) is the question necessary? 2) are several questions necessary rather than one? 3) do respondents have the necessary information? and 4) will respondents give the necessary information? (Churchill 1999; Malhotra 1999). For the present research question, item 4) was particularly important as false information could lead to erroneous results. The willingness of respondents to give the required information was vitally important to the success of the research. "Their willingness, in turn, seems to be a function of the amount of work involved in producing an answer, their ability to articulate an answer, and the sensitivity of the issue" (Churchill 1999, p. 339). It was anticipated that individuals would be able to complete the questionnaires within a maximum ten minutes, therefore, limiting the amount of work required. Additionally, the questions were designed to be easy to read, understand and answer. Finally, issue sensitivity was controlled for by limiting the number of sensitive questions (e.g.

potentially sensitive questions included age, academic qualifications and occupation) and by assigning a respondent number to each questionnaire rather than individual names to ensure anonymity. The question about age was also asked in the latter part of the questionnaire as suggested by Churchill (1999). To establish involvement and rapport Malhotra (1999) suggested that the researcher should ask neutral questions at the beginning of the questionnaire. However, the research issue was not deemed sufficiently sensitive or controversial to ask neutral questions; the length of the questionnaire also needed to be kept to a minimum.

The six main constructs identified in Table 4.2 were the basis for individual question content. Both questionnaires and the sets of questions associated with them are discussed in greater detail below (see Appendix 4.1, 4.2, 4.3 & 4.4) for the various versions of the questionnaire).

## **QUESTIONNAIRE 1**

All respondents completed the entire section of the first questionnaire.

### **Section 1: Brand Personality Measurement**

Section 1 of the questionnaire consisted of 41 personality traits derived from Aaker's (1997) brand personality scale (BPS). The traits were concerned with measuring brand personality (as defined in Chapter 2, Section 2.1.1) and related to the set of human characteristics which one associates with a brand. The 41 items covered five brand personality dimensions namely 'sincerity', 'excitement', 'competence', 'sophistication' and 'ruggedness'. The brand personality dimension 'competence' was used to assess evaluations of the brand's perceived competence levels before the extension introduction.

This section also included an introductory paragraph explaining what brand personality is, how to imagine the brand name in question and what was required from this section.

## **Section 2:**

### **Consumer Knowledge**

This section assessed consumer evaluations of knowledge of the brand examined. It included items that attempted to measure the level of familiarity and expertise that a respondent had with the brand.

Initially, familiarity was assessed by five questions that included ownership details, whether respondents were members of relevant 4 x 4 clubs and their awareness of other products under the brand name investigated. These factors contributed to the level of familiarity a respondent. They were adopted from previous familiarity scales and put into the context of the current research (e.g. Muthukrishnan and Weitz 1991; Roux and Boush 1996). These familiarity items were included in the questionnaire purely as validation measures for the knowledge scales.

The level of knowledge a respondent had not only requires familiarity but expertise. Operationalising these constructs are not straightforward (Spence and Brucks 1997). For this study the level of familiarity and expertise was assessed by a variety of knowledge measures that judged the number of product-related experiences accumulated by the respondent and their ability to perform product-related tasks successfully. This section had two scales, the most reliable of which would be used to assess the research hypotheses. By using two measures of knowledge, convergent validity could also be assessed by correlating the two measures. The first measure had eight statements, which, included respondent's perceived knowledge about the best products within the range; their ideas on the importance of product characteristics; their feelings on giving advice about the brand; their attitude towards gathering information about the brand; their perceptions on their levels of knowledge and expertise and whether they liked to repair and maintain the vehicles themselves. The items used to constitute this scale were kept as close to the original scale as possible. However, the scale was modified by inserting the name of the brand in question for a number of items (e.g. number 3, 4, 6, 7, 8, see Appendix 4.1). Also, a number of the original scale items were not included when they were not directly applicable to the current research (e.g. the item "I know how an internal combustion engine works" was

not included). The second measure attempted to assess a more general level of knowledge with a five item scale including respondents level of perceived knowledge, experience, how well informed, type of buyer and level of familiarity (None of these items were changed or modified in any way). The items used to assess knowledge were derived from a number of scales, which have been previously used and validated (e.g. Srinivasan 1987; Lichtenstein et. al. 1990; Muthukrishnan and Weitz 1991; Smith and Park 1992; Mishra et. al. 1993).

### **Quality of Core Brand**

This section assessed the quality that the respondent associated with the core brand.

This included eight items, which assessed the overall quality of the core brand. The items included perceived level of quality; likelihood to try; level of superiority; perception of price; level of technology; level of reliability; level of workmanship and level of dependability. The items that requested perception of price and level of technology were included following advice given from the automobile industry experts. The rest of the items used to assess core brand quality were derived from a number of scales, which have been previously used and validated and were not changed or modified in any way (e.g. Dodds et. al. 1991; Keller and Aaker 1992).

### **Section 3: Background Information**

Background information was collected in order to identify specific respondent characteristics that may have affected the results of the experiment. Other researchers have used similar characteristics (e.g. Leong et. al 1997). General information about the respondent was covered and included occupation, sex, marital status, age, highest academic qualification, approximate off-road usage and hobbies and interests (see Appendix 4.1).

## **QUESTIONNAIRE 2**

Respondents who were randomly assigned to the experimental groups completed the entire questionnaire, whilst those in the control group were given a reduced questionnaire that only included the brand personality measurement.

### **Section 1 - Experimental Stimulus**

The opening section offered the experimental manipulation of extension fit. As noted in Section 4.4.4 the pretest showed that ATV was perceived as having good fit, whilst the aftershave was perceived as having poor fit. This section consisted of a description of the proposed extension and a list of product features.

### **Section 2 - Brand Personality Measurement**

This section measured brand personality for the second time following the experimental stimulus. It contained exactly the same descriptions and items as in the first questionnaire.

### **Section 3 - Reactions to the Extension**

#### **Fit**

This section sought to gauge opinions regarding the proposed extension. Five items measured the 'fit' between the proposed extension and the brand. Fit is concerned with the suitability of the proposed extension (see Section 2.2.5). The items used were the perceived logic behind the extension; the appropriateness of the proposed extension; the level of fit between the extension and the core brand; the extremeness of the extension and the similarity between the extension and the core brand. The item asking perceptions of the extremeness of the extension was included in the scale as a result of the opinions of two experts in marketing research at Loughborough University. The rest of the items used to assess fit were derived from a number of scales, which have been previously used and validated and were not changed or

modified in any way (e.g. Consumer Behaviour Seminar 1987; Aaker and Keller 1990)<sup>11</sup>.

### **Quality of the Extension**

This includes the same items as in the quality of the core brand (see Appendix 4.2 & 4.3).

#### **4.5.4.4 Form of Response**

The researcher must decide upon the best form of response to questions. There are open-ended questions and closed-ended questions (Hague 1993). Open-ended questions are where respondents are free to reply in their own words rather than being influenced by pre-specified alternatives (Churchill 1999). Closed ended (itemised or fixed response) questions are where the respondent is set predetermined descriptions and is asked to select one that best describes his or her views (Dillon et. al. 1994).

There were a limited number of open-ended questions in the questionnaire. When measuring familiarity in section 2 of the first questionnaire, an open-ended question asking what other products the respondent was aware of was asked. There were also three open-ended questions in section 3 (background information) of the first questionnaire. The first was the occupation of the respondent; the second was the respondents age (in years) and the third was hobbies and interests of the respondent. Open-ended questions were kept to a minimum due to the potentially tedious coding

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<sup>11</sup> The fit construct evaluates respondents' attitude towards the pairing of the proposed extension and the brand. It investigates the degree to which this pairing is perceived as having a suitable or good fit, without restricting the basis that respondents are to establish fit. Thus, a scale that consisted of relatively few broad items was considered appropriate. As it was unclear what the nature of the determinants and bases of fit are, it is proposed to measure the perceptions of fit between the extension and the core brand in terms of a single construct. Thus, to avoid linking fit to any particular brand association it is conceptualised in a global sense. A number of other authors have also measured fit in a similar way (e.g. Boush and Loken 1991; Keller and Aaker 1992). It should be noted that it is respondents' reactions to the experimental stimulus (i.e. good and poor fit extensions) and not their evaluations of fit at the end of the experiment, which will effect brand personality and extension evaluations (i.e. the fit construct was introduced at the end of the questionnaire to check that its manipulation was adequate. See Appendix 4.2 and 4.3). The transfer of associations from the core brand to the extension are measured in this research in terms of consumer evaluations of the quality of the new extension.

and categorisation problems when preparing for analysis (Dillon et. al. 1994). Open-ended questions are also unsuited for self-administered questionnaires, as respondents tend to be briefer in writing than in speaking (Malhotra 1999). Due to the anonymity/confidentiality of the questionnaire it was thought that respondents would be more willing to provide honest answers to sensitive questions such as age (Aaker et. al. 1997).

Closed-ended questions are divided into three main types: Multiple choice/multichotomous questions; dichotomous questions; and scales (Churchill 1999; Malhotra 1999). In the present study the vast majority of questions were closed-ended questions. Hague (1994) suggests that closed questions have three main benefits to the researcher:

- (1) They save time during the interview as completing the questions simply involves circling numbers or ticking boxes.
- (2) They assist the respondent as they do not have to think about the reply options as this has already been carried out.
- (3) Data analysis is made easier as there is no requirement to code up a large number of open ended responses.

Malhotra (1999) and Aaker et. al. (1997) suggests additional benefits come in the form of less potential error because of the way questions are asked and responses recorded. Additionally, respondent answers are directly comparable which is essential as a pre-requisite to the use of any analytical methods (Aaker et. al. 1997).

In multi-choice questions, the researcher provides a list of answers and respondents are asked to select one or more of the alternatives given. The benefits of multi-choice questions are that they are relatively short, easy to answer and easy to analyse (Tull and Hawkins 1993). It has also been argued that respondent co-operation is also improved if the majority of questions are structured. The main drawback associated with multi-choice questions is the amount of effort required to design effective questions (Malhotra 1999). The questionnaire for this research used multi-choice questions (in section 3 of the first questionnaire) to find out information on marital

status, highest academic achievements and approximate off-road usage. The options provided were derived from general questionnaire formats that have been previously used (e.g. National Shoppers Survey). Care was taken to include all the relevant categories and the option 'other please indicate' was included (for the question 'highest academic qualification achieved') as it was unsure whether all the possible alternatives were covered (Malhotra 1999).

Dichotomous questions are those, which have only two response alternatives and are used when only two logical answers exist (Churchill 1999). Sometimes the two response alternatives are supplemented by a neutral alternative such as 'no opinion', or 'don't know' (Malhotra 1999). In the case of the questionnaire used in this research only 4 questions were of this type. In section 2 (of the first questionnaire) there were three dichotomous questions judging the familiarity of the brand in question. 'Yes' and 'no' options were included to answer questions on ownership of the brand, membership of relevant club and awareness of other products made by the brand. The fourth dichotomous question was in section 3 (of the first questionnaire) and asked respondent sex (i.e. male or female).

### **Scales**

There are many methods used to measure attitude and whilst self-reporting as a technique is extremely common, there is still wide variety in the way scales are constructed and used (Churchill 1999). "Scales are questions in which the limited choice of response has been chosen to measure an attitude, an intention or some aspect of the respondents behaviour" (Hague 1993, p. 55). They have the advantage of forcing a view from the respondent which, when combined with all the other responses enable comparisons to be made (Hague 1993).

Malhotra (1999) suggested that there is three commonly used itemised rating scales:

- (1) Likert Scale - respondents indicate the degree to which they agree or disagree with statements. Each scale typically has five response categories ranging from 'strongly disagree' to 'strongly agree'.
- (2) Semantic differential scale - is usually a seven point rating scale with end



points associated with bipolar labels (e.g. good - bad) that secure peoples reactions to objects of interest.

- (3) Staple Scale - is a unipolar rating scale that consists of a single adjective in the middle of an even-numbered range of values.

The questionnaire in this research used a mixture of Likert-type and semantic differential scales. The advantages of these type of scales are that they are easy to construct, administer and understand (by respondents) as there is only one, uniform set of response categories and respondents have no problems finding opposite terms in the scale (Luck and Rubin 1987). There is also continuity because of the use of the same scale responses, which make the questionnaire easier to respond to. The brand personality scale used had 42 items, which were scored on 5-point semantic differential scales ranging from *not at all descriptive* (1) to *extremely descriptive* (5) for the rating of the brand in question. The consumer knowledge measures had a mixture of (a) a seven-item, seven-point Likert-type scale, plus a single-item, seven-point semantic differential scale assessing a consumer's perceived knowledge of the products made by the brand being considered and the brand evaluation in general. Also included was a five-item, seven-point semantic differential scale assessing a consumer's perceived knowledge of the brand. Consumer attitude towards the core brand and extension quality was assessed on an eight-item, seven-point semantic differential scale. A five-item, seven-point semantic differential scale was used to measure a person's attitude towards the suitability of an extension being introduced by the brand.

The researcher must take into account six major decisions when constructing scales. Malhotra (1999) suggests that these are:

- (1) The number of scale categories to use - 5 scale categories were used for the brand personality scale (the same as Aaker 1997) and 7 scale categories for the rest of the scales. Both of these fall into the general guidelines of between 5 and 9 categories as advised by Malhotra (1999).

- (2) **Balanced versus unbalanced scale** - a balanced scale (where the number of favourable and unfavourable categories are equal) was chosen for all the items included in the questionnaire in order to obtain objective data. Aaker et. al. (1997) also suggests that balanced scales produce more meaningful results than unbalanced scales.
- (3) **Odd or even number of categories** - an odd number of categories were chosen throughout the questionnaires to include a neutral point in the scales (DeVellis 1991). Previous scales had also used odd categories (e.g. Srinivasan 1987; Lichtenstein et. al. 1990; Muthukrishnan and Weitz 1991; Smith and Park 1992; Mishra et. al. 1993).
- (4) **Forced versus nonforced choice** - a forced rating scale was used in the questionnaire as it was assumed that respondents would be sufficiently aware of the brand in question to form an opinion on it.
- (5) **The nature and degree of verbal description** - following previous scale descriptions (e.g. Dodds et. al. 1991; Keller and Aaker 1992) it was decided to label just the anchors as verbal descriptions of each category may not improve the accuracy or reliability of the data and could have potentially confused respondents and cluttered the questionnaire (e.g. for brand personality – 1 = not at all descriptive and 5 = extremely descriptive).
- (6) **Physical form of scale** - following previous scale descriptions (e.g. Aaker 1997) it was decided to keep the scales as similar to the ones already developed and also to present them in a simple and easy to understand layout to aid ease of completion.

The type of questions asked should also be tailored to the specific information needs of the project (Luck and Rubin 1987; Churchill 1999). The type of data collected determines the type of analysis techniques used. Metric data (i.e. interval or ratio) was needed in order to ensure that parametric statistics could be carried out (Diamantopoulos and Schlegelmilch 1997). A major problem is that the level of

(Diamantopoulos and Schlegelmilch 1997). A major problem is that the level of measurement is not always clear. If adopting the "pragmatic" view (i.e. what sense does it make to ignore powerful methods of analysis just because there is no way of proving the claimed scale properties of the measure (Nunnally and Bernstein 1994)) the scales in this research would be treated as interval, but, if following the "purist" or "representational" view (i.e. scales that are not truly interval should not use parametric methods (Nunnally and Bernstein 1994)) the scales should be treated as ordinal (Diamantopoulos and Schlegelmilch 1997). The highest level of measurement possible was desired (Malhotra 1999). Although there is controversy in this area the pragmatic view was followed to enable the desired analysis to be completed. The scales developed to assess the major constructs identified in Chapter 3 were assumed to be interval (Diamantopoulos and Schlegelmilch 1997; Malhotra 1999). In this context, it is suggested "to appropriately number the response alternatives on the scale so as to communicate to the respondent that the intervals between the scale points are intended to be of equal distance" (Diamantopoulos and Schlegelmilch 1997, p. 30). The above guidelines were followed in this research. Chapter 5 provides a detailed description of the scale development procedures followed.

#### **4.5.4.5 Question Wording**

The next step when developing a questionnaire is to determine the exact wording for questions. In this research, the questionnaire was the interface between the researcher and the respondent. When questions are worded poorly, respondents may refuse to answer, or, answer incorrectly (Malhotra 1999). The first condition is known as 'item non-response' and can create problems when analysing the data. Incorrect answers produce measurement error, where, the recorded score does not equal the true score of the respondent (Churchill 1999). There are no hard and fast rules when determining the exact question wording, however, most researchers offer a number of guidelines to help avoid mistakes (Luck and Rubin 1987; Hague 1993; Churchill 1999; Malhotra 1999). Question wording needs to be simple and easily understood by all respondents, regardless of their education level (Luck and Rubin 1987). Given that the questionnaire was mainly constructed from previous empirical studies it was believed that the language used would be understood. Pre-testing would also check potential

difficult words or phrases. An effort was made to ensure that all questions provided a consistent frame of reference (Churchill 1999) for each respondent and that potential ambiguous questions would be changed or altered. An attempt was made to avoid leading questions, double barrelled questions, questions involving implicit alternatives, assumptions or generalisations (Hague 1993; Churchill 1999; Malhotra 1999). It was decided to make the questions as brief as possible, as long questions can deter respondent interest (Hague 1993). However, some questions were longer in order to improve their clarity and to avoid ambiguity. To help respondents with the understanding and completion of the questionnaire, the instructions were kept short and standard throughout. Malhotra (1999) suggests that questions should be positively and negatively phrased as evidence indicates that responses may be influenced by the direction of the statements. However, this type of bias has not always been shown to be a problem with high involvement products (i.e. such as the brand considered in this research) and the safer route may be to avoid negatively worded questions (Garg 1996). Additionally, problems have been found to be associated with questions that are both positively and negatively phrased (DeVellis 1991). The reversal of item polarity may be confusing to respondents, especially when completing long questionnaires and respondents may even give incorrect responses (DeVellis 1991). Therefore, only one negatively worded question was included in the questionnaire. In section 3 of the second questionnaire the polarity of the fourth item was reversed and was presented as “Not an extreme new product introduction \*\* 1 2 3 4 5 6 7 Very extreme new product introduction for \*\*”. It was used to check that the respondents were filling the questions out correctly.

#### **4.5.4.6 Question Sequence**

Once the questions had been decided upon, they needed to be put together to form a questionnaire. Although there are no hard and fast rules, the guidelines offered by a number of researchers were followed and the major issues are discussed below (e.g. Burns and Bush 1995; Aaker et. al. 1997; Chisnall 1997; Churchill 1999; Malhotra 1999).

The questions in the present questionnaire were arranged in logical sets (also referred to as the sections approach) (e.g. Burns and Bush 1995; Malhotra 1999). The objectives and specific design of the study helped to define the main sections. For example, brand personality had to be measured initially in order to obtain data that was not effected by respondents having reacted to the experimental stimuli. This prevents order bias (i.e. the possibility that questions will influence answers to subsequent questions) occurring, which can be a problem in self-administered questionnaires (Aaker et. al. 1997). The brand personality section was not considered particularly difficult, suspicious or threatening in any way as it asked respondents opinions and attitudes towards the brand in question. Therefore, it followed the guideline of being relatively interesting to respondents and easy to answer (Chisnall 1997; Churchill 1999). Next, it was considered essential to ask questions on consumer knowledge. Had the experimental stimulus been presented before these questions then consumers' knowledge may have been affected. Subsequently, it seemed logical to ask questions on the quality of the core brand before the questionnaire was finished off with background characteristics. The latter were introduced in the last section of the first questionnaire as it has been suggested that classification information should be asked in the final part of the questionnaire (Churchill 1999). Sensitive questions such as age were also put into this section.

The before/after with control research design (see Section 4.4.3) meant that the opening section of second questionnaire had to introduce the experimental stimulus (i.e. the type of extension). For example, it would be no use asking questions on brand personality before the experimental stimulus as respondents' attitudes and opinions would not have changed. The experimental stimulus was designed to be easy to understand by providing a concise description of the extension and a list of its features (see Section 1, Appendix 4.2 & 4.3). Directly following the experimental stimulus was the second brand personality measurement. This was placed after the experimental stimulus to enable a comparison of brand personalities before and after exposure to the extension. The final section then asked the questions on fit and quality of the extension.

#### 4.5.4.7 Physical Characteristics of the Questionnaire

This is the final stage in the development of the questionnaire (Churchill 1999). The physical appearance and layout of the questionnaire is critically important (Malhotra 1999). The design of the physical characteristics of the questionnaire should make the tasks of the interviewer and the respondent as easy as possible (Luck and Rubin 1987). This is especially important in self-administered questionnaires as respondents are not usually as interested and motivated to do a good job than with an interviewer administered questionnaire (Luck and Rubin 1987).

It has been shown slightly different layouts can produce differing results, due to respondents putting their answers in the wrong boxes (Mayer and Piper 1982). Care was taken to produce questionnaires that were clear, concise, easy to understand and easy to follow. There was sufficient space provided between questions and sections to prevent the questionnaire becoming cluttered. The instructions for the questions and the scales were kept simple and were shaded in order to make them stand out. For example, "Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements (1 = strongly disagree, 7 strongly agree)". The paper reproduction and typography of the questionnaires was of good quality (Luck and Rubin 1987). The questionnaire was relatively short in length (i.e. five pages for questionnaire 1, four pages for questionnaire 2) thus, it was not considered necessary to try and make it look as short and as small as possible. The front page gave a brief explanation of the questionnaire and emphasised that it should not take more than ten minutes to fill in.

The scales were not numbered in order to prevent a cluttering of the questionnaire, which, could have deterred respondents from it. However, individual questions were numbered in their relevant sections following Malhotra's (1999) suggestion. This can make the questions easier to fill in, edit, code and tabulate (Churchill 1999).

In securing an individual's co-operation to complete a questionnaire the introduction to the research can affect its acceptance (Churchill 1999). As the researcher and other administrators at specific MBA classes gave out the questionnaires it was necessary for a verbal introduction to the questionnaire. This included details of the research,

length of questionnaire and administrative requirements (see Appendix 4.7 & 4.8). To lend credibility to the study the name and address of researcher and the Loughborough University logo were presented on the cover page of the questionnaire.

#### **4.5.4.8 Re-examine and Revise Steps**

The questionnaire was re-examined once the first draft had been developed. Each question was reviewed to ensure it was not ambiguous, offensive, leading or bias inducing (Churchill 1999). The questions were required to be easy to answer and not confusing. Layout and structure were thoroughly checked to ensure ease of completion and that the specific data requirements would be met. The final version of the questionnaire was then ready for pretesting.

#### **4.5.4.9 Questionnaire Pretesting**

An essential part of the questionnaire development process was pretesting (Reynolds and Diamantopoulos 1998). Pretesting was carried out after the researcher had developed the initial questionnaire, but before the questionnaire was used in the main survey. "Pretesting is the stage in the development of a questionnaire that determines the potential effectiveness of the questionnaire" (Reynolds et. al. 1993, p. 171). It is considered vitally important to pretest novel research projects (Peterson 1988). The present research was attempting to cover a gap in the existing literature by empirically investigating the effects extension fit had upon brand personality and extension evaluations. The pretest was carried out on a small set of (i.e. 19) respondents with the aim of identifying and eliminating problems (Malhotra 1999). It is generally agreed that a questionnaire should not be used in a field survey without adequate pretesting of the instrument (Churchill 1999; Malhotra 1999; Reynolds and Diamantopoulos 1998).

There are five fundamental issues in pretesting (Hunt et. al. 1982):

(1) What specific items should be pretested?

The items that should be pretested can be about the questionnaire itself, about specific questions, or, items about data analysis. A number of items to be pretested were considered. The time taken to complete the two questionnaires was required to be

quite short (i.e. no longer than ten minutes for each questionnaire). The layout had to be simple, easy to follow and easy to complete. Individual questions needed checking for understanding of terminology, ambiguous or leading questions.

(2) What method should be used to conduct the pretest?

There are three common methods of pretesting administration including personal interviews, telephone interviews and mail self-reports. A number of authors have recommended personal interviews over the planned field survey (e.g. Peterson 1988; Aaker et. al. 1997) and these were chosen as the method to conduct the pretest. The pilot study (i.e. a small-scale test of the medium to be employed in the main study) was skipped as it could have adversely affected (invalidated) the final experiment due to the small sample size (Diamantopoulos et. al 1994).

(3) Who should do the pretesting?

It has been recommended that both experienced and new interviewers should be employed to carry out the pretest (Malhotra 1999). Due to time and cost considerations the researcher conducted all the interviews.

(4) Who should be the subjects in the pretest?

It has been recommended that respondents who are as similar to the target population as possible should be used (Churchill 1999). Also, familiarity with questionnaire design is a more important variable when detecting errors than that of knowledge of the subject matter and thus, using 'expert' pretest respondents is the recommended strategy for detecting errors (Diamantopoulos et. al. 1994).

In this research the questionnaire was firstly pretested by 'experts' and secondly by 'non experts' to enable a wider detection of errors. Diamantopoulos et. al. (1994) suggested that the distinction between expert and non-expert groups is whether or not pretest respondents familiar with questionnaire design principles.

(5) How large a sample is needed for the pretest?

Finally, the size of the pretest sample should be a function of the instrument and the target population (i.e. when the instrument is very long and complex a bigger sample



may be needed). It was decided to pretest the questionnaire on ten 'experts' and ten 'non-experts'. These relatively small numbers were considered acceptable bearing in mind the questionnaires were quite short in length and also due to the scales being previously validated in other research settings.

It has been recognised there are two procedures for determining respondents' reactions to the questionnaire. The debriefing method is where the respondents are asked to fully complete the questionnaire, while the interviewer makes careful observations; and the protocol method is where the respondent is asked to think aloud whilst he/she is answering each question (Hunt et. al 1982; Diamantopoulos et. al. 1994; Malhotra 1999).

### **Expert Pretest**

The final instrument was presented to ten experts, nine of which agreed to pretest the questionnaire. The majority of respondents were either university lecturers, professors or researchers who had used questionnaires as part of their own previous research. Three of the respondents' chosen were from the automobile industry. The reason why both academic and industry experts were chosen is that industry experts were assumed to have a more in-depth knowledge about the subject area, but less knowledge about questionnaire design. The academic experts were assumed to have a more in-depth knowledge about questionnaire design, whilst also having knowledge on the subject area. The pretests were carried out between October and November 1998.

The expert pretest was carried out by using a mixture of protocol and debriefing procedures. Interviewer discretion was used to ensure that the most appropriate procedure was followed. For example, when the interviewer believed it was necessary to interrupt the expert when he/she was filling out the questionnaire (to find out their opinions) this was considered acceptable. However, if the respondents were moving through the questionnaire quickly then the debriefing method would be more appropriate. The debriefing procedure was used for the respondents from industry as they did not have a specific time when they could complete the questionnaire. Thus,

meetings were arranged at suitable times to the interviewer and interviewee, when debriefing could occur.

Of particular interest in the expert pretest was questionnaire length, questionnaire layout, terminology used, question structure, space, additions and wording. The pretest highlighted a number of issues that required consideration. Specifically, it was suggested that the layout had too many details in how to complete the questionnaire. It was advised that the brand personality traits should be mixed up as they were together in their particular dimensions. Additionally, it was suggested that the questions could be numbered. The meaning of a number of terms was also questioned as was the wording/phrasing of particular questions. To sum up, the expert pretest offered a number of observations. For a more detailed analysis of the expert pretest see Appendix 4.5.

### **Non-expert Pretest**

The recommended changes were implemented into the next questionnaire following the experts' pretest. This revised questionnaire was then further pretested on a convenience sample of ten non-experts all of whom completed the two questionnaires over a two-week period in November 1998. The respondents in this pretest had no prior expertise with questionnaire design and had no specific contact with the automobile industry. The respondents were from a wide variety of backgrounds, ranging from undergraduate students to supermarket workers, and from engineers to care assistants. They were all familiar with the brand name in question. As in the expert pretest, non-experts were pretested by using a mixture of protocol and debriefing procedures. Initially, a variation of the protocol method was used. Respondents were asked to think aloud only when a particular question was difficult to understand or unclear. However, when the respondents had finished the questionnaire they were debriefed. Debriefing included asking questions on the length, layout, terminology and question structure of the new instrument. The results suggested that the questionnaire had been greatly improved in terms of layout and flow. However it was recommended that the brand personality trait 'Western' be dropped from the scale due to its ambiguity. For a more detailed analysis of the non-expert pretest see Appendix 4.6.

## 4.6 IMPLEMENTATION OF FIELDWORK

### 4.6.1 Interviewer Instruction/ Schedule and Conduct Interviews

Before the data was collected it was necessary to gain the help of the lecturers of MBA classes. Their help was vital in ensuring that executive MBA students completed the questionnaires. They were also required to help with the administration of the questionnaires. Pre-contact was made with the lecturers (see section 4.7.1) and their help enlisted. In this study, the researcher provided all the necessary details that the lecturer would require. These included the nature of the study, the dates and scheduling of the survey and requirements for its administration.

Nature of the study - lecturers were contacted via telephone or face-to-face where their help was enlisted and specific details of the nature of the study were given. An email was also sent to these people thanking them for agreeing to help, providing written details of the research and its administration.

Dates and scheduling of the survey - the data was to be collected between the 16 November 1998 and the 27 November 1998. This was an 11-day period that enabled administration of the two questionnaires. An extra week slot was also accounted for, (30 November 1998 - 4 December 1998) in case extra responses were needed. For example, respondents absent in the first week completed the questionnaire in the second week and may have needed to be contacted in the third week for completion of the second questionnaire. Lecturers were asked if the questionnaires could be completed at the beginning of each class. This was done to ensure respondents would give good attention to the questionnaire and to ensure maximum completion. Specifically, respondents filled out the first and second questionnaires with a one week gap. The 11-day period was allotted as MBA classes took place on different days. A one week period was considered appropriate as it gave respondents enough time to forget their initial ratings of brand personality (i.e. so that respondents do not just repeat initial ratings), but was sufficiently short to control for extraneous influences (i.e. such as the introduction of an actual extension or new advertising campaign).

Requirements for administration - there was a number of instructions that interviewers were required to present to respondents before the questionnaire was completed. The instructions highlighted the anonymity of the survey; the importance for the completion of the PhD; the sponsorship of the university institution; that respondents individual opinions and attitudes were required; the fact that there were no right or wrong answers; that reference numbers needed to be remembered and written on the second questionnaire; finally, they were asked to complete all questions and scales as fully as possible (see Appendix 4.7 & 4.8 for a copy of the script indicating requirements).

#### **4.6.2 Ensuring High Response Rates**

Optimising, response rates are of primary importance to researchers (Yu and Cooper 1983). Distribution and collecting completed questionnaires from respondents increased the chance of high response rates. This method is low cost when the respondents complete the questionnaire at the same location. However, consideration still needs to be given to ensuring high response rates. When using the self-administered questionnaire there is some disagreement regarding the effects of various factors on response rates (Faria et. al. 1990). Nevertheless, a consensus of literature offers a number of guidelines, which are believed to increase mail response rates (e.g. Harvey 1987; Fox et. al, 1988; Jobber and Saunders 1989; Diamantopoulos and Schlegelmilch 1996). The guidelines offered by these studies were applied to the current research using personal discretion and common sense (e.g. the administration of the questionnaire required the lecturers involved with the MBA students to be pre-notified). The following section addresses the main factors that have been found to increase response rates.

Incentives or Rewards - response rates can be improved by offering some kind of incentive or reward (Yu and Cooper 1983; Harvey 1987; Jobber and Saunders 1989). However Church (1993) suggested that only pre-paid monetary or non-monetary rewards had a positive impact on response rates. Monetary or non-monetary rewards that were conditional upon respondents returning the survey had no significant impact on response rates. Improving response rates by offering monetary or non-monetary

incentives to respondents were not considered for this research. It was assumed that sufficient numbers would be gained without having to offer incentives. However, due to the procedure used (i.e. taking the questionnaires to the respondents) it was deemed sensible to ask the sample units who did not complete the first questionnaire (in the first week) due to absenteeism, to complete it in the second week. This would ensure that if sufficient numbers (i.e. 90 responses) were not gained over the initial two-week period, then data collection could be carried out in a third week. This would provide the extra responses needed. In hindsight, this procedure was not needed as there were enough responses gained over the two-week period. Nevertheless, it served as a valuable contingency plan if there was a lack of responses.

Pre-notification - is the act of notifying potential sample members that a survey is to take place and to ask for their co-operation to complete it. Pre-notification has been used to boost response rates (Murphy et. al. 1991; Churchill 1999). The more contacts that are made with potential respondents the higher the expected response rate (Harvey 1987; Jobber and Saunders 1989). Also, when advance warning of the research is given the less likely respondents will discard the questionnaire when it arrives and thus the expected response rate will increase. However, Taylor and Lynn (1998) suggest that preliminary notification may elicit faster response rates, but, prior warning would have no effect on the overall response rate. Similarly, Schlegelmilch and Diamantopoulos (1991) have reviewed a number of studies where pre-notification failed to elicit a higher response rate. Disturbingly, Jobber and Sanderson (1983) proposed that a prior letter might actually depress response rates. Faria et. al. (1990) found that a higher response rate was achieved with a letter pre-notification than with no pre-notification. However, telephone pre-notification was not found to significantly increase response rates. As data collection for the present research was carried out when the sampling units were grouped together at specific times, there was no need for preliminary notification letters. However, it was considered important to secure the support and co-operation of the lecturers of the sampling units (as mentioned above). This was achieved via face to face meetings or telephone conversations. An email was also sent to all of the lecturers concerned asking for their co-operation. Details were given concerning the type of research, the number and length of questionnaires and the required administration of the questionnaires.

Personal contact was also made with respondents immediately prior to the distribution of the questionnaires. This enables the researcher to be identified by the respondents and visa versa and to be able to discuss the nature of the study and request co-operation (Schlegelmilch and Diamantopoulos 1991). Personal contact can also improve item non-response (Schlegelmilch and Diamantopoulos 1991). In this research respondents were asked "to try and complete every question, as this was essential to the success of the research".

Follow-up procedures - using follow-ups to non-respondents can be effective in increasing response rates (Jobber 1984; Cavusgil and Elvy-Kirk 1998). In the present research members of the sample who were absent when the first questionnaires were completed were asked to fill out the first questionnaire in the second week. No other types of follow-up were deemed necessary.

Questionnaire colour - does not appear to increase response rates (Jobber and Sanderson 1983; Diamantopoulos and Schlegelmilch 1996; Malhotra 1999). Buttle and Thomas (1997) mailed half their questionnaires on pastel yellow paper and half on white paper. The response rates were similar at 28% for the yellow questionnaires and 29% for the white questionnaires. The chi-square test for significance found no significant difference between the response rates. Thus, for this research it was decided to use standard white paper.

Foot-in-the-door techniques - Yu and Cooper (1983) suggest that the foot-in-the-door technique could be used to increase response rates. The supervisor of the project, helped to provide the 'foot-in-the-door' by gaining permission (from the relevant lecturers) to allow the researcher to approach and administer the questionnaires to MBA students.

Personalisation - can also facilitate response rates (Yu and Cooper 1983; Harvey 1987). In this research personalisation was limited due to the anonymity for the respondents. However, some personalisation techniques were used, whereby, the researcher personally handed out the questionnaires to the respondents. The researcher also made himself available for questions and queries at the interval (break) between classes.

Type of sponsor - university sponsorship and using university samples have been shown to increase response rates (Heberlein and Baumgartner 1981). The results of a study on response behaviour by Cavusgil and Elvy-Kirk (1998) showed that when the researcher is conducting a survey with public university sponsorship he/she should appeal to respondents' social utility. Appealing to one's social utility is done by providing evidence that society as a whole will be bettered by the research. The current research followed the above guidelines. The sampling units (executive MBA students) were persuaded to respond with the social utility appeal. For example, they were told that their responses were invaluable to (a) furthering the theory in this area, and (b) enabling the researcher to successfully complete his project. Suggesting that respondents' opinions were extremely valuable also satisfied the students' 'egoistic' appeal. Emphasising that PhD completion was dependent upon their responses also satisfied their 'altruistic' appeal. The university logo was also used on the questionnaire to indicate university sponsorship.

Anonymity - high mail survey response can be achieved without using individual names (Dillman et. al. 1993). Providing anonymity appears to increase response rates and can also help item non-response (Jobber and Saunders 1989; Diamantopoulos and Schlegelmilch 1996). Anonymity was provided primarily to increase respondent co-operation.

Questionnaire Attributes - "Practically all aspects of the questionnaire itself (e.g. content, length and format) are perceived to affect the probability of response" (Diamantopoulos and Schlegelmilch 1996, p. 520). The questionnaire needs to be respondent friendly and this was achieved paying particular attention to questionnaire development and questionnaire pretesting (see section 4.5.4).

### **4.6.3 Actual Response Rates**

Response rate is broadly defined "as the percentage of the total attempted interviews that are completed" (Malhotra 1999, p. 192). However, there is a lack of agreement about the correct definition of response rates and how they should be calculated and/or interpreted. Wiseman and Billington (1984) suggested that the following definition by

the Council of American Survey Research Organisations (CASRO) should be used as a standard definition.

$$\frac{\text{Number of completed interviews with responding units}}{\text{Number of eligible responding units in the sample}}$$

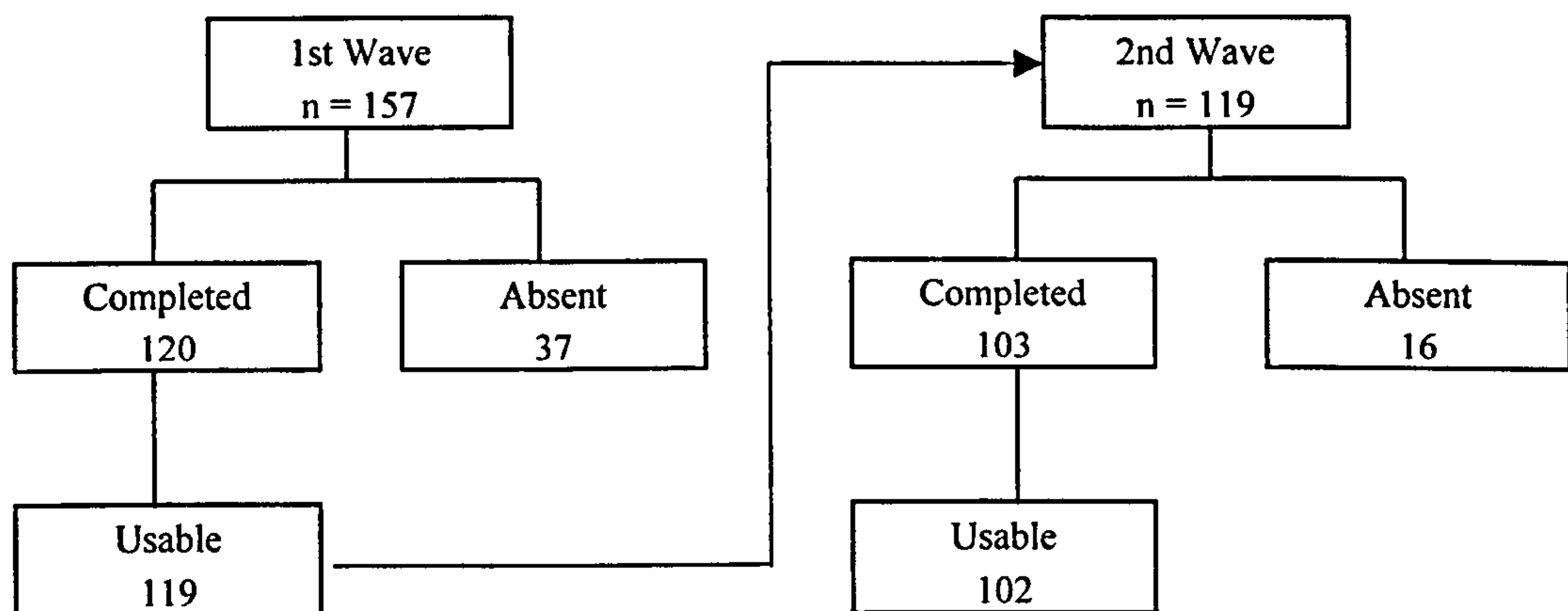
With this definition “the key requirement in accurately calculating the response rate is properly handling eligibles” (Churchill 1999, p. 583). For this research eligible respondents were defined as those capable of giving an opinion on the brand in question. Thus, it was assumed that the whole sample would be capable of providing opinions.

Response rates were calculated using the CASRO definition. The following response rates were obtained:

First wave of questionnaires -	$\frac{119}{157} = 75.8\%$
Second wave of questionnaires -	$\frac{103}{119} = 86.5\%$
Overall - matched questionnaires -	$\frac{102}{119} = 85.7\%$

A response rate of 75.8% was gained from the first set of questionnaires. Non-respondents came under only one category, namely, absent from class. Given that responses were only useful when they could be matched (i.e. the same respondent fills out a first and second wave questionnaire), a total of 119 eligible sample units could potentially complete the second questionnaire (for summaries of response analysis see Figure 4.4). A total of 103 responses were gained from the second wave, which gave a response rate of 86.5%. The overall matched response rate was 85.7%, all of which were fully usable. Given that questionnaires needed to be matched, the response rates that were achieved were considered to be relatively high.



**Figure 4.4 - Summary of Response Analysis of Survey**

#### 4.6.4 Non-response Bias

The quality of self-report data has been a major concern for researchers relying on questionnaires (Mathews and Diamantopoulos 1995). Furthermore, this quality is affected by non-response (Yu and Cooper 1983). Low response rates limit the effectiveness of mail surveys by the potential bias that they bring about (Faria et. al. 1990).

Non-response bias is referred to as "inaccuracy in sample estimates" (Yu and Cooper 1983, p. 36); or, where, "excluded respondents may be significantly different from the ones included in the data analysis" (Parasuraman 1982, p. 267). It is caused when the sample size is too small and when missing member responses would have affected the conclusions about the variables of interest (Yu and Cooper 1983).

Non-response can be restricted by (a) estimating non-response bias or by sampling non-respondents, and (b) minimising non-response in the beginning by careful design and execution of the survey (Yu and Cooper 1983).

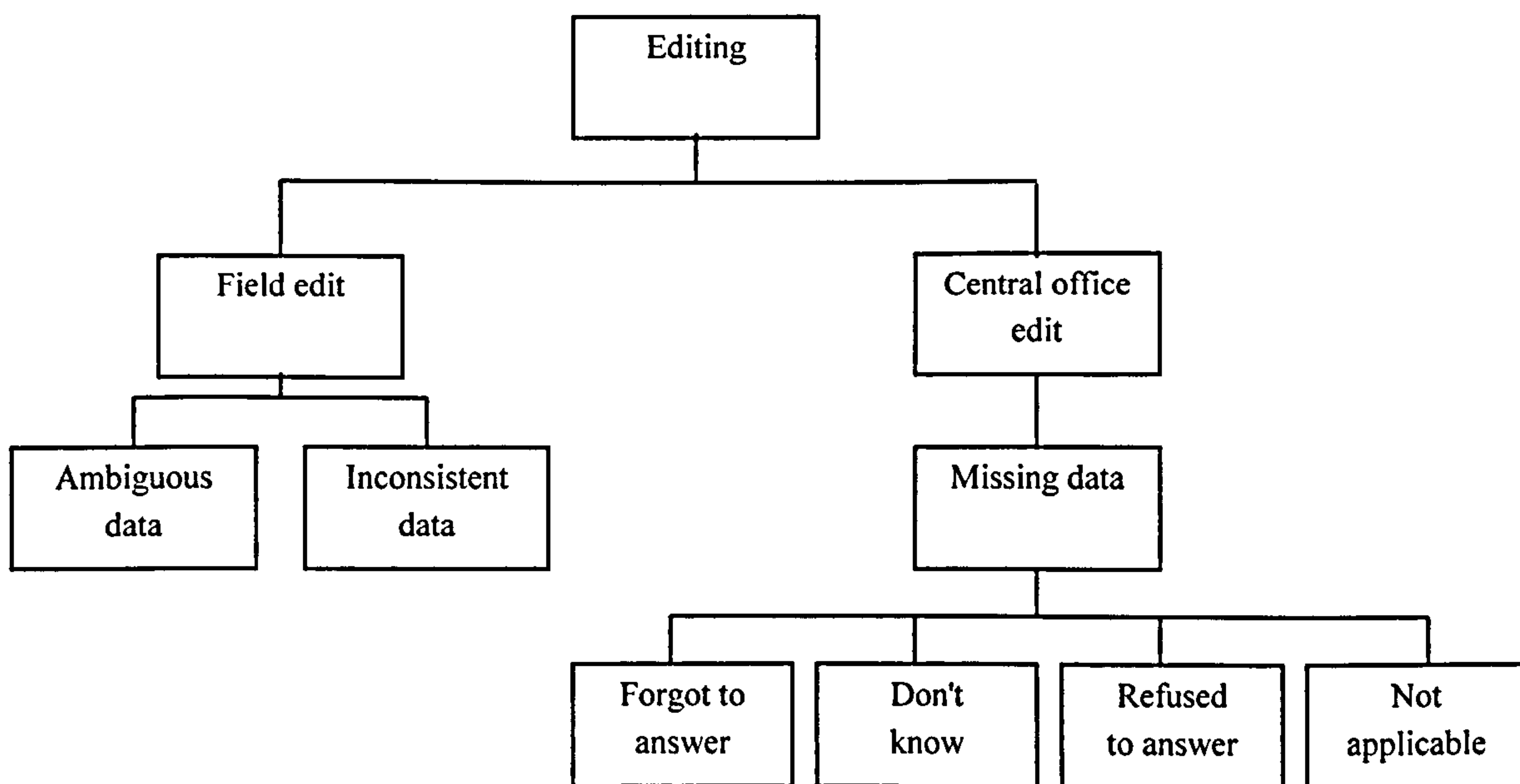
For this research response bias was not considered a major problem as all the respondents present at the MBA class filled out the questionnaire and high response rates were achieved.

## 4.7 PROCESS THE DATA

### 4.7.1 Editing

Once the data has been collected it needed to be checked to ensure that the responses were complete and consistent with the instructions that were given. This process is referred to as editing (Churchill 1999). In this research the main objective of editing was that of increasing the accuracy and precision of the questionnaires that had been completed (Malhotra 1999). There are two main tasks involved with editing, namely, the field edit and the central office edit (Churchill 1999). There are several tasks that need completing when editing as shown in Figure 4.4 (Diamantopoulos and Schlegelmilch 1997).

**Figure 4.5 - Main Editing Tasks**



Source: Diamantopoulos and Schlegelmilch (1997)

Diamantopoulos and Schlegelmilch (1997) suggest that the field edit is concerned with controlling the interviewer. The latter was not considered necessary for this research as the method of data collection was a self-administered survey. However, there were administrators (i.e. lecturers) of the questionnaire/s who were given the task of distributing the questionnaire. These administrators were given direct

instructions when collecting responses (see section 4.5.1). They were also debriefed immediately following data collection to see if there was any problems or misunderstandings with the directions and procedures used. As previously suggested, careful attention was given to questionnaire design and a thorough control of data collection, which should have prevented ambiguous or inconsistent data (Diamantopoulos and Schlegelmilch 1997).

The central office edit involves checking and correcting completed returns (Churchill 1999). It is where ambiguous, inconsistent or missing data is dealt with. As the pretests ironed out the potential ambiguous and misleading questions, the primary focus of the central office edit in this research was to check for missing data. Missing data is also referred to as item non-response and is discussed in the following section.

#### **4.7.2 Item Non-response**

Item non-response “refers to specific questions which have been left unanswered” (Diamantopoulos and Schlegelmilch 1997, p. 41). There are four reasons why a question may not have been answered. Firstly, the question may not apply to the respondent (e.g. a man answering a question on his pregnancy). As the questionnaire mainly asked for opinions and attitudes, all the questions applied to all respondents. Secondly, respondents may refuse to answer questions (e.g. did not want to answer it because the question was sensitive). The age of respondents was a potentially sensitive question but anonymity prevented this being sensitive as the researcher would be unable to identify respondent names. Thirdly, the respondent may not know the answer. The questionnaires had no particularly difficult questions as respondents’ opinions and attitudes were desired. This type of item non-response would be low as respondents were told that there were no right and wrong answers and to try to answer all questions as fully as possible. Finally, the respondent may have forgot to answer the question. This was unlikely due to respondents completing their questionnaires at the MBA classes. Although all the above possibilities may have been reasons for item non-response, failure to respond was probably due to respondents refusing to answer (the other three being very low due to the type of questions asked and the method of administration).

In dealing with unanswered questions one can either make a distinction between missing values, or, treat them the same (Diamantopoulos and Schlegelmilch 1997). It was decided to allow the computer to assign a ‘system’ missing value, as there was no real reason to distinguish between the possibilities.

As identified in Figure 4.4 only one questionnaire in the first wave and one questionnaire in the second wave were considered unusable due to the majority of the scales having missing data. This immediately rendered the matched questionnaires unusable. Apart from the above the majority of questions were answered fully by all respondents. The only question that had item non-response was question 7 in section 3 (Background information) of questionnaire 1. The question was “What are your hobbies and interests?” Over 50% of respondents did not answer this question and therefore this question was eliminated from any subsequent analysis as it was not considered central to the research.

### 4.7.3 Coding

“Coding is the technical procedure by which data are categorised” (Churchill 1999, p. 40). The role of data coding allows a set of completed (and edited) questionnaires to be transformed into symbols that a computer will understand (Diamantopoulos and Schlegelmilch 1997).

It has been suggested that the coding of closed questions and scales is relatively easy as coding can be established when the instrument is designed (Aaker et. al. 1997; Churchill 1999). The coding of open questions is much more problematic, in that, lengthy lists of possible responses are generated and each response has to be placed into one of the items in the list (Aaker et. al. 1999). For this reason these types of questions were limited in the present questionnaire. There were only two open ended questions in the first questionnaire and none in the second.

Following the advice of Diamantopoulos and Schlegelmilch (1997) a codebook was set up (see Appendix 4.9) giving an explanation of relationship between the codes and the responses to the questions. The responses were then entered into SPSS. The data

was checked for any error that might have come from the data entry process. This was achieved by employing personnel to check a random sample of responses.

Particular attention was given to defining variable names that would be easily recognisable. For example, the brand personality traits of 'down to earth' and 'upper class' were given the name 'downtoea' and 'uppercl' respectively. Variables should be coded consistently when they represent the same issue (Diamantopoulos and Schlegelmilch 1997). For example, items concerning quality were coded so that a low number indicated a perception of low quality and a high number a perception of high quality.

On the second questionnaire the fourth item (Section 3) was worded inconsistently with the rest of this section. An 'extreme' new product introduction was rated with a high score which was inconsistent with the other items in the scale (e.g. high scores indicated good fit and very similar products). This was done to ensure that respondents were filling out the questionnaires correctly and not just giving out responses on one side of the column only. This treatment was considered necessary for only one item to enable a check for response bias. A visual examination of the responses suggested that there was no response bias. Reversing other items may have confused respondents and produced more response bias. Care was taken to ensure that this question was coded correctly by reversing the item scores.

## 4.8 SUMMARY

This chapter has provided detailed information on the methodology employed to undertake the research. A before-after with control experimental design was used to gain respondents' brand personality and extension evaluations. Two questionnaires were developed which were driven by the research objectives and based on previous literature and scales taken from existing marketing research. The two questionnaires were pretested on both 'experts' and 'non-experts'. The questionnaires were self-administered by respondents at the beginning of their MBA class. The sample size was 119 eligible respondents of which 102 matched responses were gained. This gave an overall response rate of 85.7%. There is no reason to suspect that non-response is a particular problem due to the relatively high response rate. Next, chapter 5 provides a detailed description of the development and testing of the scales used in this research.

## CHAPTER 5

### SCALE DEVELOPMENT

This chapter describes the development of summated rating scales to measure brand personality and consumer evaluations of extensions. Summated rating scales are also developed for consumer knowledge, fit and quality of the core brand. Firstly, this chapter introduces the basic principles of scale development. Next, it reports on the steps followed in establishing reliability, uni-dimensionality, and validity of the scales by following set procedures from the measure development literature (Churchill 1979; Gerbing and Anderson 1988; DeVellis 1991; Spector 1992; Churchill 1999). Specifically, Section 5.1 describes the measure development process. Section 5.2 describes the construction and purification of the measures. Finally, the measures are assessed for validity in Section 5.3.

Table 5.1 provides an overview of the steps used when developing the scales. This chapter is particularly concerned with step six. Steps one to five have been covered elsewhere in previous chapters. The constructs have been clearly identified and defined (Chapter 2), and the theory behind them explained (Chapter 3). The items included in the scales and the format for measurement was generated from previous research (Chapter 4). Appropriate items for inclusion as validation were selected and administered to a small sample when pretesting (Chapter 4).

**Table 5.1 - Overview of Steps Used In Measure Development (Adapted from DeVellis 1991).**

Step	Purpose	Action
1. Determine what needs measuring	To be sure about what to include in the measure	Use theory to aid understanding
2. Generation of items	To ensure all aspects of the construct are covered	Generate items from previous scales
3. Determine format for measurement	To ensure a consistent set of scales	Adapt formats previously used
4. Inclusion of validation items	To aid validity	Selection of appropriate items
5. Administer items to small sample (experts/non-experts)	To aid validity, to ensure understanding and ease of completion	Pretest
6. Evaluate items	To optimise scale length & to assess reliability and validity	Inter-item correlation's, coefficient alpha

The variables measured represent constructs that are “broad in scope and not easily assessed with a single question” (Spector 1992, p. 4). Moreover, single item questions have been found to be unreliable and inaccurate (Spector 1992). Multiple item scales are frequently used in attitude measurement (Dillon et. al. 1994). These ideas are supported by Churchill and Paul Peter (1984) who conducted a study, which indicated that the number of items in the final scale affected the reliability of the measure. They showed that as the number of items increased the reliability of the measure increased. Therefore, in this research the variables in the questionnaire were operationalised by using summated rating scales derived from the scales and statements used in previous empirical research (e.g. Aaker’s 1997 brand personality scale) following advice given in the methodology literature (Churchill 1999; De Vellis 1991; Spector 1992).

The scales used are 'noncomparative' or 'metric', where each object is scaled independently of the others in the stimulus set (Malhotra 1999). Noncomparative scales can be split into continuous or itemised rating scales. A continuous rating scale is where respondents rate objects by placing a mark an appropriate position on a line that runs from one extreme to another; whereby, itemised rating scales have numbers or brief descriptions associated with each category and respondents are asked to select the category that best describes the object being rated (Malhotra 1999). Scoring on continuous scales is cumbersome and unreliable due to raters being unable to discriminate and make distinctions between categories (Churchill 1999). Previous research in the brand and extension literature have used itemised rating scales in the questionnaire construction and thus all the scales used in this research are of this nature (e.g. Consumer Behaviour Seminar 1987; Srinivasan 1987; Aaker and Keller 1990; Lichtenstein et. al. 1990; Dodds et. al. 1991; Muthukrishnan and Weitz 1991; Keller and Aaker 1992; Smith and Park 1992; Mishra et. al. 1993).

This method was chosen to enable consistency throughout the questionnaire (potentially reduces time when the respondents are completing the questionnaire) and to ease data comparability and analysis (i.e. specific numbers are circled and there is no researcher subjectivity as to what answer has been given). Additionally, itemised



rating scales were chosen to enable individuals to make their judgements independently without comparison to another brand or extension.

One measure of the quality of a scale is the amount of variance or spread of values. One way to increase variability is by having a lot of scale items (DeVellis 1991). However, variance increases may be random (i.e. error) and the researcher needs to consider the "respondents' ability to discriminate meaningfully" (DeVellis 1991, p. 65). The respondents' ability to discriminate can be improved by the wording or physical appearance of a scale. Descriptions need to be clear and response items need to be presented with an obvious continuum (DeVellis 1991).

As the measurements have been taken from previously developed scales it is the primary goal of this stage of the scale development procedures to provide further reliability and validity assessments.

## **5.1 MEASURE DEVELOPMENT PROCESS**

### **5.1.1 Item Analysis**

Once the data has been collected an item analysis can be run. This involves evaluating the performance of individual items and identifying those that are considered appropriate in constituting a scale (DeVellis 1991).

"The purpose of item analysis is to find those items that form an internally consistent scale and to eliminate those items that do not" (Spector 1992, p. 29). An internally consistent measure is one where all the items measure the same construct (Spector 1992). Not all the items initially developed for this task will perform as expected and it is important to identify those items and eliminate them from the scale. A scale that has internal consistency will have items that are highly correlated. Thus, high correlations were sought from the set of items forming the scale/s (DeVellis 1991). Each item in the scale was examined by computing its item-scale correlation. DeVellis (1991) suggests there are two types of item-scale correlation, namely, the corrected and uncorrected item-scale correlation. The corrected item-total correlates the item in question with all the items in the scale including itself whilst the uncorrected item-

total correlates all the items in the scale excluding itself. Examining the corrected item-total correlation has been advised and an item with a high as opposed to a low value is more desirable.

Other desirable attributes for a scale item are high variance and those, which have their means close to the centre of the range of possible scores. A high variance enables discrimination among variables with different levels of the construct being measured. Items with their means close to the centre of the range would suggest that all the values have been used (DeVellis 1991).

Firstly, items that had been negatively worded in the questionnaire were reversed scored to eliminate negative correlations. In situations where reverse scoring of items did not eliminate negative correlations, the items were deleted (DeVellis 1991).

Next, the items were assessed by studying the correlation matrix and finding those items with weak inter-item correlations (i.e. the correlation of each item with every other item), which were considered for removal from the scale (DeVellis 1991). Following this item-scale correlations were studied by paying particular attention to the corrected item-total correlation and low scores were considered for removal from the scale. Also items with a non-central mean and poor variability were also considered for deletion from the scale.

The literature suggests splitting the sample in order to increase the likelihood of obtaining scale stability. The first subsample would serve as the primary measure development sample. The second subsample can be used to cross-validate or replicate findings (DeVellis 1991). Due to the nature of the experimental design for this research the two subsamples that were used consisted of the before and after measures. For example, the before measure of brand personality was used to develop the measure, whilst, the after measure of brand personality was used to replicate the findings of the former. Also, the data collection periods for the two subsamples were separated by time. However, the variables fit and consumer knowledge only had a single measurement and could not be treated in this manner. Whilst splitting the sample could have provided information about the stability of the scale, the number of cases available for the fit (64) and consumer knowledge (102) measures were not

considered large enough for this to be done (DeVellis 1991)<sup>12</sup>. It was also not considered necessary to split the samples as the majority of scales used have already been developed and tested for stability. Thus, the process of scale development was undertaken on the whole sample.

After identifying the items that may warrant elimination, the reliability of the scale was examined.

### 5.1.2 Reliability

The test-retest reliability deals with the consistency of repeated measures over time (Bagozzi 1996). Reliability is established by how well a scale correlates with itself, across repeated administrations to the same respondents (Spector 1992). This type of reliability could only be used for the brand personality construct as two separate administrations of this scale were carried out (e.g. before and after the experimental stimulus). Table 5.2 shows the correlation coefficients of the matched scores calculated between the two administrations of the brand personality scale for each of the five brand personality dimensions (Spector 1992). The correlation coefficients for each dimension appear to be reasonably high and significant ( $<0.01$ ) which would suggest the brand personality measure has good reliability over time. However, caution needs to be taken when interpreting these results. It has been suggested that the test-retest reliability approach may have a number of problems (Malhotra 1999). Specifically, the reliability could have been artificially high, as respondents may have attempted to provide answers they gave the first time. However, it was thought that the one-week time difference between the two administrations would be sufficient in allowing respondents to forget their original answers (see Section 4.5.4.2). Also, the coefficient may be lower due to an actual change in phenomenon under study (Dillon et. al. 1994). In this particular case one would expect brand personality perceptions to have changed following the experimental stimulus and therefore one has to be careful when interpreting the results. Nevertheless the test-retest method does show

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<sup>12</sup> There were only 64 cases available for the fit measure as apposed to the consumer knowledge measure as the control group did not have to assess fit as they were not presented with the experimental stimulus.

reasonable levels of reliability for all the brand personality dimensions. These findings are to be used in conjunction with the major form of reliability used in this research (i.e. coefficient alpha).

**Table 5.2 – Correlation Between ‘Before’ and ‘After’ Measure of Each Brand Personality Dimension.**

<b>Dimension</b>	<b>Pearson Correlation</b>	<b>Sig. (2-tailed)</b>	<b>Number of Cases</b>
<b>Sincerity</b>	.775	.000	102
<b>Excitement</b>	.718	.000	102
<b>Competence</b>	.675	.000	102
<b>Sophistication</b>	.746	.000	102
<b>Ruggedness</b>	.793	.000	102

Coefficient alpha is one method of assessing the reliability of a scale (Cronbach, 1951). It provides an indication of the scale item scores attributable to the true score of the latent construct and error. Theoretically, alpha can take any values between 0.0 and 1.0 and Nunnally (1978) suggests a value of 0.70 as a lower acceptable boundary for alpha, however, scales published with lower alphas are not unusual (DeVellis 1991). It has been suggested that an alpha below 0.60 is unacceptable, between 0.70 and 0.80 is respectable, between 0.80 and 0.90 is very good and much above 0.90 the researcher should consider shortening the scale (DeVellis 1991). Negative correlations amongst items, weak inter-item correlations, low item-scale correlations, lopsided means and low variances can all influence and reduce alpha (DeVellis 1991). Another problem with coefficient alpha is that some studies have implied that an alpha level greater than 0.70 is adequate, without comparing it to the number of items in the scale (Cortina 1993). It has been suggested that researchers must base their decision on whether an alpha value is sufficient on: the actual alpha value, the number of items in the scale, and the decision that is to be made (Cortina 1993). In developing the scales those items, which appeared to substantially reduce alpha, were considered for possible removal from the scales. The final decision to remove items was based on a combination of the above issues.

### 5.1.3 The Issue of Unidimensionality

A composite score for a scale is only meaningful if the scale is 'acceptably' unidimensional. "Unidimensionality refers to the existence of a single trait or construct underlying a set of measures" (Gerbing and Anderson 1988, p. 186). Therefore, each scale must measure one and only one, underlying construct. Moreover, alpha is appropriately computed only when there is a single common factor. Where there is one common factor, then alpha is a measure of the strength of that factor (Cortina 1993).

There have been two main approaches in measuring unidimensionality. Firstly, Gerbing and Anderson (1988) argue that once the unidimensionality of a set of scales has been established, then one should assess their reliability. The second approach suggests that unidimensionality should be assessed at later stages and only after the scale has been examined for internal consistency and purification (Churchill 1979). When unidimensionality has been assessed before internal consistency and purification, researchers have tended to produce more items than can actually be conceptualised (Churchill 1979). This method may be more inappropriate due to some items producing error and unreliability, as they are not measuring the appropriate construct. As the scales for this study had already been developed and tested for unidimensionality, the decision was made to first purify the scales using the techniques described in section 5.1.1 and 5.1.2 and then to test for unidimensionality by using exploratory factor analysis.

Factor analysis is useful for validating unidimensional scales (i.e. is a form of construct validity), and it can explore possible sub dimensions within the group of items selected (Spector 1991). Factor analysis will help to determine whether one universal or several specific constructs are needed to characterise a data set (DeVellis 1991). In order to assess unidimensionality, factor analysis was undertaken. The goal of factor analysis was to generate an understanding of the underlying structure of the variables and to combine them into a smaller set of composite variables (i.e. factors) (Aaker et. al. 1997; Diamantopoulos and Schlegelmilch 1997).

Its two main purposes are to identify underlying constructs in the data and to reduce the number of variables to a more manageable set (Aaker et. al. 1997). Factor analysis can tell us about important properties of a scale. For example, it can help one to determine empirically how many constructs or factors underlie a set of items (DeVellis 1991). When anticipated groups of items are identified prior to factoring and where a factor analytic solution that is consistent with these groupings is found factorial validity is evident. Factor analysis provides confirmation that the number of latent variables underlying the items corresponds to the number expected (DeVellis 1991).

"There is continued debate concerning the appropriate role for factor analysis" (Hair et. al. 1998, p. 91). A number of writers have suggested that when existing knowledge on the structure of the data is available, factor analysis should take a confirmatory approach (e.g. Churchill 1979; Gerbing and Anderson 1988). However, a scale developer can have in mind, which items should group together without explicitly programming them into the analysis. Factor analytically derived groupings can still be compared to these a priori groupings. "Furthermore, finding by means of conventional factoring methods that items group together as expected should be even more reassuring to the investigator because the analysis has not been instructed to "look for" a specific pattern. Instead, it has found the anticipated pattern on its own" (DeVellis 1991, p. 108).

There are two main approaches that can be used when examining the factorial validity of a scale. Firstly, a purely exploratory approach can be used. Here, the researcher makes no assumption about the number of factors underlying the set of items in the scale and is used when the researcher knows nothing about the subject matter (Stewart 1981). Evidence of unidimensionality will occur when the items entered into the factor analysis load significantly only on one factor (Spector 1992). If the items load significantly on a number of factors that make conceptual sense, then there would be evidence to suggest that the items are not unidimensional (Spector 1992). The factor analysis procedure always gives the most important factor first (i.e. explains the most covariation), the next most important and so on. The trade off is between having

fewer factors with less of the variance explained and having a number of factors where a greater proportion of the total variance is explained (DeVellis 1991).

The second approach is to use *a priori* criterion to extract factors. "The researcher simply instructs the computer to stop the analysis when the desired number of factors have been extracted" (Hair et. al. 1998, p. 104). This approach is considered appropriate when a theory or hypothesis is being tested about the number of factors to be extracted or when replicating another researchers work (Hair et. al. 1998). Evidence to suggest unidimensionality would be provided if all the items load significantly on one factor.

By testing unidimensionality by using both approaches a number of different factor structures may be derived. It is the job of the researcher to compare and contrast the solutions to arrive at the best representation of the data (Hair et. al. 1998). Therefore, given that a rigorous assessment of the measures is desired both the *exploratory* and *a priori* approaches were used to test unidimensionality.

There are two basic models that the researcher can use to obtain factor solutions (Hair et. al. 1998). They are 'common factor analysis' and 'principal component analysis'. Common factor analysis focuses on the common variance (i.e. the variance shared among the original variables), whilst principal component analysis focuses on the total variance (i.e. the total variation in the data set) (Diamantopoulos and Schlegelmilch 1997). The difference between the two is that the former focuses on the interrelationships between variables and describes them in terms of common underlying dimensions. In component analysis "the sole aim is to reduce the original set of variables into smaller sets of composite variables (components)" (Diamantopoulos and Schlegelmilch 1997, p. 216).

As there was a pre-defined structure of brand personality and its dimensions and there was not enough cases to properly carry our factor analysis on the data set (e.g. 41 variables) a two-stage procedure was used<sup>13</sup>. Firstly, the items in individual

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<sup>13</sup> Hair et. al.(1998) suggest that there should at least five times as many cases as there are variables and a more acceptable size would be a ten-to-one ratio. This would mean a minimum of 205 cases for the current research.

dimensions were factor analysed using principal axis factoring to check for unidimensionality. Secondly, the summated brand personality dimensions themselves were factor analysed using principal components analysis to explore the dimensionality of the overall scale (i.e. that the 5 components are indeed separate).

Component analysis is the appropriate type of factor analysis to use when the total variance in the data is considered (Malhotra 1999). Component analysis also produces up to one factor per variable (Tull and Hawkins 1993). The main objective at this stage was to confirm that each dimension was indeed separate and that they could not be reduced to a smaller number of components. Hence, component analysis was the appropriate technique to use when asking the computer for five factors when factor analysis was carried out on the five summated dimensions (i.e. only 5 variables).

All the other scales followed a singular approach, whereby items (e.g. quality, extension fit, consumer knowledge) were factor analysed using principal axis factoring to check for unidimensionality. Principal axis factoring was used as it focuses on the interrelationships between variables and describes them in terms of common underlying dimensions.

When deciding upon how many factors to extract (i.e. when following the exploratory approach) it is generally agreed that there are two popular methods, namely, Kaiser's eigenvalue rule and Cattell's scree test (Aaker et. al. 1997; Hair et. al. 1998; Churchill 1999). The eigenvalue rule suggests that only retaining factors (greater than 1) that explain more variance than the average amount explained by one of the original items (Aaker et. al. 1997). The scree test plots the amount of variance explained by each successive factor (the eigenvalues) and where the scree plot flattens (the elbow) out is where the factors are (Hair et. al. 1998).

The interpretation of factors can sometimes be difficult, especially when the variables load on more than one factor. Factor rotation considers alternative sets of factors that do an equally good job of defining covariation among the variables. Its goal is to provide the clearest conceptual picture among the items approximating a simple structure (DeVellis 1991). The most common method of rotation is VARIMAX,



which has been shown to be among the best of the orthogonal rotation procedures (Stewart 1981), and was, therefore used in this research. Orthogonal rotation is used when the goal of the research is to reduce the number of original variables into meaningful factors (Hair et. al. 1998). Orthogonal rotation is also used when there is a preconceived idea of the structure of the data (DeVellis 1991). Oblique rotation is usually performed when there is a lack of structure in the data (DeVellis 1991). All the scales used in this research had predefined structures.

Prior to factor analysis the factorability of each correlation matrix was undertaken by conducting Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy. There appeared to be no cause for concern as the two tests sufficiently justified the application of factor analysis (see Section 6.1.6 & Appendix 6.5).

#### **5.1.4 Scale Validity**

##### **Content Validity**

Content validity (or face validity) refers "to the assessment of the degree of correspondence between the items selected to constitute a summated scale and its conceptual definition" (Hair et. al. 1998, p.88). Evidence for a measure's content validity is provided by a subjective assessment between the individual items and the concept.

##### **Construct Validity**

A measure is only valid when the extent to which the differences in scores reflect true differences on the characteristic one is attempting to measure (Churchill 1999). If the measure scores perform as the theory has suggested they should perform then one will have attained construct validity (Peter 1981). If a scale is not reliable then it is not valid; if it is multidimensional then it measures other characteristics other than the concept it is supposed to measure (Devellis 1991). Peter (1981) suggested that reliability and factor analytic investigations "provide necessary but not sufficient information for accepting construct validity" (Peter 1981, p. 135).

There are a number of types of construct validity that can, and should, be assessed. Those examined in this study include convergent, discriminant, criterion-related and nomological validity (Churchill 1979; Peter 1981).

Convergent validity is assured when different measures of the same construct relate strongly with one another; whilst discriminant validity means that measures of different constructs should only relate modestly to each other (Spector 1992). Convergent validity is indicated when a scale correlates highly with measures of the same construct and discriminant validity is indicated when the measure has a low correlation with other scales which that are not measuring the same construct.

Criterion-related validity is where scores on a scale are compared with scores on other variables or criteria (Spector 1992). It is obtained when a measure is shown to behave as it is expected to in relation to other constructs (Churchill 1979). Scale scores that differentiate between 'known groups' and that correctly predict some criterion measure was used in this research. For example, it was expected that the ATV group (i.e. good fit) would have more favourable extension evaluations than the aftershave group (i.e. poor fit). Nomological validity is where a variable behaves as expected with respect to some other variable to which it is theoretically related. The difference to criterion related validity is that the constructs have to be measured in terms of formal hypotheses derived from theory (Peter and Churchill 1986). However, these types of validity are often used in conjunction with each other and in practice it is possible for exactly the same correlation to serve either purpose (DeVellis 1991).

All the types of validity outlined above have been used in this research. However, certain types of validity have been used for the different measures. For example, convergent and discriminant validity was only carried out for the consumer knowledge construct as there were two measures of consumer knowledge available. All the other constructs had only one measure. Criterion/known groups' validity could not be used for the brand personality and core brand quality constructs, as there was no concrete theory to differentiate between the groups. Finally, nomological validity was also not considered for the brand personality construct as the underlying theory had not yet been supported. Table 5.3 shows the measures and the types of validity checks carried out.

**Table 5.3 - Types of Validation Carried Out**

Construct	Content Validity	Factorial Validity - (See Unidimensionality In Measure Purification Sections)	Convergent Validity	Discriminant Validity	Criterion/ Known Groups Validity	Nomological Validity
Brand Personality	✓	✓	☒	☒	☒	☒
Extension Quality	✓	✓	☒	☒	✓	✓
Core Brand Quality	✓	✓	☒	☒	☒	✓
Fit	✓	✓	☒	☒	✓	✓
Consumer Knowledge	✓	✓	✓	✓	✓	✓

Scale: ✓ = type of validation carried out

☒ = type of validation not carried out

The next section details the actual construction and purification of the measures presented above.

## 5.2 MEASURE CONSTRUCTION AND PURIFICATION

### 5.2.1 Brand Personality Scale

The original brand personality scale consisted of five dimensions (as described in Section 2.1.5). The 'before' measure of brand personality was used as the measure development sub-sample and contained 102 cases. The 'after' measures of brand personality were used as the cross-validation subsample and contained 102 matched cases.

### 5.2.1.1 Sincerity

#### Item Analysis

In Aaker's (1997) brand personality scale the first dimension was 'sincerity' and consisted of 11 items (see Appendix 5.1). Firstly, the correlation matrix and corrected item-total correlations were analysed. The items 'family orientated' and 'small town' were not behaving as expected as they were correlating negatively with some other items. They also tended to have low inter-item correlations and small corrected item-total correlations (.217, .191 respectively). Dropping these items would increase alpha from .75 to .78. However, both items had central means, but low variability. As Aaker (1997) has already tested the BP scale for reliability and validity, there was reluctance at this stage to eliminate these items. It was decided to keep these items in the analysis and to see how they behaved when the second subsample was assessed.

The 11 items in the scale were then cross-validated using the second subsample in order to test their stability. The results showed that the item 'family orientated' had negative correlations with other items but 'small town' did not. However, 'family orientated' and 'small town' both had low inter-item correlations. Both items had small corrected item-total correlations (.246, .195 respectively) and dropping these items would increase alpha from .74 to .77. Therefore it was decided to drop both these items due to the similarities with the development subsample. Table 5.4 provides the main characteristics of the 'sincerity' scale. Specifically, it shows corrected item-total correlation's, alpha if item deleted and the final alpha values of .78 and .77 for the development and validation subsamples respectively. These alpha values are lower than Aaker's (1997) reported value of .93 for this dimension but are still considered respectable (DeVellis 1991).

**Table 5.4 - Characteristics of the BP Dimension Sincerity**

Sincerity Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Cheerful	0.29	0.31	0.78	0.77	0.78	0.77
Down To Earth	0.35	0.44	0.78	0.75		
Friendly	0.54	0.48	0.75	0.75		
Honest	0.61	0.59	0.74	0.73		
Original	0.42	0.33	0.77	0.78		
Real	0.56	0.58	0.75	0.73		
Sentimental	0.32	0.28	0.78	0.78		
Sincere	0.56	0.55	0.75	0.72		
Wholesome	0.59	0.60	0.74	0.74		

### Unidimensionality

The dimensionality of the sincerity scale was assessed according to the process outlined in Section 5.1.3.

Principal axis factoring with varimax rotation resulted in a two factor solution, with the first factor explaining 37.9% and the second factor 14.6% of the common variance (Table 5.5). An examination of the factors obtained suggested that they were actually capturing the same domain as the primary factor, as no clear meaning could be attributed to these factors other than that each was capturing the sincerity dimension. Table 5.5 shows that many items load substantially on both factors. This would suggest that only one factor is present. An examination of the scree plot showed a distinctive elbow (i.e. straightening of the curve) at the second factor. As "Cattell's guidelines call for retaining factors above the elbow and rejecting those below it" (DeVellis 1991, p. 98) it became apparent that only one factor was present (see Appendix 5.5 for scree plots). The second approach in assessing unidimensionality involved stopping the analysis when a single factor had been extracted. All the items loaded significantly on the single factor. As a general guideline a value of .30 was considered a minimum acceptable loading on a factor (Spector 1992). However, in this study the minimum size is left flexible in that other issues such as impact on alpha, mean centrality and item variance, are also considered before a decision is made to eliminate an item with a loading below .30.

The second subsample was used to test the stability of the scale. The factor analysis and varimax rotation resulted in a three factor solution, with the first factor explaining 37.6%, the second 14.6% and the third 11.2%. However, the eigenvalue for factor 3 was only 1.03, which barely explains more than a single variable. An examination of the scree plot shows a distinctive elbow at the second factor indicating that a single factor is present. The forced single factor resulted in significant loadings of all items apart from the item 'sentimental', which had a loading of .2700. It was decided not to drop this item from the scale as it had a significant loading in the main development subsample and a loading in the validation subsample of marginally less than .30. Also Aaker (1997) had a loading of over .60 on this item.

The results of the item and factor analysis provide evidence to suggest that the 9 items in the 'sincerity' dimension are unidimensional and internally consistent.

Table 5.5 BP Dimension Sincerity - Factor Matrices

Sincerity Items	Factor Loadings <sup>a</sup>						
	Factor1 Development Subsample	Factor 1 Validation Subsample	Factor 2 Development Subsample	Factor 2 Validation Subsample	Factor 3 Validation Subsample	(Forced Single Factor) Development Subsample	(Forced Single Factor) Validation Subsample
Cheerful	.060	.013	<b>.590</b>	<b>.377</b>	.270	<b>.317</b>	<b>.314</b>
Down To Earth	<b>.525</b>	<b>.751</b>	.056	.063	.083	<b>.421</b>	<b>.545</b>
Friendly	.258	.181	<b>.615</b>	<b>.537</b>	.176	<b>.586</b>	<b>.536</b>
Honest	<b>.847</b>	<b>.837</b>	.157	.290	.018	<b>.684</b>	<b>.731</b>
Original	.284	.155	<b>.394</b>	.199	<b>.302</b>	<b>.477</b>	<b>.328</b>
Real	<b>.429</b>	.296	<b>.499</b>	<b>.843</b>	-.021	<b>.664</b>	<b>.703</b>
Sentimental	.233	.037	.281	.076	<b>.803</b>	<b>.362</b>	.270
Sincere	<b>.542</b>	<b>.375</b>	<b>.353</b>	<b>.449</b>	.231	<b>.653</b>	<b>.643</b>
Wholesome	<b>.489</b>	<b>.498</b>	<b>.468</b>	<b>.409</b>	.191	<b>.686</b>	<b>.696</b>
Eigenvalue	3.415	3.384	1.214	1.312	1.003	3.415	3.384
% of Variance Explained	37.9	37.6	13.5	14.6	11.2	37.9	37.6

a: all loadings above .30 are highlighted in bold italics.

### 5.2.1.2 Excitement

The 'excitement' dimension originally consisted of 11 items. The evaluation of this and subsequent scales in this chapter followed similar procedures to those outlined in the development of the sincerity dimension.

#### Item Analysis

The correlation matrix showed that the item 'unique' was not fully behaving as expected as it correlated negatively with the item 'trendy'. It also tended to have low inter-item correlations and a small corrected item-total correlation (.253). However, this item had a central mean, but low variance. Dropping it would only increase alpha from .82 to .83. As Aaker (1997) has already tested the BP scale for reliability and validity, there was reluctance at this stage to eliminate this item. It was decided to keep it in the analysis and to see how they behaved when unidimensionality was assessed.

The 11 items in the scale were then cross-validated using the second subsample in order to test their stability. The results showed that the item 'independent' had negative correlations with other items but 'unique' did not. Both items had improved corrected item-total correlations (.266, .325 respectively) and dropping these items would only increase alpha from .84 to .85. Both items also had central means, but low variances. As the scales had already been assessed for reliability and validity in previous research it was decided to keep both these items in the scale at this stage until unidimensionality has been assessed. Table 5.6 provides the main characteristics of the 'excitement' scale and provides final alpha values of .83 and .85 for the development and validation subsamples respectively. These alpha values are lower than Aaker's (1997) reported value of .95 for the 'excitement' dimension but are still considered very good (DeVellis 1991).



**Table 5.6 - Characteristics of the BP Dimension Excitement**

Excitement Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Contemporary	0.54	0.53	0.81	0.84	0.83	0.85
Cool	0.65	0.61	0.80	0.84		
Daring	0.44	0.52	0.82	0.85		
Exciting	0.71	0.57	0.79	0.84		
Imaginative	0.55	0.62	0.81	0.83		
Spirited	0.60	0.65	0.80	0.83		
Trendy	0.49	0.62	0.82	0.83		
Up-to-date	0.40	0.57	0.82	0.84		
Young	0.45	0.51	0.82	0.85		

### Unidimensionality

The dimensionality of the 'excitement' scale was assessed according to the process outlined earlier. 'Excitement' was factor analysed using principal axis factoring with varimax rotation to check for unidimensionality. The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a three factor solution, with the first factor explaining 37.2% , the second factor 13.8% and the third factor 11.8% of the common variance. An examination of the factors obtained suggested that that they were actually capturing the same domain as the primary factor apart from the item 'unique', as no clear meaning could be attributed to these factors other than that each was capturing the excitement dimension. When extracting only one factor all the items (apart from unique .246) loaded significantly on that factor.

The second subsample was used to test the stability of the scale. The factor analysis and varimax rotation resulted in a two factor solution, with the first factor explaining 39.5% and the second 15.2%. The items 'unique' and 'independent' loaded significantly on the second factor. The forced single factor resulted in significant loadings of all items apart from the item 'independent', which had a loading of .251. 'Unique' also had a relatively low loading of .317 (only just higher than the .3 level suggested). It was decided to drop 'unique' and 'independent' from the scale as they had relatively low loadings when one factor was extracted in both the main

development subsample and in the validation subsample. Both these items also loaded significantly on another factor when no assumptions were made about the number of dimensions. Additionally, the two items had low variances, which implies that respondents were unable to distinguish between high and low ratings of these items. Conceptually, 'unique' and 'independent' seem to be very similar constructs in that they both could constitute singleness and freedom and may indeed measure a dimension in their own right.

When the items were removed factor analysis was re-run on the remaining 9 items following the two stage procedure outlined above. The principal axis factoring with varimax rotation resulted in a two factor solution (see Table 5.6) with the first factor explaining 43.1% and the second factor 14.8% of the common variance for the development subsample. The validation subsample revealed a two factor solution with the first factor explaining 46.6% and the second factor 12.3% of the common variance. The second factor showed that the items 'daring' and 'spirited' had high loadings for both subsamples. The forced single factor resulted in significant loadings of all items including 'daring' and 'spirited' (Table 5.7). An examination of the scree plots for the development and validation subsamples show both to have a distinctive elbow at the second factor indicating only one factor to be present. These results appear to support the notion that the scale items are unidimensional.

Table 5.7 BP Dimension Excitement - Factor Matrices

Excitement Items	Factor Loadings <sup>a</sup>					
	Factor1 Development Subsample	Factor1 Validation Subsample	Factor 2 Development Subsample	Factor 2 Validation Subsample	(Forced Single Factor) Development Subsample	(Forced Single Factor) Validation Subsample
Contemporary	<b>.587</b>	<b>.659</b>	<b>.228</b>	<b>.009</b>	<b>.609</b>	<b>.582</b>
Cool	<b>.649</b>	<b>.650</b>	<b>.327</b>	<b>.240</b>	<b>.723</b>	<b>.672</b>
Daring	<b>.009</b>	<b>.138</b>	<b>.769</b>	<b>.932</b>	<b>.492</b>	<b>.569</b>
Exciting	<b>.555</b>	<b>.523</b>	<b>.546</b>	<b>.308</b>	<b>.785</b>	<b>.612</b>
Imaginative	<b>.522</b>	<b>.572</b>	<b>.281</b>	<b>.345</b>	<b>.593</b>	<b>.677</b>
Spirited	<b>.241</b>	<b>.395</b>	<b>.840</b>	<b>.686</b>	<b>.643</b>	<b>.700</b>
Trendy	<b>.652</b>	<b>.571</b>	<b>.007</b>	<b>.358</b>	<b>.551</b>	<b>.684</b>
Up-to-date	<b>.519</b>	<b>.605</b>	<b>.006</b>	<b>.222</b>	<b>.448</b>	<b>.628</b>
Young	<b>.556</b>	<b>.593</b>	<b>.121</b>	<b>.127</b>	<b>.514</b>	<b>.554</b>
Eigenvalue	<b>3.882</b>	<b>4.196</b>	<b>1.331</b>	<b>1.108</b>	<b>3.287</b>	<b>4.196</b>
% of Variance Explained	<b>43.1</b>	<b>46.6</b>	<b>14.8</b>	<b>12.3</b>	<b>36.6</b>	<b>46.6</b>

a: all loadings above **.30** are highlighted in bold italics.

### 5.2.1.3 Competence

The competence dimension originally consisted of 9 items.

#### Item Analysis

The correlation matrix showed that the item 'corporate' was not fully behaving as expected as it correlated negatively with the item 'reliable'. It also tended to have low inter-item correlations and a low corrected item-total correlation (.264). Dropping this item would only increase alpha from .79 to .80.

The 9 items in the scale were then cross-validated using the second subsample in order to test their stability. The results showed that the item 'corporate' also had a negative correlation with the item 'reliable'. Once again it had low inter-item correlations and a low corrected item-total correlation (.263). Dropping this item would only increase alpha from .77 to .78. It was decided to drop the item 'corporate' from the scale due to its low inter-item correlation's and a low corrected item-total correlation for both subsamples. Additionally, this item had a central mean, but low variance. This implies that respondents were unable to distinguish between high and low ratings for the item 'corporate' and thus providing further support for the decision taken. Table 5.8 provides the main characteristics of the 'competence' scale and provides final alpha values of .80 and .78 for the development and validation subsamples respectively. These alpha values are lower than Aaker's (1997) reported value of .93 but are still considered respectable (DeVellis 1991).

**Table 5.8 - Characteristics of the BP Dimension Competence**

Competence Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Confident	0.50	0.50	0.78	0.75	0.80	0.78
Hardworking	0.52	0.55	0.78	0.75		
Intelligent	0.53	0.55	0.78	0.74		
Leader	0.57	0.52	0.77	0.75		
Reliable	0.40	0.38	0.80	0.78		
Secure	0.66	0.54	0.75	0.75		
Successful	0.53	0.43	0.78	0.76		
Technical	0.45	0.45	0.79	0.76		

### Unidimensionality

The dimensionality of the 'competence' scale was assessed according to the process outlined in earlier. 'Competence' was factor analysed using principal axis factoring with varimax rotation to check for unidimensionality. The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a single factor solution for the development subsample, with the factor explaining 42.8% of the common variance. All the items loaded significantly on this factor (Table 5.9).

The second subsample was used to test the stability of the scale. Principal axis factoring with varimax rotation resulted in a two factor solution with the first factor explaining 40.4% and the second factor 14.0% of the common variance for the validation subsample. The items 'successful' and 'leader' loaded significantly on the second factor. However, there seemed to be no conceptual distinction between the factors. The forced single factor resulted in significant loadings of all items. An examination of the scree plots for the development and validation subsamples show both to have a distinctive elbow at the second factor indicating only one factor to be present. Thus, these results appear to support the notion that the scale items are unidimensional.

**Table 5.9 BP Dimension Competence - Factor Matrices**

Competence Items	Factor Loadings <sup>a</sup>			
	Factor1 Development Subsample	Factor 1 Validation Subsample	Factor 2 Validation Subsample	(Forced Single Factor) Validation Subsample
Confident	<i>.577</i>	<i>.568</i>	<i>.235</i>	<i>.591</i>
Hardworking	<i>.559</i>	<i>.525</i>	<i>.313</i>	<i>.615</i>
Intelligent	<i>.566</i>	<i>.439</i>	<i>.437</i>	<i>.631</i>
Leader	<i>.666</i>	<i>.300</i>	<i>.578</i>	<i>.590</i>
Reliable	<i>.439</i>	<i>.422</i>	<i>.179</i>	<i>.444</i>
Secure	<i>.763</i>	<i>.828</i>	<i>.008</i>	<i>.632</i>
Successful	<i>.603</i>	<i>.006</i>	<i>.742</i>	<i>.472</i>
Technical	<i>.506</i>	<i>.302</i>	<i>.444</i>	<i>.524</i>
Eigenvalue	3.423	3.231	1.120	3.321
% of Variance Explained	42.8	40.4	14.0	40.4

**a:** all loadings above .30 are highlighted in bold italics.

### 5.2.1.4 Sophistication

The 'Sophistication' dimension originally consisted of 6 items.

#### Item Analysis

The correlation matrix showed that the item 'feminine' was not fully behaving as expected as it correlated negatively with the item 'upper class'. It also had low inter-item correlations and a very low corrected item-total correlation (.155). Dropping this item would have increased alpha substantially from .76 to .79 (table 5.9) .

The 6 items in the scale were then cross-validated using the second subsample in order to test their stability. The results showed that the item 'feminine' had low inter-item correlations and a low corrected item-total correlation (.285). Dropping this item would only increase alpha from .73 to .74. Conceptually, dropping this item appeared appropriate. Arguably, in the automobile industry a 4 x 4 brand can be viewed as sophisticated (i.e. upper class, good looking) without being feminine. Therefore, it was decided to drop the item 'feminine' from the scale due to its low inter-item correlation's and a low corrected item-total correlation for both subsamples. The decision to eliminate this item was made without reference to its mean or variance purely on the basis of the very low correlation coefficients previously reported. Table 5.10 provides the main characteristics of the sophistication scale and provides final alpha values of .79 and .74 for the development and validation subsamples respectively. These alpha values are lower than Aaker's (1997) reported value of .91 but are still considered respectable (DeVellis 1991).

**Table 5.10 - Characteristics of the BP Dimension Sophistication**

Sophistication Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Charming	0.57	0.53	0.75	0.68	0.79	0.74
Glamorous	0.52	0.52	0.77	0.68		
Good Looking	0.63	0.50	0.74	0.69		
Smooth	0.68	0.50	0.72	0.69		
Upper Class	0.48	0.45	0.78	0.71		

## Unidimensionality

The dimensionality of the ‘sophistication’ scale was assessed according to the process outlined in earlier. The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a single factor solution for the development subsample, with the factor explaining 54.9% of the common variance. All the items loaded significantly on this factor (Table 5.11).

The second subsample was used to test the stability of the scale. This resulted in a single factor solution for the validation subsample, with the factor explaining 48.8% of the common variance. All the items loaded significantly on this factor. An examination of the scree plots for the development and validation subsamples showed both to have a distinctive elbow at the second factor indicating only one factor to be present. Thus, these results support the notion that the scale items are unidimensional.

**Table 5.11 BP Dimension Sophistication - Factor Matrices**

Sophistication Items	Factor Loadings <sup>a</sup>	
	Factor1 Development Subsample	Factor 1 Validation Subsample
Charming	<b>.637</b>	<b>.623</b>
Glamorous	<b>.573</b>	<b>.629</b>
Good Looking	<b>.750</b>	<b>.612</b>
Smooth	<b>.805</b>	<b>.610</b>
Upper Class	<b>.528</b>	<b>.526</b>
Eigenvalue	2.745	2.442
% of Variance Explained	54.9	48.8

**a: all loadings above .30 are highlighted in bold italics.**

### 5.2.1.5 Ruggedness

The 'ruggedness' dimension originally consisted of 4 items.

#### Item Analysis

The correlation matrix showed that all the items were behaving as expected. All items also had reasonably high inter-item correlations and a high corrected item-total correlations. Coefficient alpha was .82 (Table 5.12).

The 4 items in the scale were then cross-validated using the second subsample in order to test their stability. The results were similar to the development subsample with reasonably high inter-item correlations and a high corrected item-total correlation. At this stage no items were considered for elimination. Table 5.12 provides the main characteristics of the 'ruggedness' scale and provides final alpha values of .82 and .81 for the development and validation subsamples respectively. These alpha values are lower than Aaker's (1997) reported value of .90 but are still considered very good (DeVellis 1991).

**Table 5.12 - Characteristics of the BP Dimension Ruggedness**

Ruggedness Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Masculine	0.51	0.58	0.85	0.79	0.82	0.81
Outdoorsy	0.72	0.72	0.74	0.72		
Rugged	0.74	0.60	0.72	0.77		
Tough	0.65	0.61	0.77	0.77		

#### Unidimensionality

The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a single factor solution for the development subsample, with the factor explaining 67.1% of the common variance. All the items loaded significantly on this factor (Table 5.13).

The second subsample was used to test the stability of the scale. This resulted in a single factor solution for the validation subsample, with the factor explaining 64.2% of the common variance. All the items loaded significantly on this factor.

An examination of the scree plots for the development and validation subsamples show both to have a distinctive elbow at the second factor indicating only one factor



to be present. Thus, these results support the notion that the scale items are unidimensional<sup>14</sup>.

**Table 5.13 BP Dimension Ruggedness - Factor Matrices**

Ruggedness Items	Factor Loadings <sup>a</sup>	
	Factor1 Development Subsample	Factor 1 Validation Subsample
Masculine	<i>.549</i>	<i>.655</i>
Outdoorsy	<i>.813</i>	<i>.854</i>
Rugged	<i>.851</i>	<i>.676</i>
Tough	<i>.781</i>	<i>.707</i>
Eigenvalue	2.684	2.567
% of Variance Explained	67.1	64.2

**a: all loadings above .30 are highlighted in bold italics.**

<sup>14</sup>Although the scale would not be affected it was interesting to note the rather weak relationship between masculinity and ruggedness. This may have been due to the sample being particularly male dominated (see Section 6.2.6). Arguably, due to their gender, males may not particularly associate ruggedness with masculinity.

### 5.2.1.6 Summated BP Dimensions

Providing evidence to support the unidimensionality of each specific dimension is the first part of analysing the structure of the brand personality scale. Next, the brand personality dimensions were factor analysed together using principal components analysis to check that the dimensions were indeed separate. The average of all the items in each scale was computed for each individual dimension. The approach used in assessing the dimensionality of the brand personality scale involved stopping the analysis when five factors had been extracted.

Principal components analysis was performed by stopping the analysis at 5 factors using varimax rotation. This resulted in each dimension loading highly ( $>.85$ ) on only one component for the development subsample. In order to test the stability of the scale the same procedure was carried out on the validation subsample. The results were very similar to the development subsample and therefore providing further support that there are 5 separate components to in the BP scale (Table 5.14). An examination of the scree plots for the development and validation subsamples provides no obvious evidence of a distinctive elbow with the slopes declining at equal rates and not flattening off. The scree plot gives additional credence to there being five dimensions to Aaker's (1997) brand personality scale.

Table 5.14 Factor Matrices For Summated BP Dimensions - Development Subsample

BP Dimensions	Factor Loadings <sup>a</sup>				
	Component 1	Component 2	Component 3	Component 4	Component 5
Sincerity	.170	<b>.937</b>	.125	.142	.238
Excitement	.112	.148	.304	<b>.921</b>	.158
Competence	.314	.307	.213	.189	<b>.852</b>
Sophistication	-.002	.129	<b>.932</b>	.294	.169
Ruggedness	<b>.955</b>	.161	-.003	.098	.227
Eigenvalue	2.649	1.07	.587	.406	.287
% of Variance Explained	53.0	21.4	11.7	8.1	5.7

a: all loadings above .85 are highlighted in bold italics.

Table 5.15 Factor Matrices For Summated BP Dimensions - Validation Subsample

BP Dimensions	Factor Loadings <sup>a</sup>				
	Component 1	Component 2	Component 3	Component 4	Component 5
Sincerity	.184	<b>.942</b>	.076	.109	.249
Excitement	.107	.118	.344	<b>.915</b>	.139
Competence	.292	.309	.189	.157	<b>.871</b>
Sophistication	-.003	.076	<b>.927</b>	.331	.159
Ruggedness	<b>.953</b>	.178	.026	.092	.227
Eigenvalue	2.522	1.226	.587	.395	.268
% of Variance Explained	50.4	24.5	11.8	7.9	5.4

a: all loadings above .85 are highlighted in bold italics.

### 5.2.2 Quality (of core brand and extension)

The 'quality' scale originally consisted of 8 items. The measurement of the 'quality' of the core brand was used as the development subsample (102 responses) and measurement of the 'quality' of the extension was used as the validation subsample (68 responses). The evaluation of this scale followed similar procedures to those outlined in the development of the individual brand personality dimensions.

#### Item Analysis

The correlation matrix showed that the item 'price' was not fully behaving as expected as it correlated negatively with the item 'quality'. It also tended to have low inter-item correlations and a small corrected item-total correlation (.170). Dropping this item would increase alpha from .82 to .84. Also, the item 'likely to try' had a small corrected item-total correlation just above the minimum level desired at .302. By dropping this item alpha would be raised from .82 to .84.

The 8 items in the scale were then cross-validated using the second subsample in order to test their stability. The results showed that the items 'price' and 'likely to try' had a mixture of very low and some reasonable inter-item correlation's. The corrected item-total correlation's for these items were .374 and .296 respectively (see Appendix 5.2). Due to the different inter-item correlations and a corrected item-total correlation it was decided to keep both these items in the scale at this stage until unidimensionality has been assessed. A modified version of this scale had been used before by Keller and Aaker (1992) who reported alpha values for their multi-item scales all in excess of .70. However, their scale only included three (i.e. level of quality, likely to try and inferior/superior product) items. Part of this scale had also been used by Dodds, Monroe, and Grewal (1991) who reported their scale to have an alpha value of .95. Their scale included four items that were used in the development of the present scale (i.e. reliable, dependable, quality and workmanship). Table 5.16 provides the final characteristics of the quality scale, which reports relatively high levels of Alpha for both the development and validation subsamples (.87 and .90 respectively).

**Table 5.16 - Characteristics of the Quality Scale**

Quality Items	Corrected Item-Total Correlation Development Subsample	Corrected Item-Total Correlation Validation Subsample	Alpha If Item Deleted Development Subsample	Alpha If Item Deleted Validation Subsample	Alpha $\alpha$ Development Subsample	Alpha $\alpha$ Validation Subsample
Dependability	0.81	0.83	0.82	0.86	0.87	0.90
Inf/superior	0.68	0.58	0.85	0.90		
Quality	0.63	0.69	0.86	0.89		
Reliability	0.79	0.71	0.83	0.87		
Technology	0.34	0.67	0.90	0.89		
Workmanship	0.79	0.80	0.82	0.87		

### Unidimensionality

The dimensionality of the quality scale was assessed according to the process outlined earlier. Quality was factor analysed using principal axis factoring with varimax rotation to check for unidimensionality. The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a two factor solution, with the first factor explaining 48.3% and the second factor 14.% of the common variance. An examination of the factors suggested that 'price' was not significantly loading on any factor and that 'likely to try' only significantly loaded at the .381 level on the second factor. When extracting only one factor 'price' loaded at .175 and 'likely to try' at .329, whilst the remaining items loaded significantly on that factor. Theoretically, there is a lack of evidence supporting the association of price with quality (Zeithaml 1988; Dawar & Parker 1994). 'Price' was added to the quality scale at request of the automobile industry experts. Arguably, it is possible for a high priced brand to be of low quality as the company may be exploiting its brand name and therefore in some instances consumers may not see price as an indication of quality. Price was eliminated at this stage on the evidence presented above. It was not felt necessary to examine the mean and variance of this item due to the compelling evidence already gathered.

The second subsample was used to test the stability of the remaining seven items. The factor analysis and varimax rotation resulted in a two factor solution, with the first factor explaining 53.6% and the second 15.7% of the common variance. The item 'likely to try' only significantly loaded at the .303 level on the second factor. When extracting only one factor 'likely to try' loaded at .315, whilst the remaining items loaded significantly on that factor.

'Likely to try' was also dropped from the scale due to its consistently low loadings compared to the rest of the items in the scale (although the loadings were slightly greater than the desired .3 level the squared multiple correlation was low ('Likely to try' .129). In this industry a respondent may not try the brand due to its high price, but, they may still consider it to be of high quality. Hence the item 'likely to try' may not capture aspects of quality and theoretically should be excluded from the scale. Once again, it was not felt necessary to examine the mean and variance of this item due to the compelling evidence already gathered to warrant the elimination of this item.

When 'price' and 'likely to try' were removed, factor analysis was re-run on the remaining 6 items following the two stage procedure outlined above. Principal axis factoring resulted in a single factor solution (see table 5.17) with the factor explaining 61.7% of the common variance for the development subsample. The validation subsample as revealed a similar single factor solution with it explaining 66.5% of the common variance. All items had significant loadings of greater than .30 . The only notable difference between the development and validation subsample is the loadings of 'technology' (.361 and . 698 respectively). It appears that the item 'technology' better describes quality in the validation subsample. The difference may be explained by this subsample being the 'after' measure and thus the level of technology may be more important in terms of quality when the brand is extending to different areas. This item was not eliminated from the scale due to its loading being above .30 in both cases. An examination of the scree plots for the development and validation subsamples show both to have a distinctive elbow at the second factor indicating only one factor to be present. These results appear to support the notion that the scale items are unidimensional (Table 5.17).

**Table 5.17 Quality - Factor Matrices**

Quality Items	Factor Loadings <sup>a</sup>	
	Factor1 Development Subsample	Factor 1 Validation Subsample
Dependability	<b>.888</b>	<b>.907</b>
Inf/superior	<b>.712</b>	<b>.597</b>
Quality	<b>.673</b>	<b>.709</b>
Reliability	<b>.863</b>	<b>.839</b>
Technology	<b>.361</b>	<b>.698</b>
Workmanship	<b>.845</b>	<b>.873</b>
Eigenvalue	3.699	3.990
% of Variance Explained	61.7	66.5

**a: all loadings above .30 are highlighted in bold italics.**

### 5.2.3 Extension Fit

The fit scale originally consisted of 5 items. As 'fit' was only measured once in the second set of questionnaires after the experimental stimulus had been presented, using both a development and validation subsample could not be achieved in the measure development process. This was due to the number of cases not being sufficiently large enough to split the sample (68 responses). The evaluation of this scale followed similar procedures to those outlined in the development of the individual BP dimensions with the absence of a validation subsample.

### Item Analysis

The correlation matrix showed that the item 'extreme' was not fully behaving as expected as it tended to have low inter-item correlations and a small corrected item-total correlation (.239). Dropping this item would substantially increase alpha from .87 to .95. Conceptually, the item 'extreme' was not originally included in previous 'fit' measures (e.g. Keller and Aaker 1992) and was added to try to capture a respondent's thoughts on how radical a new extension was. It was not felt necessary to examine the mean and variance of this item due to the compelling evidence already gathered to warrant the elimination of this item. The item was subsequently dropped from the scale. This scale had been used before by Keller and Aaker (1992) who reported alpha values for their multi-item scales all in excess of .70. However, their

scale only included three (i.e. level of fit, logical/not logical and level of appropriateness) items. The final alpha value of .95 is very good in comparison to Keller and Aaker's (1992) levels in excess of .70. However, when including the extra item 'similarity' in the scale alpha values would be expected to be higher due to the number of items in the scale being increased (De Vellis 1991; Spector 1992). The other item in the final scale (similarity) had been also used in previous scales (e.g. Milberg et. al. 1997, reported no specific examination of reliability of this item) to measure fit in terms of perceived similarity between the new product and the firms other products. Table 5.18 provides the final characteristics of the quality scale.

**Table 5.18 - Characteristics of the Fit Scale**

Fit Items	Corrected Item-Total Correlation Development Subsample	Alpha If Item Deleted Development Subsample	Alpha $\alpha$ Development Subsample
Appropriate	0.92	0.91	0.95
Fit	0.94	0.91	
Logical	0.90	0.92	
Similarity	0.72	0.98	

### Unidimensionality

Factor analysis with no assumptions made about the number of dimensions to extract was carried out. This resulted in a single factor solution with the factor explaining 86.3% of the common variance. All the items loaded significantly on this factor (Table 5.19).

An examination of the scree plot indicated a distinctive elbow at the second factor indicating only one factor to be present. Thus, these results support the notion that the scale items are unidimensional.



**Table 5.19 Fit - Factor Matrices**

<b>Fit Items</b>	<b>Factor Loadings <sup>a</sup></b>
	<b>Factor1 Development Subsample</b>
Appropriate	<b><i>.963</i></b>
Fit	<b><i>.982</i></b>
Logical	<b><i>.937</i></b>
Similarity	<b><i>.734</i></b>
Eigenvalue	3.454
% of Variance Explained	86.3

**a: all loadings above .30 are highlighted in bold italics.**

#### **5.2.4 Consumer Knowledge**

It was identified in Chapter 4 that two knowledge scales were used (see Section 4.5.4.3). Of these two measurements the most reliable would be used to assess the research hypotheses.

##### **Consumer Knowledge (A)**

The consumer knowledge (A) scale originally consisted of 5 items. As Consumer Knowledge (A) was only measured once in the first set of questionnaires before the experimental stimulus had been presented using both a development and validation subsample could not be achieved in the measure development process. This was due to the number of cases not being sufficiently large enough to split the sample (102 responses). The evaluation of this scale followed similar procedures to those outlined in the development of the individual BP dimensions with the absence of a validation subsample.

##### **Item Analysis**

The correlation matrix showed that all the items were behaving as expected. All items had reasonably high inter-item correlations and a high corrected item-total correlations. Coefficient alpha was .92 (Table 5.20). This scale had been used before by Mishra et. al. (1993) who reported an alpha value of .90 for their scale of product expertise. However, their scale did not use the item 'familiarity' which was taken from

Srinivasan and Ratchford's (1991) knowledge scale. Alpha values are very similar for the two scales. Mishra et. al. (1993) reported alpha values slightly lower, which, is probably an artefact of having one less item in the scale (De Vellis 1991; Spector 1992).

**Table 5.20 - Characteristics of the Consumer Knowledge Scale (A)**

Consumer Knowledge Items	Corrected Item-Total Correlation Development Subsample	Alpha If Item Deleted Development Subsample	Alpha $\alpha$ Development Subsample
Buyer Type	0.72	0.91	0.92
Experience	0.83	0.89	
Familiarity	0.79	0.90	
Informed	0.81	0.89	
Knowledge	0.78	0.90	

### Unidimensionality

Factor analysis with no assumptions made about the number of dimensions to extract was carried out. This resulted in a single factor solution explaining 75.2% of the common variance. All the items loaded significantly on this factor (Table 5.21). An examination of the scree plot indicated a distinctive elbow at the second factor indicating only one factor to be present. Thus, these results support the notion that the scale items are unidimensional.

**Table 5.21 Consumer Knowledge (A) - Factor Matrices**

Fit Items	Factor Loadings <sup>a</sup>
	Factor1 Development Subsample
Buyer Type	<i>.763</i>
Experience	<i>.882</i>
Familiarity	<i>.836</i>
Informed	<i>.854</i>
Knowledge	<i>.817</i>
Eigenvalue	3.759
% of Variance Explained	75.2

**a: all loadings above .30 are highlighted in bold italics.**

## Consumer Knowledge (B)

The consumer knowledge (B) scale originally consisted of 8 items. Once again, Consumer Knowledge (B) only used a development subsample due to the number of cases not being sufficiently large enough to split the sample (102 responses).

### Item Analysis

The correlation matrix showed that most of the items were behaving as expected. The majority of items had reasonably high inter-item correlations and a high corrected item-total correlations (apart from 'repair and maintain' .339). Coefficient alpha was .85 (Table 5.22) and only the item 'repair and maintain' would increase alpha to .86. 'Repair and maintain' had a very low mean and a very low variance adding to the unsuitability of this item. The item was kept in the scale at this stage due to it being a modified item from an existing and reliable scale (e.g. Srinivasan and Ratchford 1991). Industry experts also suggested that this item was valuable in terms of describing the expertise of a consumer in this particular industry. The final alpha value of .85 was similar to that reported by Srinivasan and Ratchford (1991) of .87 for their seven item scale (4 items of which were included in the scale below). Three items were also similar to those developed by Smith and Park (1992) who reported an alpha of .80 for their four item scale. Finally, two items were similar to those developed by Lichtenstein et. al. (1990) who reported a scale reliability of .77 for four items.

**Table 5.22 - Characteristics of the Consumer Knowledge Scale (B)**

Consumer Knowledge Items	Corrected Item-Total Correlation Development Subsample	Alpha If Item Deleted Development Subsample	Alpha $\alpha$ Development Subsample
Friends Consider Me an Expert	0.46	0.85	0.85
Gathering Information	0.58	0.83	
Giving Advice To a Friend	0.75	0.81	
Important Product characteristics In Providing Maximum Satisfaction	0.45	0.85	
Knowledge of Brand Compared to Average Buyer	0.74	0.81	
Knowledge of Brand Compared to Average Person	0.81	0.80	
Knowledge of Selecting Best Products Within Range	0.66	0.82	
Repairing and Maintaining Vehicles	0.34	0.86	

## Unidimensionality

The dimensionality of consumer knowledge (B) scale was assessed according to the process outlined earlier. Consumer knowledge (B) was factor analysed using principal axis factoring with varimax rotation to check for unidimensionality. The initial analysis made no assumptions about the number of dimensions characterised by the variables. This resulted in a two factor solution, with the first factor explaining 51.0% and the second factor 13.0% of the common variance. An examination of the factors suggested that only 'repair and maintain' loaded significantly on the second factor (Table 5.23). However, the eigenvalue for this factor was only 1.038 barely explaining more than one variable. When extracting only one factor 'repair and maintain' loaded significantly at .375, whilst the remaining items loaded significantly on that factor. Thus 'repair and maintain' was not dropped from the scale. An examination of the scree plot indicated a distinctive elbow at the second factor indicating only one factor to be present and therefore support was provided for the scales unidimensionality (Table 5.23).

**Table 5.23 Consumer Knowledge (B) - Factor Matrices**

Consumer Knowledge Items	Factor Loadings <sup>a</sup>		
	Factor1 Development Subsample	Factor 2 Development Subsample	(Forced Single Factor) Development Subsample
Friends Consider Me an Expert	.324	.522	.512
Gathering Information	.595	.201	.623
Giving Advice To a Friend	.822	.184	.806
Important Product characteristics In Providing Maximum Satisfaction	.491	.009	.480
Knowledge of Brand Compared to Average Buyer	.763	.271	.805
Knowledge of Brand Compared to Average Person	.777	.416	.888
Knowledge of Selecting Best Products Within Range	.640	.326	.723
Repairing and Maintaining Vehicles	.113	.669	.375
Eigenvalue	4.082	1.038	4.082
% of Variance Explained	51.0	13.0	51.0

**a: all loadings above .30 are highlighted in bold italics.**

### **5.3 SCALE VALIDITY**

Once reliability and dimensionality had been assessed, scale validation was undertaken. There were five main scales as identified in Table 5.3.

#### **5.3.1 Content Validity**

Subjective assessment was carried out between the individual items and the constructs to achieve content validity. The scales were considered content valid since they were adapted from previous scales to maximise the appropriateness of each item. Content validity was also achieved through expert opinions during the pretests, where, construct definitions were clarified. Additionally, potential difficult construct domains were clearly defined in the questionnaire to aid content validity. Specifically, in the brand personality scale a clear definition was given.

#### **5.3.2 Construct Validity**

##### **5.3.2.1 Convergent and Discriminant Validity**

The underlying idea of convergent and discriminant validity in this study is that the two consumer knowledge measures will relate more strongly to each other than to any other constructs. The Multitrait-Multimethod Matrix (MTMM) could not be used in this study to assess validity as alternative methods of measurement were only available for the consumer knowledge construct. MTMM requires at least two constructs being measured, with each being measured by two different methods (Spector 1992).

All the other constructs had only one type of measurement (Spector 1992). Therefore, convergent and discriminant validity were only assessed for consumer knowledge. Firstly, convergent validity was assessed by comparing consumer knowledge scores on scale (A) with scale (B). Next, the consumer knowledge scores were assessed for discriminant validity by comparing them to other construct scores.

The Pearson correlation coefficient was used to measure the strength or degree of supposed linear association between two variables. A perfect correlation would be +

or - 1. Scatter plots were also used in conjunction with the Pearson correlation to aid the interpretation of the results. Table 5.24 shows the correlations between the construct scores. Consumer knowledge (A) and (B) do correlate significantly at .750 ( $p = .001$ ) providing support of convergent validity. Both consumer knowledge (A) and (B) do not correlate significantly with the quality of the core brand and the quality of the extension. However, both (A) and (B) do correlate significantly with the fit construct at under .300 ( $p = .005$ ). Spector (1992) suggests that the values have to be not only statistically significant, but, relatively large in magnitude (which the above are not) to provide support that the values are capturing the same construct. These findings provide tentative support for the discriminant validity. The scatter plots provided further evidence of the relationships reported above. It has been argued that without the scatter plot, one can say nothing about the relationship between two variables (Kinnear and Gray 1999). The scatter plot for the consumer knowledge construct clearly indicates a positive linear relationship, whilst, the scatter plots of consumer knowledge with other constructs do not (see Appendix 5.10). These findings provide support for convergent and discriminant validity.

**Table 5.24 Convergent and Discriminant Validity of Consumer Knowledge**

<b>Construct</b>	<b>Knowledge (A)</b>	<b>Knowledge (B)</b>
<b>Knowledge (A)</b>	1.000	
<b>Knowledge (B)</b>	.750** .000	1.000 .
<b>Quality of Core Brand</b>	.056 .577	.106 .290
<b>Quality of Extension</b>	.197 .108	.200 .102
<b>Fit</b>	.264* .030	.292* .016

\*\* Correlation is significant at the 0.01 level.

\* Correlation is significant at the 0.05 level.

Further evidence of convergent validity was also collected by entering all the items from the two consumer knowledge measures into a factor analysis. A single factor was extracted using principal axis factoring explaining 53% of common variance. All the components loaded on the factor at greater than the desired .3 level (see Appendix

5.11). This suggests that a single construct is indeed being measured and provides further evidence of convergent validity.

### **5.3.2.2 Criterion-related Validity**

Known groups validation is also classified as criterion-related validity (also known as predictive validity) and was used in this research (Churchill 1979). The measurements fit, extension quality and consumer knowledge used this type of validation procedure. With known groups validation the criterion is categorical rather than continuous. For this type of validation "hypotheses must specify which groups will score higher on the scale than other groups" (Spector 1992, p. 49). The experimental design used in this research allows known groups validity to be assessed. Fit was manipulated and the ATV should on average be perceived as having 'good' fit and the Aftershave as 'poor' fit. Hence, respondents who were presented with the ATV extension should score higher on the fit scale, on average, than those presented with the aftershave extension. Next, the literature suggests that extensions with 'good' fit will be evaluated more favourably than the extensions with 'poor' fit (Aaker and Keller 1990). Thus, respondents presented with the ATV extension should score higher on the scale of extension quality, on average, than those presented with the aftershave extension.

Correlation coefficients could not be used in this case as the criterion is categorical. However, means on the scales of interest can be compared at each level of the categorical variable and the differences will still imply relationships between the scale and the categorical variable (Spector 1992). A t-test was carried out to determine if there was any statistically significant difference between the ATV and the Aftershave in terms of 'fit' and 'extension quality'. Table 5.25 shows that there are substantial and significant differences between the two groups which provides evidence of criterion-related validity for the measures 'fit' and 'extension quality'.

**Table 5.25 Mean Group Differences and T - Test Results For Fit and Extension Quality**

	ATV (mean score)	Aftershave (mean score)	t - value	Significance (1 - tailed)
<b>Fit</b>	4.55	2.09	7.74	.000
<b>Extension Quality</b>	4.98	3.56	5.88	.000

A validation question was also included in the questionnaire assessing a respondent's level of familiarity with the brand in question. It asked respondents "Are you aware of any other types brand X products which are not 4 x 4 vehicles?" This validation question was used to check the validity of the consumer knowledge scales. It was expected that those respondents who were aware of other products would have higher levels of knowledge than those unaware of other products.

The means on the two consumer knowledge scales were compared at each level of the categorical variable (i.e. awareness of other products, yes/no). A t -test was carried out to determine if there was any statistically significant differences between the respondents who were aware of other products and those that were not aware. Table 5.26 shows that there are substantial and significant differences between the two groups for the consumer knowledge (A) measure providing evidence of criterion-related validity. However, the consumer knowledge (B) measure showed no significant differences providing a lack of support for this specific type of validity.

**Table 5.26 Mean Group Differences and T - Test Results For Consumer Knowledge**

	Aware of other Products - YES (mean score)	Aware of other Products - NO (mean score)	t - value	Significance (1 - tailed)
<b>Consumer Knowledge (A)</b>	3.27	2.59	-2.16	.033
<b>Consumer Knowledge (B)</b>	3.05	2.48	-1.65	.102



It was decided to use the consumer knowledge (A) measure when conducting further analysis (see Chapter 6 & 7) for a number of reasons. Firstly, this measure had a better alpha value and a single factor solution that explained over 75% of the common variance (as apposed to 51% for the (B) measure). It was also decided to use the consumer knowledge (A) measure due to its superior support of criterion-related validity.

### 5.3.2.3 Nomological Validity

Nomological validity is provided when theoretical relationships between constructs are supported by empirical evidence of the proposed relationship (Peter and Churchill 1986). It is the extent to which a measure behaves as regards to how the theory suggests it should behave (Peter 1981). Nomological validity was established by linking the scales to theoretically relevant constructs, which had been uncovered in the literature review and conceptualisation of the research problem (see Chapters 2 and 3). As discussed in detail in Chapters 2 and 3, the relationship between 'fit' and core brand and extension evaluations has been given much thought. This has resulted in strong theoretical reasons to assume an association between these variables. It has also been proposed that this type of relationship may be present between 'fit' and brand personality evaluations, although, as yet, there is a lack of empirical evidence to support this proposition. There would be little point assessing a scales nomological validity based on limited or ambiguous theory as undesirable evidence may be due to shortcomings in theory rather than those of the scale (Souchon and Diamantopoulos 1999). Therefore, nomological validity is best assessed for the relationship between fit and extension evaluations. It is hypothesised that 'fit' evaluations are expected to be positively related to extension quality. Specifically, the correlation coefficients between 'fit' and 'extension quality' are used to measure nomological validity (DeVellis 1991).

The Spearman correlation coefficient was computed for 'fit' and 'extension quality'. The analysis reported a significant positive value of .667 at  $p < .01$  providing evidence for nomological validity for these two measures.

Another approach to assess this type of validity was to look at the hypothesised relationship between 'fit' and extension evaluations, taking into account specific moderating influences (see Chapter 3). If 'fit' behaved as expected, then further evidence of nomological validity would be provided. However, the latter approach is addressed in more detail in Chapter 7.

#### **5.4 SUMMARY**

The purpose of this chapter was to evaluate and purify a number of measures. A modified version of Aaker's (1997) brand personality scale was shown to consist of five dimensions all of which were unidimensionable. The brand personality dimensions showed on average good levels of reliability providing confidence in the validity of the brand personality scale. All the other measures were shown to be internally consistent and unidimensional (where required) all exhibiting very good reliability levels. Evidence of scale validity has also been provided for the measures developed.

The next chapter preliminary assesses the data and tests for a number of assumptions that are required for the statistical analysis to follow.

## CHAPTER 6

### PRELIMINARY INVESTIGATION OF THE DATA

The purpose of this chapter is to explore, summarise and describe the observations made from the data set. Specifically, exploratory data analysis was carried out in order to establish illuminating features in the data and to test that a number of assumptions were upheld, which were required for the statistical tests that followed. Next, the data was presented in an easily understandable manner so as to provide summary descriptions of respondents' perceptions of the major constructs of interest.

Each measure in Chapter 5 was computed as the sum of individual scores from the number of items making up a measure. An average score was then computed for each individual respondent.

It is important to take an initial examination of the data for a number of reasons. Data description can help detect errors from coding; it enables presentation of the data and provides summary measures of 'typical' or 'average' responses (Diamantopoulos and Schlegelmilch 1997).

#### 6.1 ASSUMPTION TESTING

The data needed to be thoroughly explored in order to determine its suitability for specified statistical tests (Kinnear and Gray 1999). The latter are described in Chapters 5 and 7 and take for granted that certain assumptions about the data are correct. Although many statistical tests are relatively robust against moderate violations of assumptions, results can still be misleading. In published research little attention has been given to verifying that assumptions are satisfied (Churchill 1999). Therefore, by assessing the data first the set of assumptions that are relevant to the statistical models used can and should be satisfied (Kinnear and Gray 1999). Table 6.1. shows the statistical tests used and the assumptions that apply to each particular test.

**Table 6.1 Assumptions Tested**

Assumptions	Type of Analysis Undertaken			
	Factor Analysis	t - test	ANCOVA	Regression (per extension)
Sample Size	✓	✓	✓	✓
Normality	✓	✓	✓	✓
Linearity	✓	☒	✓	✓
Outliers	✓	☒	☒	✓
Multicollinearity	✓	☒	☒	✓
Factorability (of the correlation matrix)	✓	☒	☒	☒
Scale of Measurement	✓	✓	✓	✓
Random Sampling	✓	✓	✓	☒
Independence of Groups	☒	✓	✓	✓
Homogeneity of Variance/Regression Slopes	☒	✓	✓	✓
Reliability of Covariate	☒	☒	✓	☒

### 6.1.1 Sample Size

Sample size is particularly important when carrying out factor analysis, t – tests, ANCOVA and multiple regressions. Factor analysis requires a minimum of at least five times as many observations as there are variables to be analysed (Hair et. al. 1998). This assumption drove the type and nature of factor analysis carried out in Chapter 5 (i.e. a factor analysis of the 41 brand personality traits could not be carried out due to an insufficient sample size). Multiple regression requires five observations for each independent variable. When this falls below the 5 to 1 ratio there may be the

risk of 'overfitting' the set of variables to the sample (Hair et. al. 1998). The assumptions for sample size were met for both factor and regression analysis. For example, a sample size of 102 was used for factor analysis and the maximum number of variables used in computation was 11 giving a ratio of 9 to 1. Sample sizes of 34 were used when regression was the type of analysis (i.e. 34 respondents per experimental condition). The maximum number of independent variables in a final model was 4 providing a ratio of over 8 to 1 observations per independent variable.

### 6.1.2 Normality

Many statistical techniques make assumptions about the distribution of the population being sampled. The t and F distributions that were used to analyse the data (Chapter 7) were calculated on the basis that the population distribution was normal (Boniface 1995, Churchill 1999). Normality refers to the shape of the data distribution for individual metric variables and its correspondence to the normal distribution (Hair et. al. 1998). The normal distribution is symmetric, bell-shaped and mesokurtic (neither flat nor peaked); its mean, median and mode all coincide and each half of the distribution are mirror images (Diamantopoulos and Schlegelmilch 1997).

The statistical tests used in this research are relatively robust against moderate violations of this assumption (Churchill 1999). However, when the population distribution is far from normal the critical values for significance will bear no relation to the "true" the value in the population (Norusis 1997). Therefore, it was necessary to assess the variables of interest to ascertain their levels of normality. Normality was subsequently assessed for each variable of interest.

As different subjects performed in each of the three experimental conditions (i.e. ATV, Aftershave, Control) there was a need to check the normality of each set of scores separately. Firstly, histograms were compiled for the variables of interest. Secondly, normal probability plots were computed and the assessment of normality was apparent when the residual line closely followed the diagonal (Hair et. al. 1998). The variables used exhibited reasonable levels of normality (see Appendix 6.1 & 6.2).

### 6.1.3 Linearity

Linearity refers to "the patterns of associations between each pair of variables and the correlation coefficient to adequately represent the relationship" (Hair et. al. 1998, p. 82 - 83). It was assumed that residuals (i.e. the unexplained portion of the dependent variable) had a linear relationship with the predicted dependent variable scores. Analysing the standard residual scatter plots checked assumptions of linearity. There was a potential problem when brand personality was taken as a dependent variable as there was some departure from linearity. However, this was not particularly seen as a big problem as mild deviations from linearity are not regarded as serious (Coakes and Steed 1997). Also, the results did not appear to reveal any apparent non-linear relationships when extension evaluations were taken at the dependent variable (see Appendix 6.3 for scatter plots).

### 6.1.4 Outliers

Outliers are "observations with a unique combination of characteristics identifiable as distinctly different from the other observations" (Hair et. al. 1988, p. 64). Outliers can have a considerable impact on factor analysis or multiple regression solutions. Outlying cases once identified can be removed from the data set, or brought back into the normal distribution (e.g. by modifying specific cases), or even left alone (Coakes and Steed 1997).

Firstly, outliers and influential observations were detected using standard residual scatter-plots as used in 6.1.3. Commonly, outliers are considered for removal when they have a standard deviation of greater than three. A number of cases were identified for potential removal. However, the decision to remove the outliers must be made with caution as detection often results in the generation of further outlying cases (Coakes and Steed 1997). Outliers can also up be retained if there is no specific evidence to suggest that they are not a valid a member of the population (Hair et. al. 1997). This philosophy was followed in this research and outliers were only removed when there was a specific reason to do so and where necessary is identified in the relevant sections of analysis.

### **6.1.5 Multicollinearity**

Multicollinearity refers to the correlation between the two or more independent variables (Hair et. al. 1998). There is difficulty in separating the effects of independent variables on the dependent variable when multicollinearity is present. The problems of multicollinearity may be solved by combining the variables into a single index or to simply drop variables from the analysis (Cohen and Cohen 1983). However, one has to be careful in doing this. In factor analysis some degree of multicollinearity is desired as the object is to identify inter-related sets of variables (Hair et. al 1998). For this reason, multicollinearity was not regarded as a particular problem when using factor analysis. However, in multiple regression analysis multicollinearity can be a major problem for researchers using these types of techniques (Malhotra 1999). Hence, multicollinearity is discussed in greater detail in Chapter 7.

### **6.1.6 Factorability (of the correlation matrix)**

The data matrix in factor analysis should have several correlations in excess of .30 (Hair et. al. 1998). If no correlations are found then factor analysis should not be used. Factorability of the correlation matrix as a whole can be determined by two tests. More specifically, when Bartlett's test of sphericity produces results that are large and significant and when the Kaiser-Meyer-Olkin measure of sampling adequacy is greater and 0.6, then factorability can be assumed (Coakes and Steed 1997). These two measures of factorability were assessed when carrying out factor analysis in Chapter 5. There appeared to be no cause for concern for this assumption (see Appendix 6.5).

### **6.1.7 Scale of Measurement**

This assumption requires that the data should be at interval or ratio level of measurement. As previously discussed (see Section 4.5.4.4) this assumption was satisfied.

### **6.1.8 Random Sampling**

The before-after with control group design used in this research requires that test units must be assigned randomly. This prerequisite was followed at the data collection stage of this research.

### **6.1.9 Independence of Groups/Residuals**

The t-test, ANCOVA and multiple regression techniques used in this research require the independence of respondents. Independence refers to there being no relationship between the people or objects in the different groups (Norusis 1997). Furthermore, the dependent measures for each respondent need to be uncorrelated with the responses from other respondents in the sample (Hair et. al. 1998).

Independence of the groups was achieved by randomly assigning test units to experimental conditions (see Section 6.1.8). ANCOVA analysis also requires the independence of the covariate and treatments. When ANCOVA accounts for the covariate one must be careful that some of the effect of the independent variable has also not been removed (Coakes and Steed 1997). In part, this was avoided by randomly allocating subjects to be different levels of the independent variable and where practical by measuring the covariate (i.e. a quality of core brand and consumer knowledge) before the experiment had begun.

### **6.1.10 Homogeneity of Variance/Regression Slopes**

There should be identical variance in the populations from which the individuals are sampled (Boniface 1995). One way to test for homogeneity of variance for t-tests and ANCOVA is to use the Levene test. When the observed significance for this test is high then there is equal variance present (Norusis 1997). The Levene test was carried out on the different groups of the specific variables of interest. The results suggest that the equal variances were present. ANCOVA also requires homogeneity of regression slopes, whereby, relationships should be the same between the dependent variable (i.e. Brand Personality) and the covariate for each group (quality of core brand). An inspection of the scatter plots (as followed in 6.1.3) revealed similar results



emphasising that the slopes of each plot were similar across groups. Therefore, providing evidence to suggest that the assumption of homogeneity had been satisfied.

In multiple regression, homoscedasticity is present when the variance of the residuals is the same for all predicted scores (i.e. where the dependent variable exhibits equal levels of a variance across a range of predictor variables) (Coakes and Steed 1997). Once again, the examination of the residual scatter plots showed the variance of residuals to be similar across groups.

### **6.1.11 Reliability of Covariate**

When using ANCOVA as the form of statistical analysis the instrument used to measure the covariate should to be reliable (Coakes and Steed 1997). All of the covariate measures developed in this research have been seen to demonstrate good levels of reliability (see Chapter 5).

## **6.2 SUMMARISING AND DESCRIBING DATA**

Descriptive analysis is typically the first step in any data analysis project and helps to provide a useful initial examination of the data (Diamantopoulos and Schlegelmilch 1997). The main purpose of this section is to present the data in an easily understandable manner and to provide summary descriptions of respondents' perceptions of the major constructs of interest.

### **6.2.1 Brand Personality**

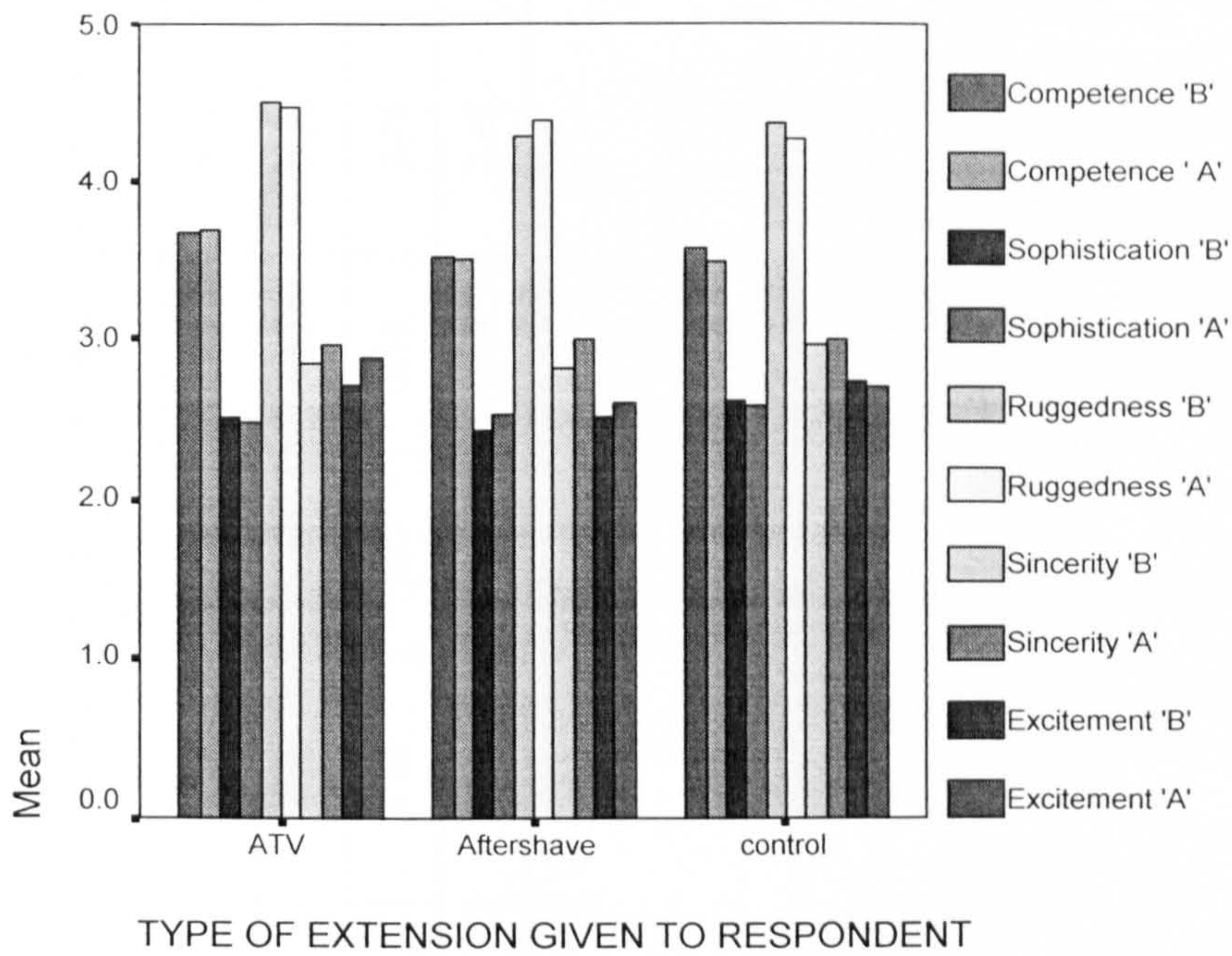
The personality of the brand name investigated was expected to have higher scores on some dimensions than others. For example, this particular brand should exhibit higher levels of 'ruggedness' than any other brand personality dimension due to this type of vehicle being used off-road and outdoors (Bull & Oxley 1996). Firstly, Figure 6.1 shows the total mean scores for each brand personality dimension 'before' and 'after' being exposed to the extension.

Figure 6.1 shows that all three categories of respondents have a similar mean ratings. In particular, the bar chart shows that there does not seem to be any large and

noticeable differences between any 'before' and 'after' measures of brand personality. When looking at the total means for all groups (see Table 6.1) the brand under investigation was evaluated high on the 'ruggedness' dimension (before 4.38, after 4.37), moderately high on the 'competence' dimension (before 3.59, after 3.56) and average on the 'sophistication', 'sincerity' and 'excitement' dimensions.

Table 6.1 shows specific differences between the brand personality measures 'before' and 'after' the experimental stimulus. Specifically, it highlights the dimensions that have changed following the experimental stimulus. It also provides preliminary evidence to suggest that there are no drastic differences between the mean evaluations on any particular dimension. However, there appear to be some small differences at this stage of analysis, which should be taken note of. In particular, the 'excitement' dimension was seemingly enhanced (2.71 - 2.89) by the 'ATV'. More surprisingly, the 'ruggedness' dimension appears to be enhanced (4.23 - 4.38) by the 'aftershave' extension. In contrast, 'sincerity' appears to be diluted by the 'aftershave' extension (3.21 - 3.03). These potential effects although relatively small may prove to be significant and are further discussed in a Chapter 7. These findings also provide further support for construct validity of the brand personality measure. This is due to the brand being investigated expected to demonstrate high levels of 'ruggedness' and 'competence'.

**Figure 6.1 – Bar Chart Showing Mean Scores of Brand Personality Dimensions ‘Before’ and ‘After’ the Extension Introduction.**



Scale

‘B’ – Refers to the ‘before’ measure of a specific brand personality dimension

‘A’ – Refers to the ‘after’ measure of a specific brand personality dimension

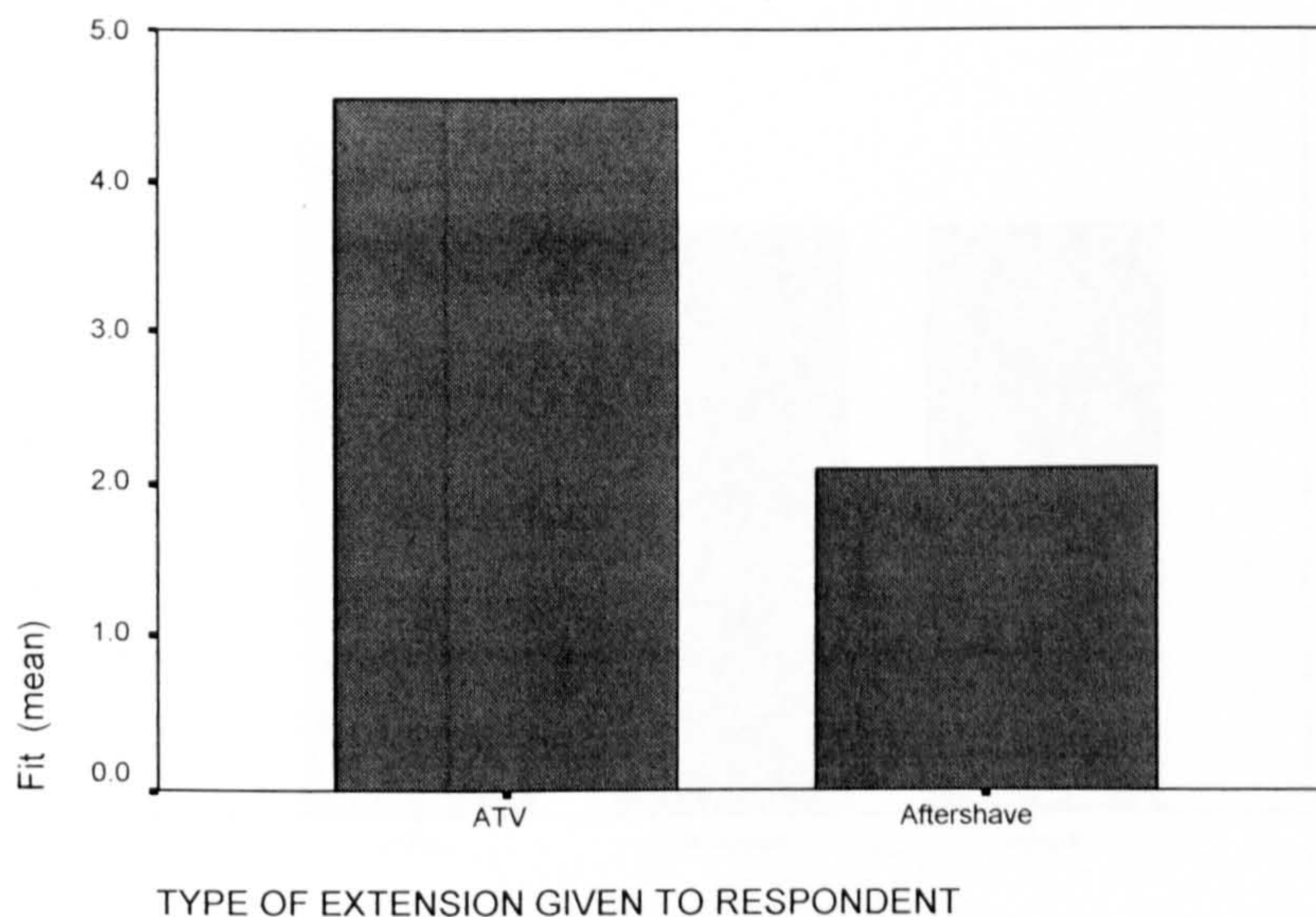
Table 6.2 – Comparison of Mean Evaluations of Brand Personality ‘Before’ and ‘After’ Experimental Stimulus.

Type of extension	Competence ‘B’	Competence ‘A’	Sophistication ‘B’	Sophistication ‘A’	Ruggedness ‘B’	Ruggedness ‘A’	Sincerity ‘B’	Sincerity ‘A’	Excitement ‘B’	Excitement ‘A’
ATV	3.68	3.69	2.52	2.48	4.50	4.46	3.18	3.12	2.71	2.89
Aftershave	3.53	3.50	2.44	2.53	4.23	4.38	3.21	3.03	2.52	2.60
Control	3.57	3.50	2.61	2.58	4.37	4.28	3.17	3.11	2.74	2.69
Total	3.59	3.56	2.53	2.53	4.38	4.39	3.18	3.09	2.65	2.73

### 6.2.2 Manipulation of Extension Fit

The types of the extension used in the experiment were selected to enable 'good' and 'poor' levels of fit to be exhibited. The manipulation of extension 'fit' was achieved. As expected, Figure 6.2 shows that the ATV was perceived as having relatively 'good' fit (mean rating 4.55) whilst, the aftershave was perceived as having low levels of fit (mean rating 2.09).

**Figure 6.2 – Bar Chart Showing Mean Scores of Fit Between the Core Brand and the Extension.**



An independent samples t – test was carried out on the fit measure to establish statistical significance. Table 6.2 shows that fit was significantly different.

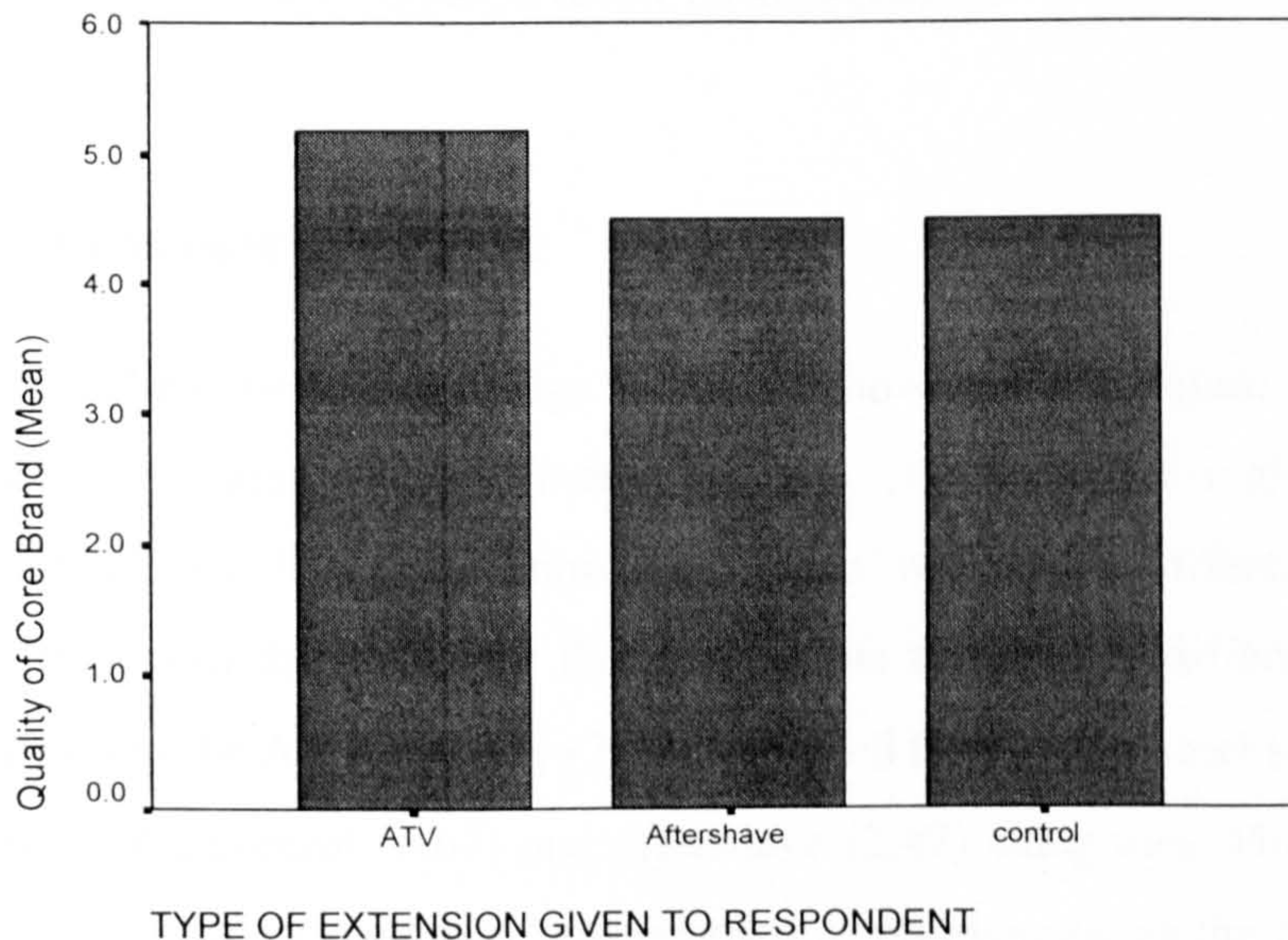
**Table 6.3 Results of t – tests for Extension Fit**

Test Variable	Mean		t - value	Degrees of freedom	Significance of t (1-tailed)
	ATV – good fit	Aftershave – poor fit			
Extension Fit	4.552	2.096	7.744	66	.000

### 6.2.3 Quality of the Core Brand

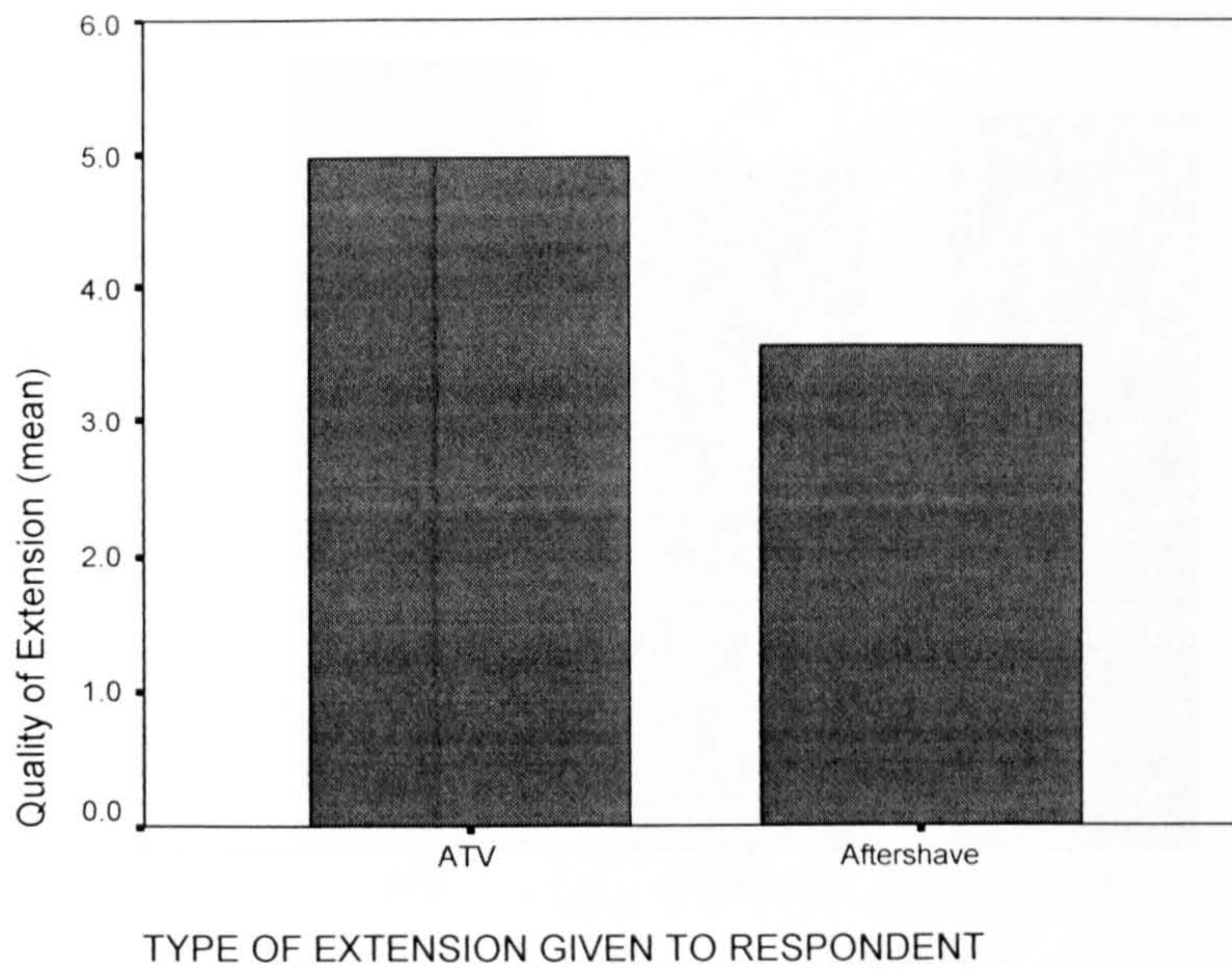
The overall mean quality of the core brand was 4.74 and therefore the brand was perceived as being above average quality. However, when looking at the mean ratings for the individual groups in Figure 6.3 there are significant ( $p < 0.01$ ) differences in evaluations of core brand quality for the ATV (good fit) group (mean = 5.19) and the aftershave (poor fit) group (mean = 4.52) and control group (mean = 4.52). These differences are not regarded as problematic as the ANCOVA analysis to follow (Chapter 7) takes account of differences between respondents in the perceived levels of core brand quality.

**Figure 6.3 – Bar Chart Showing Mean Scores of Core Brand Quality.**



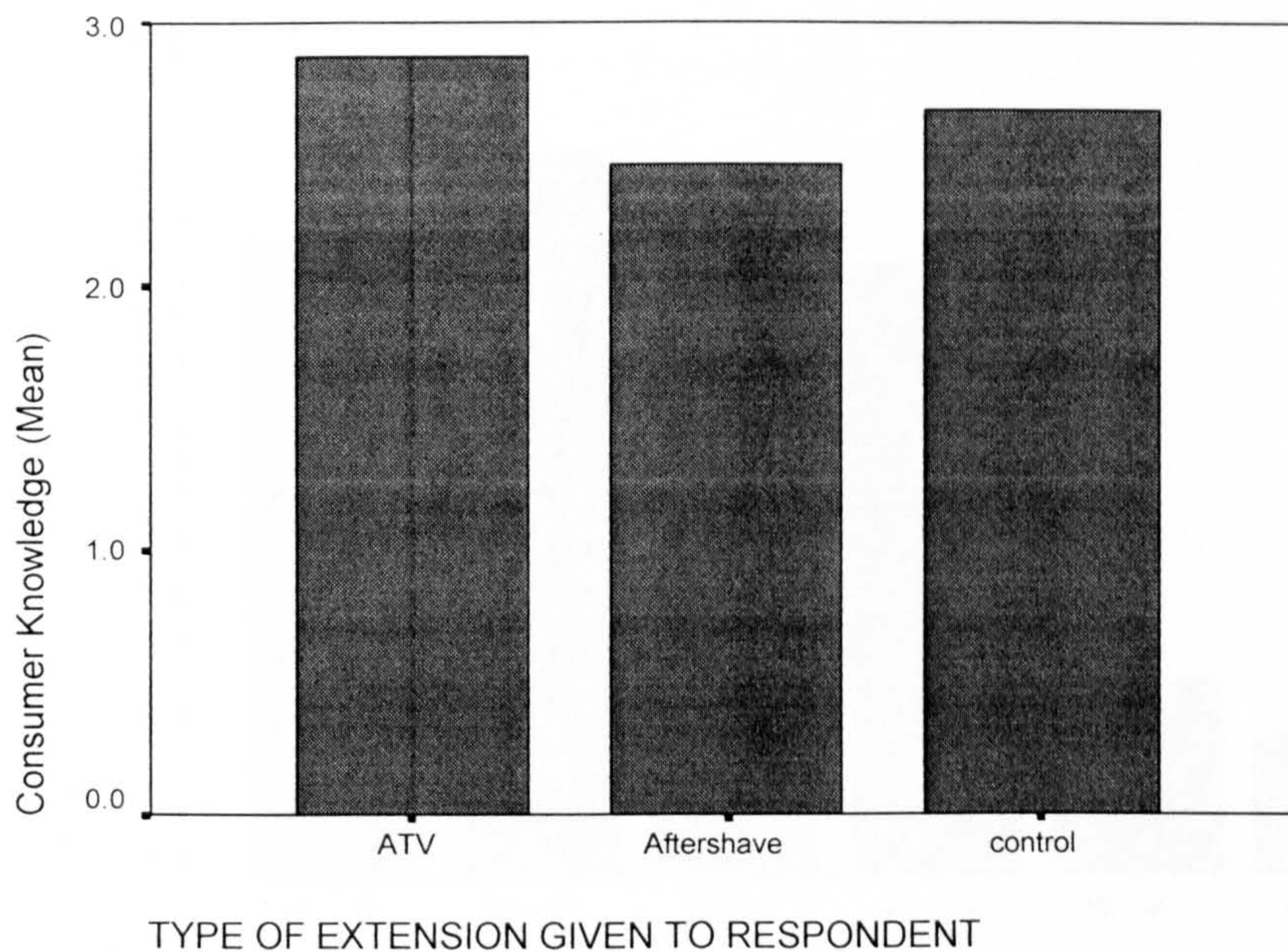
### 6.2.4 Quality of the Extension

Figure 6.4 shows that evaluations of the quality of the extension are significantly higher ( $< 0.001$ ) for the ATV (mean = 4.98) the aftershave (mean = 3.56) extension. These preliminary results seem to imply that there is some relationship between fit and the quality of the extension. With good fit the quality of an extension is higher than with poor fit.

**Figure 6.4 – Bar Chart Showing Mean Scores of Extension Quality.**

### 6.2.5 Consumer Knowledge

Respondents mean knowledge rating is shown in the Figure 6.5. The total mean knowledge rating is low (mean = 2.67). Although the majority of respondents exhibited low levels of knowledge there was some differences (although non-significant) in the levels for the respondents assigned to different categories. Those assigned to the ATV category (2.87) exhibited higher consumer knowledge levels than those in the control (2.67) and aftershave (2.47) categories. However, as in Section 6.2.3 these differences were not regarded as problematic as the ANCOVA analysis to follow (Chapter 7) takes account of differences between respondents in the perceived levels of consumer knowledge.

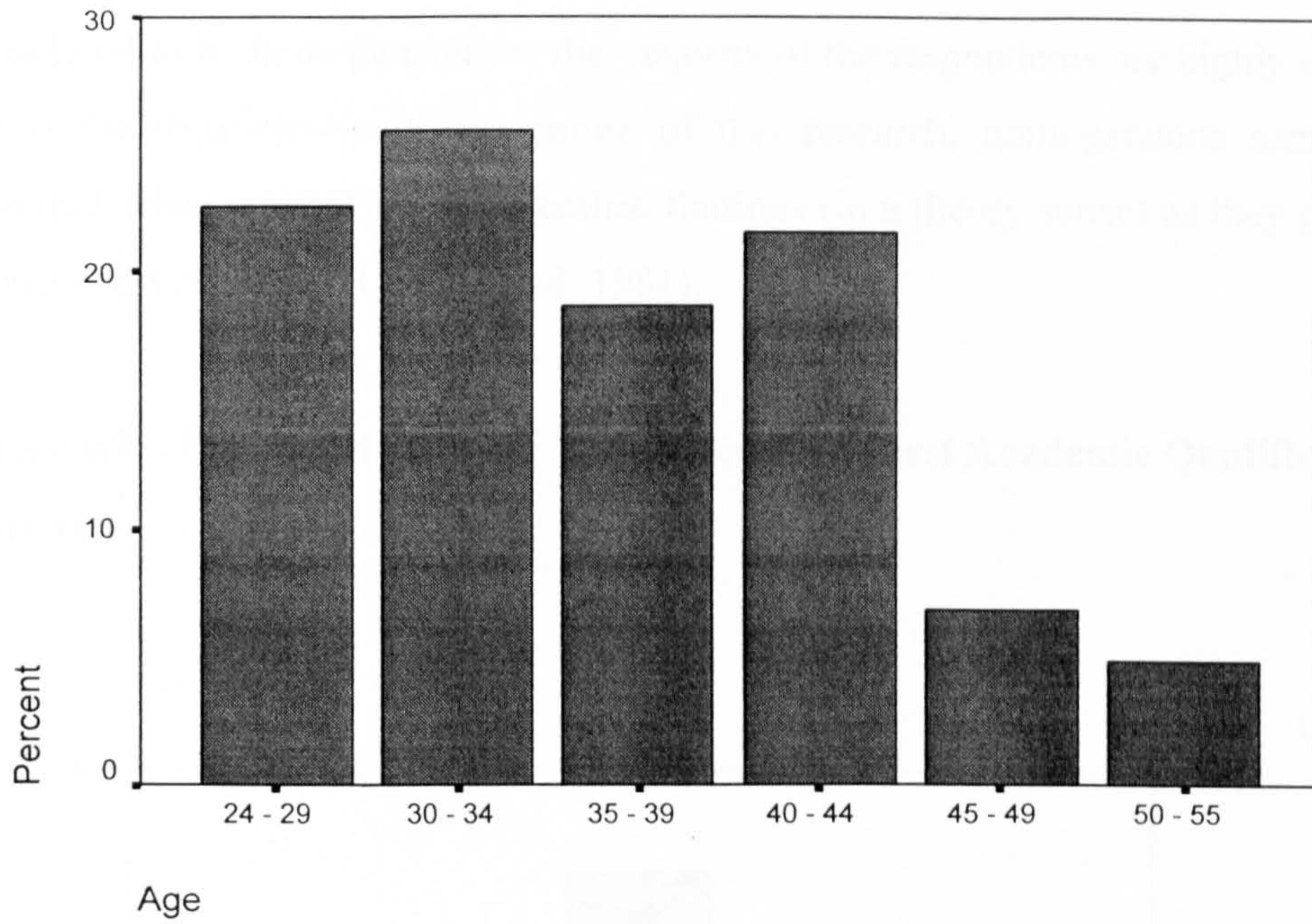
**Figure 6.5 – Bar Chart Showing Mean Scores of Consumer Knowledge.**

### 6.2.6 Respondent Characteristics

The following section describes some of the basic characteristics of the respondents who took part in the experiment. Of the 102 responses 20.6 % (21) were female and 79.4 % (81) were male (Figure 6.6). Although this sample is skewed towards males it is representative of the executive MBA students at Loughborough University with the majority of them being male.

The average age of respondent was 35.79 years. The majority of respondents were between the ages of 24 - 44. Figure 6.7 shows that 22.5 % of respondents were from the age bracket 24 - 29, 25.5% from 30 - 34, 18% from 35 - 39, 21.6% from 40 - 44, 6.9% from 45 - 49 and 4.9% from 50 - 55 age bracket.



**Figure 6.7 – Bar Chart Showing Frequency of Ages**

Of the 102 respondents the vast majority were married (64.7%) with 22.5% single (see Figure 6.8).

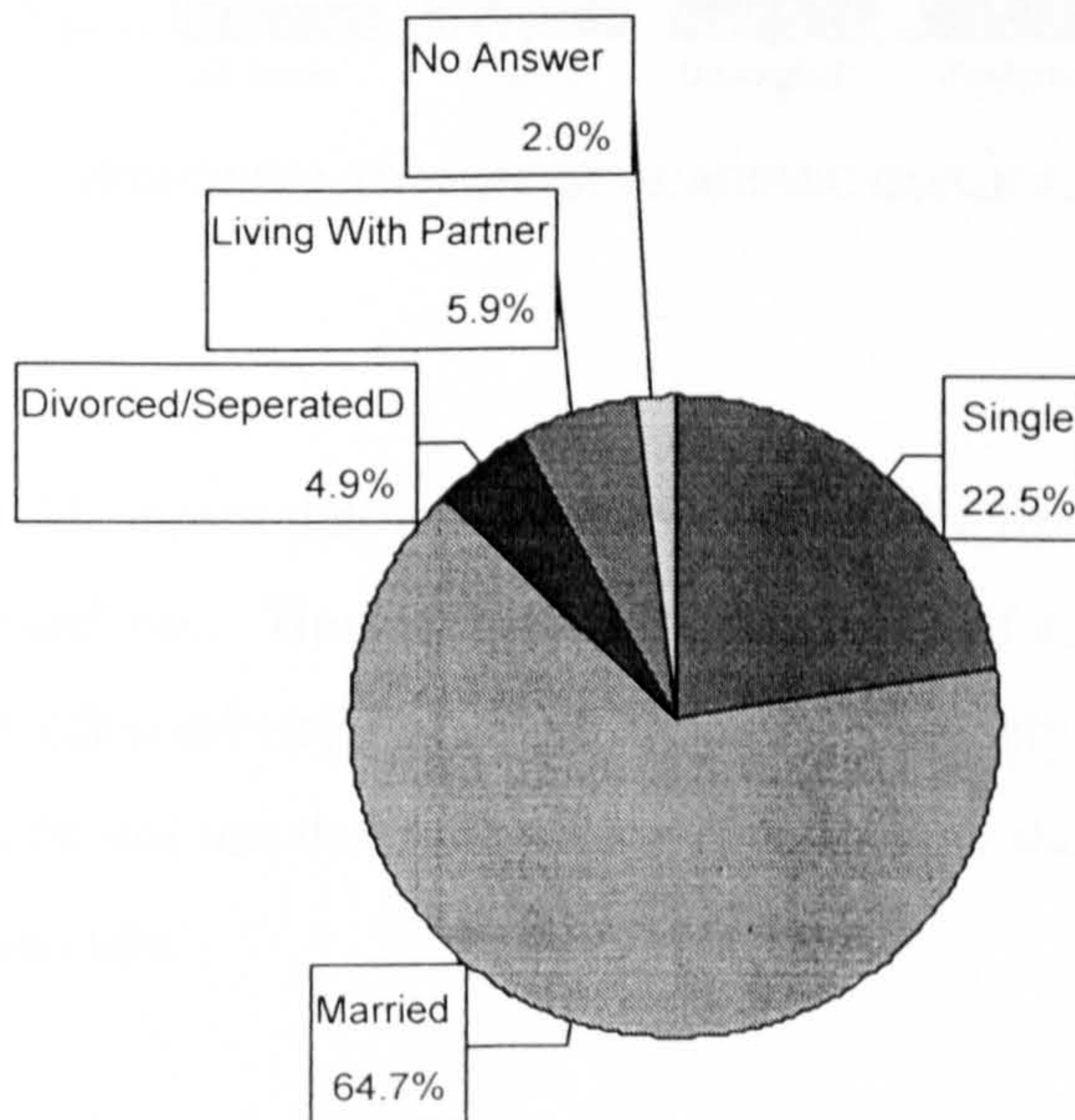
**Figure 6.8 – Pie Chart Showing Marital Status of Respondents**

Figure 6.9 profiles the education levels of respondents. A high percentage of respondents were educated to a university degree level (68.6%). This sample is considered to be homogeneous as the majority of the respondents are highly educated. Given the theoretically driven nature of this research, homogeneous samples are preferred when attempting to generalise findings (in a theory sense) as they provide a stronger test of theory (Calder et. al. 1981).

**Figure 6.9 – Bar Chart Showing Frequency of Highest Academic Qualifications Achieved.**

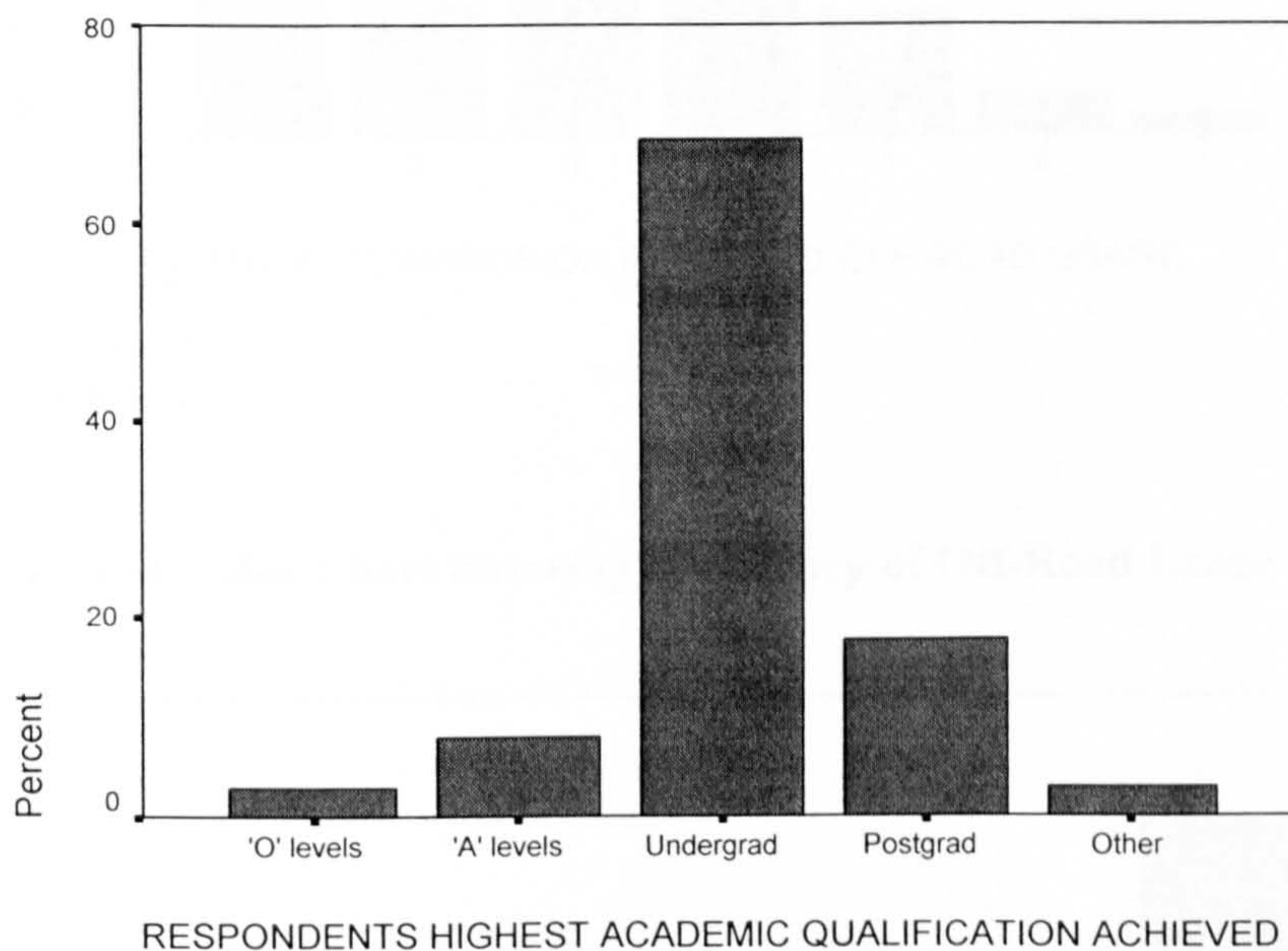
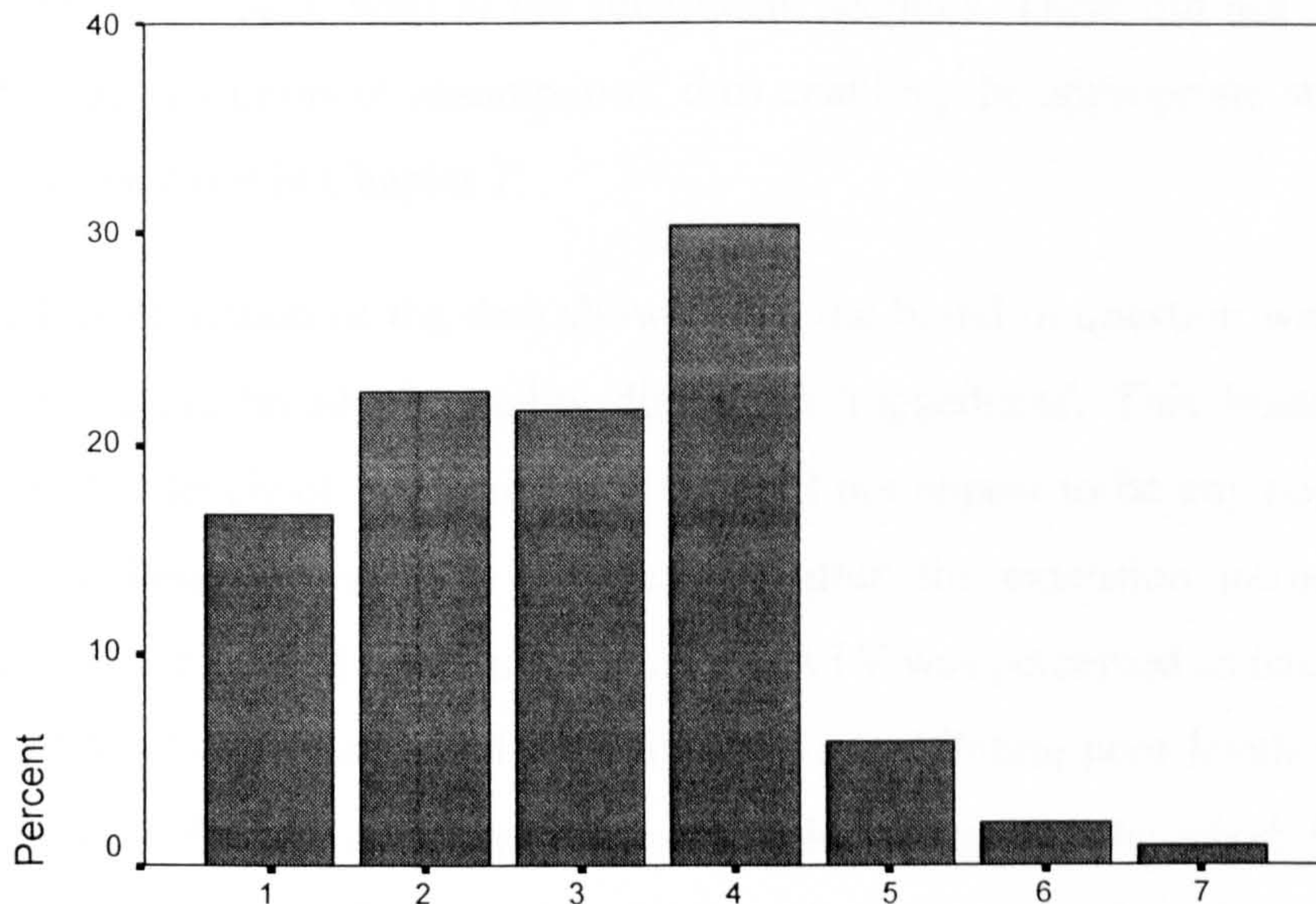


Figure 6.10 shows that respondents felt that the best use of the brand in question was for off-road use. However, the vast majority of respondents (60%) would not even consider off-road use (see Figure 6.11). Arguably, the majority of owners of 4 x 4 vehicles do not use them off-road, but still desire the vehicles to be technically competent in off-road use.

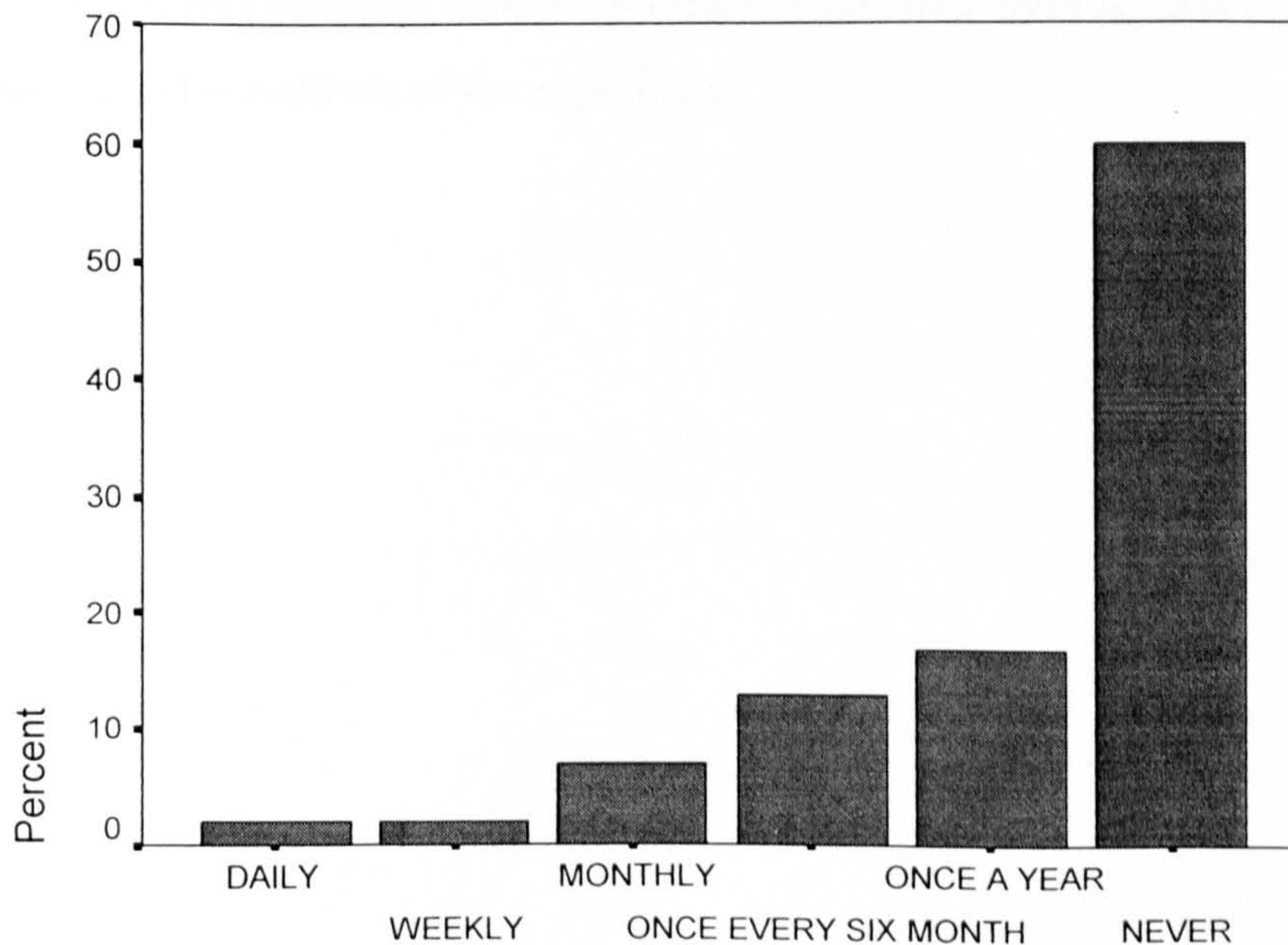
**Figure 6.10 – Bar Chart Showing Frequency of Evaluations of Best Use Of Brand Under Investigation**



ATTITUDE TOWARDS ON ROAD AND OFF ROAD USAGE

1 = Off-Road  
7 = On-Road

**Figure 6.11 – Bar Chart Showing Frequency of Off-Road Usage**



RESPONDENTS APPROXIMATE OFF ROAD USAGE

### 6.3 SUMMARY

A number of assumptions about the data have been tested. These were highlighted in Table 6.1 and dealt with in the subsequent sections. There did not appear to be any particular violations of assumptions, thus enabling the appropriate statistical analysis to be carried out in Chapter 7.

Initial examination of the data showed that the brand in question was evaluated very highly on the brand personality dimension 'ruggedness'. This brand also exhibited reasonable levels of 'competence'. There did not appear to be any notable differences between brands personality 'before' and 'after' the extension introduction. The fit manipulation proved to be successful. The ATV was perceived as having a reasonably 'good' level of fit compared to be aftershave (exhibiting poor levels of fit). This was reflected in the quality of the extension, being higher for the 'good' fit extension and lower for the 'poor' fit extension. The quality of the core brand was above average, whilst, mean consumer knowledge was rated low. There were some differences between the level of quality in the core brand and consumer knowledge for respondents in the different categories. However, these differences will be accounted for when conducting ANCOVA analysis in Chapter 7.

The next chapter provides a more specific and detailed investigation into the data collected and the effects of the experiment.

## CHAPTER 7

### HYPOTHESIS TESTING

#### 7.1 INTRODUCTION

In this chapter the model of the antecedents of consumer evaluations of brand personality and extension quality presented in Chapter 3, were empirically tested by examining the set of hypotheses developed in Chapter 3. Specifically, it reports on the results of the t-tests, ANCOVAs and the multiple regression analyses used.

The chapter begins with a discussion on hypothesis testing and an outline of the research hypotheses and how they were tested is provided. Next, an examination of the rationale behind the chosen methods of analysis, followed by an overview of the types of analysis is undertaken. Then, each test undertaken is discussed in terms of its concept, analysis issues and procedures. This is followed by a presentation of the results of each specific test carried out. Finally, a summary of the main results is provided.

Table 7.1 provides an outline of the constructs measured for each treatment group at the different stages in data collection.

**Table 7.1 Experimental Design and Construct Measurement**

	<u>Constructs Measured</u>	
	Questionnaire 1 - Before	Questionnaire 2 - After
<b>ATV (N=34)</b>	BP, consumer knowledge, quality of core brand, background information	BP, fit, quality of extension
<b>Aftershave (N=34)</b>	BP, consumer knowledge, quality of core brand, background information	BP, fit, quality of extension
<b>Control (N=34)</b>	BP, consumer knowledge, quality of core brand, background information	BP

## 7.2 HYPOTHESIS TESTING

The aim of the hypothesis testing was to examine whether particular propositions concerning the population were likely to hold or not. When setting up hypotheses there are always two others that can be rejected (Diamantopoulos and Schlegelmilch 1997). The null hypothesis examines the possibility that there is no difference between the groups. Conversely, the alternative (research) hypothesis suggests that there exist some differences in the equality of groups. Since alternative (research) hypotheses cannot be directly tested it was the null hypothesis, which was tested and if rejected one could obtain indirect support for the alternative hypothesis (Diamantopoulos and Schlegelmilch 1997). The two major objectives of this research were to determine whether there was any effect of extension fit on consumer evaluations of brand personality and of extension quality. Therefore, the null hypothesis that was tested states that fit does not have an effect on brand personality and extension quality. By rejecting a null hypothesis indirect support for the alternative (research) hypothesis may be found (Diamantopoulos and Schlegelmilch 1997). Table 7.2 provides an overview of the research hypotheses.

**Table 7.2 - Overview of Research Hypotheses**

Moderating Variable	The Impact of Fit on the Dependent Variables	
	BP Evaluations	Extension Evaluations
	✓ (H1 <sub>a</sub> )	✓ (H1 <sub>b</sub> )
Quality of Core Brand	✓ (H2 <sub>a</sub> )	✓ (H2 <sub>b</sub> )
Consumer Knowledge	✓ (H3 <sub>a</sub> )	✓ (H3 <sub>b</sub> )
Quality of Extension	✓ (H4 <sub>a</sub> )	☒
BP Competence (before)	☒	✓ (H4 <sub>b</sub> )

Scale: ✓ = indicates hypothesis tested

☒ = indicates hypothesis not applicable

### 7.3 ANALYSIS METHODS

T - tests, ANOVA and ANCOVA techniques are particularly useful when used with experimental designs (Churchill 1999). With the current research extension 'fit' was the independent variable manipulated. To determine the effects of fit on consumer evaluations of brand personality and extension quality t - tests, ANOVA and ANCOVA were used. It has been suggested that these techniques are the best ones to use when examining experimental data (Kinnear and Grey 1997). These types of statistical analysis were employed to determine whether samples from two or more groups actually came from populations with equal means. These techniques were considered useful for this research in that they should show whether any observed differences between group means are due to the treatment effect (i.e. extension fit). By comparing means of two or more groups the t - test and ANCOVA method is appropriate when a nominal level variate is used as the independent variable (i.e. two levels of fit) (Inversen and Norpeth 1976). Regression is a useful technique to use when the independent variable is interval and as fit was measured on an interval scale regression techniques could also be employed.

Before the analysis could begin the pure measure of brand personality needed to be calculated (i.e. the control group needed to be accounted for). Brand personality would be diluted if subjects' evaluation 'after' the extension introduction were lower than 'before' the extension was introduced. Therefore, 'before' ratings of brand personality was subtracted from the 'after' (i.e. after the extension was introduced) ratings of brand personality (i.e. similar to Leong et. al. 1997 and Kardes and Allen's 1991 calculation of before versus after evaluations). The average for the control group enhancement/dilution was then computed. This was then subtracted from the enhancement/dilution calculation of the ATV and aftershave groups. This then gave a pure measure of brand personality enhancement/dilution and controlled for any confounding factors that could affect brand personality between the 'before' and 'after' ratings. Higher positive scores indicated greater enhancement of brand personality.

The formulae for calculating the impact of the experimental stimulus are provided by Churchill (1999, p. 163).

$$\text{EG: } O_2 - O_1 = E + U + I$$

$$\text{CG: } \frac{O_4 - O_3}{(O_2 - O_1) - (O_4 - O_3)} = \frac{U}{E + I}$$

Notation

EG = Experimental group

CG = Control group

$O$  = Measurement of test units

$E$  = Effect of experimental variable

$U$  = Extraneous sources of variation

$I$  = Interactive effect of testing

#### 7.4 ANALYSIS PROCEDURES

Firstly, hypotheses H1<sub>a</sub> and H1<sub>b</sub> (see Table 7.2) were tested by conducting t-tests to establish if there was any significant difference between the two groups of respondents presented with ATV (i.e. good fit) and aftershave (i.e. poor fit) in their brand personality (pure) and extension evaluations (see Table 7.3). Next, hypotheses H1<sub>a</sub> and H1<sub>b</sub> (see Table 7.2) were tested by conducting ANCOVA techniques, where the effect of fit upon brand personality and extension evaluations was further established. This analysis also tested a number of hypotheses (H2<sub>a</sub>-H4<sub>a</sub>, H2<sub>b</sub>-H4<sub>b</sub>) relating to a number of moderating influences identified in Chapter 3 (see Table 7.3). Table 7.3 also shows that another ANCOVA analysis was conducted using the brand personality 'after' measure as the dependent variable and using brand personality 'before' measure as a covariate. This was done to see if brand personality 'before' was a major influence on brand personality 'after' evaluations. Finally, Table 7.3 identifies the multiple regression analyses that were conducted to clarify and check the results of the t-tests and ANCOVA analysis. Specifically, hypotheses H1<sub>a</sub> and H1<sub>b</sub> (see Table 7.2) were tested by using brand personality (pure) and extension evaluations as the dependent variables respectively. Next, regression analysis was conducted when using brand personality (after) as the dependent variable to provide further evidence that brand personality (before) would indeed greatly affect brand personality (after) evaluations. Additionally, Table 7.3 shows that a regression analysis was run when using brand personality (before) as the dependent variable. This was done to try to establish what variables could influence initial brand personality evaluations.



Table 7.3 - The Dependent Variables and Type of Analysis Undertaken

Dependent Variable	Treatment Groups	Type of Analysis Undertaken		
		t-test	ANCOVA	Regression (per extension)
BP Differences (Pure) The net difference between before and after measurements taking account of the control group	ATV (34) Aftershave (34)	ATV vs Aftershave - (H1 <sub>a</sub> )	Factor: ATV vs Aftershave Covariate: quality (core brand & extension), consumer knowledge, background variables - (H1 <sub>a</sub> , H2 <sub>a</sub> , H3 <sub>a</sub> , H4 <sub>a</sub> )	Predictors: Fit plus covariates as in ANCOVA - (H1 <sub>a</sub> )
BP After BP measurement after the experimental stimulus	ATV (34) Aftershave (34)	Not relevant as BP Pure differences already stated in t - test	Factor: ATV vs Aftershave Covariate: quality (core brand & extension), consumer knowledge, BP Before, background	Predictors: Fit plus covariates as in ANCOVA
BP Before BP measurement before the experimental stimulus	All respondents	Not relevant as BP Pure differences already stated in t - test	Not relevant as experimental stimulus not given at this stage	Predictors: Quality of the core brand, consumer knowledge and background characteristics
Extension Evaluation Evaluations of the quality of the extension	ATV (34) Aftershave (34)	ATV vs Aftershave - (H1 <sub>b</sub> )	Factor: ATV vs Aftershave Covariate: quality of core brand, consumer knowledge, BP (competence) Before, background variables - (H1 <sub>b</sub> , H2 <sub>b</sub> , H3 <sub>b</sub> , H4 <sub>b</sub> )	Predictors: Fit plus covariates as in ANCOVA - (H1 <sub>b</sub> )

## 7.5 INDEPENDENT SAMPLES T – TEST

### 7.5.1 The Concept of the t – Test

The independent samples t-test "assesses the statistical significance of the difference between two independent sample means" (Hair et. al. 1998, p. 331). The procedure tests the null hypothesis that the two population means are equal (Diamantopoulos and Schlegelmilch 1997). It can be used when there are two treatment levels (i.e. ATV versus aftershave) and where different subjects have performed in only one of the conditions. This is commonly referred to as a between-subjects experimental design (Coakes and Steed 1997). For example, this research exposed two groups of respondents to different types of extension reflecting different levels of fit. The two different types of extension represent a 'treatment' with two levels (good versus poor fit). A treatment is also known as a factor and is a non-metric independent variable that has been experimentally manipulated and observed (Hair et. al. 1998).

Samples from different groups are referred as independent when there is no relationship between the people or objects in the groups (Norusis 1997). This was achieved in this research by selecting a random sample of subjects who were exposed to the two different types of extension.

### 7.5.2 Analysis Issues

The t-test was appropriate due to the effects of the control group being accounted for (see section 7.3 for further explanation), thus, there were only two groups to be assessed. The t statistic was calculated in order to determine whether the two types extension fit were viewed differently (Hair et. al. 1998). The level of significance was also an important factor. There are two ways to determine significance. Firstly, critical t-tables can be consulted by using the degrees of freedom (df). However, significance can also be determined by looking at the probability level (p), which is specified under the heading 1-tail Sig (Coakes and Steed 1997).

The significance level (alpha) associated with the tests carried out in this research minimises the possibility of making Type I error (Hair et. al. 1998). Type I error

would occur when the null hypothesis was rejected when it should not be. Alternatively, Type II error would occur when the null hypothesis was not rejected when it should be (Diamantopoulos and Schlegelmilch 1997). With significance testing there is a need to minimise the risk of committing Type I error. The significance level indicates the greatest risk that one will take in rejecting a true null hypothesis (Churchill 1999). It signifies the probability of making a mistake in incorrectly rejecting a true null hypothesis (Diamantopoulos and Schlegelmilch 1997). The significance value used in this research was 0.05 (5% level). This indicated that the null hypothesis would be incorrectly rejected when it is true 5 times out of 100.

### **7.5.3 Analysis Procedures**

Independent sample t-tests were used to test hypotheses H1a and H1b (see Table 7.3). Here, a comparison between the ATV and aftershave group means (i.e. on the two dependent variables brand personality evaluations and extension evaluations) was tested by completing two separate independent sample t-tests.

The violations of assumptions were first examined (see Chapter 6) to ensure that inferences were meaningful. Next, the t-tests were run and 1 - tailed significance levels were reported.

### **7.5.4 Brand Personality Evaluations (pure)**

As the control group had been accounted for there was now only two groups and pure measures of enhancement/dilution were available. An independent samples t-test was used to ascertain the significance of any differences between the ATV (good fit) and Aftershave (poor fit) on any of the brand personality dimensions. Hypothesis H1<sub>a</sub> predicted that an extension with good fit would result in greater brand personality enhancement than an extension with poor fit. Table 7.4 provides the results of the individual t-tests for each brand personality dimension. There do appear to be minor differences in the mean values for each dimension. For example, it is surprising that the aftershave extension enhanced the dimensions 'sophistication', 'ruggedness', 'sincerity' and 'excitement'; whilst, the ATV dimensions remained stable with only 'excitement' being enhanced. However, when looking at the significance and t-values

it becomes apparent that support for H1<sub>a</sub> is not forthcoming as there was not any significant differences in the group means when each of the five brand personality dimensions were taken as the dependent variable.

**Table 7.4 – Results of t – tests Against Levels of Fit**

BP Dimension	Mean enhancement/dilution		t - value	Degrees of freedom	Significance of t (1-tailed)
	ATV – good fit	Aftershave – poor fit			
Competence	.008	.005	.241	66	.810
Sophistication	-.001	.124	-1.075	59.435*	.287
Ruggedness	.005	.184	-1.272	66	.208
Sincerity	.0001	.113	-.905	66	.369
Excitement	.219	.128	.760	66	.450

\* Denotes variances unequal as defined by Levene test (i.e. separate variance estimate)

### 7.5.5 Extension Evaluations

As there was no control group needed for extension evaluations (i.e. no before and after measure) and there was only two groups (i.e. ATV and aftershave), an independent samples t-test was run to test for the equality of means of the grouping variable.

H1<sub>b</sub> predicted that an extension with good fit would be evaluated more favourably than an extension with poor fit. Table 7.5 provides the results of the t-test for extension quality. There were substantial differences in the mean values of extension quality for each condition. The mean scores indicate that the ATV (good fit = 4.976) was evaluated more favourably than the aftershave (poor fit = 3.564). As expected there was significantly different evaluations of extension quality (< 0.001). The level of fit does appear to affect extension quality and thus support is found for H1<sub>b</sub>.

**Table 7.5 – Results of t – tests For Extension Quality**

Test Variable	Mean		t - value	Degrees of freedom	Significance of t (1-tailed)
	ATV – good fit	Aftershave – poor fit			
Extension Quality	4.976	3.564	5.878	67	.000

## 7.6 ANALYSIS OF COVARIANCE (ANCOVA)

The purpose of using analysis of covariance was to improve the efficiency and sensitivity of the research design (Boniface 1995). ANCOVA is particularly suitable where subjects have performed under different conditions, such as the between group design used in this research (Coakes and Steed 1997).

### 7.6.1 The Concept of ANCOVA

It is important to firstly discuss the nature of ANOVA to be able to fully appreciate the ANCOVA technique. Analysis of variance is particularly useful for experimental data. It is the appropriate method to use when groups of observations are created by using a nominal level variate as the independent variable (Inversen and Norpoth 1976). ANOVA has been developed to aid the decision of whether differences among mean scores are due to the confounding effects of sampling fluctuations combined with the effect of the condition or due to the effect of sampling fluctuation alone (Boniface 1995).

Essentially, ANOVA will give exactly the same results as the independent samples t-test. Its main difference is that it is "used to determine whether samples from two or more groups come from populations with equal means" (Hair et. al. 1998, p. 327). The ANOVA procedure tests the null hypothesis that the population mean of a variable is the same in several groups of cases (Norusis 1997).

Analysis of Covariance (ANCOVA) follows the same basic principle as ANOVA. However, it also investigates covariates, which are continuous type variables of interest in the investigation that are expected to correlate (covary) with the dependent variable. The use of covariates make individual subjects appear to be more homogeneous and thus increasing the power and sensitivity of the design (Boniface 1995). Like the dependent variable, the covariate must be a continuous variable measured at interval level. The influence of moderating variables can be tested for during this type of analysis (Coakes and Steed 1997). Basically, subjects' scores on the dependent variable are adjusted (when continuous-type variables are believed to be related to the dependent variable) to what they would have been if all subjects

scored identically on the covariate (Boniface 1995). When this effect has been accounted for the true impact on the dependent variable will become apparent. The dependent variable values are altered by the covariate adjustments and as a result an altered significance summary is provided (Boniface 1995).

### 7.6.2 Analysis Issues

In this research both the covariates and dependent variables were measured as continuous variables at the interval level enabling the ANCOVA tests to be carried out. Although one would like to account for as many moderating effects as possible, using too many covariates in the analysis would reduce its statistical efficiency (Kepple 1982). It has been suggested that the number of covariates should be less than  $(.10 \times \text{sample size}) - (\text{number of groups} - 1)$  (Hair et. al. 1998). For example, in this research the sample size of 64 respondents with 2 groups (for the brand personality 'pure' measure) the number of covariates should be no more than 5. In this case the maximum number of covariates was not exceeded.

### 7.6.3 Analysis Procedures

ANCOVA tests were used to test all of the hypotheses (see Table 7.3). Here, the moderating affect of a number of covariates on the relationship between fit and the two dependent variables (i.e. brand personality evaluations and extension evaluations) was tested by completing two ANCOVA tests. Additionally, due to the lack of support of  $H_{1a}$  the brand personality after measure was also used as the dependent variable and an ANCOVA run to establish that brand personality before did indeed affect brand personality (after).

All the assumptions relating to ANCOVA were first examined (see Chapter 6) to ensure that inferences were meaningful. Next, the ANCOVA tests were run and 1-tailed significance levels were reported. Firstly, ANCOVA analysis was run including the maximum number of allowed covariates. As quality of the core brand and consumer knowledge were regarded as vital covariates (i.e. they were needed to test the hypotheses) they were always included in the analysis where applicable and results reported. Also, background characteristics such as age and highest academic

qualifications were also run as covariates to check that these specific respondent characteristics did not influence results<sup>15</sup>. Next, the covariates that had little or no impact on the results (and were not regarded as vital) were taken out of the analysis to improve the statistical efficiency of the test (see Appendix 7.3 for initial ANCOVA results containing background characteristics)<sup>16</sup>. The ANCOVAs were then re-run only including those covariates that were regarded as vital or those that significantly affected results. Following procedures used by Bagozzi (1996) in order to establish the impact of significant covariates the F – values for the effects of fit on brand personality and extension evaluations were compared to the simple ANOVA results where no covariates had been adjusted for. When compared to ANOVA, a higher F – value from the ANCOVA results should indicate a greater impact of fit, whilst a lower F – values should indicate less of an impact of fit as a result of the covariate/s<sup>17</sup>.

#### 7.6.4 Brand Personality Evaluations (pure)

Table 7.6 shows the results of the ANCOVA tests for each of the five brand personality dimensions – ‘excitement’, ‘competence’, ‘sincerity’, ‘ruggedness’ and ‘sophistication’. The covariates first entered into the analysis were core brand quality, extension quality, consumer knowledge and background characteristics (e.g. age, academic qualifications). The majority of background characteristics had no

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<sup>15</sup> Although these background variables are not essential in testing the conceptual model developed in Chapter 3, differences in these variables may potentially influence the experiment. If the variation in these variables is found not to be significant then the internal validity of the experiment will be improved. As the sample was particularly skewed towards males, a series of independent samples t – tests were also carried out to see if there was any significant between males and females in their brand personality and extension evaluations. This was undertaken as only metric variables should be used as covariates. The results found no significant differences between males and females.

<sup>16</sup> It has also been suggested that when using more than three covariates little may be gained in precision of the test (Keppel 1982). Moreover, adding too large a number of covariates may reduce the statistical efficiency of the procedures (Hair et. al. 1998).

<sup>17</sup> Keppel (1982, p. 491) comments that “to be more specific, when the differences between the group means on the covariate and the dependent variable are in the same direction, a positive correlation between the two measures for subjects will tend to decrease the size of the treatment effects, while a negative correlation will tend to increase the size of the effects. On the other hand, when the differences between the group means are in the opposite direction, a positive correlation will tend to increase the size of the treatment effects, while a negative correlation will tend to decrease the size of the effects”.

significant impact on the results and were taken out of the analysis at this stage. However, the background characteristic ‘highest academic qualification’ was a significant covariate ( $p < 0.1$ ) for the ‘sincerity’ dimension. A comparison of the results when this covariate was included or excluded from the ANCOVA analysis showed little difference and therefore is not considered to be a problem<sup>18</sup>.

The results showed that H1<sub>a</sub> was not supported for any of the five brand personality dimensions. The level of fit did not significantly affect brand personality evaluations.

The results indicated moderate support for H2<sub>a</sub> that “higher perceptions of core brand quality would be associated with less of an impact of fit on brand personality evaluations” for brand personality dimensions ‘competence’ and ‘ruggedness’ only. The covariate core brand quality was significant for these two dimensions ( $p < 0.05$ ) and by comparing the F – values for ANCOVA and ANOVA it was apparent that when the quality of the core brand was considered, higher levels are associated with less an impact of fit on brand personality evaluations<sup>19</sup>.

The results do not support H3<sub>a</sub> that “higher perceptions of consumer knowledge would be associated with a greater impact of fit on brand personality evaluations”. When the covariate consumer knowledge was entered into the analysis it had no significant effect for any of the brand personality dimensions.

The results indicate limited support for H4<sub>a</sub> that “higher perceptions of extension quality would be associated with less of an impact of fit on brand personality evaluations” only for the brand personality dimension ‘competence’. The covariate extension quality was significant for this dimension ( $p < 0.05$ ) and by comparing the F – values for ANCOVA and ANOVA it was apparent that when extension quality of the core brand was considered, higher levels were associated with less of an impact of

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<sup>18</sup> It should be noted that there are still no significant differences in brand personality evaluations between groups exposed to extensions exhibiting ‘good’ and ‘poor’ levels of fit when the covariate ‘highest academic qualification’ is accounted for.

<sup>19</sup> In these cases it should be noted that although higher levels of quality of the core brand resulted in less of an impact of fit, there are still no significant differences in brand personality evaluations between groups exposed to extensions exhibiting ‘good’ and ‘poor’ levels of fit.



fit on brand personality evaluations<sup>20</sup>. Links between the competence or certainty a consumer has that a company can produce a product has been identified in previous research (Smith and Andrews 1995; Keller and Aaker 1992). Thus the link between extension quality and the level of perceived 'competence' was not particularly surprising. As consumers' evaluate extensions more favourably they should also believe that the brand is associated with higher competence levels. This finding also provides further evidence of nomological validity (see section 5.3.2.3); where the brand personality scale (i.e. competence dimension) was linked to extension quality.

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<sup>20</sup> It should be noted that although higher levels of extension quality have resulted in less of an impact of fit, there are still no significant differences in brand personality evaluations between groups exposed to extensions exhibiting 'good' and 'poor' levels of fit.

**Table 7.6 ANCOVA Results for Brand Personality (Pure) Dimensions**

Excitement						
Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension -Fit	.365	1	.365	1.578	.214	.236
Core Brand Quality	1.668	1	1.668	7.219	.009	.754
Extension Quality	.002	1	.002	.088	.767	.060
Consumer Knowledge	.002	1	.002	.093	.762	.060

Mean enhancement/dilution of Excitement

ATV (good fit)

Aftershave (poor fit)

.219

.128

Competence

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension -Fit	.000	1	.000	.02	.967	.050
Core Brand Quality	2.748	1	2.748	12.741	.001	.940
Extension Quality	.943	1	.943	4.372	.041	.539
Consumer Knowledge	.132	1	.132	.614	.436	.120

Mean enhancement/dilution of Competence

ATV (good fit)

Aftershave (poor fit)

.008

.005

Sincerity

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension -Fit	.000	1	.000	.010	.922	.051
Core Brand Quality	.587	1	.587	2.401	.126	.332
Extension Quality	.000	1	.000	.036	.850	.054
Consumer Knowledge	.326	1	.326	1.334	.252	.206
Highest Academic Qualification	.863	1	.863	3.531	.065	.456

Mean enhancement/dilution of Sincerity

ATV (good fit)

Aftershave (poor fit)

.000

.113

(Continued)

**Ruggedness**

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension -Fit	.005	1	.005	.293	.590	.083
Core Brand Quality	.700	1	.700	3.864	.054	.490
Extension Quality	.000	1	.000	.023	.881	.053
Consumer Knowledge	.002	1	.002	.116	.734	.063

**Mean enhancement/dilution of Ruggedness**

ATV (good fit)

Aftershave (poor fit)

.005

.184

**Sophistication**

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (2-tailed)	Observed Power
Type of Extension -Fit	.165	1	.165	.594	.444	.118
Core Brand Quality	.000	1	.000	.025	.875	.053
Extension Quality	.002	1	.002	.100	.753	.061
Consumer Knowledge	.290	1	.290	1.046	.310	.172

**Mean enhancement/dilution of Sophistication**

ATV (good fit)

Aftershave (poor fit)

-.001

.124

**7.6.5 Brand Personality Evaluations (after)**

As the results of the ANCOVA tests in 7.6.4 showed that the effects of fit on brand personality enhancement (dilution) were not significant, it was decided to run ANCOVA analysis using the brand personality 'after' measure as the dependent variable and to use brand personality 'before' measure as a covariate. This was done as it was thought that consumers perception of brand personality 'before' might be the dominant variable that affects the perception of brand personality 'after' (the extension introduction).

Table 7.7 shows the results of the ANCOVA tests for each of the five brand personality dimensions – 'excitement', 'competence', 'sincerity', 'ruggedness' and

‘sophistication’. The covariates first entered into the analysis were core brand quality, extension quality, consumer knowledge, the specific dimension brand personality ‘before’ and background characteristics. The majority of background characteristics had no significant impact on the results and were taken out of the analysis at this stage. However, the background characteristic ‘highest academic qualification’ and ‘age’ were significant covariates ( $p < 0.1$ ) for the ‘sincerity’ dimension. Once again, a comparison of the results when this covariate was included or excluded from the ANCOVA analysis showed little difference and therefore is not considered to be a problem<sup>21</sup>.

The results showed that there were no significant differences between the groups exhibiting good and poor levels of fit. The results also showed that brand personality evaluations ‘after’ were significantly affected by brand personality evaluations ‘before’ an extension introduction ( $p < 0.01$ ). All five brand personality ‘before’ measures were highly significant when entered as covariates which suggests that consumer evaluations of brand personality ‘after’ an extension introduction were highly associated with initial brand personality judgements and not particularly affected by the level of fit providing further evidence for the lack of support of H1<sub>a</sub>.

These results indicate that brand personality does not appear to change over short periods of time. Even when an extension with poor fit was introduced consumers did not change their brand personality evaluations.

Two other interesting findings emerged from this analysis. Firstly, core brand quality was not a significant covariate for four out of the five brand personality dimensions (‘excitement’ being the exception). The reason that core brand quality did not significantly reduce the impact of fit at this stage of analysis may be that the level of core brand quality is inherently taken on board by consumers when they initially judge brand personality (i.e. consumer perceptions of core brand quality should influence their initial brand personality evaluations – which is further tested in section 7.5.6).

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<sup>21</sup> It should be noted that the dimension ‘sincerity’ (before) was still highly significant when the covariates ‘highest academic qualification’ and ‘age’ are accounted for.

There appears to be no conceptual reason why core brand quality was a significant covariate ( $p < 0.05$ ) for the brand personality dimension 'excitement' and not others. Therefore, this finding was treated with caution. Similarly, extension quality was not a significant covariate for four out of the five brand personality dimensions ('competence' being the exception). However, as discussed in Section 7.6.4 there was a sound theoretical reason as to why the brand personality dimension 'competence' should be significant ( $p < 0.01$ ). When the extension was evaluated more favourably (i.e. high quality) then the brand should be judged as being competent 'after' the extension introduction.

**Table 7.7 ANCOVA Results for Brand Personality (After) Dimensions**

Excitement						
Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension - Fit	.377	1	.377	1.965	.166	.281
Core Brand Quality	1.285	1	1.285	6.705	.012	.722
Extension Quality	.148	1	.148	.771	.383	.139
Consumer Knowledge	.000	1	.000	.028	.868	.053
Excitement (before)	2.793	1	12.793	66.725	.000	1.000

Mean Evaluations of Excitement (After)

ATV (good fit)

2.886

Aftershave (poor fit)

2.604

(Continued)

## Competence

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension - Fit	.158	1	.158	1.289	.261	.201
Core Brand Quality	.001	1	.001	.094	.760	.061
Extension Quality	1.771	1	1.771	14.403	.000	.962
Consumer Knowledge	.003	1	.003	.314	.577	.086
Competence (Before)	2.620	1	2.620	21.311	.000	.995

## Mean Evaluations of Competence (After)

ATV (good fit)

3.688

Aftershave (poor fit)

3.504

## Sincerity

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension - Fit	.363	1	.363	2.380	.128	.329
Core Brand Quality	.109	1	.109	.718	.400	.133
Extension Quality	.111	1	.111	.730	.396	.134
Consumer Knowledge	.000	1	.000	.037	.848	.054
Sincerity (Before)	6.259	1	6.259	41.069	.000	1.000
Highest Academic Qualification	.501	1	.501	3.288	.075	.430
Age	.453	1	.453	2.976	.090	.397

## Mean Evaluations of Sincerity (After)

ATV (good fit)

3.176

Aftershave (poor fit)

3.206

(Continued)

**Ruggedness**

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension - Fit	.002	1	.002	.187	.667	.071
Core Brand Quality	.176	1	.176	1.219	.274	.193
Extension Quality	.005	1	.005	.349	.557	.090
Consumer Knowledge	.001	1	.001	.135	.715	.065
Ruggedness (Before)	8.489	1	8.489	58.823	.000	1.000

**Mean Evaluations of Ruggedness (After)**

ATV (good fit)                      Aftershave (poor fit)  
4.463                                      4.382

**Sophistication**

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension -Fit	.301	1	.301	1.518	.223	.228
Core Brand Quality	.126	1	.126	.636	.428	.123
Extension Quality	.133	1	.133	.670	.416	.127
Consumer Knowledge	.413	1	.413	2.083	.154	.295
Sophistication (Before)	10.221	1	10.221	51.528	.000	1.000

**Mean Evaluations of Sophistication (After)**

ATV (good fit)                      Aftershave (poor fit)  
2.477                                      2.441

**7.6.6 Extension Evaluations**

Table 7.8 shows the results of the ANCOVA test for the dependent variable extension quality. The covariates entered at this stage of the analysis were core brand quality, consumer knowledge, competence (before) and background characteristics.

The results showed that the level of fit did affect extension evaluations and thus H1<sub>b</sub> was supported ( $p < 0.01$ ). The extension with good fit (ATV) was significantly evaluated more favourably than the with extension poor fit (aftershave).

The results do not indicate support for H2<sub>b</sub> that “higher perceptions of core brand quality would be associated with less of an impact of fit on extension evaluations”. The covariate core brand quality was not significant.

The results do not support H3<sub>b</sub> that “higher perceptions of consumer knowledge would be associated with a greater impact of fit on extension evaluations”. When the covariate consumer knowledge was entered into the analysis it had no significant effect on extension evaluations

The results do not support H4<sub>b</sub> that “higher perceptions of competence (before) would be associated with less of an impact of fit on extension evaluations”. The covariate competence was not significant.

It was especially surprising that there was insufficient support for H2<sub>b</sub>, and H4<sub>b</sub>. An explanation could be that core brand quality and initial perceptions of brand personality dimension ‘competence’ are measuring similar constructs. A Pearson correlation was calculated between core brand quality and competence to establish if there was a strong relationship between the two. The results showed that they were significantly associated ( $p < 0.01$ ) at the .555 level. Therefore, it was decided to run each of these covariates individually in the ANCOVA analysis.

These results did provide support for H2<sub>b</sub> ( $p < 0.05$ ) and by comparing the F – values for ANCOVA and ANOVA (see Appendix 7.2 & 7.4) it was apparent that when the quality of the core brand was considered, higher levels were associated with lesser of an impact of fit on extension evaluations. Similarly, there was support found for H4<sub>b</sub> ( $p < 0.05$ ) and by comparing the F – values for ANCOVA and ANOVA it was apparent that when evaluations of the competence of the brand was considered, higher levels were associated with lesser an impact of fit on extension evaluations.



**Table 7.8 ANCOVA Results for Dependent Variable Extension Evaluations**

Source of Variation	Sum of Squares	Degrees of freedom	Mean Square	F - value	Significance of f (1-tailed)	Observed Power
Type of Extension - Fit	20.737	1	20.737	22.641	.000	.997
Core Brand Quality	1.392	1	1.392	1.520	.222	.229
Consumer Knowledge	.419	1	.419	.458	.501	.102
Competence (before)	1.363	1	1.363	1.488	.227	.225

Mean Evaluations of Extension Quality

ATV (good fit)

**4.976**

Aftershave (poor fit)

**3.564**

## 7.7 MULTIPLE REGRESSION

Multiple regression was used as an alternative and complementary assessment of the impact of extension fit upon brand personality and extension evaluations. ANCOVA utilises regression-like techniques and therefore it was expected that the results of this subsequent analysis would support previous analysis and highlight minor and not major differences.

### 7.7.1 The Concept of Multiple Regression

In Chapter 3 it was proposed that fit should affect brand personality and extension evaluations. Specifically, the higher the levels of fit the greater the enhancement of brand personality and the more favourable extensions evaluations. Previous examinations of the data (see Sections 7.5.4, 7.6.6) showed that fit did not have a major effect on brand personality but did affect extension evaluations. The purpose of adopting multiple linear regression techniques was to further test hypotheses H1a and H1b to establish if the results were consistent with previous findings. Also, the covariates used (see Table 7.3) were treated as independent variables in this case, in order to identify whether relationships to the dependent variable of interest exist. Multiple regression analysis was considered an appropriate method as it can “be used whenever a quantitative variable (the dependent variable) is to be studied as a function of, or in relationship to, any factors of interest (expressed as independent variables)” (Cohen and Cohen 1983, p. 3). Multiple regression also provides measures of the magnitude of the relationship of a factor to the dependent variable, as well of its unique relationship (i.e. its relationship over and above that of other research factors) (Cohen and Cohen 1983). Therefore, this multiple regression should provide a deeper understanding of the relationships that exist between the independent and dependent variables. As covariates are associated with the dependent variables (Hair et. al. 1998) it was deemed legitimate to use them in regression analysis as ANCOVA uses regression like techniques.

Multiple regression is an extension of bivariate correlation (i.e. measuring the linear association between two metric variables). In multiple regression, several independent variables are used to predict a dependent variable (Coakes and Steed 1997). Multiple

regression uses two or more independent variables to predict the values of a dependent variable (Kinnear and Gray 1999).

Multiple regression uses equations that enable estimated values of the dependent (criterion) variable from given values of several predictor variables (Churchill 1999). Each independent variable is weighted by the regression analysis procedure, which aids the overall prediction of the dependent variable (Hair et. al. 1998). The independent variables form the regression variate (i.e. a linear combination of independent variables), which is also referred to as the regression equation or regression model.

### **7.7.2 Analysis Issues**

Although in the experiment the manipulation of 'fit' meant that it was classed as a categorical variable, respondents were also asked to evaluate the levels of perceived fit between the extension and the core brand 'after' the experiment. This fit measure (a continuous variable) was then used in multiple regression analysis.

It is essential in multiple regression that a decision regarding which variables are dependent and independent is taken (Hair et. al. 1998). As in previous sections brand personality and extension evaluations are the two dependent variables. The other variables (see Table 7.2) were appropriately classed as predictor (independent) variables.

In section 6.1.5 it was proposed that substantial correlation among a set of independent variables could produce multicollinearity (Cohen & Cohen 1983). A number of the independent variables, used in this type of analysis were likely to, at least, be slightly correlated. For example, extension quality was likely to be linked to core brand quality, as a certain amount of quality will inevitably be passed to the extension. The resulting impact of multicollinearity "is to reduce any single independent variable's predictive power by the extent to which it is associated with the other independent variables" (Hair et. al. 1998). The unique variance decreases as collinearity increases causing an increased shared prediction among independent variables (Hair et. al. 1998). Multicollinearity can cause problems for interpretation of

and conclusions based on the size of regression coefficients, their standard errors and t-tests (Cohen and Cohen 1983; Mason and Perreault 1991).

Identifying multicollinearity can be done in a number of ways. By simply examining the correlation matrix of the independent variables the presence of collinearity can be detected (Mason et. al. 1991). High bivariate correlations (.8 and .9 are commonly used as cutoff points) are the first indication of substantial collinearity. When correlating extension quality and core brand quality, a Pearson coefficient of .427 suggested that multicollinearity would not be a potential problem. However, a lack of high correlations does not necessarily ensure a lack of collinearity (Mason et. al. 1991). Two of the more common measures for assessing collinearity are the tolerance value and the variance inflation factor (VIF), both of which assess the degree to which each independent variable is explained by other independent variables (Hair et. al. 1998). When tolerances are small (i.e. less than 0.1) multicollinearity may be a problem (Norusis 1997). A corresponding VIF value greater than 10.0 is thought to signal harmful multicollinearity (Marquardt 1970). However, the presence of (near) collinearity, itself, can reduce the reliability of tolerance estimates Kleinbaum et. al. 1988). Therefore, a more precise method of assessing multicollinearity can be adopted. Specifically, the condition index (i.e. represents collinearity of combinations of variables) and the regression coefficient decomposition matrix (which shows the proportion of variance for each regression coefficient attributable to each condition index) can be examined (Hair et. al. 1998). Belsley et. al. (1991) recommend that a high condition index (over 30) may reflect multicollinearity, while Hair et. al. (1998) suggest that for all condition indices exceeding 30, variance proportions above 90% (.90 or more) for two or more coefficients will identify multicollinearity as a problem.

There are a number of ways to deal with multicollinearity. The investigator may “formulate some causal hypotheses about the origin of the multicollinearity” (Cohen and Cohen 1983, p. 115). When it is thought that the shared variance is attributable to single variable it may be appropriate to either combine the variables into a single index or to simply drop the variable from the analysis (Cohen and Cohen 1983). Mason and Perreault (1991) have suggested that combining variables will ignore the relative importance of original variables and that the new composite variables may have little meaning. They also propose that by dropping variables, the colliearity

problem may be eliminated but the model will be misspecified, resulting in biased estimates for some coefficients. Alternatively, biased estimation including hierarchical (imputing variables into to equation in order of preference based on theoretical knowledge) or ridge (reduces the variance between independent variables) regression analysis may be run, in order to minimize multicollinearity (Cohen and Cohen 1983; Mason and Perreault 1991).

In section 6.1.4 it was proposed that the decision to remove outliers has to be taken with caution. Troublesome data points when deleted often result in the detection of more outliers. Furthermore, to simply remove cases to provide a better model fit may not show a true picture of the population (Hair et. al. 1998). For this reason, extreme values were only considered for removal when strong reasons to eliminate them were apparent and where the regression results would be significantly different without the outlying cases.

Potential problems from high collinearity and small sample sizes can be offset with sufficient power (Mason et. al. 1991). The power of a test is defined as “the probability of rejecting the null hypothesis when it should be rejected (i.e. when in fact it is false)” (Diamantopoulos and Schlegelmilch, p. 142). Power is related to Type II error; (power is calculated as  $1 - \text{Type II error}$ ) which is, not rejecting the null hypothesis when in fact, it is false (Diamantopoulos and Schlegelmilch 1997). Obviously, it is important that the power is as high as possible in order to improve confidence when interpreting regression results. Small sample sizes also affect the power and significant effects observed with small sample sizes are sure to be repeated in larger samples, given that the sample is representative (Speed 1999). However, for a given sample size, the more variables entered into the equation, the lower the power (Norusis 1997).

### **7.7.3 Analysis Procedures**

Multiple regression analyses were undertaken test hypotheses H1<sub>a</sub> and H1<sub>b</sub> (see Table 7.2). Here, the direct relationship between fit and the two dependent variables (i.e. brand personality evaluations and extension evaluations) was tested.

All regression equations were first examined for violations of assumptions and regression diagnostics were performed (also see Chapter 6) to ensure that inferences were meaningful (Kleinbaum et. al. 1988; Norusis 1997; Hair et. al. 1998). Particular attention was given to multicollinearity which was assessed using the procedures discussed in section 7.7.2 and based on this criteria, no variables were found with high collinearity in any of the equations constructed. The results of the multicollinearity diagnostics are reported in Appendix 6.4. Although a number of outlying cases were detected it was decided to keep them in the analysis, as there was no real reason to eliminate them. The results would not have been significantly different without the outlying cases.

The main objective of the regression analysis was to assess the impact of fit and the covariates upon brand personality and extension evaluations. Therefore, given that the purpose of the regression analysis was to test the main set of hypotheses (H1<sub>a</sub> and H1<sub>b</sub>) and to address the relative impact of the covariates, simultaneous analysis was used. This procedure was appropriate as it examined the relationship between the whole set of predictors and the dependent variable (Coakes and Steed 1997). After the violations of assumptions and in particular multicollinearity and potential outliers were assessed, a second analysis was run taking account of any problems associated with the initial analysis. Specifically, outliers were considered for extraction and variables that were not significant were taken out of the analysis and a better model developed<sup>22</sup>.

Finally, the power of each equation was estimated using the methods outlined by Cohen and Cohen (1983). Power levels are reported where they do not reach the conventional 80% level with confidence levels of .05 given for specific sample sizes (Cohen and Cohen 1988).

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<sup>22</sup> The variables that were not considered as vital to the analysis such as background characteristics and had no significant impact were eliminated from the analysis. As model prediction was not the focus of this research it was not deemed necessary to provide a restricted model that only included significant variables.

#### 7.7.4 Brand Personality Evaluations (pure)

Five multiple regressions were first run using the brand personality dimensions (pure) measures as the dependent variable. The variables fit, core brand quality, extension quality, consumer knowledge and background characteristics were used as predictor variables. The purpose of this analysis was to further test H1<sub>a</sub> and also to assess the magnitude of the relationship between the independent variables and brand personality pure evaluations. The sample size was 68 as respondents in the control group had already been accounted for (see Section 7.3). The predictor variables were entered simultaneously into the regression equation where tests for multicollinearity, violations of assumptions and outliers were performed. All tolerance values were sufficiently high (>.46), no condition index exceeded 17 (see Appendix 6.4). There was one outlying case for the dimensions 'excitement' and 'ruggedness' and two for the dimension 'sincerity'. However, these cases were retained since there was no justification to remove them.

Table 7.9 shows the results of the multiple regression equations that were run against each of the five brand personality dimensions. All five regression equations had small R<sup>2</sup>'s that explained little of the variation in the dependent variable. Power levels of less than 80% were detected for the sincerity, ruggedness and sophistication dimensions, thus, caution is needed when interpreting results. The range of variation was as little as 2.5% for the dimension 'sophistication', whilst the dimension 'competence' explained 19% of the variation in the dependent variable. Relatively small R<sup>2</sup>'s were expected as previous results (see Sections 7.6.4 and 7.6.5) have shown that fit has little effect upon brand personality.

Fit had no significant predictive power for any of the five dimensions and therefore as in previous analysis H1<sub>a</sub> was not supported.

Core brand quality had a significant and negative effect for the dimensions 'excitement' ( $p < 0.1$ ), 'competence' and 'ruggedness' ( $p < 0.05$ ). This suggested that the higher the level of perceived core brand quality the less the brand personality would be enhanced for these dimensions only. This finding is the opposite of what was expected. Higher levels of quality should be positively associated to brand

personality. However, these results may be significant for one type of extension. One would expect that core brand quality would be negatively associated with brand personality for an extension with poor fit and positively associated with brand personality for an extension with good fit. Further investigation into the impact of core brand quality when only cases with good or poor fit are selected should enable a further understanding of the impact of this variable<sup>23</sup>. Although, not essential to the testing of the hypotheses, it was considered helpful to carry out this extra analysis in order to establish in what situations the quality of the core brand and the quality of the extension would need careful consideration. Two separate regression analysis were run by selecting cases with good and poor levels of fit. The results showed (see Appendix 7.5) that the quality of the core brand was more important when an extension with poor fit was considered (for the excitement, competence and sincerity dimensions). For these dimensions, a significant and negative relationship existed. However, it should be noted that these results are not totally conclusive as the excitement and sincerity dimensions are only significant at the  $p < 0.1$  level. Nevertheless, this indicated that consumer evaluations of core brand quality are associated with lower brand personality evaluations when poor fit was present. When good fit was present there is no impact from core brand quality. Therefore, it is more dangerous to have poor fit when the core brand is perceived as being high quality as this could negatively effect brand personality evaluations.

Extension quality had a significant and positive effect for the dimension 'competence' ( $p < 0.05$ ). In line with the results in Section 7.6.4, extension quality was positively associated to the level 'competence'. When consumers' evaluate extensions more favourably this was reflected in their evaluations of the competence of the brand. Again, two separate regression analyses were run by selecting cases with good and poor levels of fit. The results showed (see Appendix 7.5) that the quality of the extension was positively associated with the brand personality dimension 'competence' for the extension with poor fit. When consumers evaluate an extension highly they believe the company has increased its competence levels.

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<sup>23</sup> This was done by instructing SPSS to select either the ATV group (good fit) or the aftershave group (poor fit) and by running a separate regression analysis on each.



Consumer knowledge had no significant effect on any of the five brand personality dimensions.

**Table 7.9 – Regression Statistics For Brand Personality (pure)**

**Excitement**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.317	.100	.042	1.727	.155	>.71
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.005	.040	.236	1.426	.159
Core Brand Quality	-.116	.063	-.247	-1.833	.072
Extension Quality	.000	.063	.017	.099	.921
Consumer Knowledge	.000	.053	.020	.156	.877

**Competence**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.436	.190	.139	3.703	.009	>.93
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.002	.044	-.078	-.496	.622
Core Brand Quality	-.247	.068	-.464	-3.651	.001
Extension Quality	.147	.068	.357	2.149	.036
Consumer Knowledge	.005	.058	.102	.866	.390

**Sincerity**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.273	.074	.016	1.265	.293	>.38 <.71
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.000	.047	-.006	-.035	.972
Core Brand Quality	-.115	.074	-.213	-1.564	.123
Extension Quality	-.001	.074	-.024	-.137	.891
Consumer Knowledge	-.005	.063	-.117	-.928	.357

**Ruggedness**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.282	.079	.021	1.360	.258	>.38 <.71
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.000	.040	-.037	-.221	.826
Core Brand Quality	-.129	.062	-.280	-2.067	.043
Extension Quality	.000	.063	.006	.036	.971
Consumer Knowledge	.001	.053	.041	.328	.744

**Sophistication**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.159	.025	-.036	.411	.800	>.13 <.38
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.000	.050	-.009	-.053	.958
Core Brand Quality	-.002	.077	-.038	-.271	.787
Extension Quality	-.004	.078	-.106	-.583	.562
Consumer Knowledge	.006	.066	.122	.942	.350

**7.7.5 Brand Personality Evaluations (after)**

As there was no significant impact of fit on brand personality evaluations it was decided to run multiple regression on each of the brand personality 'after' dimensions. The purpose of this analysis was to establish how strong a relationship the independent variables had with brand personality dimensions after. The variables fit, core brand quality, extension quality, consumer knowledge, brand personality dimension 'before' and background characteristics were used as predictor variables. The sample size for this analysis was 68 as respondents in the control group did not provide data on fit and extension quality. Specifically, brand personality 'before' was run as a predictor variable to see if this had any impact on brand personality 'after'. It was thought that a consumer's perception of brand personality 'before' might indeed

affect the perceptions of brand personality 'after' (the extension introduction). The predictor variables were entered simultaneously into the regression equation where tests for multicollinearity, violations of assumptions and outliers were performed. All tolerance values were sufficiently high ( $>.45$ ), no condition index exceeded 27. There was one outlying case each for the dimensions 'excitement' and 'sincerity'. However, these cases were retained since there was no justification to remove them.

Table 7.10 shows the results of the multiple regression equations that were run against each of the five brand personality dimensions. All five regression equations have substantially larger  $R^2$ 's than the brand personality (pure) equations. They explain considerable amount of the variation in the dependent variable (all dimensions have greater  $R^2$ 's than .46).

The brand personality dimensions 'before' were highly predictive and significant ( $p < 0.01$ ). This suggested that brand personality judgements were more enduring than first thought and are little affected by fit (as previously shown in the ANCOVA analysis), but influenced by original perceptions of a brand's personality.

Again, core brand quality was significant ( $p < 0.05$ ) for the 'excitement' dimension only suggesting that core brand quality was negatively associated with brand personality. This finding was spurious as when two separate regression analysis were run by selecting cases with good and poor levels of fit, the results showed (see Appendix 7.5) no significant impact of core brand quality for either cases with 'good' or 'poor' fit.

Extension quality was yet again significantly and positively associated with the brand personality dimension competence ( $p < 0.05$ ). As in section 7.7.4 when two separate regression analysis were run by selecting cases with good and poor levels of fit. The results showed that the quality of the extension was positively associated with the brand personality dimension 'competence' for the extension with poor fit. Therefore, when consumers evaluate an extension highly they believe the company has increasing levels of competence.

**Table 7.10 –Regression Statistics For Brand Personality (After)**

Excitement					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.748	.559	.524	15.722	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.004	.042	.137	1.172	.246
Core Brand Quality	-.142	.065	-.209	-2.198	.032
Extension Quality	.004	.065	.080	.648	.519
Consumer Knowledge	.000	.055	.005	.059	.953
Excitement	.677	.085	.697	7.966	.000
Competence					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.704	.496	.456	12.211	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.001	.033	-.045	-.358	.721
Core Brand Quality	-.003	.060	-.069	-.585	.561
Extension Quality	.160	.052	.406	3.066	.003
Consumer Knowledge	.002	.044	.050	.526	.601
Competence	.415	.086	.532	4.818	.000

(Continued)

## Sincerity

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.721	.520	.482	13.4565	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.002	.039	-.082	-.673	.504
Core Brand Quality	.003	.065	.057	.526	.601
Extension Quality	.003	.061	.077	.593	.555
Consumer Knowledge	-.000	.052	-.002	-.027	.979
Sincerity	.529	.081	.676	6.558	.000

## Ruggedness

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.718	.515	.476	13.179	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.002	.036	-.073	-.599	.552
Core Brand Quality	-.007	.057	-.126	-1.231	.223
Extension Quality	.004	.057	.094	.719	.475
Consumer Knowledge	-.001	.048	-.028	-.300	.765
Ruggedness	.644	.085	.725	7.591	.000

## Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.701	.491	.450	11.968	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.000	.042	-.005	-.043	.965
Core Brand Quality	-.006	.066	-.097	-.951	.345
Extension Quality	.001	.068	.027	.204	.839
Consumer Knowledge	.007	.056	.123	1.298	.199
Sophistication	.591	.082	.671	7.183	.000

### 7.7.6 Brand Personality Evaluations (before)

As core brand quality was a significant predictor variable in brand personality 'pure' evaluations but not in brand personality 'after' evaluations it was decided to run multiple regression on each of the brand personality 'before' dimensions to see if core brand quality, consumer knowledge and background characteristics influenced original evaluations of brand personality. The purpose of this analysis was to establish how strong a relationship the independent variables had in influencing brand personality dimensions before. The sample size for this analysis was 102 as all respondents provided data on all measures included in the analysis.

The predictor variables were entered simultaneously into the regression equation where tests for multicollinearity, violations of assumptions and outliers were performed. All tolerance values were sufficiently high ( $>.99$ ), no condition index exceeded 13. There was one outlying case for the dimension 'sincerity' and three for 'ruggedness'. However, these cases were retained since there was no justification to remove them.

Table 7.11 shows the results of the multiple regression equations that were run against each of the five brand personality dimensions. The regression equations had differing  $R^2$ 's. For example, the  $R^2$  for the 'sophistication' dimension only explained 2.5% of variation, whilst the  $R^2$  for the 'competence' dimension explained 31.4% of the variation in the dependent variable. Power levels of less than 80% were detected for the dimensions excitement and sophistication, thus, caution is needed when interpreting results.

The results show that for the three dimensions 'competence', 'sincerity', 'ruggedness' the quality of the core brand was significant and positive ( $p < 0.01$ ). This suggests that higher levels of core brand quality were associated with greater brand personality evaluations for these dimensions only. Consumer knowledge was also significant for the 'sincerity' dimension only ( $p < 0.05$ ); suggesting that higher levels of knowledge are associated with greater brand personality evaluations.

**Table 7.11 –Regression Statistics For Brand Personality (Before)**

Excitement					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.195	.038	.019	1.957	.147	>.17 <.52
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Core Brand Quality	.009	.062	.158	1.596	.114
Consumer Knowledge	.006	.064	.106	1.077	.284
Competence					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.561	.314	.300	22.679	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Core Brand Quality	.328	.050	.551	6.613	.000
Consumer Knowledge	.004	.051	.075	.904	.368
Sincerity					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.548	.300	.286	21.263	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Core Brand Quality	.330	.056	.496	5.892	.000
Consumer Knowledge	.141	.057	.207	2.460	.016
Ruggedness					
Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.356	.127	.109	7.192	.001	>.86 <.99
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Core Brand Quality	.226	.061	.351	3.731	.000
Consumer Knowledge	.002	.062	.044	.473	.637

(Continued)  
Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.158	.025	.005	1.265	.287	>.17 <.52
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Core Brand Quality	-.000	.069	-.003	-.029	9.77
Consumer Knowledge	.112	.071	.158	1.589	.115

### 7.7.7 Extension Evaluations

Three separate regression analyses were completed. The first on the whole data set, then two regressions when selecting cases with 'good' fit (ATV) and 'poor' fit (Aftershave). The predictor variables were quality of the core brand, consumer knowledge, fit and competence (before) (see Table 7.2). The sample size for this analysis was 68 as respondents in the control group did not provide data on fit and extension quality. The purpose of this analysis was to further test H1<sub>b</sub> and also to assess the magnitude of the relationship between the independent variables extension evaluations. The predictor variables were entered simultaneously into the regression equation where tests for multicollinearity, violations of assumptions and outliers were performed. All tolerance values were sufficiently high (>.83), no condition index exceeded 16. There were no outlying cases.

Table 7.12 shows the results of the multiple regression equation that was run against extension evaluations. The regression equation had a relatively large R<sup>2</sup> that explains 53.6% of the variation in the dependent variable.

The results showed that fit was significant and positive ( $p < 0.01$ ). This indicated that higher levels of fit were associated with more favourable extension evaluations, thus providing additional support for H1<sub>b</sub>.



The quality of the core brand was also significant and positive ( $p < 0.01$ ). This indicated that higher levels of core brand quality were associated with more favourable extension evaluations (in line with Aaker and Keller 1990).

As in section 7.7.4 when two separate regression analysis were run by selecting cases with good and poor levels of fit to further investigate core brand quality (see Appendix 7.5). The results showed that the quality of the core brand was positively associated with extension evaluations only for the extension with good fit ( $p < 0.05$ ).

The level of consumer knowledge was not significant indicating that the level of knowledge did not effect extension evaluations.

As in the ANCOVA (Section 7.6.6) analysis the brand personality dimension 'competence' was not significant.

**Table 7.12 –Regression Statistics For Extension Evaluations**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	Power
.732	.536	.506	18.158	.000	>.995
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.411	.061	.607	6.700	.000
Core Brand Quality	.374	.138	.289	2.717	.008
Consumer Knowledge	-.001	.107	-.031	-.126	.906
Competence	.006	.207	.031	.297	.768

## 7.8 SUMMARY OF RESULTS

The purpose of this chapter was to test the hypothesised relationships that exist between fit and (a) brand personality and (b) extension evaluations and the impact of a number of moderating variables upon this relationship. To this end t-tests, ANOVAs and ANCOVAs were used. The secondary purpose of this chapter was to assess the impact and relationships between a number of variables and (a) brand personality and (b) extension evaluations through the use of multiple regression analysis.

### 7.8.1 Summary of Each Hypothesis Test

The following section presents the summary findings of each hypothesis test: -

H1<sub>a</sub>. An extension with good fit will result in greater brand personality enhancement than an extension with poor fit.

In all cases there was a lack of support for H1<sub>a</sub> as fit did not appear to significantly effect any of the five brand personality dimensions.

H1<sub>b</sub>. An extension with good fit will be evaluated more favourably than an extension with poor fit.

Support was provided for H1<sub>b</sub> as fit did appear to significantly effect extension evaluations. The results suggested that higher levels of fit were associated with more favourable extension evaluations.

H2<sub>a</sub>. The higher the core brand quality evaluations, the lesser the impact of fit on brand personality evaluations.

Moderate support was provided for H2<sub>a</sub>, as the level of core brand quality was a significant covariate for the dimensions competence and ruggedness only. This indicates that higher perceptions of core brand quality were associated with less of an impact of fit on brand personality evaluations

H2<sub>b</sub>. The higher the core brand quality evaluations, the lesser the impact of fit on extension evaluations.

Hypothesis H2<sub>b</sub> was supported (when competence was not used as a covariate), as the level of core brand quality was a significant covariate. This indicated that higher perceptions of core brand quality were associated with less of an impact of fit on extension evaluations.

H3<sub>a</sub>. The higher the consumer knowledge evaluations, the greater impact of fit on brand personality evaluations.

Hypothesis H3<sub>a</sub> was not supported as consumer knowledge was not a significant covariate and therefore, higher perceptions of consumer knowledge were not associated with a greater impact of fit on brand personality evaluations.

H3<sub>b</sub>. The higher the consumer knowledge evaluations, the greater impact of fit on extension evaluations.

Hypothesis H3<sub>b</sub> was not supported as consumer knowledge was not a significant covariate and therefore, higher perceptions of consumer knowledge were not associated with a greater impact of fit on extension evaluations.

H4<sub>a</sub>. The more favourable the evaluations of an extension the lesser the impact of fit on brand personality evaluations.

Hypothesis H4<sub>a</sub> received limited support, as extension quality was significantly associated with brand personality evaluations only for the brand personality dimension 'competence'. Hence, higher perceptions of extension quality were associated with less of an impact of fit on brand personality evaluations for this dimension only.

H4<sub>b</sub>. The more favorable the competence evaluations the lesser of an impact of fit on extension evaluations.

Hypothesis H4<sub>b</sub> was supported (when core brand quality was not used as a covariate), as competence (before) was significantly associated with extension quality. Hence, higher perceptions of competence (before) were associated with less of an impact of fit on extension evaluations.

It was surprising initial support for H2<sub>b</sub>, and H4<sub>b</sub> was not forthcoming. It was suggested that this could be because core brand quality and the 'competence' dimension were measuring similar constructs. These constructs were significantly associated ( $p < 0.01$ ) at the .555 level. Therefore, both covariates were entered individually into the ANCOVA analysis (without each other). Subsequently both covariates were significant ( $p < 0.05$ ) providing support for H2<sub>b</sub>, and H4<sub>b</sub>. These findings suggest that when the core brand quality is highly evaluated consumers should also perceive it to be highly competent. It is recommended that in future research only one of the measures or a composite measure should be used.

### **7.8.2 Additional Analysis - The Use Of Brand Personality 'After' As The Dependent Variable. What Did Effect Brand Personality Then?**

As the levels of fit did not significantly affect consumer evaluations of brand personality, it was decided to explore the variables that did affect brand personality evaluations 'after' an extension introduction. The results of the ANCOVA analysis showed that when brand personality evaluations 'after' the extension was taken as the dependent variable then brand personality evaluations 'before' an extension introduction significantly affected the former and were not affected by fit.

The regression results provided further support that whilst the level of fit did not appear to affect brand personality evaluations 'after' the extension, brand personality evaluations 'before' did significantly affect the former. Yet again the brand personality dimensions 'before' were highly significant. This suggests that brand personality judgements are more enduring than first thought and are little affected by fit.

### **7.8.3 A Closer Examination Of The Effects Of Fit Using Multiple Regression**

Multiple regression analysis was used to further examine the relationship between fit and brand personality and extension evaluations. Separate multiple regressions were conducted on the variable as a whole and also by selecting only those cases that had 'good' or 'poor' levels of fit. By doing this the relative importance of the variables core brand quality, extension quality, consumer knowledge and competence under different conditions could be considered.

When brand personality 'pure' evaluations were taken as the dependent variable the main findings showed that the quality of the core brand was more important to an extension with poor fit (i.e. for dimensions excitement, competence and sincerity). For these dimensions a significant and negative relationship existed. This indicated that consumer evaluations of core brand quality are associated with lower brand personality evaluations when poor fit is present. An explanation of this is that higher levels of quality may help to overcome poor fit. When there is good fit present having higher levels of core brand quality may not necessarily aid consumer evaluations of

brand personality. However, as noted these findings should be treated with caution due to very low  $R^2$ 's and low predictive power.

When extension evaluations were taken as the dependent variable the quality of the core brand was also significant and positive. However, in contrast to above higher levels of quality of the core brand were more important when an extension with 'good' as apposed to 'poor' fit was considered. This points towards good fit being sufficient for favourable consumer evaluations of the extension thus supporting previous research (e.g. Aaker and Keller 1990).

Table 7.13 provides an overall summary of the analysis results. The main findings showed that whilst the level of fit did not appear to affect brand personality evaluations, it had a significant impact upon extension evaluations. These issues are explored in more detail in the next chapter, which discusses the major findings and contribution of this study. Drawing on this, the managerial implications of the study findings are discussed. Finally, the study's limitations are highlighted and, as a result, several directions for future research are identified.

Table 7.13 - Summary of Analysis Results

Dependent Variable	Type of Analysis Undertaken		
	t - test	ANCOVA	Regression (per extension)
BP Differences (Pure)	H1 <sub>a</sub> not supported, no significant differences between ATV (good fit) and Aftershav (poor fit) extensions. The level of fit did not affect BP.	H1 <sub>a</sub> not supported as in t - test. H2 <sub>a</sub> supported for 2 of the 5 BP dimensions. Core brand quality significant covariate for BP dimensions competence and ruggedness. H3 <sub>a</sub> not supported. H4 <sub>a</sub> supported for competence dimension only.	H1 <sub>a</sub> not supported. Core brand quality significant for excitement, competence and ruggedness dimensions. Extension quality significant for competence dimension – more favourable reactions to the extension increased competence levels.
BP After	Not relevant as BP Pure differences already stated in t - test	No significant difference between ATV and Aftershav. All BP 'before' measures highly significant. Hence BP 'before' significantly affected BP 'after'. Quality of the extension significant covariate for 'competence' dimension only. Hence, the higher the perceived quality of the extension the higher the competence. - H4 <sub>a</sub> supported	As in ANCOVA all BP 'before' dimensions highly significant and predictive in BP 'after' evaluations. Competence - quality of the extension significant.
BP Before	Not relevant as BP Pure differences already stated in t - test	Not relevant as experimental stimulus not given at this stage	Core brand quality is positively associated with BP evaluations for competence, ruggedness, and sincerity. The level of consumer knowledge also significant for sincerity dimension.
Extension Evaluation (quality)	H1 <sub>b</sub> supported, significant differences between ATV (good fit) and Aftershav (poor fit) extensions. The level of fit did affect Extension Quality.	H1 <sub>b</sub> supported. H2 <sub>b</sub> not supported. H3 <sub>b</sub> not supported - covariate consumer knowledge not significant. H4 <sub>b</sub> not supported.	H1 <sub>b</sub> supported. Higher levels of fit were associated with more favourable extension evaluations. Quality of the core brand also significant predictor of extension quality.

## CHAPTER 8

### CONCLUSIONS

This chapter presents the final conclusions of consumer evaluations of extensions and their impact on brand personality. Firstly, a summary of the main findings is discussed. The contribution of this research to the existing marketing literature is then outlined in terms of theoretical and methodological implications. Drawing on this, the managerial implications of the study findings are discussed and a number of practical recommendations are provided for marketing and brand managers. Finally, the study's limitations are highlighted and, as a result, several directions for future research are identified.

#### 8.1 SUMMARY FINDINGS

An experiment with a real brand and hypothetical extensions examined the impact of extension fit upon consumer evaluations of brand personality and extensions. Specifically, comparisons were made between brand personality evaluations 'before' and 'after' the extension introduction. The nature/strength of the relationship between fit and brand personality and extension evaluations was also thought to be moderated by four other variables: the quality of the core brand, consumer knowledge, extension quality and competence (before the extension introduction).

This research not only sheds light on to how consumers evaluate extensions, it also contributes to the lack of research into extension fit and its affects upon brand personality. However, the findings are only based upon one particular brand in one specific industry and generalisation beyond this group should be made with caution. With these thoughts in mind there are five main observations about the impact of extension fit upon brand personality and extension evaluations.

1. Subjects' perceptions of fit did not affect brand personality evaluations, but did affect extension evaluations. Although an extension with good fit was

evaluated more favourably than an extension with poor fit brand personality was not significantly enhanced or diluted.

2. Subjects' perceptions of core brand quality only moderately affected the relationship between fit and brand personality evaluations. Even though support was found (for the competence and ruggedness dimension) for the moderating influence of core brand quality upon the relationship between fit and brand personality evaluations, there was still no significant affect of fit upon brand personality evaluations.
3. Subjects' perceptions of extension quality only affected the relationship between fit and brand personality evaluations for one dimension (competence). However, there was still no significant affect of fit upon brand personality evaluations.
4. Subjects' perceptions of core brand quality or competence of the core brand did affect the relationship between fit and extension evaluations. Furthermore, higher levels of core brand quality or competence were associated with less of an impact of fit upon extension evaluations.
5. Subjects' perceived levels of knowledge did not affect brand personality or extension evaluations. Higher or lower levels of knowledge did not appear to moderate the relationship between fit and brand personality or extension evaluations.

The broad implications of these findings are that brand personality will not be enhanced or diluted by 'good' or 'poor' fitting extensions. Therefore, in the short term extensions can be introduced without the fear of a brand's personality changing. As the level of extension fit did not influence brand personality then it may be thought that the manipulation of extension fit was unsuitable. Nevertheless, extension fit was seen to have a strong influence upon extension evaluations. It was shown that a 'poor' fitting extension was evaluated less favourably than a 'good' fitting extension and, thus, the fit manipulation did have an effect upon one of the dependent variables. This finding also implies that it is wise to introduce an extension with good fit (e.g. ATV) even if brand personality is not affected by fit levels. The next section explores



the findings in more detail in terms of theoretical, methodological and managerial implications.

## **8.2 RESEARCH IMPLICATIONS**

### **8.1.1 Theoretical and Methodological Implications**

The question under which conditions extensions are expected to be successful is still highly relevant and has been investigated extensively (Sattler and Zatoukal 1998). It was identified that there was a lack of research into the potential positive and negative effects that extensions could have on the core brand. Therefore, the theoretical and methodological contribution of this research lies in (a) a new conceptualisation of the effects that different levels of extension fit have on brand personality (as a core brand evaluation), (b) the replication of previous work that focused on the impact of fit on extension evaluations, and (c) the re-testing and validation of Aaker's (1997) brand personality scale. This work has contributed to theoretical development by addressing not only the dilution effects but also the potential for brand enhancement, which to date has received little empirical investigation. This work has also highlighted the importance of brand personality as a consumer evaluation of the core brand.

Previous research into the impact of extensions provided evidence that higher levels of perceived fit were associated with (a) more favorable extension evaluations and (b) more favorable core brand evaluations (i.e. enhancement) than lower levels of perceived fit. The findings of this research have identified that whilst higher levels of perceived fit were associated with more favorable extension evaluations there was no significant affect of fit on brand personality.

Measuring the effects of extensions upon the core brand had been commonly operationalised as quality perceptions of the core brand (Keller and Aaker 1992). As no one to date has measured the effects of fit on brand personality (as a core brand evaluation), the use of the brand personality scale in this research has offered an alternative and consistent way of assessing the wider impact of extensions upon the core brand. This research adds to theoretical development by assessing the impact of extension fit on the core brand by showing that although good (poor) levels of fit have

been previously seen to enhance (dilute) the core brand; when brand personality is taken as a core brand evaluation there was little effect of fit. It has also enabled an in-depth and detailed understanding of respondents' perceptions of and attitudes towards the personality of the particular brand under investigation.

This study has also contributed to the literature by verifying and validating the findings of previous work on extensions. It has been shown that a brand can successfully extend when consumer perceptions of good fit are present. When an extension was perceived as having poor fit with the core brand then extension evaluations were less favorable. The results also showed that as the quality of the core brand became higher fit was less important. This finding supports previous research (e.g. Keller and Aaker 1992) and suggests that the very high quality brands can be extended to more diverse product areas. Thus, a high quality core brand has more opportunity to extend than a lower quality core brand.

This research followed prior work on extensions in that it used an experimental approach to investigate the impact of extension strategies on consumer evaluations of the core brand. The type of before-after with control experimental design was appropriate as it controlled for a maximum number of extraneous and potentially confounding factors. Due to a lack of previous work in this area this study is considered useful in generating findings on how consumers evaluate brand personality following an extension introduction. However, with an experimental design of this type the researcher can not be sure that any significant results can indeed be attributed to the variable studied. The result will have a component due to the experimental stimulus and a component due to the interactive testing effect (Churchill 1999). The interactive testing effect was kept to a minimum by leaving a one-week gap between the two administrations of the questionnaire (see Section 4.4.2). Unlike previous research on extensions, this research examined a single brand over a relative short period of time and thus avoided the potential effects of a brand's development (e.g. an extension introduction or an advertising campaign).

Aaker's (1997) brand personality scale was used in the current research as it had received limited use to date (with the exception of Musante and Milne 1999, Siguaw et. al. 1999). Therefore, the third sub-objective of this research was to ascertain if

identical dimensions were present by focusing on an executive MBA student sample in the automobile industry. Factor analytical techniques showed that the brand personality scale did have five key dimensions for this particular brand. As expected the brand was seen to be highly 'rugged' and 'competent'.

Indeed, the five brand personality dimensions were seen to be robust in the data set used in this research. However, the scale required simple modifications to retain the 5 brand personality dimensions. In total, 6 out of the original 42 traits were eliminated due to low factor loadings. The personality trait 'Western' was also eliminated due to its ambiguous meaning in the UK. The modified brand personality scale consisted of 35 traits. The replication of the brand personality scale in the automobile industry showed that it could be effectively used in this industry. The reliability of the brand personality dimensions were relatively high reporting coefficient alphas of 0.78 to 0.83; whilst, each brand personality dimension was shown to be unidimensional with all traits loading at least at .30 or above on the one factor.

The consistency of the brand personality measures over time was also established by conducting test-retest reliability. The correlation coefficients for each dimension appeared to be reasonably high (i.e. .675 - .793) and significant ( $<0.01$ ) which would suggest the brand personality measure has good reliability over time.

The validity of the scale was established in a number of ways. Particularly, the scale was considered content valid through a mixture of experts opinions (in pretesting) and clarification of the construct domain by presenting respondents with a clear definition of brand personality. Showing unidimensionality also provided factorial validity. Initial descriptions showing the mean scores of each brand personality dimension 'before' and 'after' the extension introduction provided further evidence of scale validity. Whereupon, the brand was perceived as being highly 'rugged', which is what 'experts' (in the pretest) expected of this particular 4 x 4 brand.

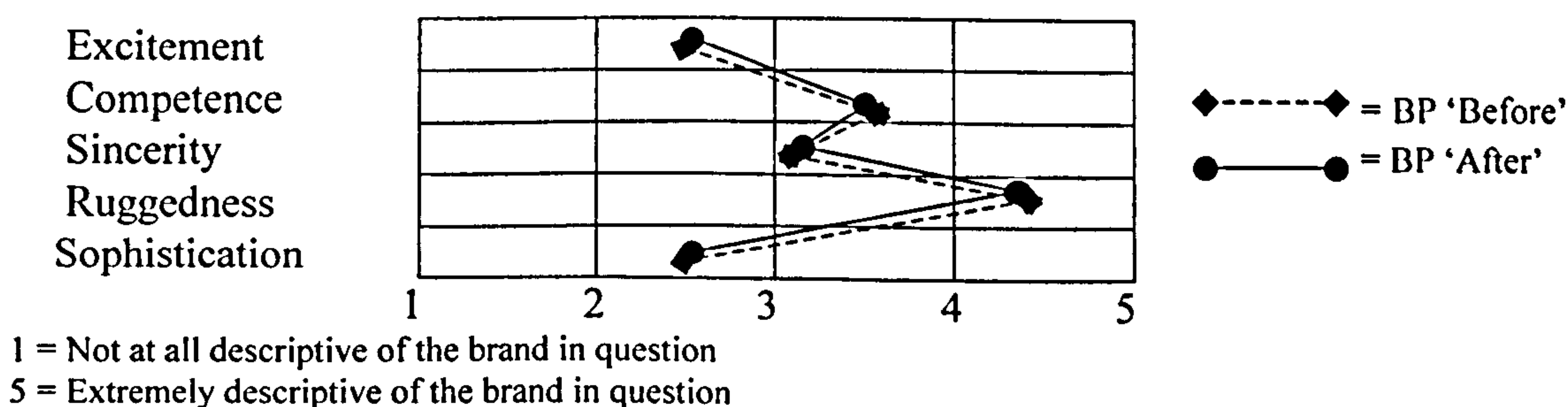
The vigorous testing of this scale contributes to the growing literature on brand personality.

### 8.1.2 Managerial Implications/Guidelines

The findings of this research will be of relevance to managers and practitioners, who, whilst increasingly following extension strategies have little research evidence to assess their wider impact on brand equity. For marketers the effect upon brand equity is a key consideration throughout the extension decision (Ambler and Styles 1998). This research assessed one key aspect of brand equity, namely brand personality.

The findings of this study have important implications for the management of the 4 x 4 brand being investigated. Particularly striking was the fact that the brand was perceived as being highly 'rugged'. This brand also exhibited reasonably high levels of 'competence' (see Figure 8.1). This highlights its off-road ability and competence in developing the technology needed for this type of vehicle. This is an interesting finding as despite the fact that of the majority of respondents (60%) would not even consider going off-road, they still valued the competence of the brand. The relatively high scores on the brand personality dimensions 'ruggedness' and 'competence' are good for the brand concerned as it enables successful differentiation from its competitors. As can be seen from the profile of mean brand personality evaluations in Figure 8.1 there was hardly any difference between the 'before' and 'after' measurements. This highlights that brand personality did not change as a result of different types of extension fit. This research has shown that managers in the automobile industry can use a valid measurement of brand personality, which does allow a brand to differentiate if they use Aaker's (1997) scale. It is recommended that managers should measure brand personality at various points in the year to ensure that the brand is continually offering a consistent personality.

**Figure 8.1 – Profile Analysis of Mean Evaluations of Brand Personality 'Before' and 'After' Experimental Stimulus.**



There are wider implications for managers in general. Specifically, in the short-term it has been shown that brand personality is little affected by the introduction of the extensions. Moreover, extensions that have 'good' or 'poor' perceived fit do not affect brand personality in different ways. This suggests that managers can consider introducing extensions (in the short-term) with poor fit without having to worry about the effects on brand personality. However, the results of this research provided evidence that extensions with poor fit received less favourable evaluations than extensions with good fit. This finding is also backed up by a number of researchers (Aaker and Keller 1990; Chakravarti et. al. 1990; Park, et. al. 1991). Therefore marketing/brand managers should still consider introducing extension with good fit as a poor fitting extension can confuse or frustrate consumers (Keller 1999). Managers therefore should try assess the position of the core brand in the market place and try to estimate consumer perceptions of fit between possible extensions and the core brand. This type of research should be carried out prior to an extension's development and introduction as a potentially poor fitting extension may be unsuccessful.

Managers need to be aware that respondents were only presented with one type of extension. What would happen to brand personality evaluations if respondents were presented with more than one type of extension? Also, what would happen to brand personality when respondents are repeatedly introduced to an extension over a longer time period (e.g. over a number of months)? The effect of extension fit on brand personality may be more pronounced due to the repeated exposure and therefore managers need to be aware that the findings of this research are from hypothetical extension situations. Future research should attempt to discover if extensions with 'good' and 'poor' fit do affect brand personality over these extended time periods.

It has been suggested that companies introduce extensions because of short-term pressures (Ambler and Styles 1998). Previous research, has suggested that an extension can change the meaning and image of the core brand and that an extension should improve the image of the core brand by improving its strength, favourability and uniqueness of its associations (Keller 1999). Although, Loken and Roedder John (1993) and Leong et. al. (1997) found that the core brand was diluted by an extension with poor fit, the findings of this research are similar to Keller and Aaker (1992) in that there was no evidence of core brand dilution. The results of this research suggest

that marketers should recognise that an extension with 'good' (or 'poor') fit does not necessarily enhance (dilute) brand personality in the short-term. Therefore, rather than using extensions to enhance brand personality, marketers should concentrate on effectively on using marketing communications to enhance brand personality.

Therefore, in the short-term marketers should be able to introduce extensions with 'good' and 'poor' levels of fit without unduly affecting a brand's personality. In the long-term a brand's personality may indeed be changed by additional extensions to which consumers have been repeatedly exposed. The results have highlighted the fact that a firm may introduce a poor fitting extension for short-term gains as long as the extension is phased out before it becomes detrimental to brand personality. Further research is needed to establish the exact length of time that is needed before an extension will enhance or dilute the brand personality.

The results showed that as consumers evaluated core brand quality more favorably fit had less of an effect upon the evaluation of the brand personality dimension competence. This implies that if managers can increase the quality of their core brand, a poor fitting extension will have even less of an impact upon brand personality evaluations. Therefore, it should be easier for high as opposed to low quality brands to extend to more diverse product areas. However, managers need to remember that even when core brand quality was taken into account, fit still did not significantly affect brand personality.

It has also been shown that as evaluations of core brand quality (or of competence) increase there would be less an impact of fit upon extension evaluations. This finding was also supported by (Keller and Aaker, 1992). Once again, marketers should try influence core brand quality (or competence) evaluations. As these increase the impact of fit will become less and therefore, extensions will be more easily accepted as respondents will have faith in the quality or competence of the brand in being able to deliver the extension. Additionally, higher perceptions of extension quality were associated with less of an impact of fit on the brand personality dimension competence. This finding appears logical, as fit should not really effect competence evaluations when there are higher perceptions of extension quality. For managers this

implies that higher levels of extension quality are more important than fit judgments when the competence of the core brand is considered.

In contrast to previous research (e.g. Muthukrishnan and Weitz 1991; Gail 1993; Broniarczyk and Alba 1994; Roux and Boush 1996) evaluations of consumer knowledge did not have a significant impact upon brand personality or extension evaluations. This finding suggests that managers do not necessarily need to educate consumers about the core brand for fit to have a greater or lesser impact upon brand personality and extension evaluations. For example, when extension fit is based upon similar technologies, managers need not educate consumers on manufacturing technologies. However, as consumer knowledge was not manipulated this finding needs to be treated with caution, as there was no significant difference between group knowledge levels in this case.

## **8.2 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH**

There are a number of limitations inherent in this study. Firstly, as the respondents consisted of MBA students, one has to be careful when generalising the findings beyond this population. As stated in Chapter 4, MBA students were deemed an appropriate population to sample as they closely represented an important target market and have the ability, willingness, and authority to purchase the brand under investigation. It may also be possible that respondent demographics may have influenced perceptions of brand personality. Respondent 'age' and 'highest academic level of education' did not appear to influence brand personality and extension evaluations in the majority of cases (with the exception of the Sophistication dimension). Consumer perceptions of brand personality may have been different had the sample included a wider cross-section of people from various age and social economic groups. Future research should attempt to generalise the findings of this study to a broader cross-section of people by further testing the research hypotheses on distinctive consumer groups (e.g. younger or older people). It is important to establish the effect of extensions on brand personality for these people even if they are not the target market as these peoples' perceptions of brand personality may indeed influence potential customers perceptions and ultimately the buying decision process.

For example, Dibb et. al. (1994) recognize the forces that other people exert on a persons buying behavior. They refer to these forces as social factors that cover four main areas. For example, roles and family influences, reference groups, social classes and culture and subcultures. It would also be desirable to replicate this study using larger samples, over more product categories with additional brands in each category being analysed. This would give the advantage of like for like comparison between brands in the same category and brands of different categories. However, it is important to realise the practicalities involved in carrying out this type of research. For example when designing research of this type the sample size would double simply by adding another brand.

Although this research only manipulated the level of fit and measured its influence upon brand personality and extension evaluations it would be interesting to establish the effects that a number of marketing variables surrounding a proposed extension would have upon brand personality. For example, how would a specific type of advertising campaign surrounding an extension affect brand personality? When an extension has specific personality traits that are consistent with the brand personality one would expect enhancement and where personality traits are inconsistent dilution. Therefore, an experimental manipulation of advertising communications where good and poor levels of fit with of the original brand personality may be a better measurement of the influence of fit. It is possible that marketing communications can override poor perceptions of fit. By guiding marketing efforts in such a direction that those brand personality traits from the core brand are emphasised and consistent in the advertising of the brand personality of the extension.

Future research is also needed to test under what conditions the impact of extensions will have a significant effect upon brand personality. For example, more than one poor fitting extension in quick succession may lead to dilution of brand personality. Alternatively, can extensions that emphasize distinctive personality traits alter specific core brand personality dimensions? This would be beneficial for marketing managers wishing to reposition and change their brand's personality.

Aaker's (1997) brand personality scale has proved to be applicable in different cultures. However, minor modification of the scale was necessary (e.g. the brand



personality trait Western was eliminated due to its ambiguity). Additionally, the UK is relatively similar to the USA in terms of its language base and its economic development. Would the brand personality scale and the effects of fit be the same in more diverse cultures? Similarly, would the impact of competence be the same from one culture to another? Cross-national stability is important to brand managers in order to establish if the same brand personality dimensions are relevant and remain constant across cultures (Aaker 1997). Also the effects of extension fit may be more (less) pronounced in more diverse cultures.

Further extensions of this type of research are recommended in an industrial setting. It is important for industrial companies to build brand equity but this is done differently from consumer goods in that, product-related associations (e.g. functional benefits) may play a more important role when compared to non-product-related associations (e.g. brand personality) (Keller 1998). Indeed, could the brand personality scale even be applied in an industrial setting? Would the scale need to be modified to include more technological characteristics? Also, would the level of fit still affect extension evaluations or would the quality of the core brand and perceived levels of competition be more important in an industrial setting?

A possible reason for the lack of effect of fit upon brand personality is that the brand in question was perceived as being high in quality. This research showed that as the level of quality got higher the impact of fit was less. Future research should attempt to assess the impact of extensions on brand personality for brands with lower levels of perceived quality. For example, it may be easier for a lower quality brand such as Skoda to damage its brand personality with a poor fitting extension. This type of work should attempt to establish the limit (if any) where brand personality is affected by good and poor levels of fit.

This research identified a number of variables from the literature review that affected the impact of fit on brand personality and evaluations extension. Other factors may contribute to the results obtained in this research. For example, how would consumer evaluations of marketing or advertising effectiveness affect the relationship between fit and consumer evaluations of brand personality and extensions? When marketing is perceived as being efficient the impact of fit could be reduced. Similarly, company

characteristics such as size or timing of the extension introduction may also affect the impact of fit on consumer evaluations. Future research is required to empirically investigate these other factors and their effect on brand personality and extension evaluations.

The focused nature of this research was also a limitation. Whilst being useful in testing the research hypotheses future research should attempt to examine the effects of actual extensions on real brands and their impact upon brand personality. This research only concentrated on one industry. Arguably, the automobile industry is unique due to the extensive communication and buying process involved when purchasing automobiles. Other brands in different industries may find that the levels of fit do affect brand personality, due to a more limited contact with a brand. The personality of a brand which is not particularly important to consumers such as Heinz baked beans may indeed be diluted by a poor fitting extension. Contrastingly, Mercedes have not appeared to harm their brand personality (due to the negative publicity surrounding the 'A' class) as they have a deep, long lasting personality.

There is also a limitation with the experimental design. This type of design may not have truly reflected regular consumer decision processes. The extensions used were 'potential' rather than 'actual' and were presented to subjects in written form without the use of stimuli such as pictures. The reactions are therefore to the extension concepts prior to any introductory marketing campaign. However, as already stated this research has contributed to theoretical development by assessing the impact of fit upon core brand personality and including overtures such as pictures would have compromised the integrity of the experimental design. In this case respondents may not have responded to the idea of good and poor fit, but to their liking for the visual cue. On the one hand, repeated exposure to extension information in the marketplace may result in greater feedback effects than a single exposure in an experiment. However, the fact that respondents were asked to rate their evaluations of extensions may have increased their prominence and the likelihood of feedback effects. Either of these factors could have been stronger than the other but significant results however small should have indicated that fit did have an effect on brand personality evaluations (as the experiment did show that fit affected extensions of evaluations). One might argue that the repetition of extension information in the natural setting should

strengthen fit effects over and above those found in this study. Also, it could be argued that consumers have limited information on which to base their evaluations. Previous studies (Consumer Behaviour Seminar 1987; Aaker and Keller 1990; Park et. al. 1991) have also used similar information cues for the experimental stimuli, were significant results were obtained.

Finally, do these results apply to both established and more recently introduced brands? It may be that brands recently introduced are not established in a consumers longer-term memory and therefore, there may be some differential effects of fit on brand personality.

Attention to the issues outlined above will help to further develop a deeper understanding of the key influences associated with extending a brand and its influences on brand personality and ultimately, lead to concrete, empirically-based guidelines on which to base future branding strategies.

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# APPENDICES



## **APPENDIX 4.1**

### **FINAL QUESTIONNAIRE 1 (BEFORE MEASUREMENT)**

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## Personality of \*\*

The questionnaire will take no more than 10 minutes to fill in. Your contribution is critical to the success of this research.

This is the first of two short questionnaires that I would like you to complete. The questionnaire has three main sections. Section 1 concerns \*\*'S brand personality, Section 2 measures your familiarity and expertise with the \*\* brand and Section 3 asks for some background information.

## SECTION 1

### Brand Personality Measurement

Brand personality refers to the set of *human* characteristics associated with a brand. Specifically we would like you to think of the \*\* brand as if it were a *person*. This may sound unusual, but brands are often associated with human characteristics. For example, you might think that the human characteristics associated with the Virgin brand are young and trendy, while the Mercedes brand may be seen as sophisticated and dependable. We are interested in finding out which personality traits or human characteristics come to *your* mind when you think of the \*\* brand.

In your opinion, to what extent does each of the following personality characteristics accurately describe the \*\* brand? (Please circle the appropriate number)

	Not at all	1	2	3	4	5	Extremely Descriptive		Not at all	1	2	3	4	5	Extremely Descriptive
	Descriptive								Descriptive						
down to earth		1	2	3	4	5		unique		1	2	3	4	5	
honest		1	2	3	4	5		independent		1	2	3	4	5	
wholesome		1	2	3	4	5		hard working		1	2	3	4	5	
cheerful		1	2	3	4	5		technical		1	2	3	4	5	
daring		1	2	3	4	5		leader		1	2	3	4	5	
spirited		1	2	3	4	5		glamorous		1	2	3	4	5	
imaginative		1	2	3	4	5		feminine		1	2	3	4	5	
up-to-date		1	2	3	4	5		masculine		1	2	3	4	5	
reliable		1	2	3	4	5		rugged		1	2	3	4	5	
intelligent		1	2	3	4	5		small town		1	2	3	4	5	
successful		1	2	3	4	5		real		1	2	3	4	5	
upper class		1	2	3	4	5		friendly		1	2	3	4	5	
charming		1	2	3	4	5		exciting		1	2	3	4	5	
outdoorsy		1	2	3	4	5		young		1	2	3	4	5	
tough		1	2	3	4	5		contemporary		1	2	3	4	5	
cool		1	2	3	4	5		secure		1	2	3	4	5	
sincere		1	2	3	4	5		corporate		1	2	3	4	5	
original		1	2	3	4	5		confident		1	2	3	4	5	
sentimental		1	2	3	4	5		good looking		1	2	3	4	5	
trendy		1	2	3	4	5		smooth		1	2	3	4	5	
family-orientated		1	2	3	4	5									

## SECTION 2 - \*\* Knowledge

<p><b>1.</b> Do you currently own a ** vehicle? (please tick one box) Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>2.</b> How many ** vehicles have you ever purchased? (please indicate number) <input style="width: 30px; height: 20px;" type="text"/> <input style="width: 30px; height: 20px;" type="text"/></p> <p><b>3.</b> Are you a member of a ** 4 x 4 club? Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p><b>4.</b> Are you aware of any other types of ** products which are not 4 x 4 vehicles? (Please tick one box) Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>5.</b> If yes, please identify what products you are aware of. ..... ..... ..... .....</p>
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Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements (1 = strongly disagree, 7 = strongly agree).

- 1.** I have a lot of knowledge about how to select the best \*\* product within the range.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 2.** I have a clear idea about which product characteristics are really important in providing me with maximum satisfaction.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 3.** If a friend asked me about \*\*, I could give them advice about this brand.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 4.** If I had to purchase a \*\* product, I would need to gather very little information in order to make a wise decision.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 5.** Compared to the average person, I know a lot about the \*\* brand.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 6.** I like to repair and maintain \*\* vehicles myself.

Strongly disagree      1    2    3    4    5    6    7      Strongly agree
- 7.** My friends consider me an expert on \*\* products.

Strongly disagree                    1    2    3    4    5    6    7                    Strongly agree

8. Compared to the average \*\* buyer, I consider myself to be:

One of the least knowledgeable                    1    2    3    4    5    6    7                    One of the most knowledgeable

Please indicate your level of knowledge of the \*\* brand. (Please circle the appropriate number)

Not knowledgeable	1	2	3	4	5	6	7	Very knowledgeable
Inexperienced	1	2	3	4	5	6	7	Experienced
Uninformed	1	2	3	4	5	6	7	Informed
Novice buyer	1	2	3	4	5	6	7	Expert buyer
Not familiar	1	2	3	4	5	6	7	Very familiar

Please indicate your opinion of \*\* products. (Please circle the appropriate number)

Low quality	1	2	3	4	5	6	7	High quality
Not at all likely to try	1	2	3	4	5	6	7	Very likely to try
Inferior products	1	2	3	4	5	6	7	Superior products
Low price	1	2	3	4	5	6	7	High price
Low technology	1	2	3	4	5	6	7	High technology
Low reliability	1	2	3	4	5	6	7	High reliability
Poor workmanship	1	2	3	4	5	6	7	Good workmanship
Low dependability	1	2	3	4	5	6	7	High dependability

Please indicate your views regarding the following statements concerning \*\*. (Please circle the appropriate number)

1. When purchasing a \*\* there are several product options available (e.g. engine types, colour, upholstery, accessories etc.):

Strongly disagree                    1    2    3    4    5    6    7                    Strongly agree

2. When purchasing a \*\* there is a lot of opportunity for customisation:

Strongly disagree                    1    2    3    4    5    6    7                    Strongly agree

3. \*\* products are best used when:

Off road                    1    2    3    4    5    6    7                    On Road

# SECTION 3

## Background information

1. Occupation (please state) .....

2. Sex (Please tick)

Male   
Female

3. Marital status (Please tick)

Single   
Married   
Divorced/separated   
Widowed   
Living with partner

4. Age

years

5. What is your **highest** academic qualification achieved? (please tick one box)

No formal Qualifications       Secondary school ('O' levels or equivalent)       6th form/college ('A' levels or equivalent)

University Degree       Postgraduate Degree       Other (please indicate) .....

6. What is your approximate **off road** usage? (please tick one box)

Daily       Weekly       Monthly

Once every 6 months       Once a year       Never

7. What are your hobbies and interests? (please state) .....

**Thank you for your help**

## **APPENDIX 4.2**

### **FINAL QUESTIONNAIRE 2 (AFTER MEASUREMENT - ATV)**

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## Personality of \*\*

The questionnaire will take no more than 10 minutes to fill in. Your contribution is critical to the success of this research.

This is the second of two short questionnaires. The questionnaire has three main sections. Section 1 introduces \*\*'s new product introduction (ATV). Section 2 deals with \*\*'s brand personality and Section 3 measures your feelings and attitudes towards the new product introduction and \*\*.



# SECTION 1

## \*\* ATV

\*\* is considering introducing a new type of ATV (all terrain vehicle) using its existing 4 × 4 technology. It will be larger than the quadbikes currently available but smaller than existing 4 × 4 vehicles (e.g. Discovery, Shogun, Vitara). It will be an open-top vehicle with a roll bar for protection. A soft top option will also be available. It will be targeted at farmers for agricultural use but will also be sold as a leisure vehicle. The new ATV will carry the \*\* name and badge and will be available from \*\* dealerships. A summary of product features is provided below.

### Product Features

- Size of vehicle -larger than the average quadbike.
- Engine - 650cc motorcycle engine, giving excellent torque and off road pulling capabilities.
- Chassis - articulates for maximum off-road manoeuvrability and stability.
- Frame - strong construction of aluminium material.
- Bodywork - hard wearing non-rusting moulded polymer material.
- Tyres - high performance with overall diameter of 670mm.
- People carrying capability - legal on road 3, off road up to 7 (4 in back).
- Modifications - ability to be modified to individual specifications.
- Colours - standard \*\* colours plus extra on request.

## SECTION 2

### Brand Personality Measurement

Brand personality refers to the set of *human* characteristics associated with a brand. Once again we would like you to think of the \*\* brand as if it were a *person*. This may sound unusual, but brands are often associated with human characteristics. For example, you might think that the human characteristics associated with the Virgin brand are young and trendy, while the Mercedes brand may be seen as sophisticated and dependable. We are interested in finding out which personality traits or human characteristics come to *your* mind when you think of the \*\* brand.

In your opinion, to what extent does each of the following personality characteristics accurately describe the \*\* brand? (Please circle the appropriate number)

	Not at all	1	2	3	4	5	Extremely Descriptive		Not at all	1	2	3	4	5	Extremely Descriptive
down to earth		1	2	3	4	5		unique		1	2	3	4	5	
honest		1	2	3	4	5		independent		1	2	3	4	5	
wholesome		1	2	3	4	5		hard working		1	2	3	4	5	
cheerful		1	2	3	4	5		technical		1	2	3	4	5	
daring		1	2	3	4	5		leader		1	2	3	4	5	
spirited		1	2	3	4	5		glamorous		1	2	3	4	5	
imaginative		1	2	3	4	5		feminine		1	2	3	4	5	
up-to-date		1	2	3	4	5		masculine		1	2	3	4	5	
reliable		1	2	3	4	5		rugged		1	2	3	4	5	
intelligent		1	2	3	4	5		small town		1	2	3	4	5	
successful		1	2	3	4	5		real		1	2	3	4	5	
upper class		1	2	3	4	5		friendly		1	2	3	4	5	
charming		1	2	3	4	5		exciting		1	2	3	4	5	
outdoorsy		1	2	3	4	5		young		1	2	3	4	5	
tough		1	2	3	4	5		contemporary		1	2	3	4	5	
cool		1	2	3	4	5		secure		1	2	3	4	5	
sincere		1	2	3	4	5		corporate		1	2	3	4	5	
original		1	2	3	4	5		confident		1	2	3	4	5	
sentimental		1	2	3	4	5		good looking		1	2	3	4	5	
trendy		1	2	3	4	5		smooth		1	2	3	4	5	
family-orientated		1	2	3	4	5									

### SECTION 3 - Reactions to the ATV (all terrain vehicle).

Please indicate your opinions regarding the new ATV. (Please circle the appropriate number)

Not at all logical for **	1	2	3	4	5	6	7	Very logical for **
Not at all appropriate for **	1	2	3	4	5	6	7	Very appropriate for **
Bad fit between ** and the ATV	1	2	3	4	5	6	7	Good fit between ** and the ATV
Not an extreme new product introduction for **	1	2	3	4	5	6	7	Very extreme new product introduction for **
Very dissimilar to ** products	1	2	3	4	5	6	7	Very similar to ** products

Please indicate your expectations of the new ATV on the following dimensions. (Please circle the appropriate number)

Low quality	1	2	3	4	5	6	7	High quality
Not at all likely to try	1	2	3	4	5	6	7	Very likely to try
Inferior product	1	2	3	4	5	6	7	Superior product
Low price	1	2	3	4	5	6	7	High price
Low technology	1	2	3	4	5	6	7	High technology
Low reliability	1	2	3	4	5	6	7	High reliability
Poor workmanship	1	2	3	4	5	6	7	Good workmanship
Low dependability	1	2	3	4	5	6	7	High dependability

**Thank you for your help**

## **APPENDIX 4.3**

### **FINAL QUESTIONNAIRE 2 (AFTER MEASUREMENT - AFTERSHAVE)**

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## Personality of \*\*

The questionnaire will take no more than 10 minutes to fill in. Your contribution is critical to the success of this research.

This is the second of two short questionnaires. The questionnaire has three main sections. Section 1 introduces \*\*'s new product introduction (Aftershave). Section 2 deals with \*\*'s brand personality and Section 3 measures your feelings and attitudes towards the new product introduction and \*\*.

# SECTION 1

## **\*\* Aftershave**

**\*\*** is considering extending its product range into toiletries. Specifically it is contemplating introducing a male aftershave. It will be sold in larger containers than existing aftershave products. Unlike the majority of products available **\*\***'s aftershave will be sold in a metal container in typical **\*\*** green colour. The new Aftershave will carry the **\*\*** name and badge. The aftershave will be made available through a number of retail outlets including department stores, chemists and multiple grocers, as well as **\*\*** dealerships. A summary of product features is provided below.

### **Product Features**

- Size of container - slightly larger than the average aftershave bottle.
- Type of container - green metal material.
- Scent - refreshing/sharp.
- Colour - clear.
- Strength - strong rather than subtle.
- Price - mid range.

## SECTION 2

### Brand Personality Measurement

Brand personality refers to the set of *human* characteristics associated with a brand. Once again we would like you to think of the \*\* brand as if it were a *person*. This may sound unusual, but brands are often associated with human characteristics. For example, you might think that the human characteristics associated with the Virgin brand are young and trendy, while the Mercedes brand may be seen as sophisticated and dependable. We are interested in finding out which personality traits or human characteristics come to *your* mind when you think of the \*\* brand.

In your opinion, to what extent does each of the following personality characteristics accurately describe the \*\* brand? (Please circle the appropriate number)

	Not at all	1	2	3	4	5	Extremely Descriptive		Not at all	1	2	3	4	5	Extremely Descriptive
down to earth		1	2	3	4	5		unique		1	2	3	4	5	
honest		1	2	3	4	5		independent		1	2	3	4	5	
wholesome		1	2	3	4	5		hard working		1	2	3	4	5	
cheerful		1	2	3	4	5		technical		1	2	3	4	5	
daring		1	2	3	4	5		leader		1	2	3	4	5	
spirited		1	2	3	4	5		glamorous		1	2	3	4	5	
imaginative		1	2	3	4	5		feminine		1	2	3	4	5	
up-to-date		1	2	3	4	5		masculine		1	2	3	4	5	
reliable		1	2	3	4	5		rugged		1	2	3	4	5	
intelligent		1	2	3	4	5		small town		1	2	3	4	5	
successful		1	2	3	4	5		real		1	2	3	4	5	
upper class		1	2	3	4	5		friendly		1	2	3	4	5	
charming		1	2	3	4	5		exciting		1	2	3	4	5	
outdoorsy		1	2	3	4	5		young		1	2	3	4	5	
tough		1	2	3	4	5		contemporary		1	2	3	4	5	
cool		1	2	3	4	5		secure		1	2	3	4	5	
sincere		1	2	3	4	5		corporate		1	2	3	4	5	
original		1	2	3	4	5		confident		1	2	3	4	5	
sentimental		1	2	3	4	5		good looking		1	2	3	4	5	
trendy		1	2	3	4	5		smooth		1	2	3	4	5	
family-orientated		1	2	3	4	5									

### SECTION 3 - Reactions to the Aftershave.

Please indicate your opinions regarding the new Aftershave. (Please circle the appropriate number)

Not at all logical for **	1	2	3	4	5	6	7	Very logical for **
Not at all appropriate for **	1	2	3	4	5	6	7	Very appropriate for **
Bad fit between ** and the Aftershave	1	2	3	4	5	6	7	Good fit between ** and the aftershave
Not an extreme new product introduction for **	1	2	3	4	5	6	7	Very extreme new product introduction for **
Very dissimilar to ** products	1	2	3	4	5	6	7	Very similar to ** products

Please indicate your expectations of the new aftershave on the following dimensions. (Please circle the appropriate number)

Low quality	1	2	3	4	5	6	7	High quality
Not at all likely to try	1	2	3	4	5	6	7	Very likely to try
Inferior product	1	2	3	4	5	6	7	Superior product
Low price	1	2	3	4	5	6	7	High price
Low technology	1	2	3	4	5	6	7	High technology
Low reliability	1	2	3	4	5	6	7	High reliability
Poor workmanship	1	2	3	4	5	6	7	Good workmanship
Low dependability	1	2	3	4	5	6	7	High dependability

**Thank you for your help**



## **APPENDIX 4.4**

### **FINAL QUESTIONNAIRE 2 (AFTER MEASUREMENT - CONTROL)**

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**Personality of \*\***

The questionnaire will take no more than 5 minutes to fill in. Your contribution is critical to the success of this research.

This is the second of two short questionnaires. The questionnaire has one section only and measures your perception of \*\*'s brand personality.

## SECTION 1

### Brand Personality Measurement

Brand personality refers to the set of *human* characteristics associated with a brand. Once again we would like you to think of the \*\* brand as if it were a *person*. This may sound unusual, but brands are often associated with human characteristics. For example, you might think that the human characteristics associated with the Virgin brand are young and trendy, while the Mercedes brand may be seen as sophisticated and dependable. We are interested in finding out which personality traits or human characteristics come to *your* mind when you think of the \*\* brand.

In your opinion, to what extent does each of the following personality characteristics accurately describe the \*\* brand? (Please circle the appropriate number)

	Not at all	1	2	3	4	5	Extremely Descriptive		Not at all	1	2	3	4	5	Extremely Descriptive
down to earth		1	2	3	4	5		unique		1	2	3	4	5	
honest		1	2	3	4	5		independent		1	2	3	4	5	
wholesome		1	2	3	4	5		hard working		1	2	3	4	5	
cheerful		1	2	3	4	5		technical		1	2	3	4	5	
daring		1	2	3	4	5		leader		1	2	3	4	5	
spirited		1	2	3	4	5		glamorous		1	2	3	4	5	
imaginative		1	2	3	4	5		feminine		1	2	3	4	5	
up-to-date		1	2	3	4	5		masculine		1	2	3	4	5	
reliable		1	2	3	4	5		rugged		1	2	3	4	5	
intelligent		1	2	3	4	5		small town		1	2	3	4	5	
successful		1	2	3	4	5		real		1	2	3	4	5	
upper class		1	2	3	4	5		friendly		1	2	3	4	5	
charming		1	2	3	4	5		exciting		1	2	3	4	5	
outdoorsy		1	2	3	4	5		young		1	2	3	4	5	
tough		1	2	3	4	5		contemporary		1	2	3	4	5	
cool		1	2	3	4	5		secure		1	2	3	4	5	
sincere		1	2	3	4	5		corporate		1	2	3	4	5	
original		1	2	3	4	5		confident		1	2	3	4	5	
sentimental		1	2	3	4	5		good looking		1	2	3	4	5	
trendy		1	2	3	4	5		smooth		1	2	3	4	5	
family-orientated		1	2	3	4	5									

**Thank you for your help**

## **APPENDIX 4.5**

### **EXPERT PRETEST DETAILS**

- Length - both questionnaires were considered as having an acceptable length by all respondents. It was estimated that the first questionnaire would take no longer than ten minutes to fill in and the second questionnaire would take substantially less time.
- Layout - In the main, the layout was considered acceptable with all respondents. However, a number of the experts suggested that there were too many details explaining how to complete the questionnaire. It was pointed out that the questions and scales were relatively easy to follow. Therefore, simple and concise directions should be used. Additionally, the brand personality scale included a lined continuum that respondents could use to help judge the difference between the two extremes (i.e. where 1 = not at all descriptive and 5 = extremely descriptive). A consensus of opinion suggested that the continuum was not needed as the respondents had the numbers 1 - 5 which they could circle (see appendices \*\* for questionnaire prior to pretesting). Two experts noted that the brand personality traits were set in their specific dimensions. For example, outdoorsy, masculine, Western, tough and rugged were all positioned together. The dimension 'rugged' consisted of these traits. The experts believed that respondents may answer similarly to those traits that were grouped together. It was advised that if they were mixed respondents would have to consider each trait individually.

The experts also suggested that the two quality scales used in both questionnaires (Questionnaire 1 - section 2, Questionnaire2 - section 3) could be merged together. The two scales in each questionnaire were attempting to measure the quality of the core brand and of the extension respectively. The experts generally agreed that combining the scales into one overall measure of quality would be less confusing for respondents and would provide a more consistent layout. The industry experts suggested that perceived price and technology levels were both industry standard measures of quality. These two additional measures were also added to the quality scale. Following alterations, the final scale consisted of eight items.

A lack of question numbering in some sections of both questionnaires was also pointed out. It was suggested that numbering would ease the flow of the questionnaire and also help with its coding.

- Terminology - the industry experts proposed that that potential respondents may not understand the term 'brand'. They suggested using the term 'marque' or 'make'. It was decided to ask the non-experts their understanding of this terminology in the second pretest.

Experts aired concern over the similarity of the two quality measures reliability and dependability. It was suggested that these could be interpreted in the same way and have the same meaning. It was suggested that one of these measures could be taken out. However, it was decided to elicit the opinions of the non-experts on this matter before any decision was taken.

Attention was brought to the scale that was to be used for the core brand and the extension quality in both questionnaires. A question was posed by one expert "Can an aftershave be reliable and dependable, or, can it have good workmanship?" Once again it was decided to see if the non-experts pretest highlighted any of these problems before a decision was made.

Concern was also shown over the trait 'Western' in the brand personality scale. For example, 'Western' was seen as either European/westernised, or, wild west/cowboys/typical American. It was decided to test this trait in the 'non-experts' pretest to see what meaning they attributed to this term.

- Question structure - in questionnaire 1 section 2, a question asked "Approximately how many brand X vehicles have you purchased?" This question was considered ambiguous as respondents may contemplate over specific time periods (i.e. in the last twelve months, or, in the last ten years). Therefore, the question was changed to, "Approximately how many brand X vehicles have you ever purchased?" The word 'ever' eliminates any potential ambiguity. Also, the question, "Are you a member of the brand X 4x4 club?" was considered incorrect and misleading. It was pointed out that there are many brand X 4x4 clubs. The question was duly changed to, "Are you a member of a brand X 4x4 club?"
- Space - the majority of experts agreed that both questionnaires were both well spaced out. However, it was suggested that the 'background information' (Questionnaire 1, section 3) section should be less spaced out.
- Additional options - it was also proposed that the following options and questions should be added:

“Living with partner” - should be added to the marital status question.

The “approximate off road usage” of the respondent - industry experts suggested that this would be a useful piece of classification data.

“What are your hobbies and interests?” - this open ended question was suggested by industry experts due to its usefulness as a piece of classification data.

- Wording - the following of wording/phrasing issues were highlighted by the ‘experts’. Questionnaire 1 and 2 - the title on the front cover of these questionnaires was considered too long. The title “Brand Personality and the Effect of New Product Development” was changed to “Personality of Brand X”.

Questionnaire 1 - front page, opening section, a number of words were changed to aid respondents understanding and flow of the questionnaire. “Which” was exchanged for “that”; “deals with” was replaced with “concerns”. “Measurement” was regarded as unnecessary and taken out. The detail “The questionnaire has three main sections” was introduced.

Questionnaire 1 - section 2, question 2. “Approximately how many brand X vehicles have you ever purchased?” was changed to “How many brand X vehicles have you ever purchased?” ‘Approximately was not needed as respondents should be able to recall the exact amount of vehicles ever purchased.

Also in this section question 5 asked “If you answered yes, please identify what products you are aware of. (please write in the space provided)”. A number of words were considered unnecessary and thus the question was shortened to “If yes, please identify what products you are aware of”.

Questionnaire 1 - section 2, question 6. The statement “I like to work on Brand X myself” was considered ambiguous. For example, one could use it for work purposes, or, one could repair the vehicle. Thus this statement was changed to “I like to repair and maintain Brand X vehicles myself”.

Questionnaire 2 - section 1, (aftershave extension) the following features were regarded as inappropriate “Scent - strong rather than subtle”, “Strength - strong alcohol content”. It was decided to change the features to “Scent - refreshing/sharp”, and “Strength - strong rather than subtle”. These features were

believed to be more representative of the brand in question than the previous product features.

Questionnaire 2 - section three, the first item on the 'fit' scale was worded "Not at all logical for the company - Very logical for the company". The second item on this scale "Not at all appropriate for the company - Very appropriate for the company". It was suggested that the word 'company' in these two items should be changed to the actual brand name. This was implemented in the next questionnaire.



## **APPENDIX 4.6**

### **NON-EXPERT PRETEST DETAILS**

- Length - both questionnaires were considered an acceptable length with all respondents. It was calculated that the first questionnaire took no longer than ten minutes to fill in and the second questionnaire took take substantially less time to complete.
- Layout - the revised layout was considered acceptable with all respondents. The questions and scales were seen as easy to follow and complete. When observing respondents the majority of them appeared to flow through the questionnaire with relative ease (e.g. there were very few cases where respondents thought aloud during their completion of the questionnaire). It became apparent that the new question numbering was aiding the respondents' flow from question to question and between individual sections.
- Terminology - when debriefing, without exception all the 'non-experts' did understand the term 'brand'. Typical responses were "a product or range of products from a company with a distinctive name", or, "a name used to market a product". Therefore it was decided to keep the term brand in the questionnaire where necessary.

The concern over the similarity of the two quality measures (e.g. reliability and dependability) received mixed attention. Half the respondents could distinguish between the two and half could not. It was decided to keep both items in the questionnaire as they had both been part of a scale already tested and validated. Additionally, an expert pointed out that one of the items could be taken out at a later date if necessary.

- Question structure - questionnaire 1 section 2, following the expert's recommendation a question was changed to, "How many brand X vehicles have you ever purchased?" The word 'ever' did eliminate any potential ambiguity. Also, the question "Are you a member of a brand X 4x4 club?" was no longer considered incorrect and misleading.
- Terminology - as in the expert pretest, non-experts substantiated thoughts that the term 'Western' was potentially ambiguous and misleading. Half the respondents described it as "westernised", or, "a developed country" and the other half as "cowboys", or, "wild west". Given that this trait was supposed to reflect the latter

of these descriptions it was not considered important for a UK sample. Hence, it was decided to drop this trait from the original scale as it could potentially confound the results. It was not seen as such a big problem dropping one trait from the list of 42 as there were other traits which captured the desired 'ruggedness' dimension (i.e. outdoorsy, masculine, tough, rugged).

Respondents felt that the quality descriptors or 'reliability', 'dependability' and 'workmanship' could accurately describe an aftershave. Comments included "You could depend upon your aftershave to attract the women", or, "the container is well designed and trendy", or, "the scent lasts all day". Therefore, it was decided to keep these descriptors in the final version of the questionnaire.

## **APPENDIX 4.7**

### **REQUIREMENTS OF ADMINISTRATORS**

#### **QUESTIONNAIRE 1**

#### **(BEFORE MEASUREMENT)**

## **Script for ADMINISTRATORS – QUESTIONNAIRE 1**

- 1. Introduce Ian - as researcher/PhD student from Loughborough University. Say I am interested in their views of the Land Rover Brand.**
- 2. What we want from them - we would like them to fill in two short questionnaires. One this week and one next week. Emphasise the questionnaires should take no longer than 10 minutes to fill in.**
- 3. Referencing - tell them that to ensure confidentiality we have put a different number on each questionnaire. Ask if they could write down the number somewhere safe so that when they fill out the second questionnaire the following week they can write their individual reference number on it. This is so that we can then match the two questionnaires when analysing the data without having to know the name of the respondent.**
- 4. Ask if they could fill in the questionnaire individually and could they try to answer all the questions as fully as possible. There are no right or wrong answers as we are interested in your individual perceptions.**
- 5. Thank them for their valuable help.**

## **APPENDIX 4.8**

### **REQUIREMENTS OF ADMINISTRATORS**

#### **QUESTIONNAIRE 2**

#### **(AFTER MEASUREMENT)**

## **Script for ADMINISTRATORS – QUESTIONNAIRE 2**

- 1. Introduce Ian - as researcher/PhD student from Loughborough University. Say once again I am interested in their views of the Land Rover Brand.**
- 2. What we want from them - we would like them to fill the out the second of the questionnaires. Emphasise the questionnaires are shorter than last week and should take no longer than 10 minutes to fill in.**
- 3. Say to MBA's - Within the questionnaire you are going to be presented with a new product development. We'd like you to read the product description and think about it for a few minutes before going on to fill out the rest of the questionnaire.**
- 3. Referencing - Ask if they could write down their individual reference number from last week on to the new questionnaire.**
- 4. Ask if they could fill in the questionnaire individually and could they try to answer all the questions as fully as possible. There are no right or wrong answers as we are interested in your individual perceptions.**
- 5. Thank them for their valuable help.**

## **APPENDIX 4.9**

### **CODEBOOK**



BPS – Start.

<b>Variable name</b>	<b>Variable label</b>	<b>Value label</b>	<b>Type of variable</b>
DOWNTOEA	Down to earth	1 = not at all descriptive 5 = extremely descriptive	N
HONEST	Honest	1 = not at all descriptive 5 = extremely descriptive	N
WHOLESOM	Wholesome	1 = not at all descriptive 5 = extremely descriptive	N
CHEERFUL	Cheerful	1 = not at all descriptive 5 = extremely descriptive	N
DARING	Daring	1 = not at all descriptive 5 = extremely descriptive	N
SPIRITED	Spirited	1 = not at all descriptive 5 = extremely descriptive	N
IMAGINAT	Imaginative	1 = not at all descriptive 5 = extremely descriptive	N
UPTODATE	Up-to-date	1 = not at all descriptive 5 = extremely descriptive	N
RELIABLE	Reliable	1 = not at all descriptive 5 = extremely descriptive	N
INTELLIG	Intelligent	1 = not at all descriptive 5 = extremely descriptive	N
SUCCESSF	Successful	1 = not at all descriptive 5 = extremely descriptive	N

UPPERCL	Upper class	1 = not at all descriptive 5 = extremely descriptive	N
CHARMING	Charming	1 = not at all descriptive 5 = extremely descriptive	N
OUTDOORS	Outdoorsy	1 = not at all descriptive 5 = extremely descriptive	N
TOUGH	Tough	1 = not at all descriptive 5 = extremely descriptive	N
COOL	Cool	1 = not at all descriptive 5 = extremely descriptive	N
SINCERE	Sincere	1 = not at all descriptive 5 = extremely descriptive	N
ORIGINAL	Original	1 = not at all descriptive 5 = extremely descriptive	N
SENTIMEN	Sentimental	1 = not at all descriptive 5 = extremely descriptive	N
TRENDY	Trendy	1 = not at all descriptive 5 = extremely descriptive	N
FAMILYOR	Family-orientated	1 = not at all descriptive 5 = extremely descriptive	N
UNIQUE	Unique	1 = not at all descriptive 5 = extremely descriptive	N
INDEPEND	Independent	1 = not at all descriptive 5 = extremely descriptive	N

HARDWORK	Hardworking	1 = not at all descriptive 5 = extremely descriptive	N
TECHNICA	Technical	1 = not at all descriptive 5 = extremely descriptive	N
LEADER	Leader	1 = not at all descriptive 5 = extremely descriptive	N
GLAMOROU	Glamorous	1 = not at all descriptive 5 = extremely descriptive	N
FEMININE	Feminine	1 = not at all descriptive 5 = extremely descriptive	N
MASCULIN	Masculine	1 = not at all descriptive 5 = extremely descriptive	N
RUGGED	Rugged	1 = not at all descriptive 5 = extremely descriptive	N
SMALLT	Small Town	1 = not at all descriptive 5 = extremely descriptive	N
REAL	Real	1 = not at all descriptive 5 = extremely descriptive	N
FRIENDLY	Friendly	1 = not at all descriptive 5 = extremely descriptive	N
EXCITING	Exciting	1 = not at all descriptive 5 = extremely descriptive	N
YOUNG	Young	1 = not at all descriptive 5 = extremely descriptive	N

CONTEMPO	Contemporary	1 = not at all descriptive 5 = extremely descriptive	N
SECURE	Secure	1 = not at all descriptive 5 = extremely descriptive	N
CORPORAT	Corporate	1 = not at all descriptive 5 = extremely descriptive	N
CONFIDEN	Confident	1 = not at all descriptive 5 = extremely descriptive	N
GOODLOOK	Good looking	1 = not at all descriptive 5 = extremely descriptive	N
SMOOTH	Smooth	1 = not at all descriptive 5 = extremely descriptive	N

BPS2– Start.

<b>Variable name</b>	<b>Variable label</b>	<b>Value label</b>	<b>Type of variable</b>
DOWNTEA2	Down to earth	1 = not at all descriptive 5 = extremely descriptive	N
HONES2	Honest	1 = not at all descriptive 5 = extremely descriptive	N
WHOLESO2	Wholesome	1 = not at all descriptive 5 = extremely descriptive	N
CHEERFU2	Cheerful	1 = not at all descriptive 5 = extremely descriptive	N

DARING2	Daring	1 = not at all descriptive 5 = extremely descriptive	N
SPIRTD2	Spirited	1 = not at all descriptive 5 = extremely descriptive	N
IMAGINE2	Imaginative	1 = not at all descriptive 5 = extremely descriptive	N
UPTODAT2	Up-to-date	1 = not at all descriptive 5 = extremely descriptive	N
RELIABL2	Reliable	1 = not at all descriptive 5 = extremely descriptive	N
INTELLI2	Intelligent	1 = not at all descriptive 5 = extremely descriptive	N
SUCCESS2	Successful	1 = not at all descriptive 5 = extremely descriptive	N
UPPERCL2	Upper class	1 = not at all descriptive 5 = extremely descriptive	N
CHARMIN2	Charming	1 = not at all descriptive 5 = extremely descriptive	N
OUTDOOR2	Outdoorsy	1 = not at all descriptive 5 = extremely descriptive	N
TOUGH2	Tough	1 = not at all descriptive 5 = extremely descriptive	N
COOL2	Cool	1 = not at all descriptive 5 = extremely descriptive	N

SINCERE2	Sincere	1 = not at all descriptive 5 = extremely descriptive	N
ORIGINA2	Original	1 = not at all descriptive 5 = extremely descriptive	N
SENTIME2	Sentimental	1 = not at all descriptive 5 = extremely descriptive	N
TRENDY2	Trendy	1 = not at all descriptive 5 = extremely descriptive	N
FAMILYOR2	Family-orientated	1 = not at all descriptive 5 = extremely descriptive	N
UNIQUE2	Unique	1 = not at all descriptive 5 = extremely descriptive	N
INDEPEN2	Independent	1 = not at all descriptive 5 = extremely descriptive	N
HARDWOR2	Hardworking	1 = not at all descriptive 5 = extremely descriptive	N
TECHNIC2	Technical	1 = not at all descriptive 5 = extremely descriptive	N
LEADER2	Leader	1 = not at all descriptive 5 = extremely descriptive	N
GLAMORO2	Glamorous	1 = not at all descriptive 5 = extremely descriptive	N
FEMININ2	Feminine	1 = not at all descriptive 5 = extremely descriptive	N

MASCULI2	Masculine	1 = not at all descriptive 5 = extremely descriptive	N
RUGGED2	Rugged	1 = not at all descriptive 5 = extremely descriptive	N
SMALLT02	Small Town	1 = not at all descriptive 5 = extremely descriptive	N
REAL2	Real	1 = not at all descriptive 5 = extremely descriptive	N
FRIENDL2	Friendly	1 = not at all descriptive 5 = extremely descriptive	N
EXCITIN2	Exciting	1 = not at all descriptive 5 = extremely descriptive	N
YOUNG2	Young	1 = not at all descriptive 5 = extremely descriptive	N
CONTEMP2	Contemporary	1 = not at all descriptive 5 = extremely descriptive	N
SECURE2	Secure	1 = not at all descriptive 5 = extremely descriptive	N
CORPORA2	Corporate	1 = not at all descriptive 5 = extremely descriptive	N
CONFIDE2	Confident	1 = not at all descriptive 5 = extremely descriptive	N
GOODLOO2	Good looking	1 = not at all descriptive 5 = extremely descriptive	N

SMOOTH2	Smooth	1 = not at all descriptive 5 = extremely descriptive	N
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Consumer Knowledge Start.

Variable name	Variable label	Value Label	Type of variable
CUROWNLR	Currently own a LR vehicle	1 = No 2 = Yes	N
HOWMNYPU	Number of LR vehicles ever purchased		N
MEMBCLV	Member of LR 4x4 club	1 = No 2 = Yes	N
AWAREOFP	Aware of other types of LR products	1 = No 2 = Yes	
WOTHERPR	Awareness of types of other LR products		
LOTKNOWS	Respondent perceives having knowledge of selecting best LR product within the range.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
MAXISATI	Respondents perception of the important product characteristics in providing maximum satisfaction.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
ADVFRIEN	Respondents perception of giving advice to a friend about the LR brand.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N



GATHERING	Perception of gathering information when purchasing a LR product in order to make a wise decision.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
KNCOMAVP	Respondents perception of knowledge compared to the average person.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
REPAMAIN	Respondents perception of repairing and maintaining LR vehicles themselves.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
FRICONEX	Respondents perception of whether friends consider them an expert on LR products.	Rating 1 – 7 where: 1 = strongly disagree 7 = strongly agree	N
KNCOMAVB	Respondents perception of their knowledge compared to the average LR buyer.	1 = one of the least knowledgeable 7 = one of the most knowledgeable	N
KNOWLRB	Respondents perception of their knowledge of LR brand.	1 = not knowledgeable 7 = very knowledgeable	N
EXPERIRB	Respondents perception of their level of experience of the LR brand	1 = inexperienced 7 = experienced	N
LEVINLR	Respondents perception of how well they are informed about the LR brand.	1 = uninformed 7 = informed	N

BUYERTYP	Respondents perception of the type of buyer they are.	1 = novice 7 = expert	N
FAMILIAR	Respondents perception of level of familiarity with the LR brand.	1 = not familiar 7 = very familiar	N

### Quality Start.

Variable name	Variable label	Value Label	Type of variable
QUALITY	Attitude towards quality of LR.	1 = low 7 = high	N
LKTOTRY	Attitude towards likelihood to try LR product.	1 = not at all likely to try 7 = likely to try	N
INFSUPRR	Attitude towards the superiority.	1 = inferior products 7 = superior products	N
PRICE	Attitude towards price.	1 = low price 7 = high price	N
TECHNOLO	Attitude towards level of technology.	1 = low technology 7 = high technology	N
RELIABIL	Attitude towards reliability.	1 = low reliability 7 = high reliability	N
WORKMANS	Attitude towards level of workmanship of LR product.	1 = poor workmanship 7 = good workmanship	N
DEPENDAB	Attitude towards level of dependability.	1 = low dependability 7 = high dependability	N

## LR Statements.

<b>Variable name</b>	<b>Variable label</b>	<b>Value Label</b>	<b>Type of variable</b>
PRODOPIT	Attitude towards the number of product options available.	1 = strongly disagree 7 = strongly agree.	N
OPCUSTOM	Attitude towards the opportunity of customising a LR.	1 = strongly disagree 7 = strongly agree.	N
OFRONROAD	Attitude towards LR products off road/on road.	1 = off road 7 = on road	N

## Background Information.

<b>Variable name</b>	<b>Variable label</b>	<b>Value Label</b>	<b>Type of variable</b>
OCCUPATI	Occupation of respondent		A
SEX	Sex of respondent.	1 = male 2 = female	A
MARITALS	Marital status of respondent.	1 = single 2 = married 3 = divorced/separated 4 = widowed 5 = living with partner	A
AGE			

HIGHQUAL	Respondents highest qualification achieved.	1 = no formal qualifications 2 = secondary school (O'Levels or equivalent) 3 = 6 <sup>th</sup> form college (A'Levels or equivalent) 4 = university degree 5 = post graduate degree 6 = other	
OFFROADUS	Respondents approximate off road usage.	1 = daily 2 = weekly 3 = monthly 4 = once every six months 5 = once a year 6 = never	
HOBSENTS	Respondents hobbies and interests.		

### Fit Start.

Variable name	Variable label	Value Label	Type of variable
LOGIC	Attitude towards logic of extension.	1 = not at all logical for the company 7 = very logical for the company	N
APPROPI	Attitude towards the appropriateness of the extension for the company.	1 = not at all appropriate for the company 7 = very appropriate for the company	N
FIT	Attitude towards fit between LR and extension.	1 = bad fit 7 = good fit	N
EXTREME	Attitude towards extremeness of NPI.	1 = very extreme NPI for LR 7 = not an extreme NPI for LR	N

SIMILAR	Attitude towards similarity of extension and LR product	1 = very dissimilar 7 = very similar	N
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### Quality of Extension.

Variable name	Variable label	Value Label	Type of variable
QUALITEX	Attitude towards quality of extension.	1 = low 7 = high	
LTOTRYEX	Attitude towards likelihood to try extension.	1 = not at all likely 7 = very likely	
INFSUPEX	Inferior/superior extension product.	1 = inferior extension 7 = superior extension	
PRICEEX	Attitude towards price of extension.	1 = low price 7 = high price	
TECHNOEX	Attitude towards level of technology of extension.	1 = low technology 7 = high technology	
RELIABEX	Attitude towards reliability of extension.	1 = low reliability 7 = high reliability	
WORKMEX	Attitude towards workmanship of extension.	1 = poor workmanship 7 = good workmanship	
DEPENDEX	Attitude towards dependability of extension.	1 = low dependability 7 = high dependability	

## **APPENDIX 5.1**

**ORIGINAL RELIABILITY STATISTICS**

**BRAND PERSONALITY DIMENSIONS**

Reliability Analysis - BP Dimension SINCERITY (Before)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
DOWNTOEAE	27.6733	31.4022	.3449	.3135	.7495
HONEST	27.8020	29.7604	.5596	.5192	.7231
WHOLESOM	28.0099	29.5099	.5444	.4786	.7239
CHEERFUL	29.1089	33.0580	.3178	.2895	.7515
SINCERE	28.4158	30.2653	.5004	.4060	.7302
ORIGINAL	28.0396	30.0184	.4408	.2372	.7371
SENTIMEN	29.0594	31.0964	.3484	.2118	.7495
FAMILYOR	28.2574	32.6131	.2166	.2467	.7668
SMALL	28.7723	32.6976	.1907	.2342	.7717
REAL	28.0792	29.4337	.5484	.5275	.7233
FRIENDLY	28.6634	30.2655	.5782	.3851	.7234

Alpha = .7594

Reliability Analysis - BP Dimension SINCERITY (After)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
DOWNTEA2	29.1667	22.2591	.3754	.4716	.7226
HONEST2	29.3824	21.268	.4854	.5979	.7084
WHOLESO2	29.3627	20.4711	.5383	.4026	.6994
CHEERFU2	30.3922	22.5972	.3462	.2468	.7261
SINCERE2	29.8529	20.7603	.5183	.4592	.7028
ORIGINA2	29.5980	21.9259	.2940	.1634	.7346
SENTIME2	30.5000	22.0743	.3180	.2532	.7300
FAMILOR2	29.7549	21.8700	.2465	.3322	.7451
SMALLTO2	29.9216	22.3502	.1954	.1489	.7532
REAL2	29.6569	20.7029	.5601	.4904	.6983
FRIENDL2	30.0588	21.2836	.5336	.3517	.7041

Alpha = .7397

Reliability Analysis - BP Dimension EXCITEMENT (Before)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
DARING	27.3235	35.9240	.4460	.4856	.8073
SPIRITED	27.1569	34.6682	.5897	.5785	.7911
IMAGINAT	27.8824	35.6494	.5730	.4203	.7935
UPTODATE	27.7255	38.2605	.3924	.2973	.8103
COOL	27.9020	35.7527	.6536	.4592	.7877
TRENDY	27.9020	37.1586	.4459	.3676	.8058
UNIQUE	27.3922	38.8744	.2525	.4366	.8262
INDEPEND	26.8922	37.5823	.4266	.4325	.8075
EXCITING	27.5980	35.0150	.6662	.5605	.7850
YOUNG	28.3333	38.6601	.4281	.3374	.8075
CONTEMPO	27.8137	36.8659	.4997	.3579	.8008

Alpha = .8171

Reliability Analysis - BP Dimension EXCITEMENT (After)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
DARING2	28.1176	30.8771	.5610	.5501	.8218
SPIRITD2	28.1373	30.7334	.6880	.5965	.8107
IMAGINE2	28.7353	31.4045	.6204	.4760	.8167
UPTODAT2	28.5784	32.3057	.5272	.4467	.8246
COOL2	28.6863	32.0986	.5973	.4300	.8193
TRENDY2	28.7255	30.6566	.6212	.4222	.8159
UNIQUE2	28.1275	34.1519	.3247	.4380	.8416
INDEPEN2	27.7255	35.3496	.2664	.3698	.8439
EXCITIN2	28.5392	32.2509	.5013	.3917	.8269
YOUNG2	29.0882	33.6258	.4568	.3349	.8303
CONTEMP2	28.5784	32.4641	.5105	.3943	.8260

Alpha = .8390



Reliability Analysis - BP Dimension COMPETENCE (Before)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
RELIABLE	27.5098	22.1138	.3561	.2765	.7926
INTELLIG	28.3137	21.5640	.5285	.3660	.7626
SUCCESSF	27.5098	22.5098	.5065	.3738	.7666
HARDWORK	27.0098	23.1187	.4780	.3418	.7709
TECHNICA	27.9412	22.8282	.4757	.2711	.7706
LEADER	27.7647	21.8451	.5549	.4139	.7596
SECURE	27.6078	20.4387	.6753	.5206	.7407
CORPORAT	28.7451	23.8354	.2635	.2311	.8001
CONFIDEN	27.7157	22.1659	.5411	.3504	.7620

Alpha = .7902

Reliability Analysis - BP Dimension COMPETENCE (After)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
RELIABL2	27.4412	18.4074	.3040	.2658	.7735
INTELLI2	28.1373	17.6443	.5490	.3282	.7310
SUCCESS2	27.5490	19.1015	.4366	.3280	.7489
HARDWOR2	27.0196	18.5343	.4935	.4086	.7409
TECHNIC2	27.8137	17.4204	.5083	.3602	.7363
LEADER2	27.8333	17.0116	.5359	.3580	.7314
SECURE2	27.4118	18.1852	.5513	.4636	.7332
CORPORA2	28.5098	18.9851	.2626	.2974	.7780
CONFIDE2	27.6176	18.3177	.5151	.3441	.7377

Alpha = .7677

Reliability Analysis - BP Dimension SOPHISTICATION (Before)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
UPPERCL	10.4216	10.1671	.4451	.2932	.7424
CHARMING	11.7451	9.6770	.5777	.3417	.7063
GLAMOROU	11.8824	10.2434	.5185	.2818	.7230
FEMININE	12.6275	12.6915	.1550	.0552	.7932
GOODLOOK	11.4412	8.8430	.6284	.5611	.6891
SMOOTH	11.8333	8.6749	.6702	.5787	.6757

Alpha = .7613

Reliability Analysis - BP Dimension SOPHISTICATION (After)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
UPPERCL2	10.6275	8.0579	.4041	.2564	.7090
CHARMIN2	11.8824	7.7088	.5145	.3168	.6740
GLAMORO2	12.0588	7.7787	.5247	.2865	.6713
FEMININ2	12.6373	9.1443	.2848	.1432	.7355
GOODLOO2	11.6373	7.6790	.5078	.2966	.6760
SMOOTH2	11.9902	8.0098	.5463	.3302	.6679

Alpha = .7279

Reliability Analysis - BP Dimension RUGGEDNESS (Before)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
OUTDOORS	12.9216	4.2710	.7198	.5499	.7442
TOUGH	12.9706	4.5041	.6545	.5979	.7732
MASCULIN	13.4902	4.0544	.5105	.3483	.8528
RUGGED	13.2353	3.8253	.7439	.5949	.7240

Alpha = .8202

Reliability Analysis - BP Dimension RUGGEDNESS (After)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
OUTDOOR2	12.9216	3.3799	.7244	.5327	.7184
TOUGH2	13.0490	3.3936	.6121	.4220	.7670
MASCULI2	13.2843	3.3144	.5801	.3601	.7853
RUGGED2	13.2451	3.4542	.6017	.3653	.7717

Alpha = .8090

## **APPENDIX 5.2**

### **ORIGINAL RELIABILITY STATISTICS**

#### **QUALITY**

#### **(OF THE CORE BRAND AND EXTENSION)**

Reliability Analysis - CORE BRAND QUALITY

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
QUALITY	32.7157	40.7599	.5980	.4840	.7910
LIKTOTRY	33.7941	42.1255	.3024	.1295	.8370
INFSUPPR	32.7549	39.5928	.6805	.5114	.7805
PRICE	32.1275	46.5876	.1704	.1366	.8425
TECHNOLO	33.1176	44.1642	.3739	.1949	.8175
RELIABIL	32.5980	35.3319	.7395	.7638	.7648
WORKMANS	32.8039	36.3176	.7676	.6572	.7628
DEPENDAB	32.3824	35.6246	.7534	.7648	.7632

Alpha = .8184

Reliability Analysis - EXTENSION QUALITY

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
QUALITEX	27.8235	54.7445	.7315	.5843	.8328
LTOTRYEX	30.1765	63.7594	.2959	.1731	.8823
INFSUPEX	28.5000	58.1045	.6498	.5184	.8432
PRICEEX	27.8235	62.5953	.3744	.4113	.8724
TECHNOEX	28.5000	56.1045	.7036	.5471	.8366
RELIABEX	27.9853	55.6863	.6912	.7399	.8376
WORKMNEX	27.9706	55.3723	.7310	.8297	.8333
DEPENDEX	27.8971	53.4967	.7704	.8400	.8277

Alpha = .8634

## **APPENDIX 5.3**

### **ORIGINAL RELIABILITY STATISTICS**

#### **EXTENSION FIT**

Reliability Analysis - EXTENSION FIT

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
LOGIC	13.3971	37.7057	.8823	.8808	.7917
APPROPRI	13.4559	37.9532	.8749	.9313	.7939
FIT	13.5735	38.0990	.8922	.9148	.7906
EXTREME	13.2941	51.4346	.2392	.0942	.9454
SIMILARI	13.7500	41.5037	.6775	.6028	.8442

Alpha = .8684

## **APPENDIX 5.4**

### **ORIGINAL RELIABILITY STATISTICS**

#### **CONSUMER KNOWLEDGE**



Reliability Analysis - CONSUMER KNOWLEDGE (A)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlatio	Squared Multiple Correlation	Alpha if Item Deleted
KNOWLRB	9.8614	19.0806	.7756	.6723	.9008
EXPERLRB	10.3663	19.3145	.8325	.7322	.8888
LEVINFLR	9.9208	19.2737	.8128	.7016	.8926
BUYERTYP	10.7030	20.9709	.7235	.6266	.9104
FAMILIAR	10.0396	19.0384	.7931	.6365	.8969

Alpha = .9168

Reliability Analysis - CONSUMER KNOWLEDGE (B)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
LOTKNOWS	17.2673	40.0978	.6583	.4840	.8226
MAXISATI	15.4653	41.0313	.4546	.2410	.8542
ADVFRIEN	17.0297	37.5091	.7491	.5961	.8095
GATHINFO	17.1584	39.1947	.5814	.3925	.8346
KNCOMAVP	17.0495	36.9475	.8126	.6787	.8007
REPAMAIN	18.6535	49.4887	.3392	.2271	.8557
FRICONEX	18.6535	48.3687	.4618	.3052	.8485
KNCOMAVB	17.6832	40.1386	.7376	.5922	.8141

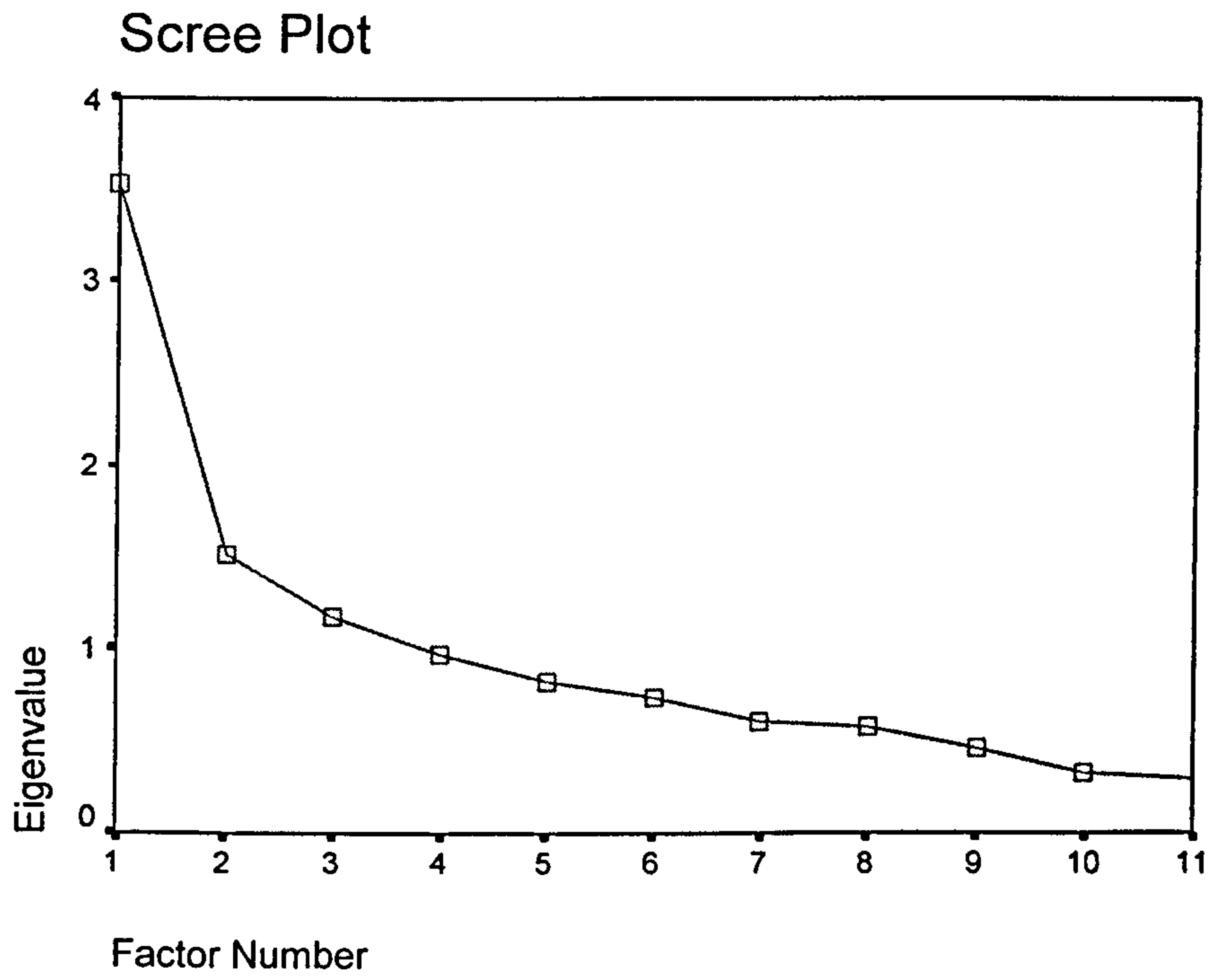
Alpha = .8496

## **APPENDIX 5.5**

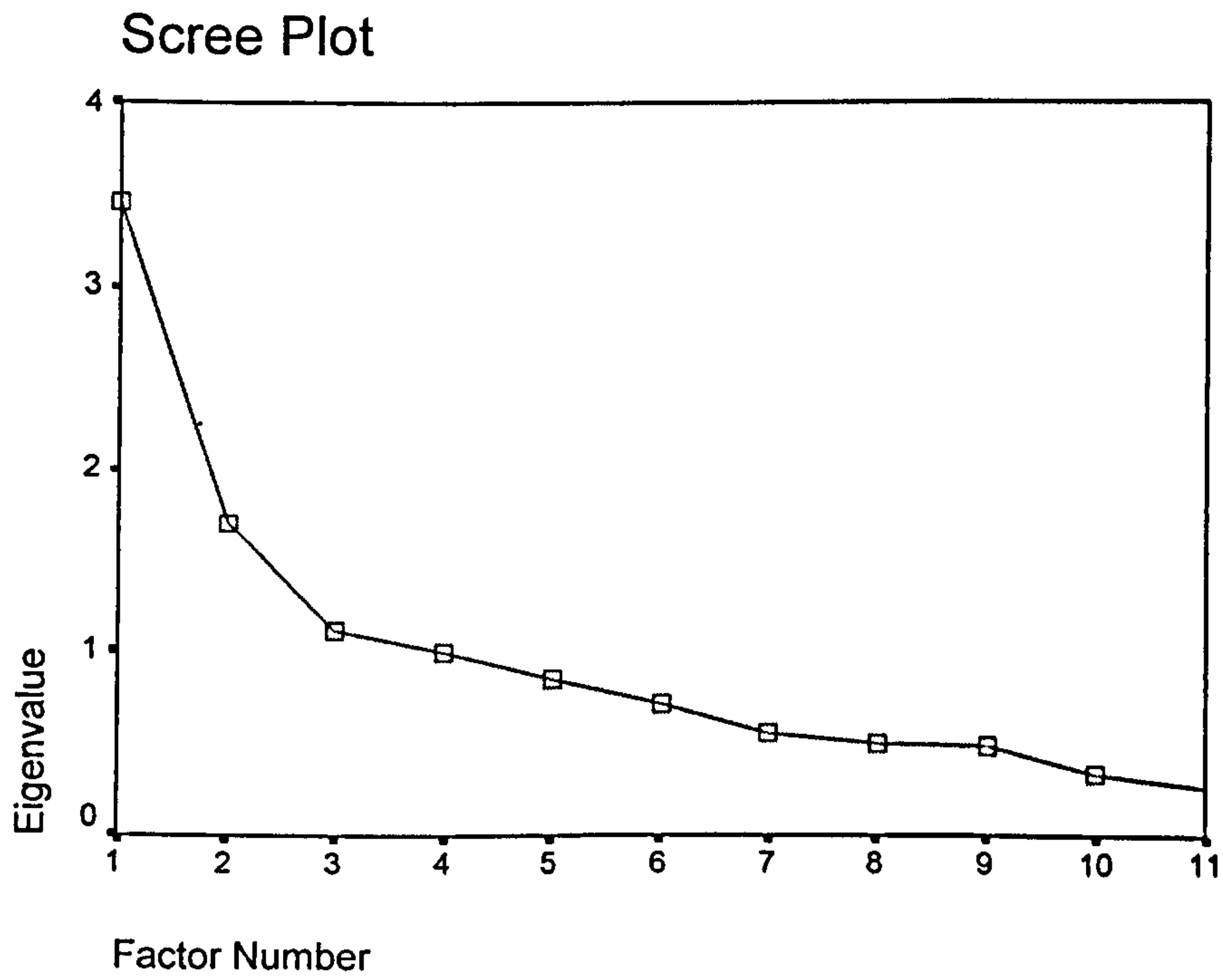
### **FACTOR SCREE PLOTS**

#### **BP DIMENSIONS**

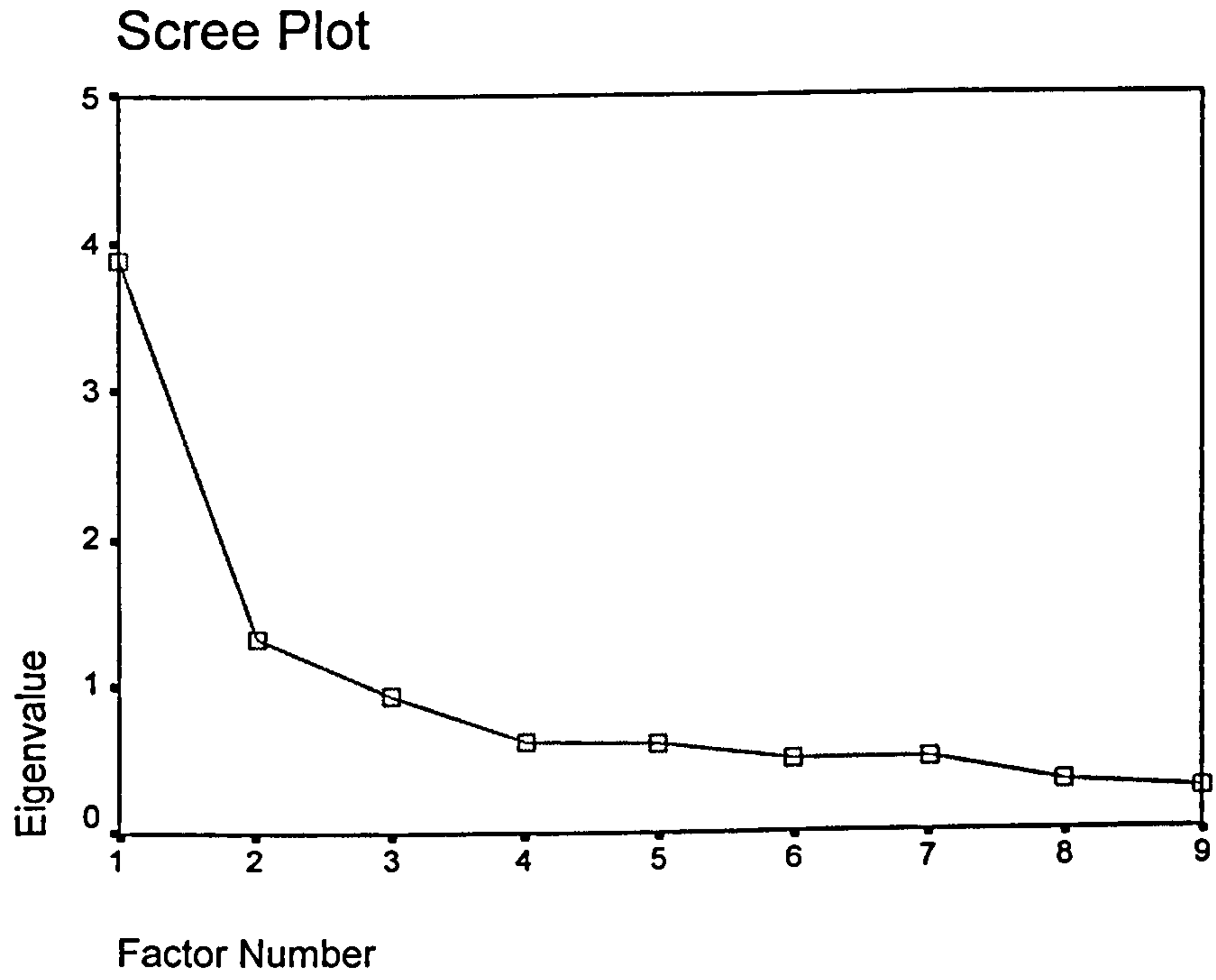
BP DIMENSION SINCERITY (Before)



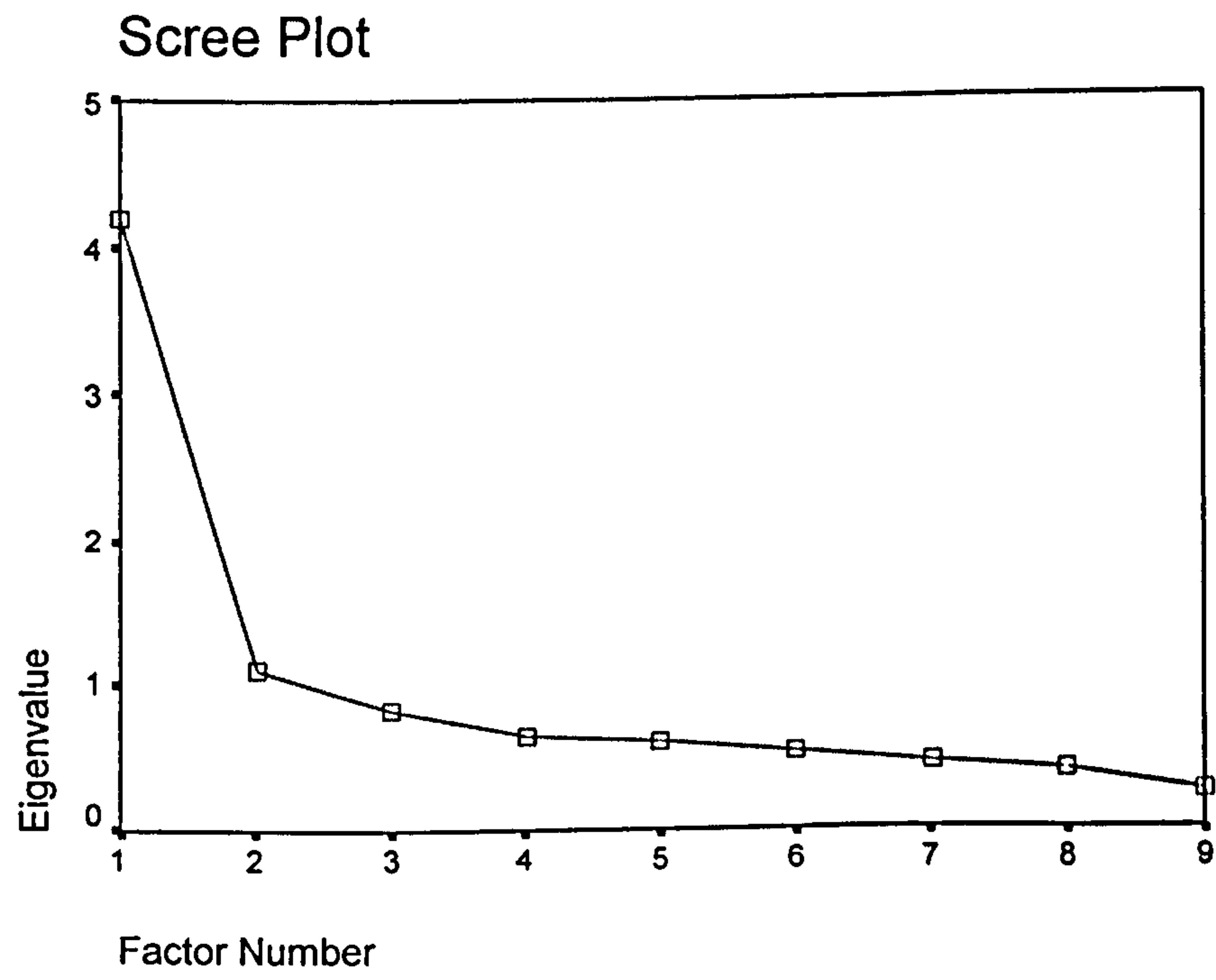
BP DIMENSION SINCERITY (After)



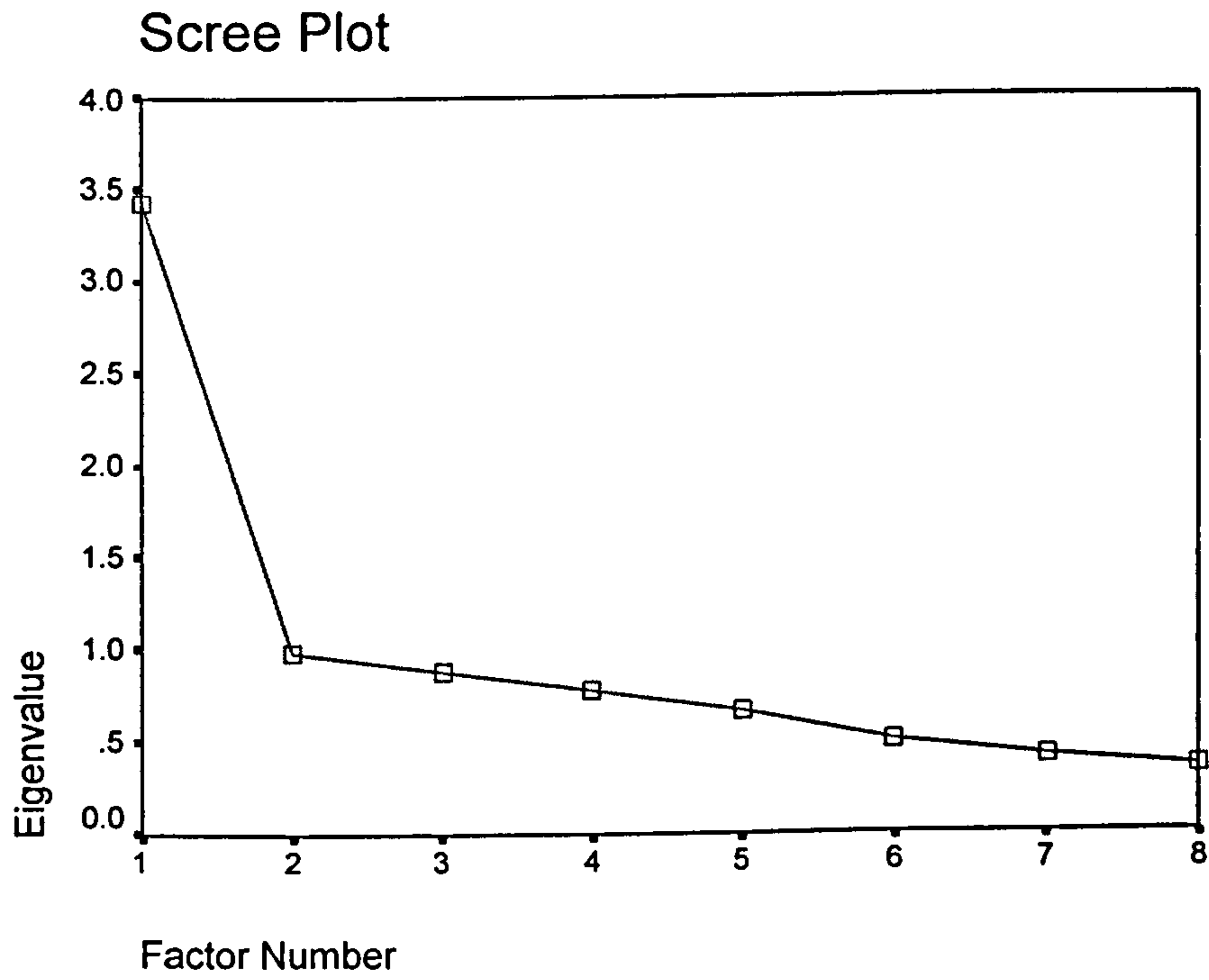
BP DIMENSION EXCITEMENT (Before)



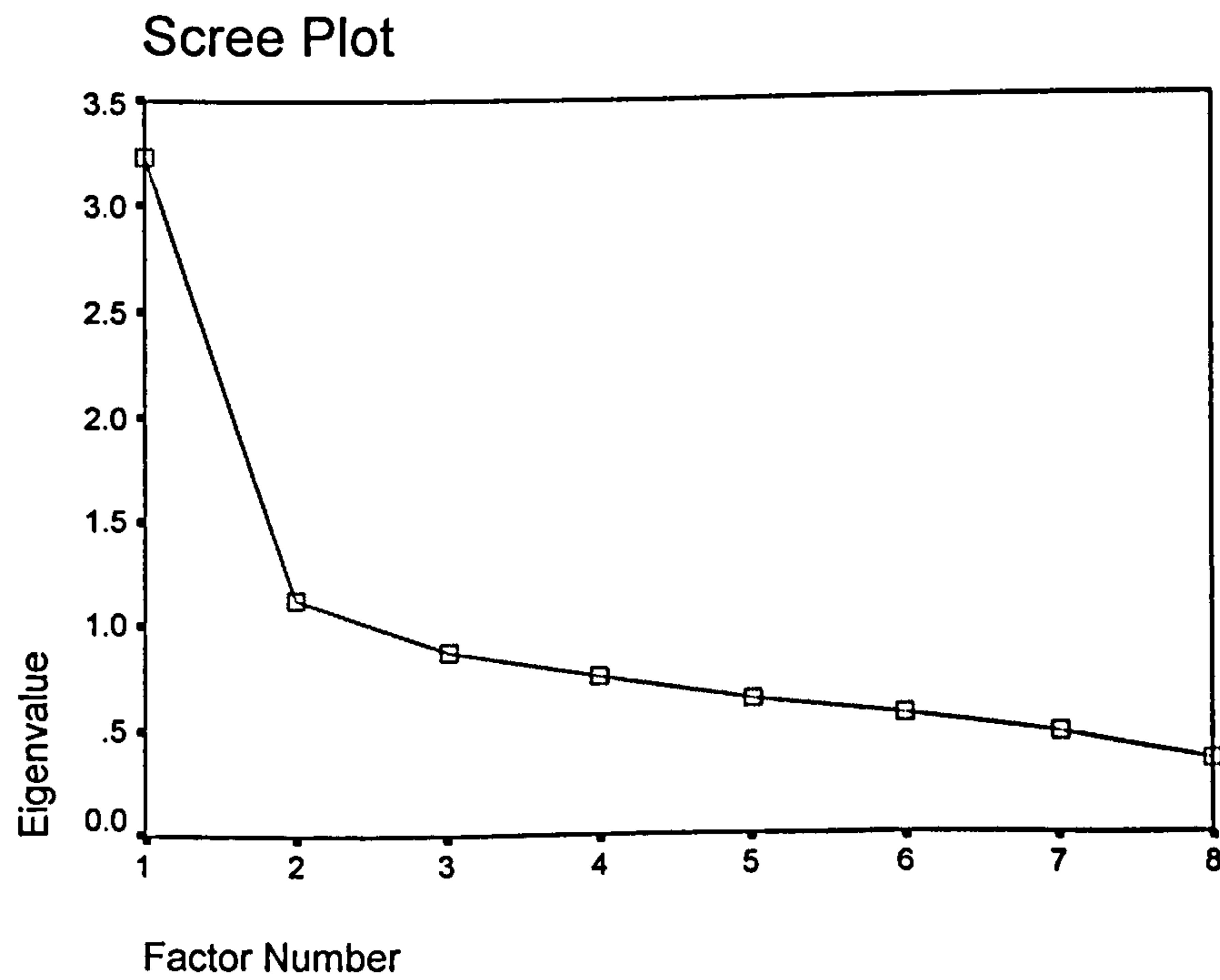
BP DIMENSION EXCITEMENT (After)



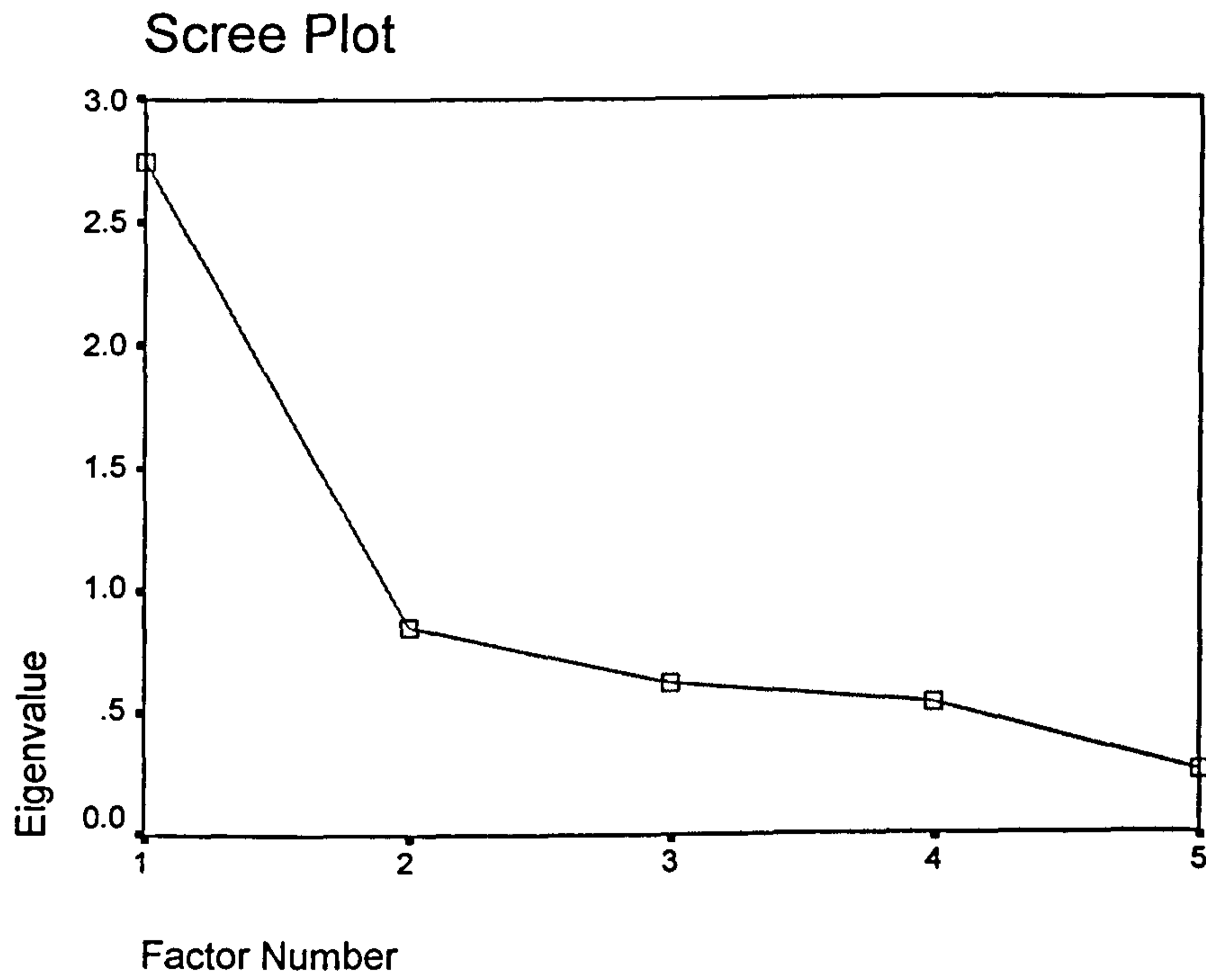
BP DIMENSION COMPETENCE (Before)



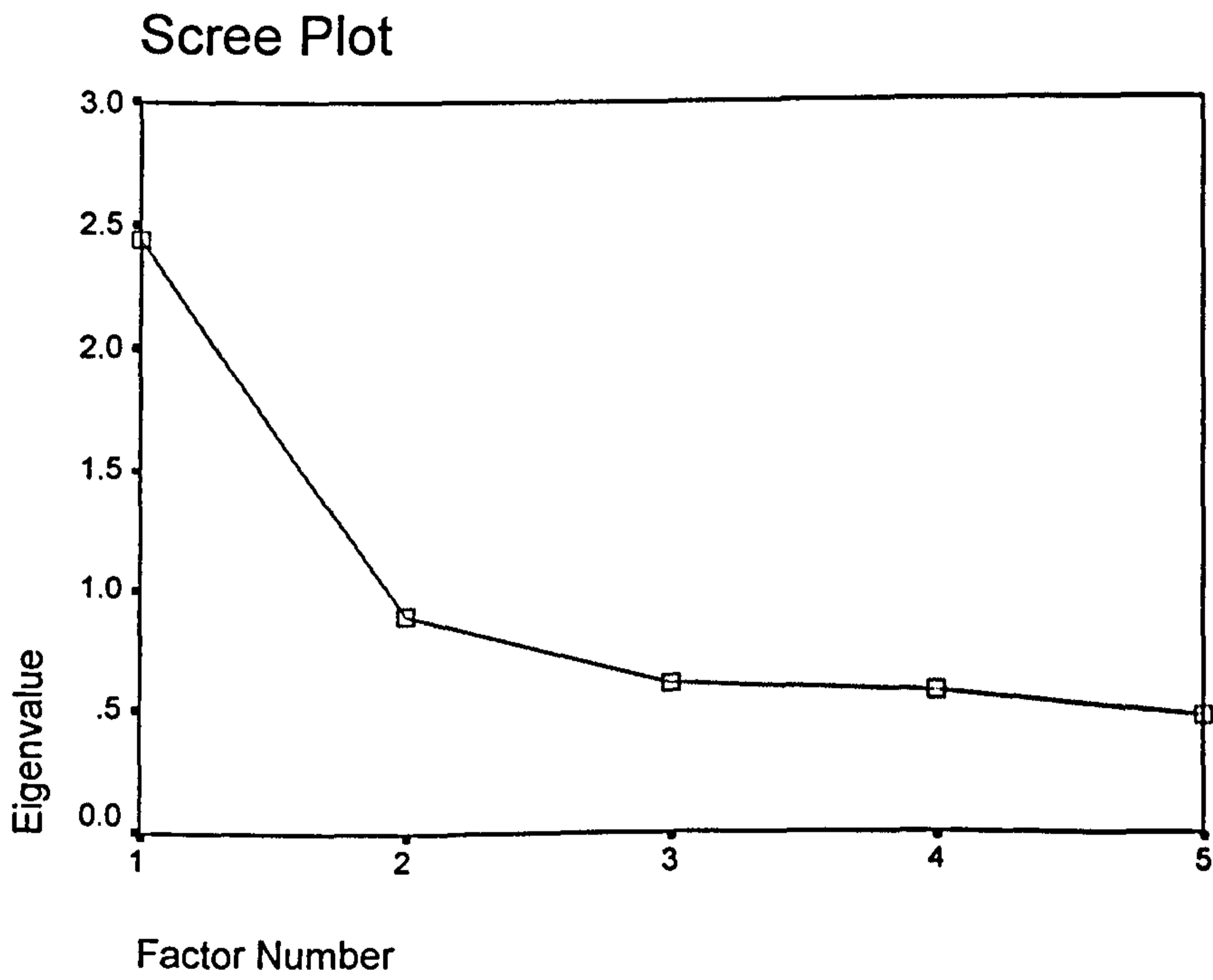
BP DIMENSION COMPETENCE (After)



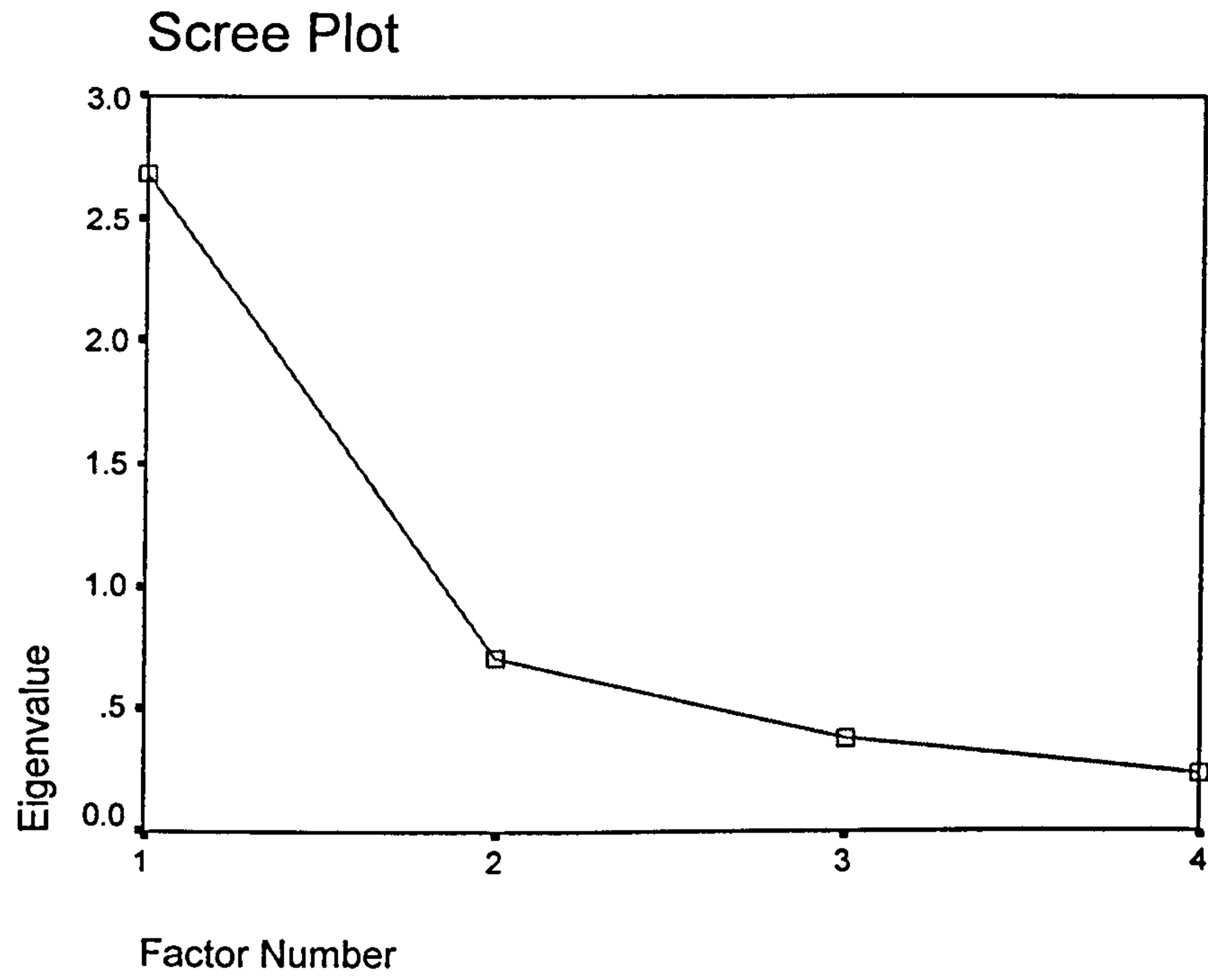
BP DIMENSION SOPHISTICATION (Before)



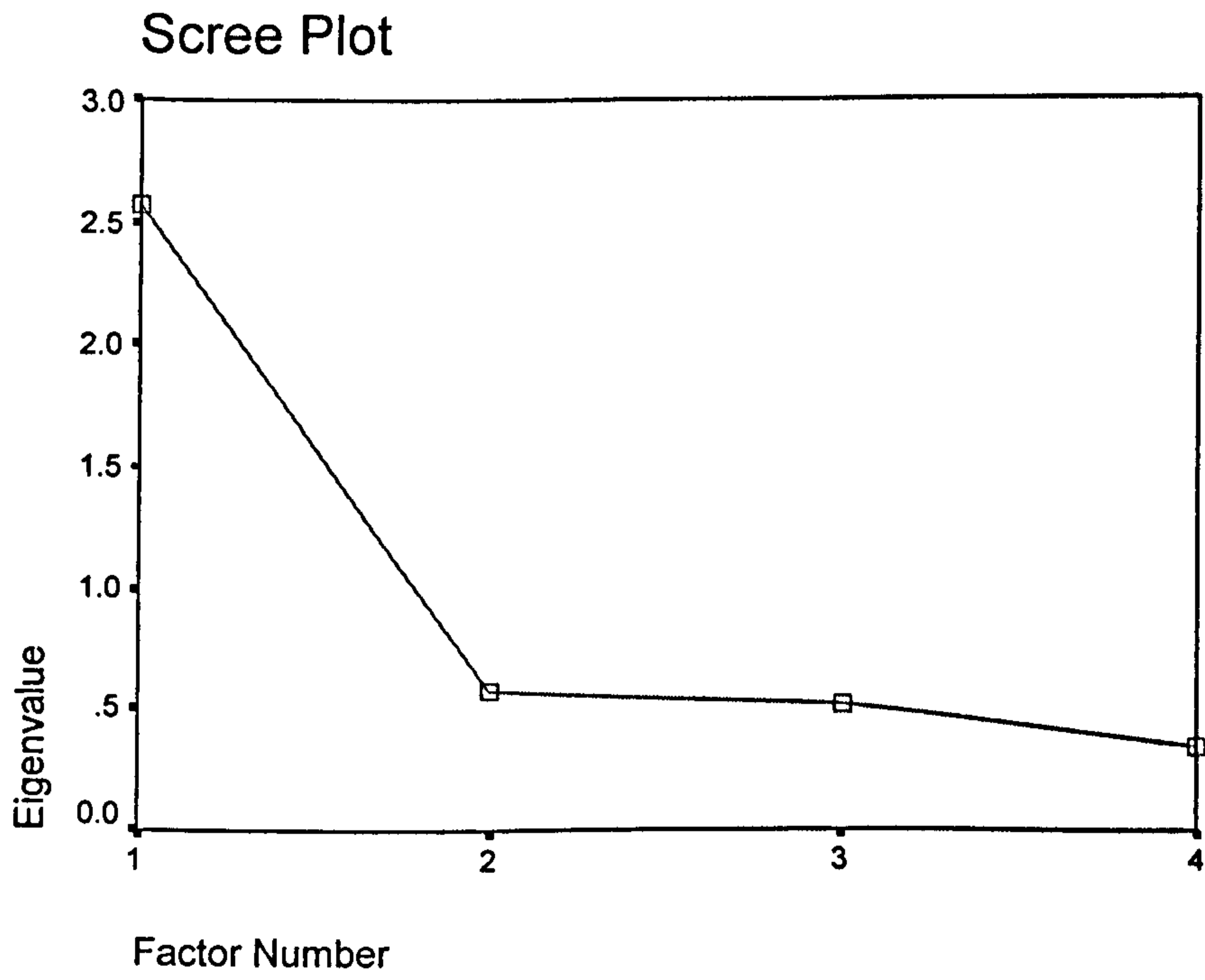
BP DIMENSION SOPHISTICATION (After)



BP DIMENSION RUGGEDNESS (Before)



BP DIMENSION RUGGEDNESS (After)



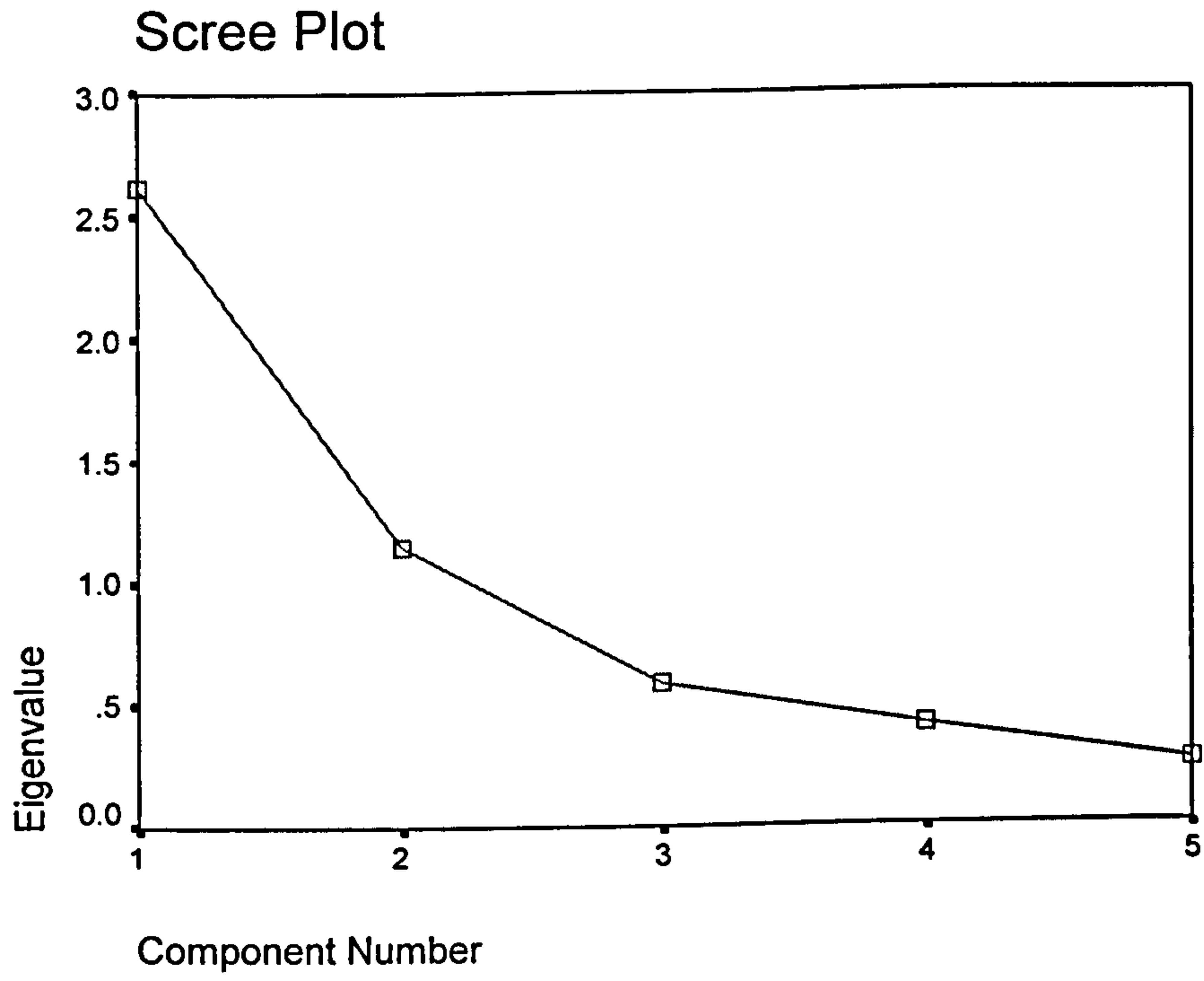
## **APPENDIX 5.6**

### **FACTOR SCREE PLOTS**

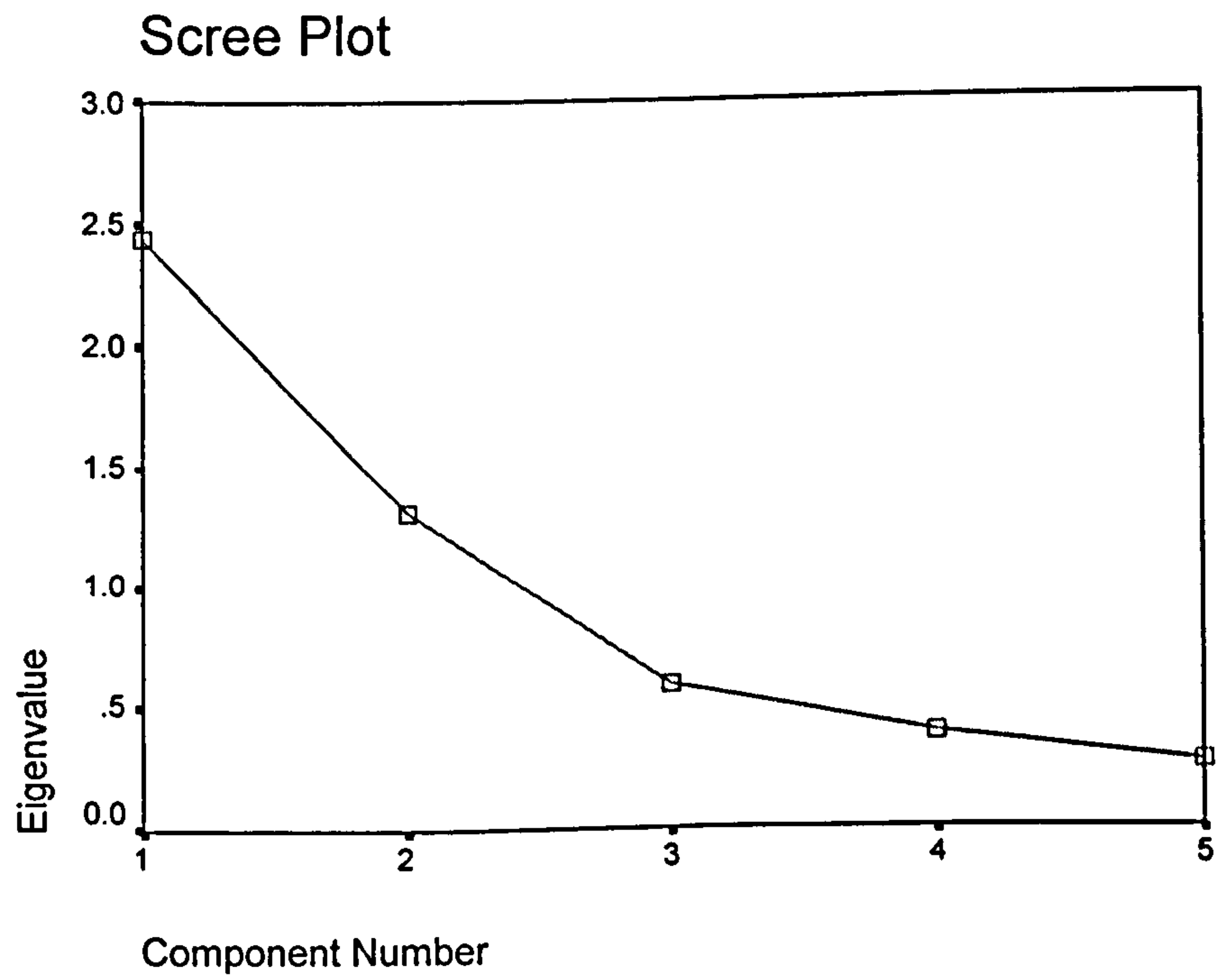
### **SUMMATED BP DIMENSIONS**



SUMMATED BP DIMENSIONS (Before)



SUMMATED BP DIMENSIONS (After)

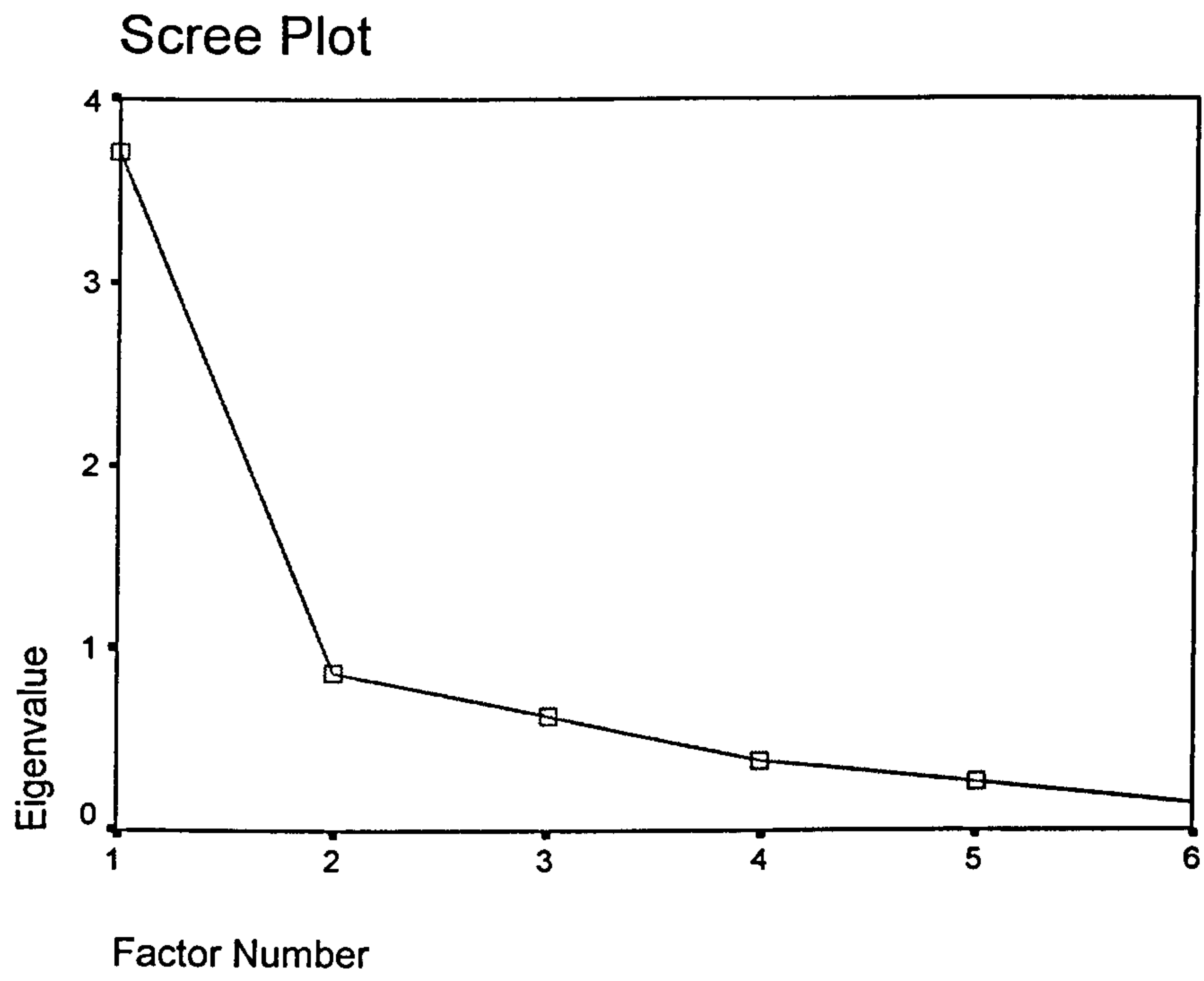


## **APPENDIX 5.7**

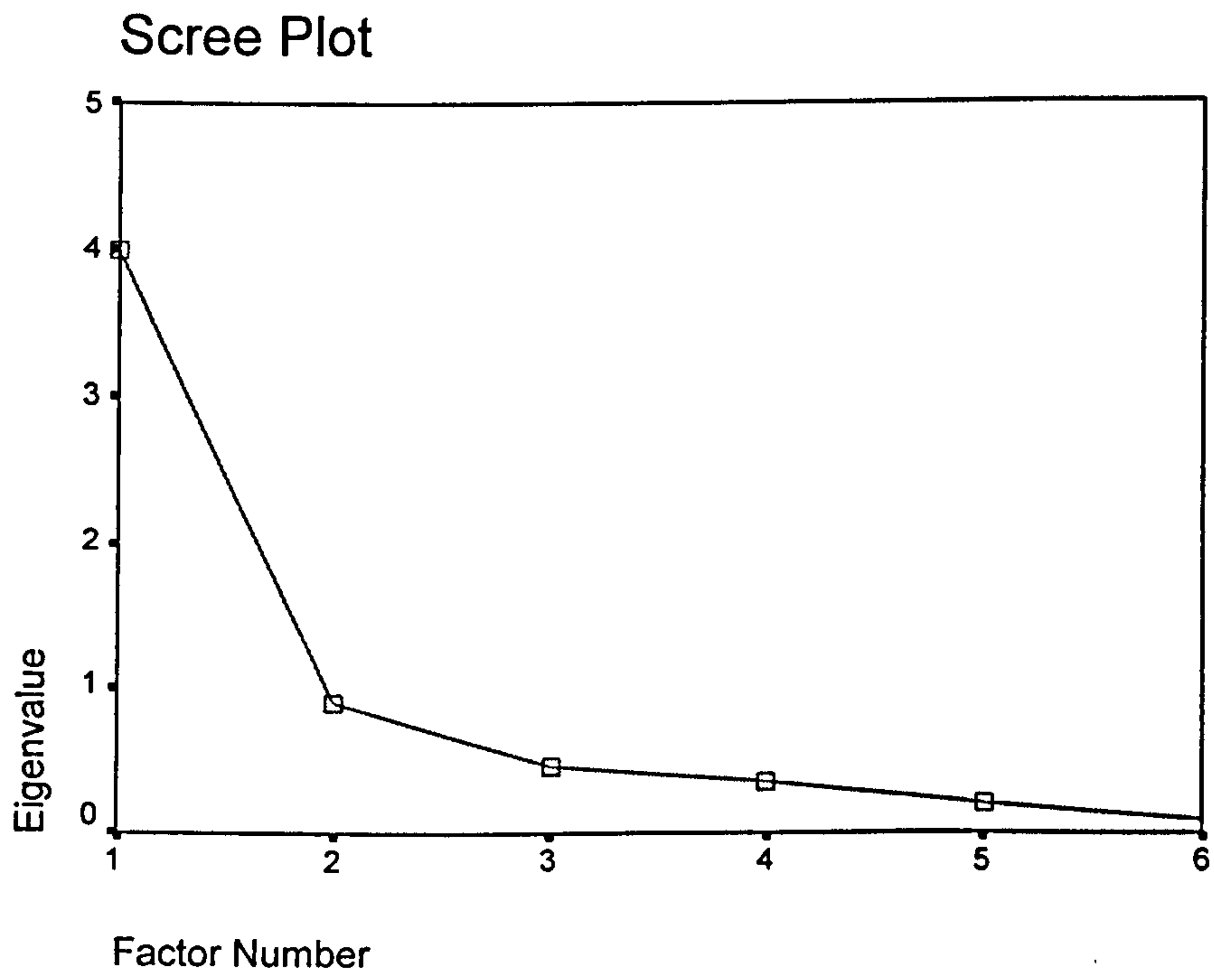
### **FACTOR SCREE PLOTS**

#### **QUALITY (CORE BRAND AND EXTENSION)**

CORE BRAND QUALITY



EXTENSION QUALITY

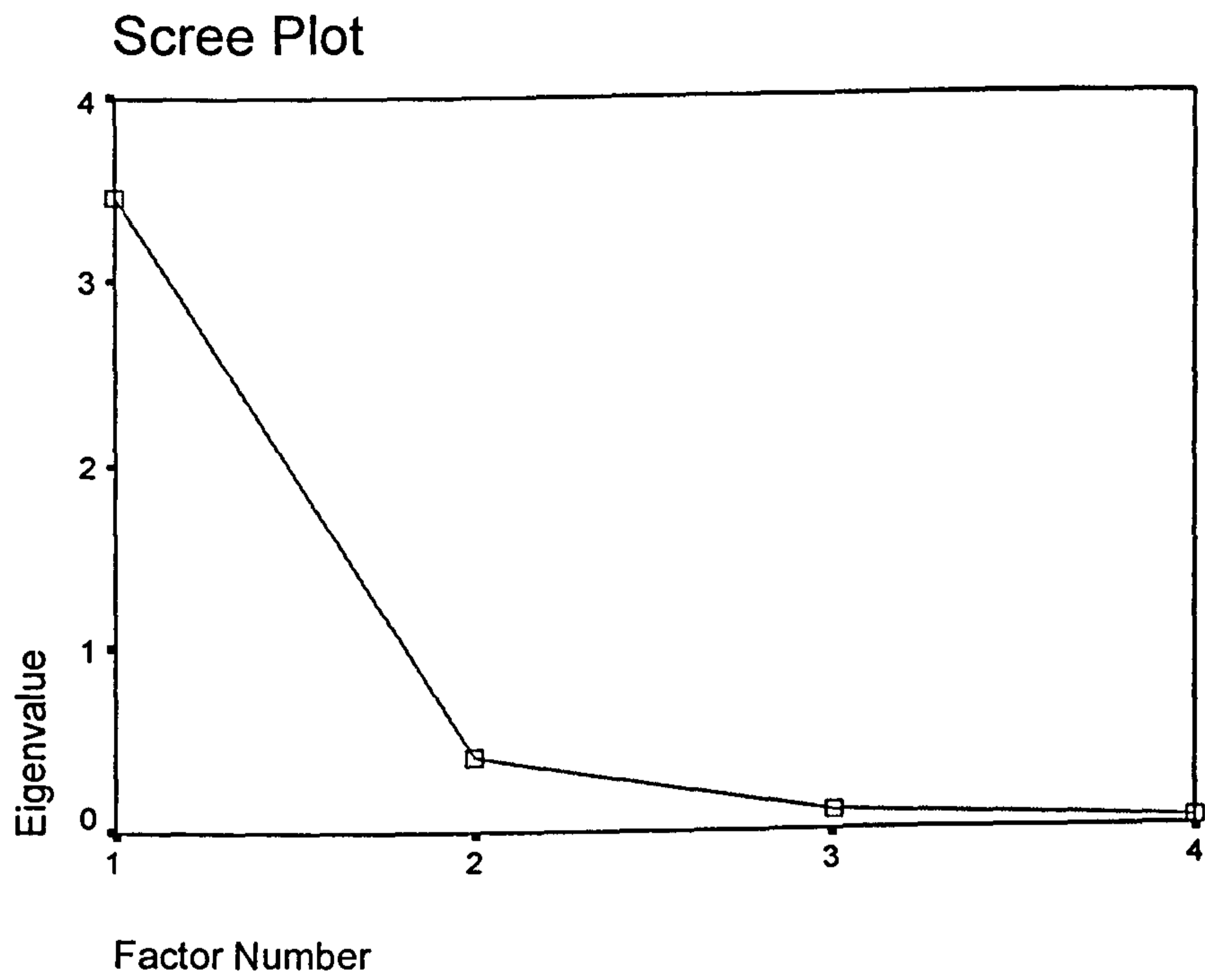


## **APPENDIX 5.8**

### **FACTOR SCREE PLOTS**

### **EXTENSION FIT**

EXTENSION FIT

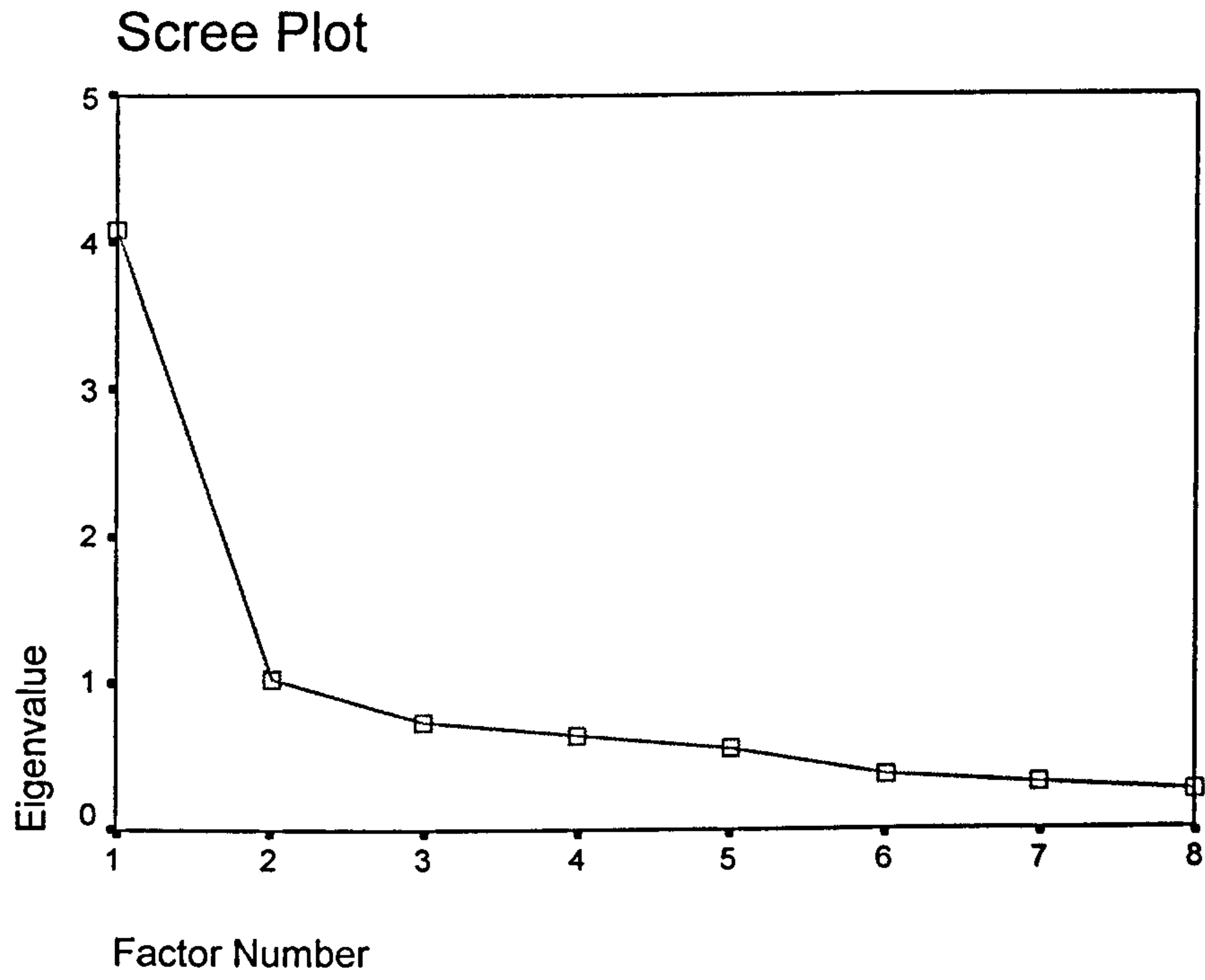


## **APPENDIX 5.9**

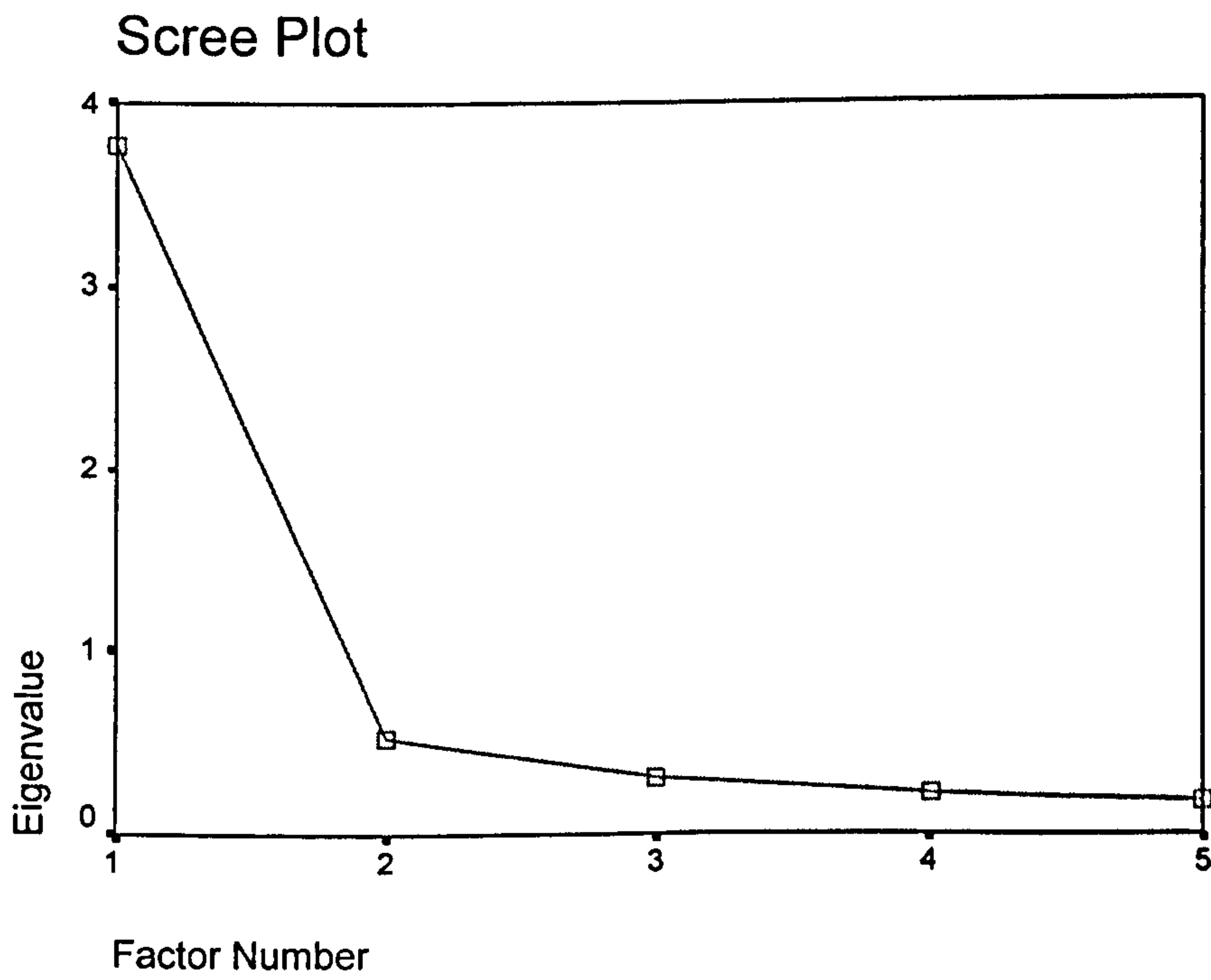
### **FACTOR SCREE PLOTS**

### **CONSUMER KNOWLEDGE**

CONSUMER KNOWLEDGE (a)



CONSUMER KNOWLEDGE (b)



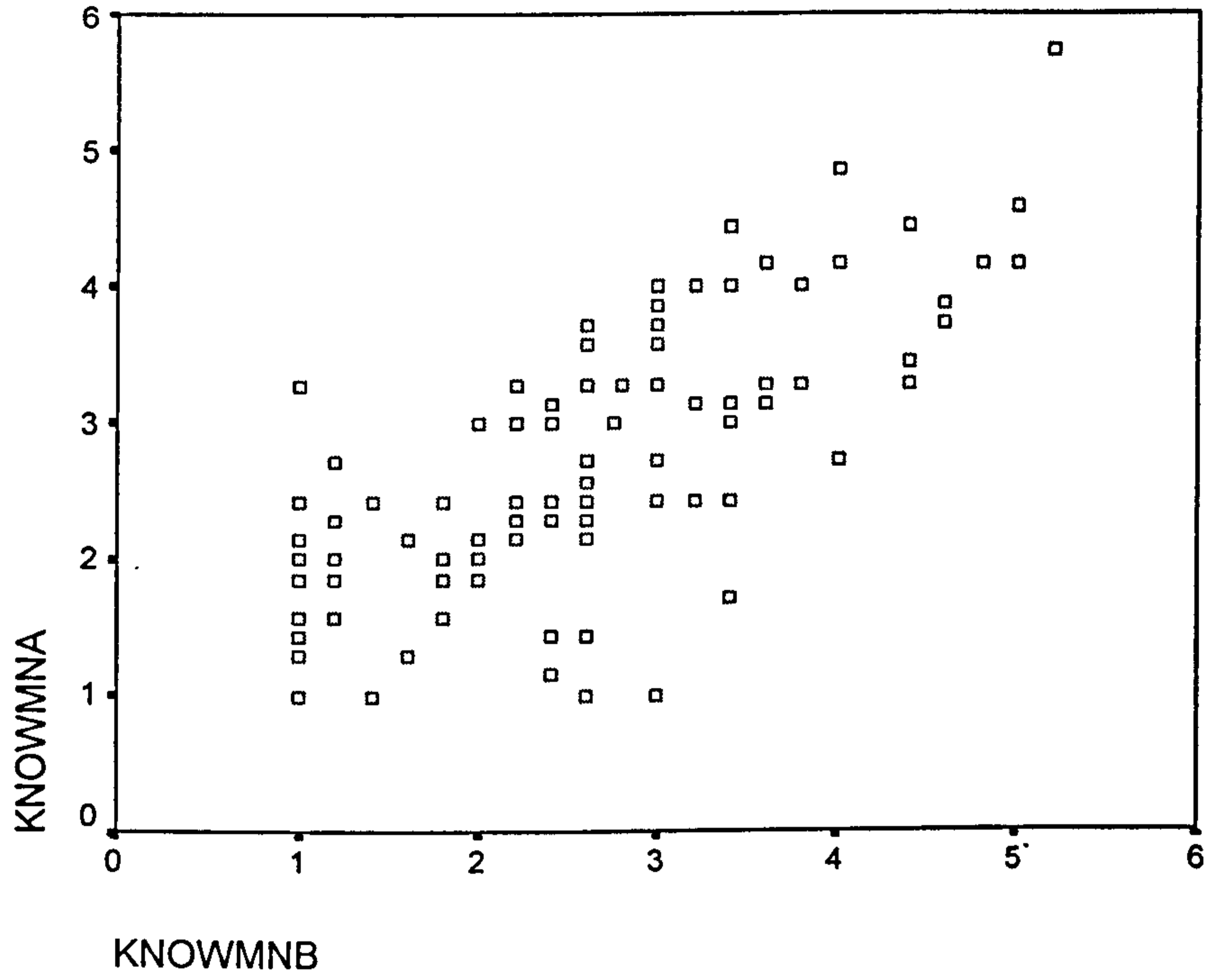
## **APPENDIX 5.10**

### **SCATTER PLOTS**

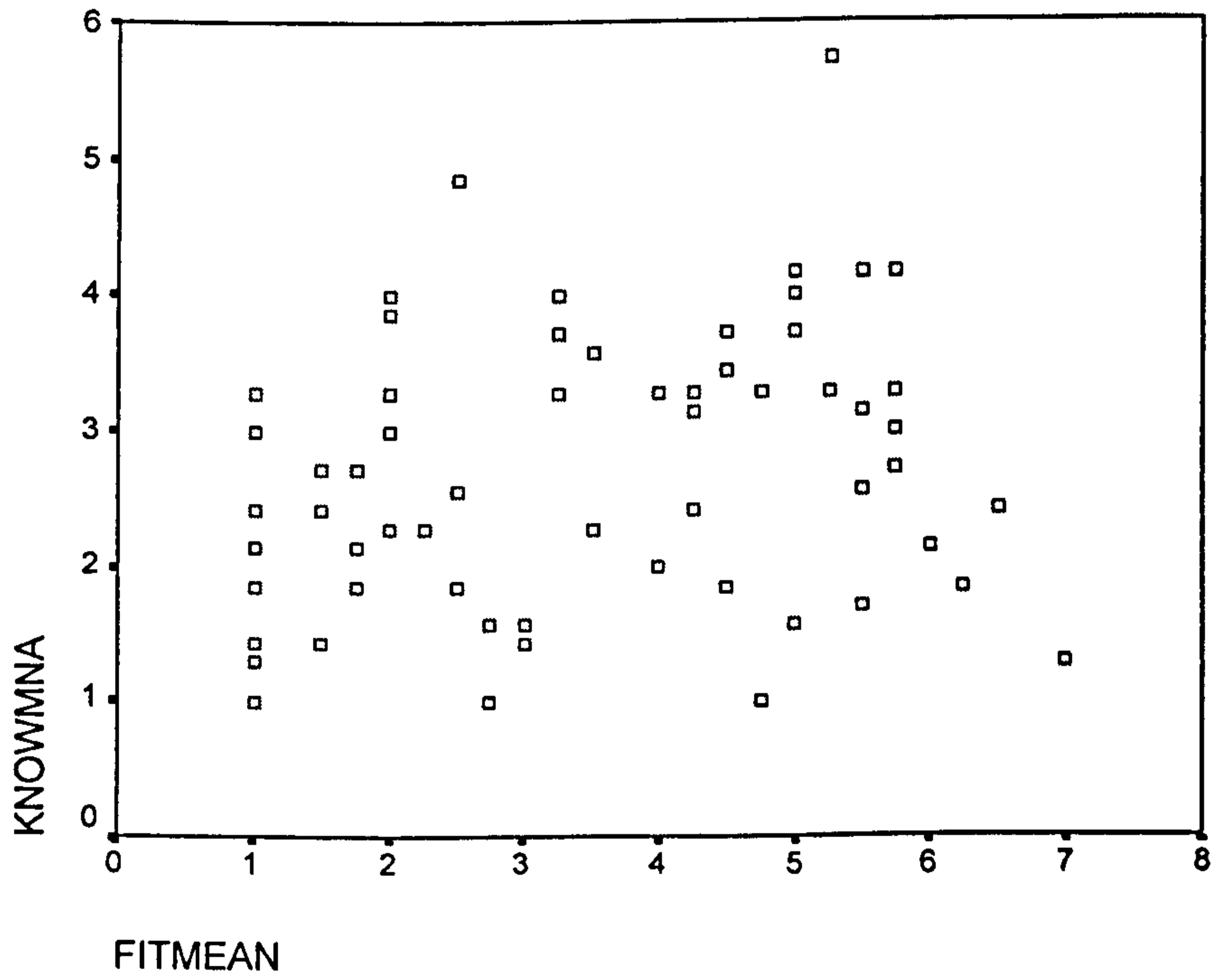
#### **CONSUMER KNOWLEDGE**



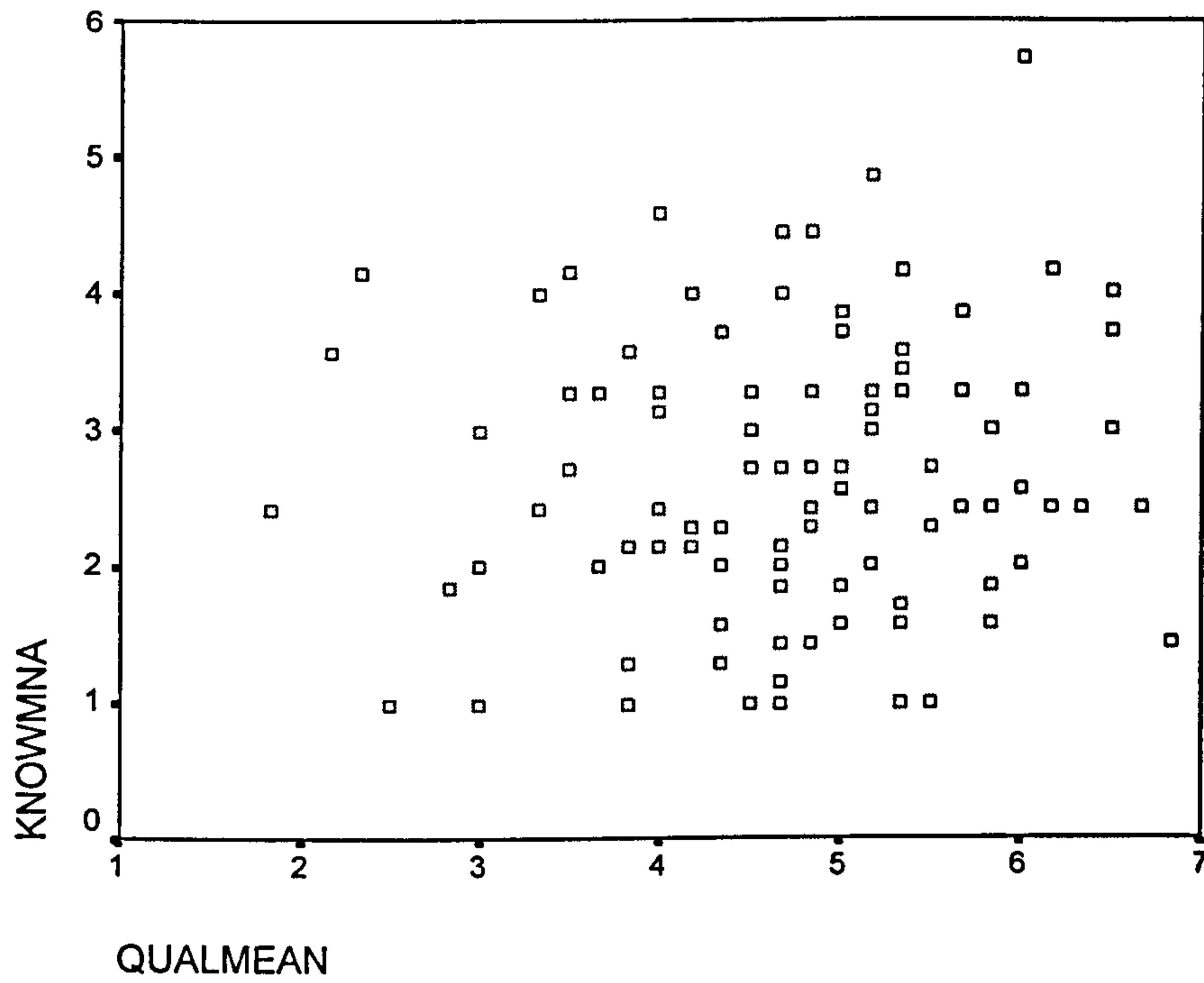
SCATTER PLOT OF CONSUMER KNOWLEDGE SCALES



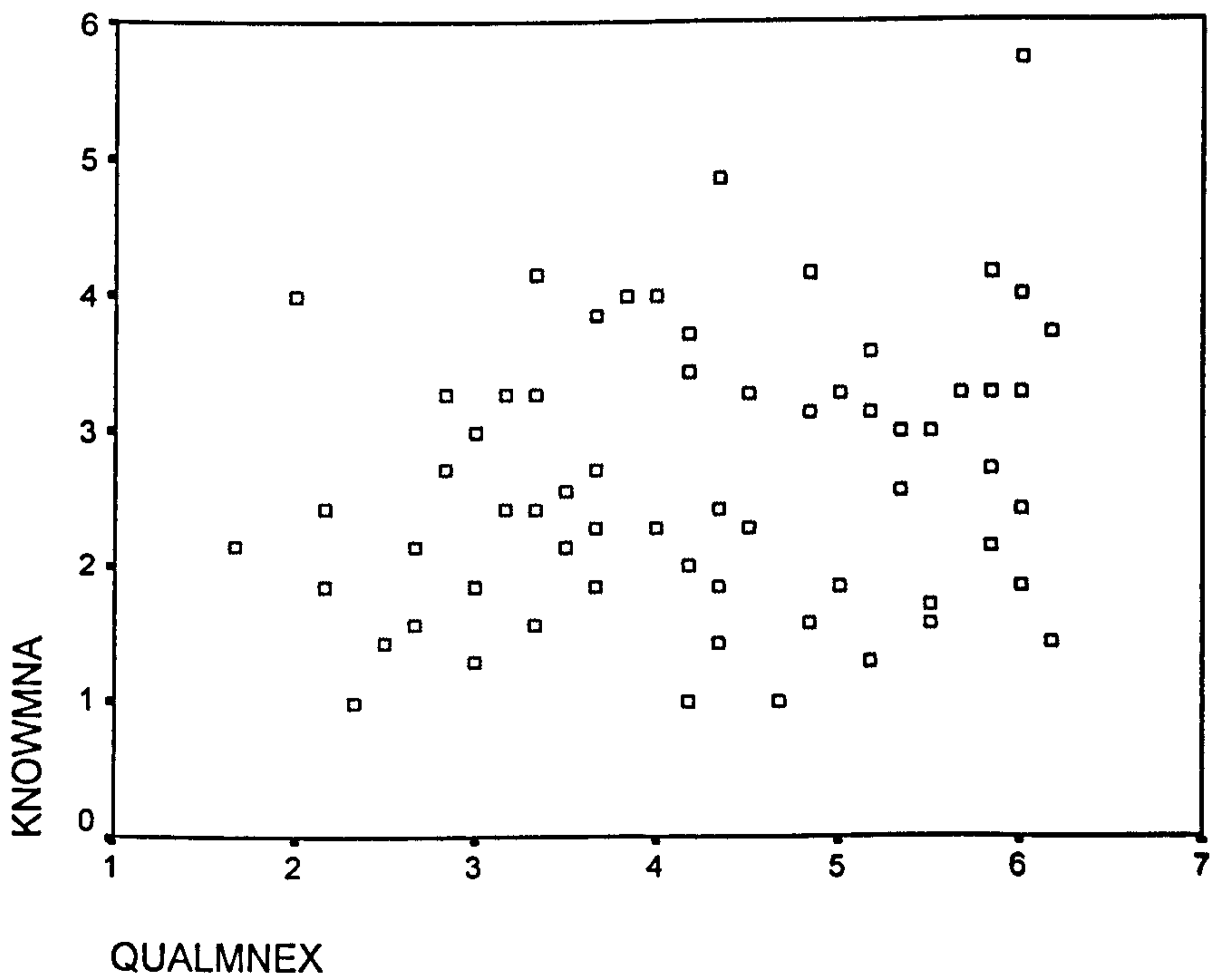
SCATTER PLOT OF CONSUMER KNOWLEDGE WITH EXTENSION FIT



SCATTER PLOT OF CONSUMER KNOWLEDGE WITH CORE BRAND QUALITY



SCATTER PLOT OF CONSUMER KNOWLEDGE WITH EXTENSION QUALITY



## **APPENDIX 5.11**

### **FACTOR ANALYSIS**

#### **COMBINED CONSUMER KNOWLEDGE ITEMS**

FACTOR SCORES ON ALL CONSUMER KNOWLEDGE ITEMS

<u>Consumer Knowledge Items</u>	<u>Factor Loadings</u>
	<u>Factor1</u>
Friends Consider Me an Expert	.491
Gathering Information	.602
Giving Advice To a Friend	.800
Important Product characteristics In Providing Maximum Satisfaction	.450
Knowledge of Brand Compared to Average Buyer	.819
Knowledge of Brand Compared to Average Person	.800
Knowledge of Selecting Best Products Within Range	.688
Repairing and Maintaining Vehicles	.327
Buyer Type	.708
Experience	.829
Familiarity	.786
Informed	.851
Knowledge	6.89
Eigenvalue	53.04
% of Variance Explained	

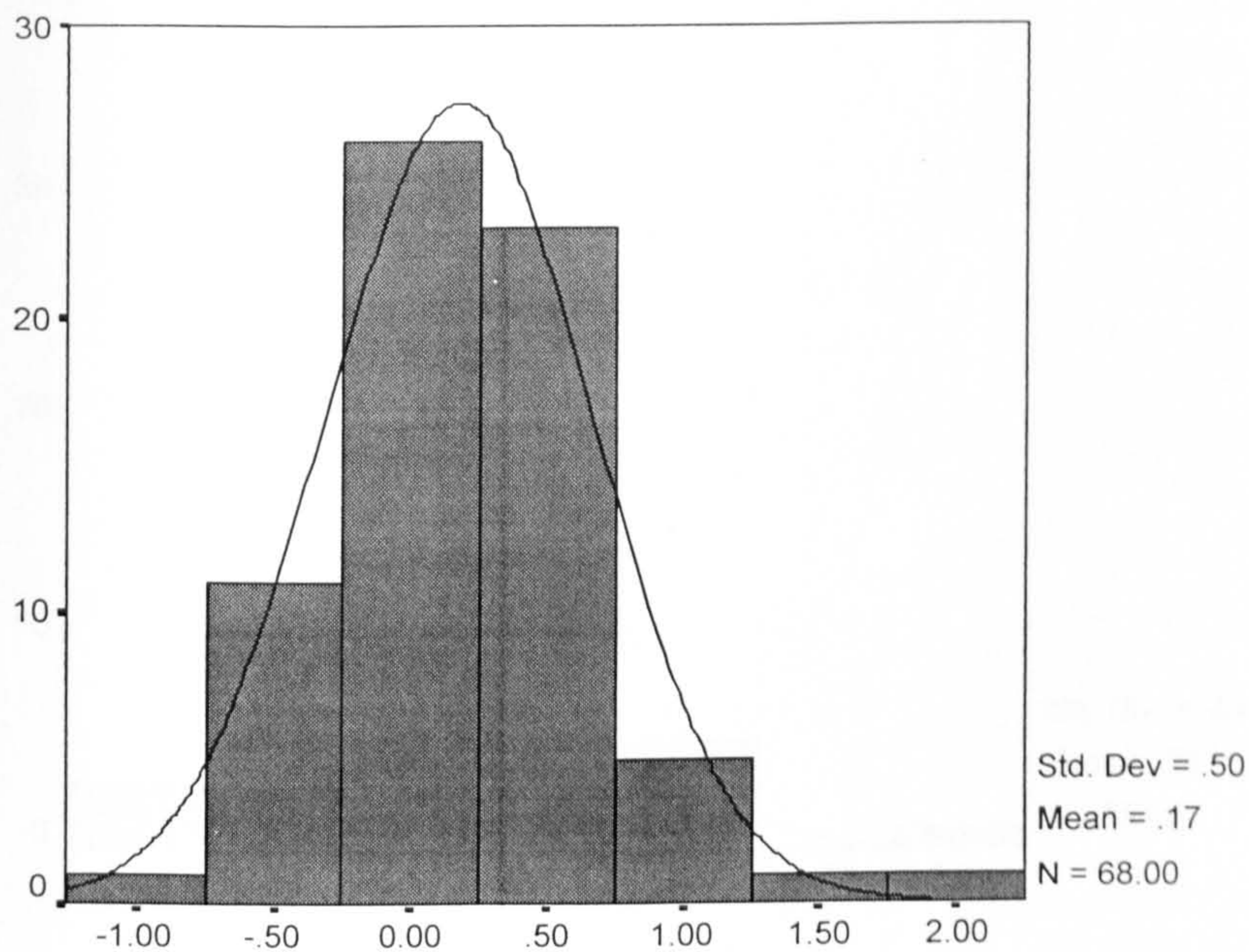
**a: all loadings above .30 are highlighted in bold italics.**

## **APPENDIX 6.1**

### **ASSESSING NORMALITY**

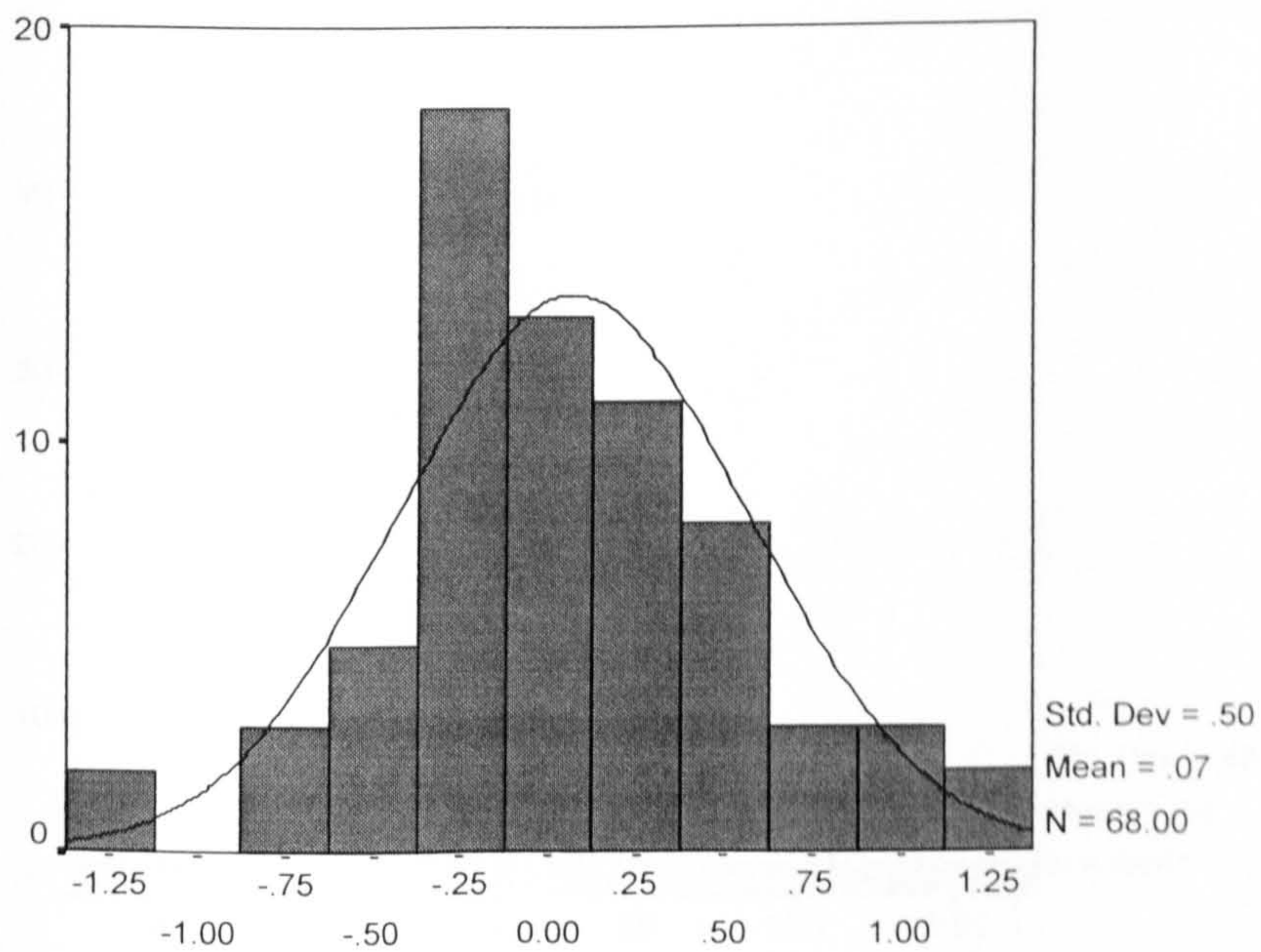
#### **HISTOGRAMS WITH NORMAL CURVE SUPERIMPOSED**

Histogram and Normal Curve for Excitement (pure)



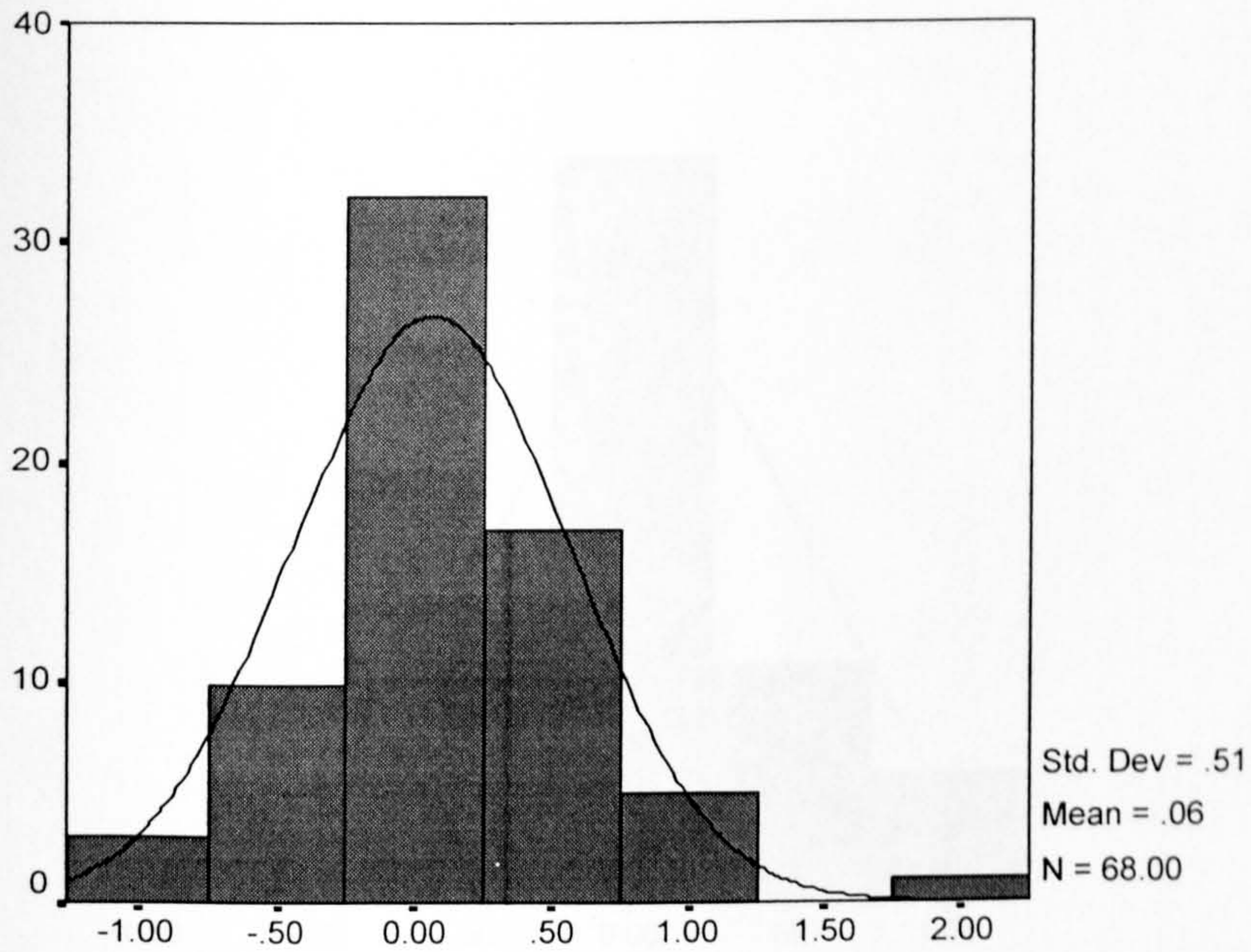
EXBPWC

Histogram and Normal Curve for Competence (pure)



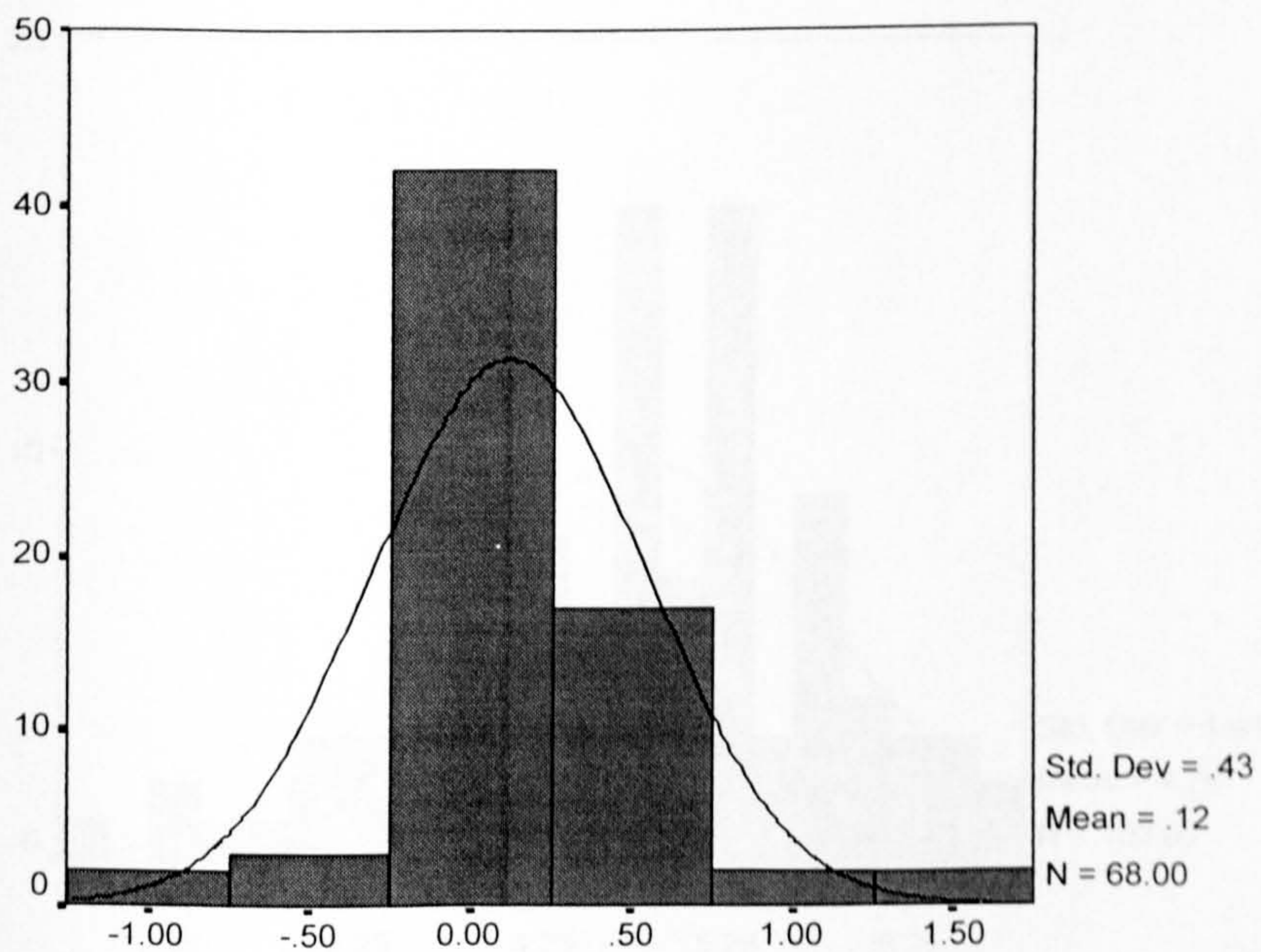
COMBPWC

Histogram and Normal Curve for Sincerity (pure)



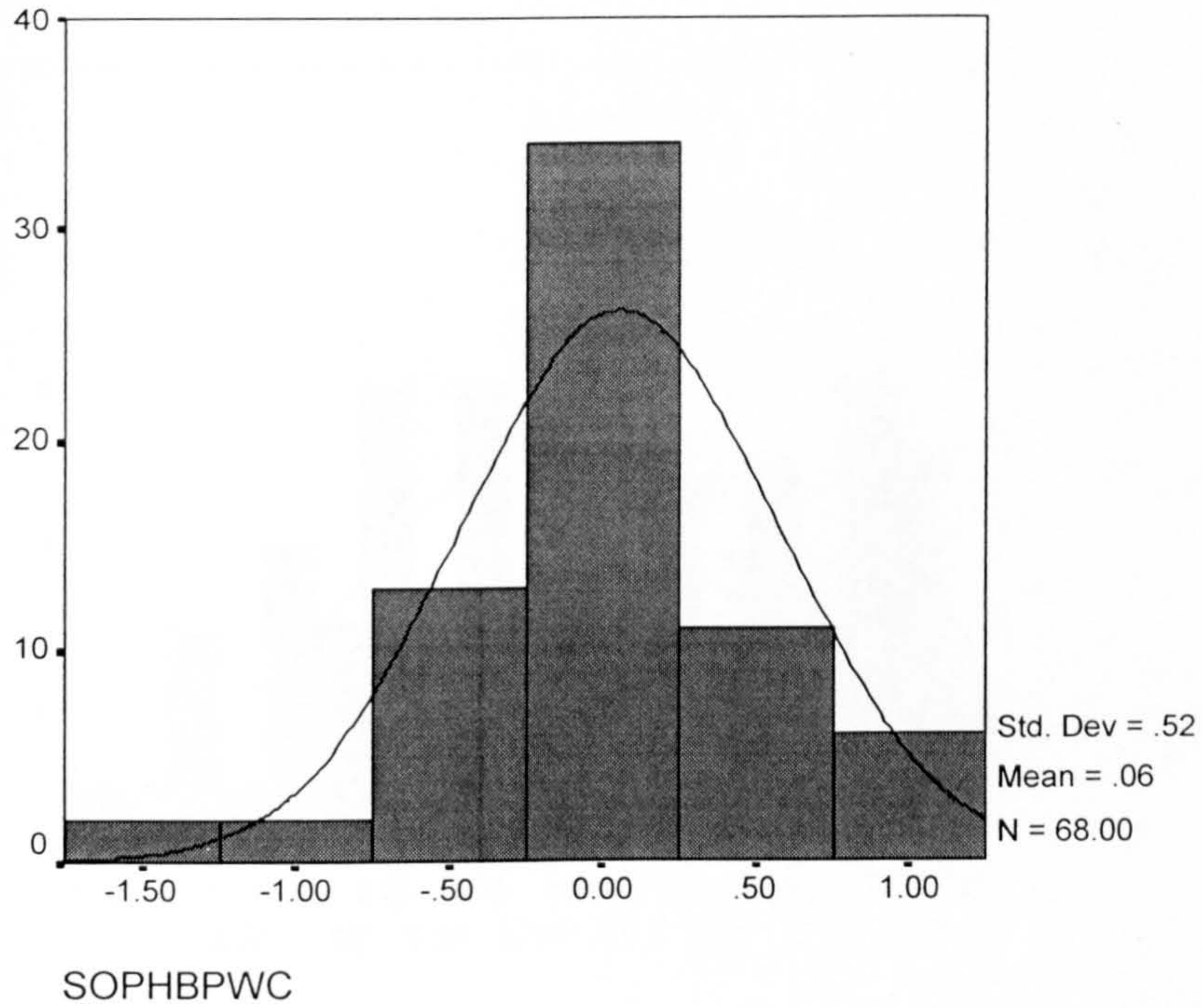
SINBPWC

Histogram and Normal Curve for Ruggedness (pure)

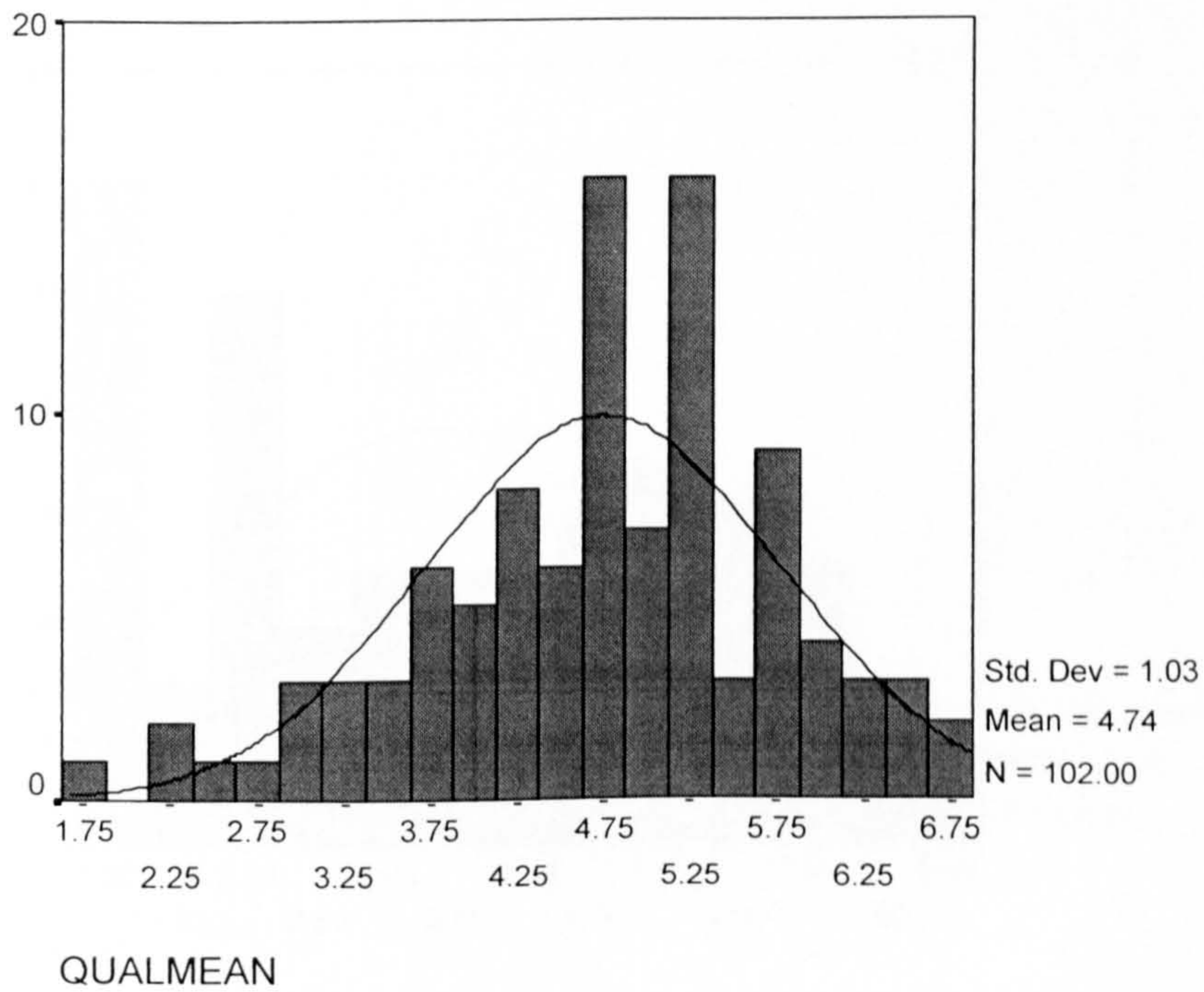


RUGBPWC

Histogram and Normal Curve for Sophistication (pure)

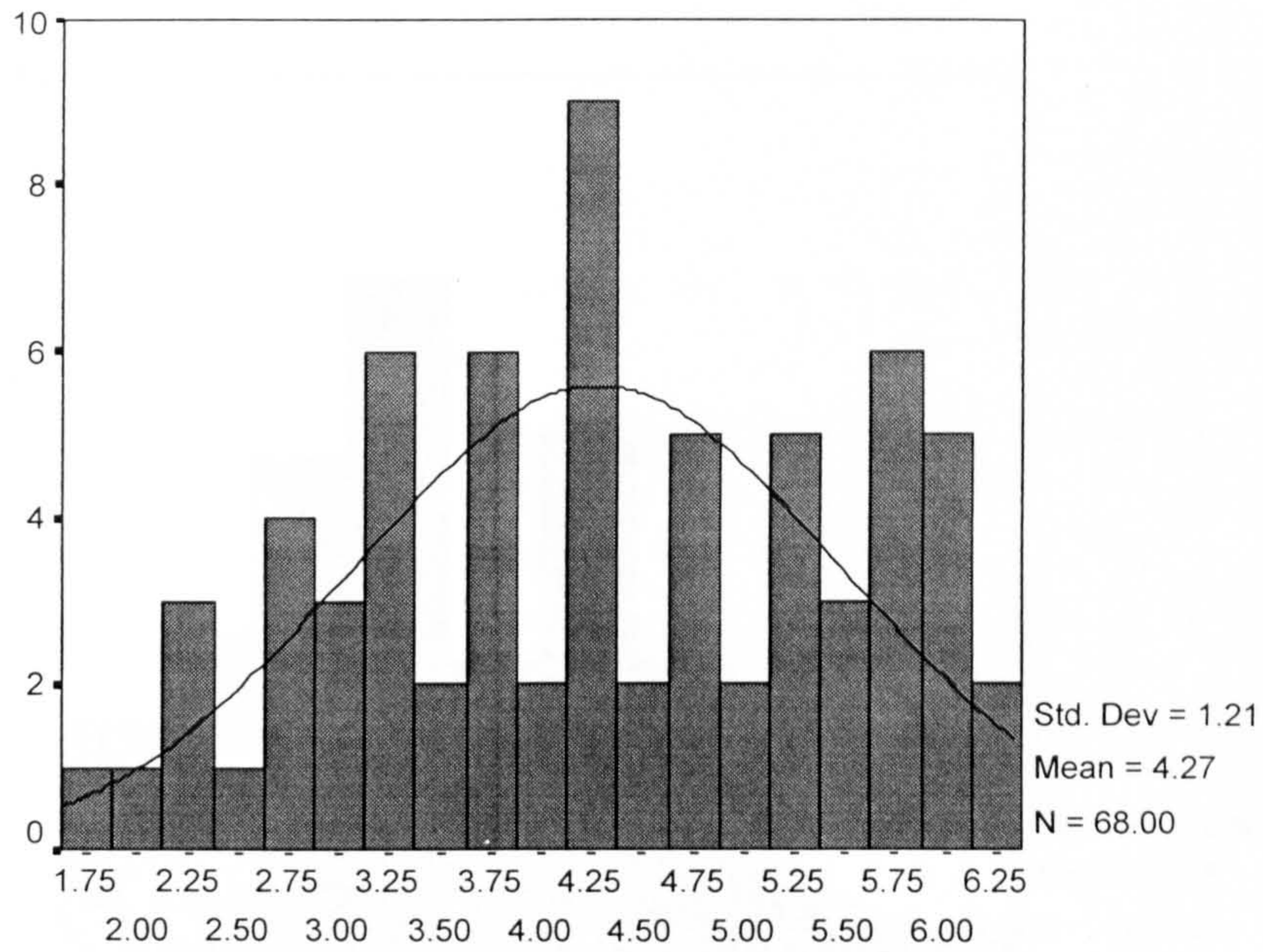


Histogram and Normal Curve for Core Brand Quality



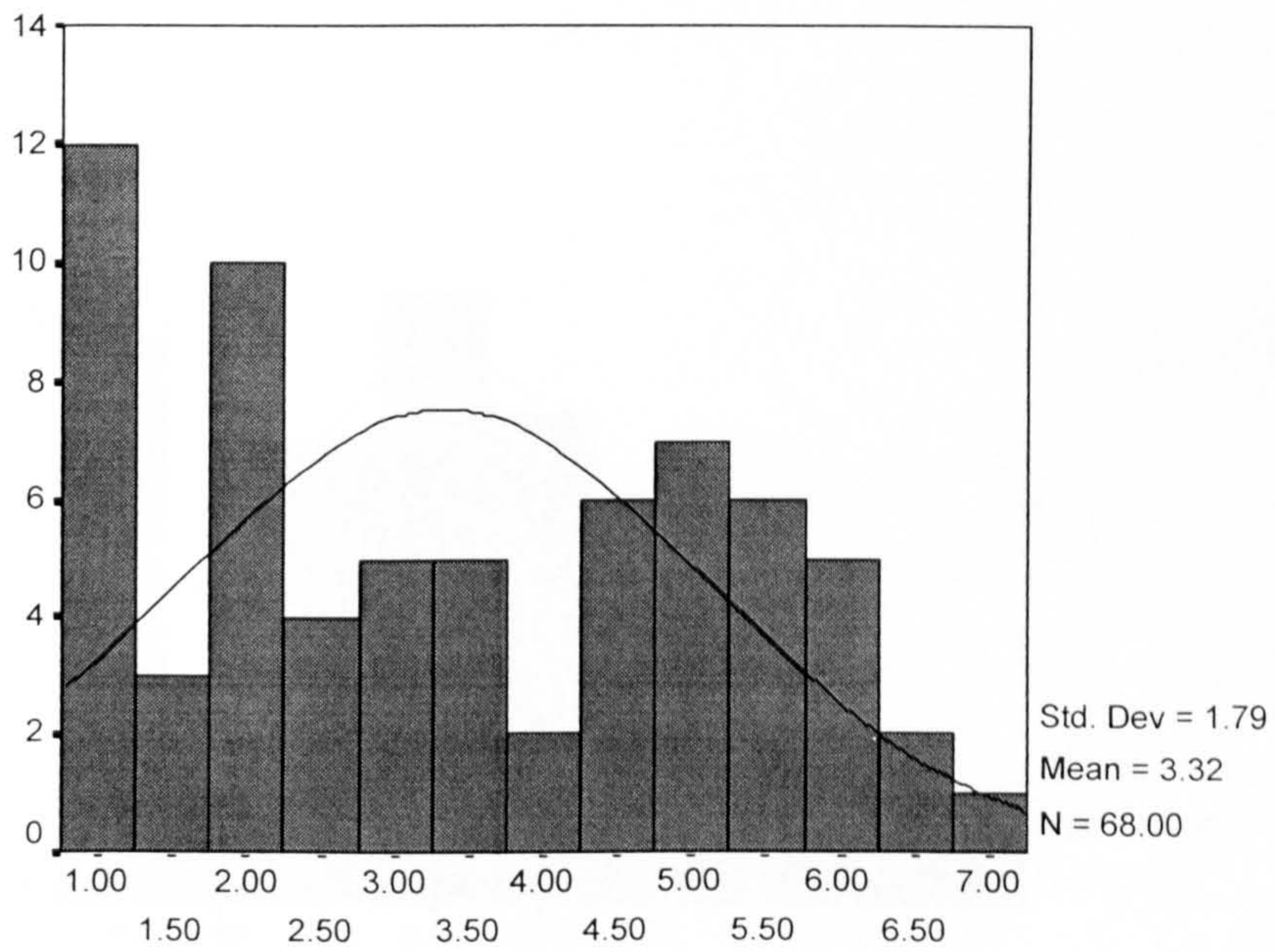


Histogram and Normal Curve for Extension Quality



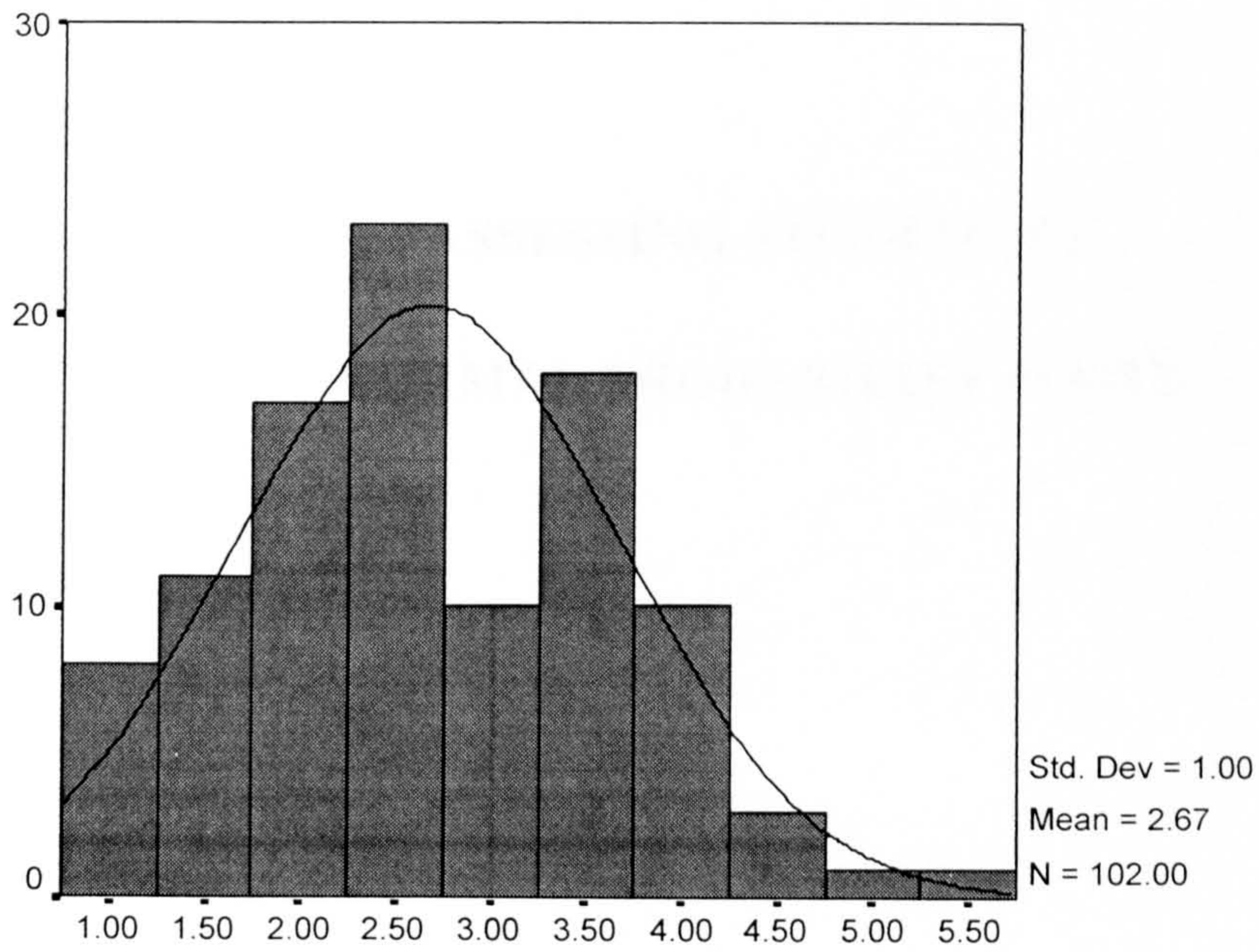
QUALMNEX

Histogram and Normal Curve for Extension Fit



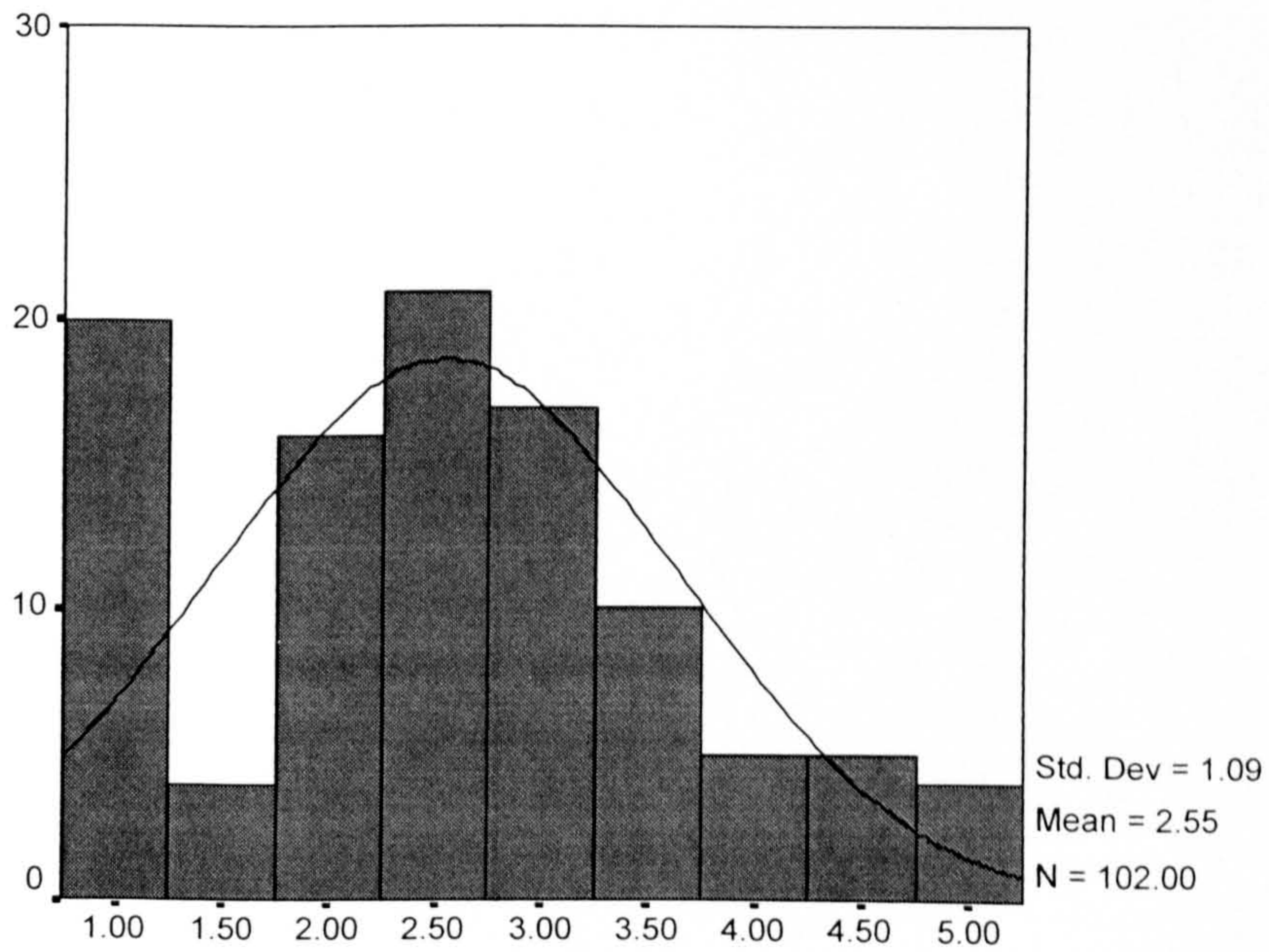
FITMEAN

Histogram and Normal Curve for Consumer Knowledge (A)



KNOWMNA

Histogram and Normal Curve for Consumer Knowledge (B)



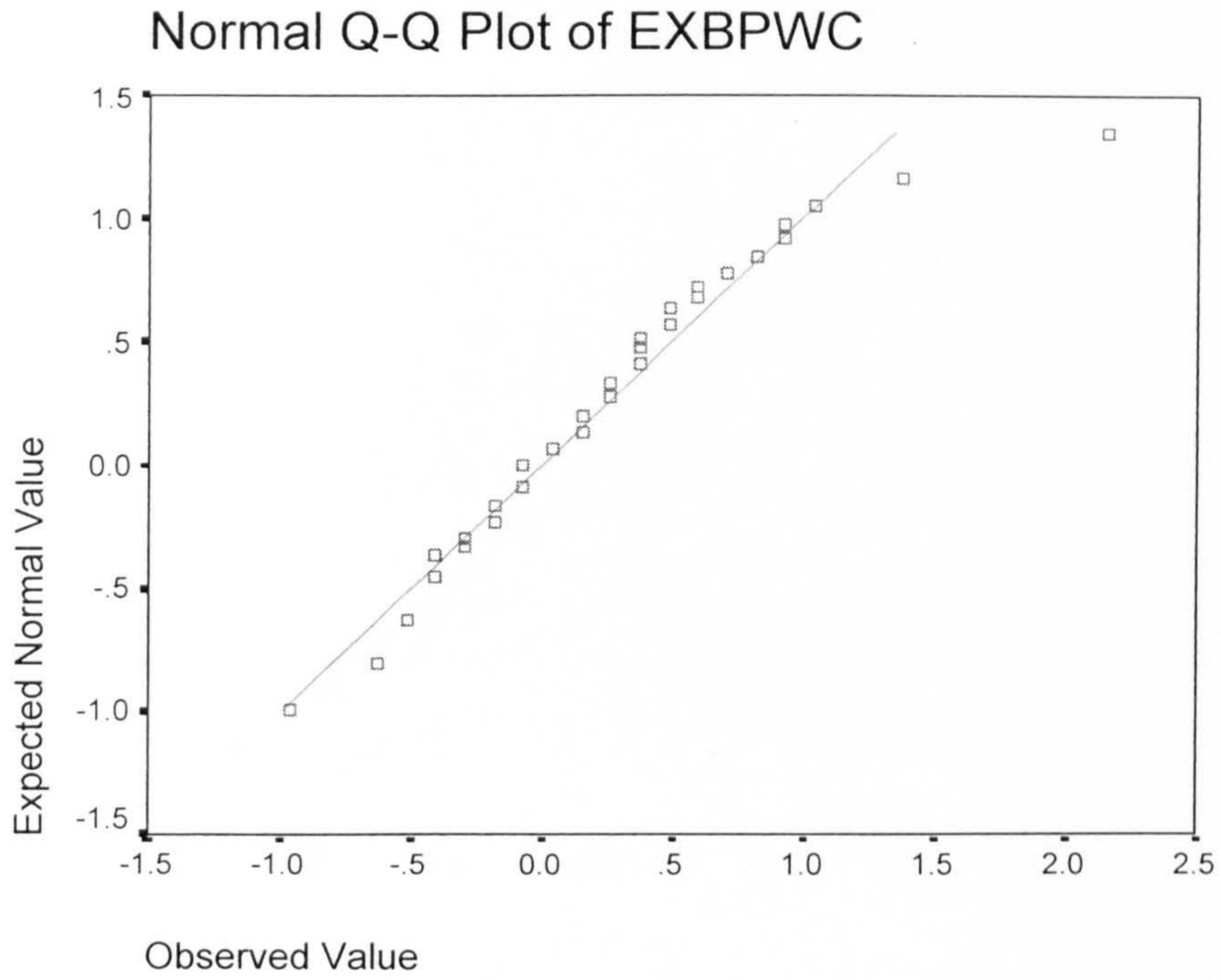
KNOWMNB

## **APPENDIX 6.2**

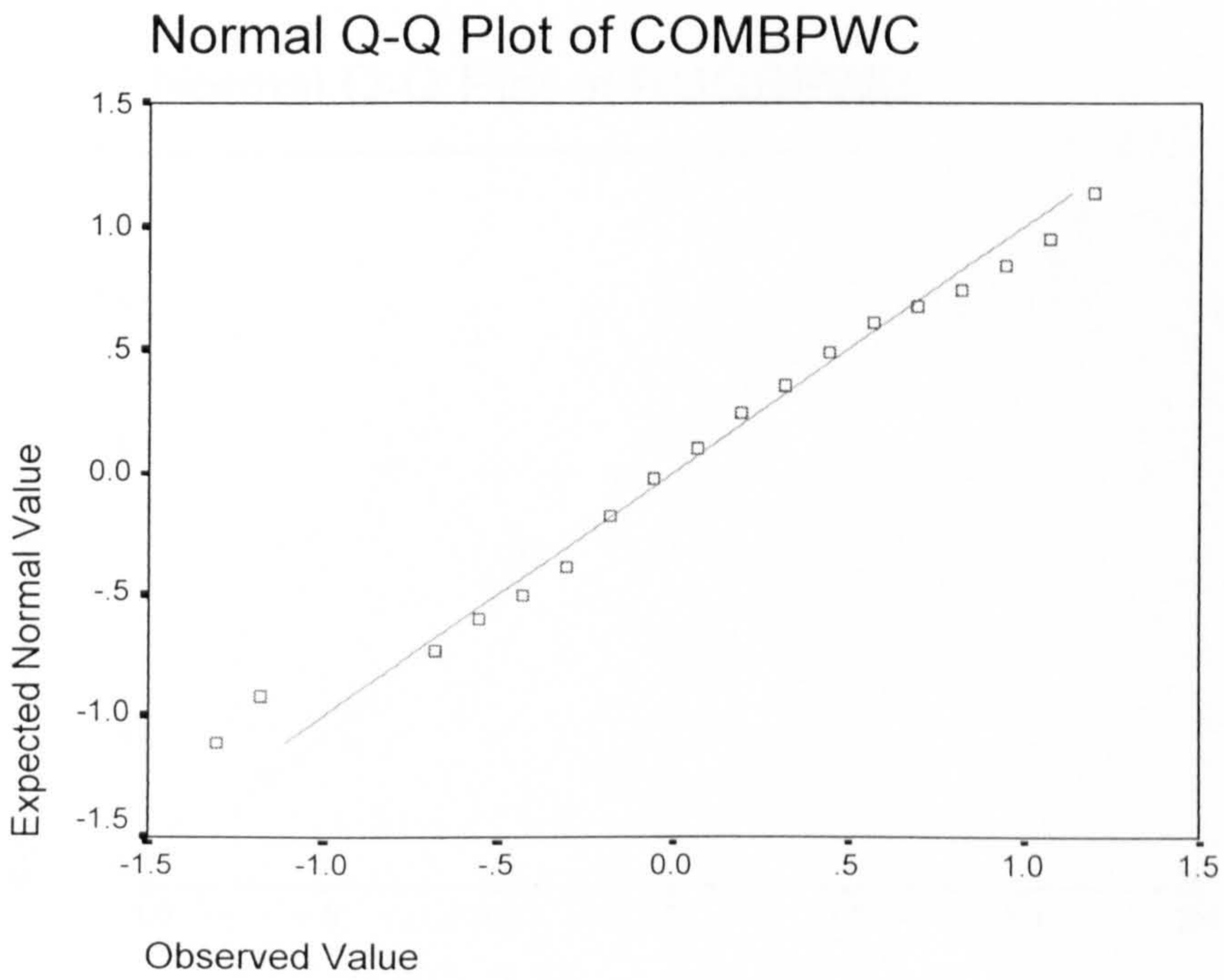
### **ASSESSING NORMALITY**

### **NORMAL PROBABILITY PLOTS**

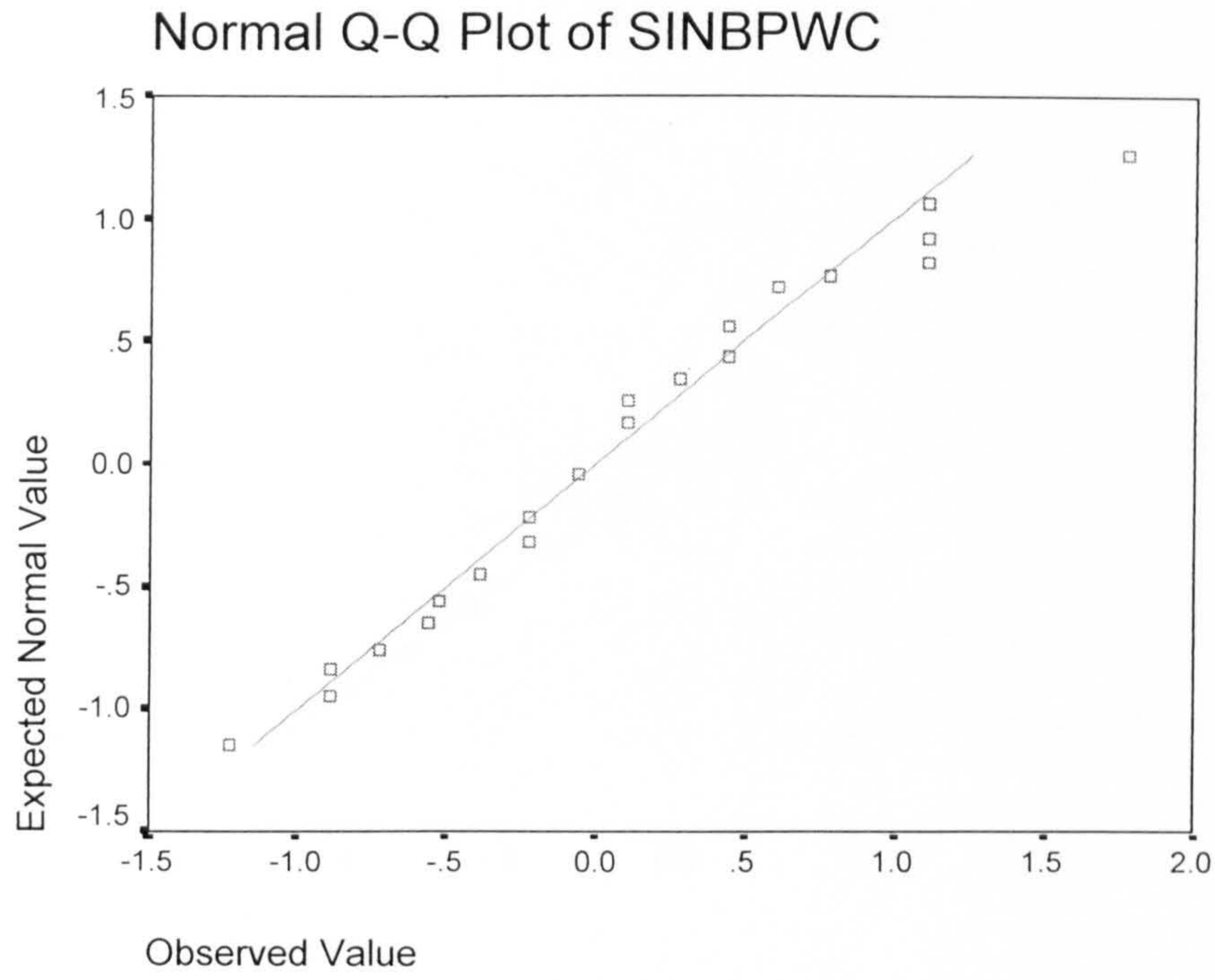
Excitement (pure)



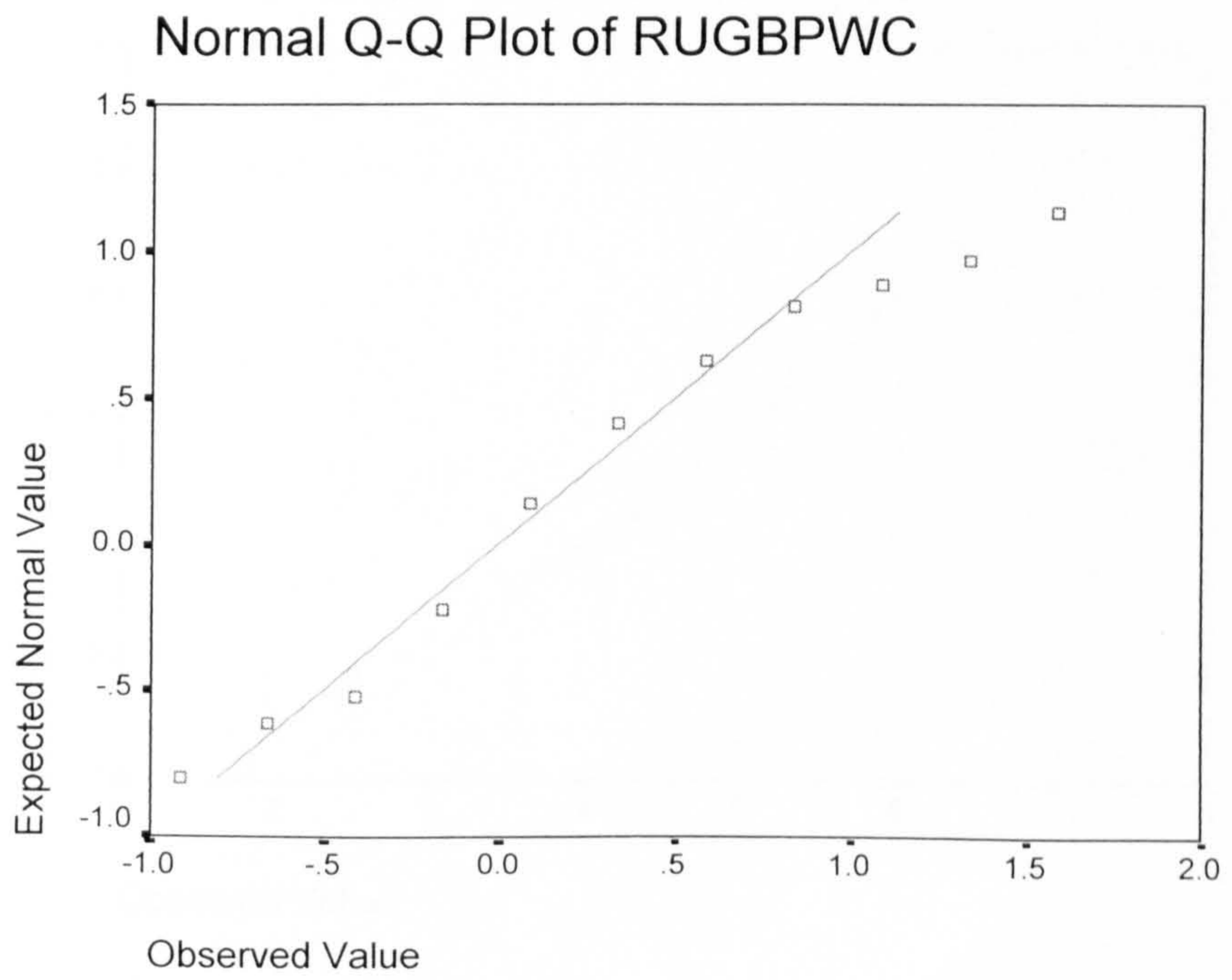
Competence (pure)



Sincerity (pure)

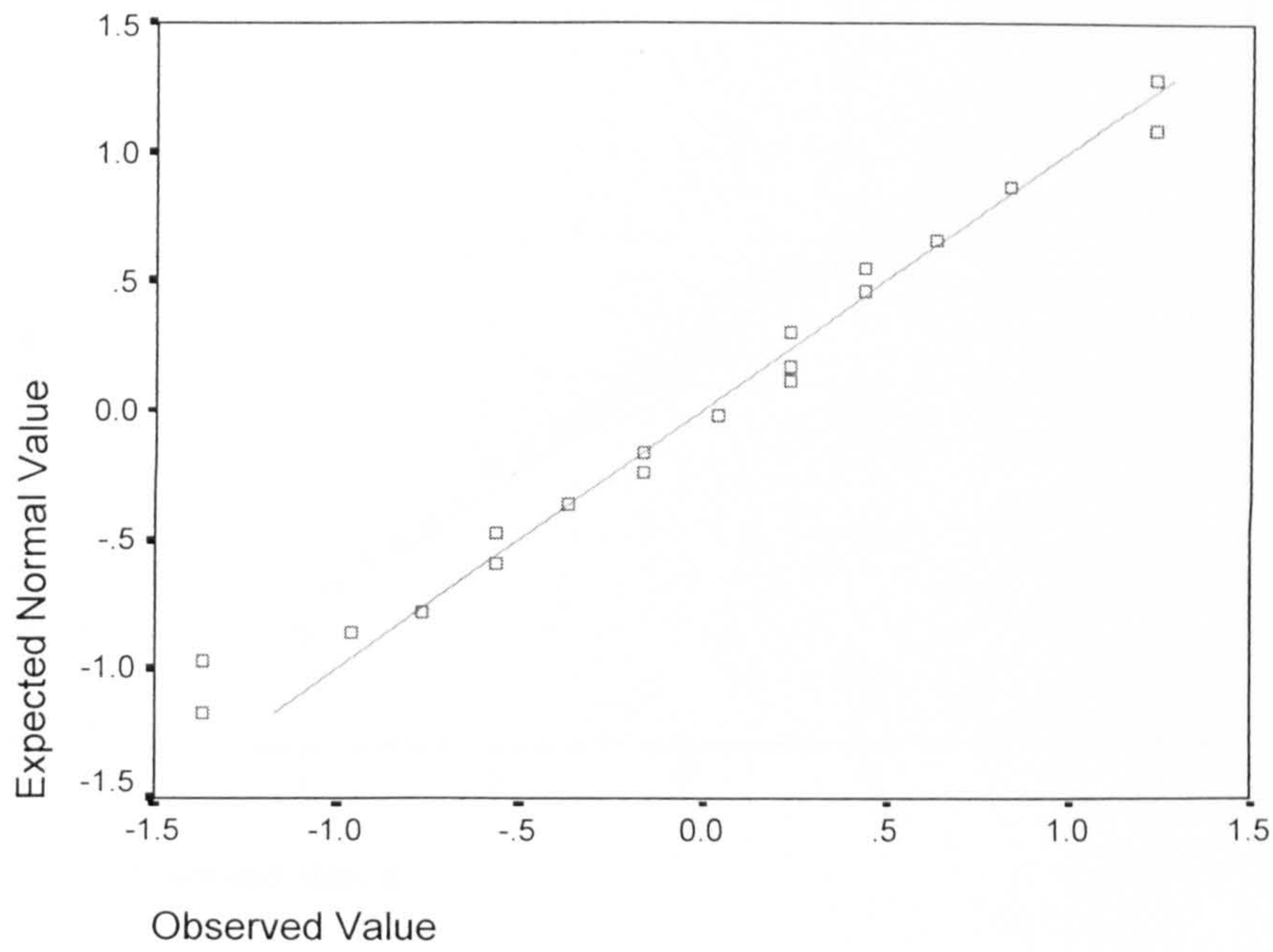


Ruggedness (pure)



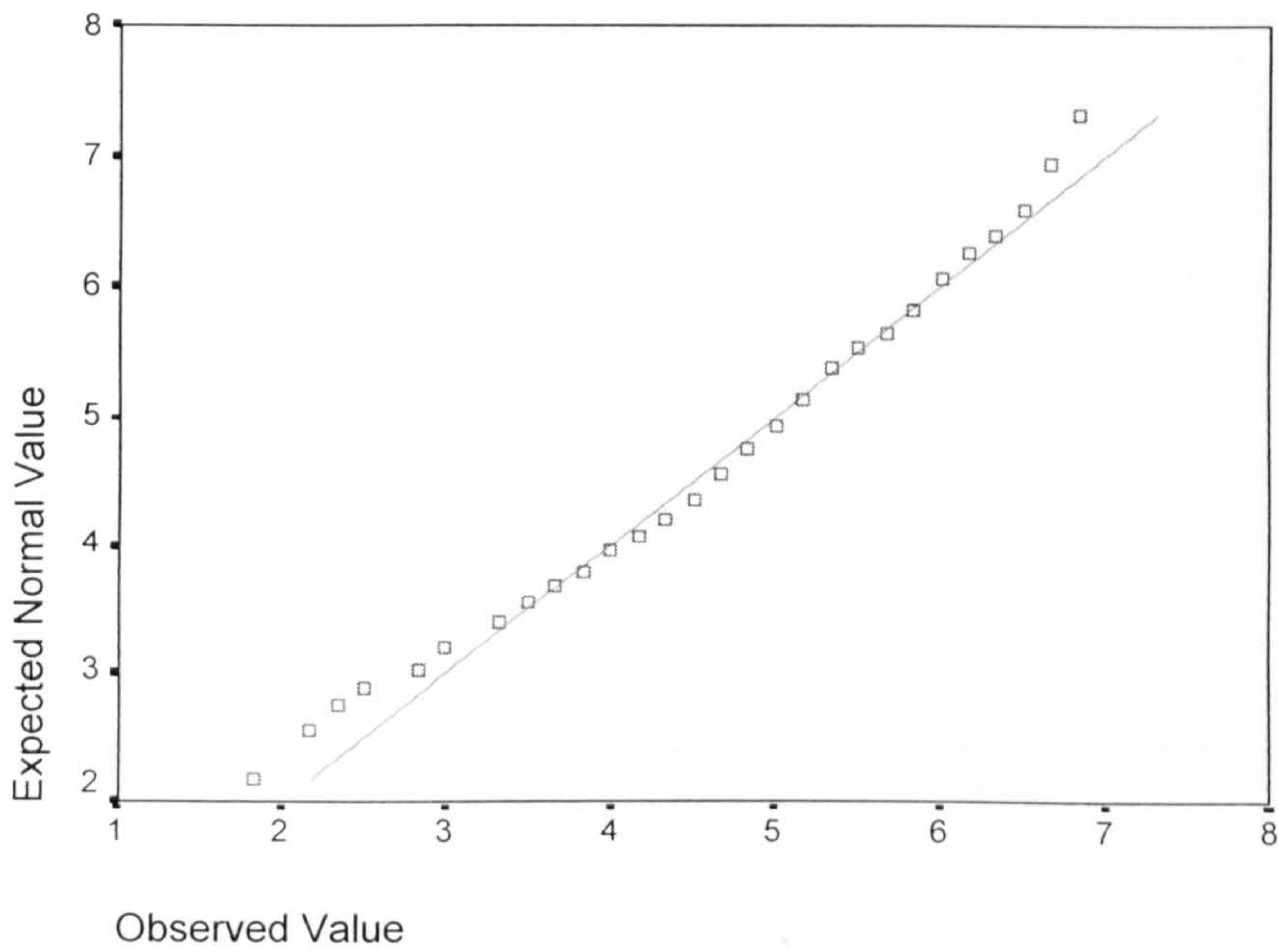
Sophistication (pure)

Normal Q-Q Plot of SOPHBPWC



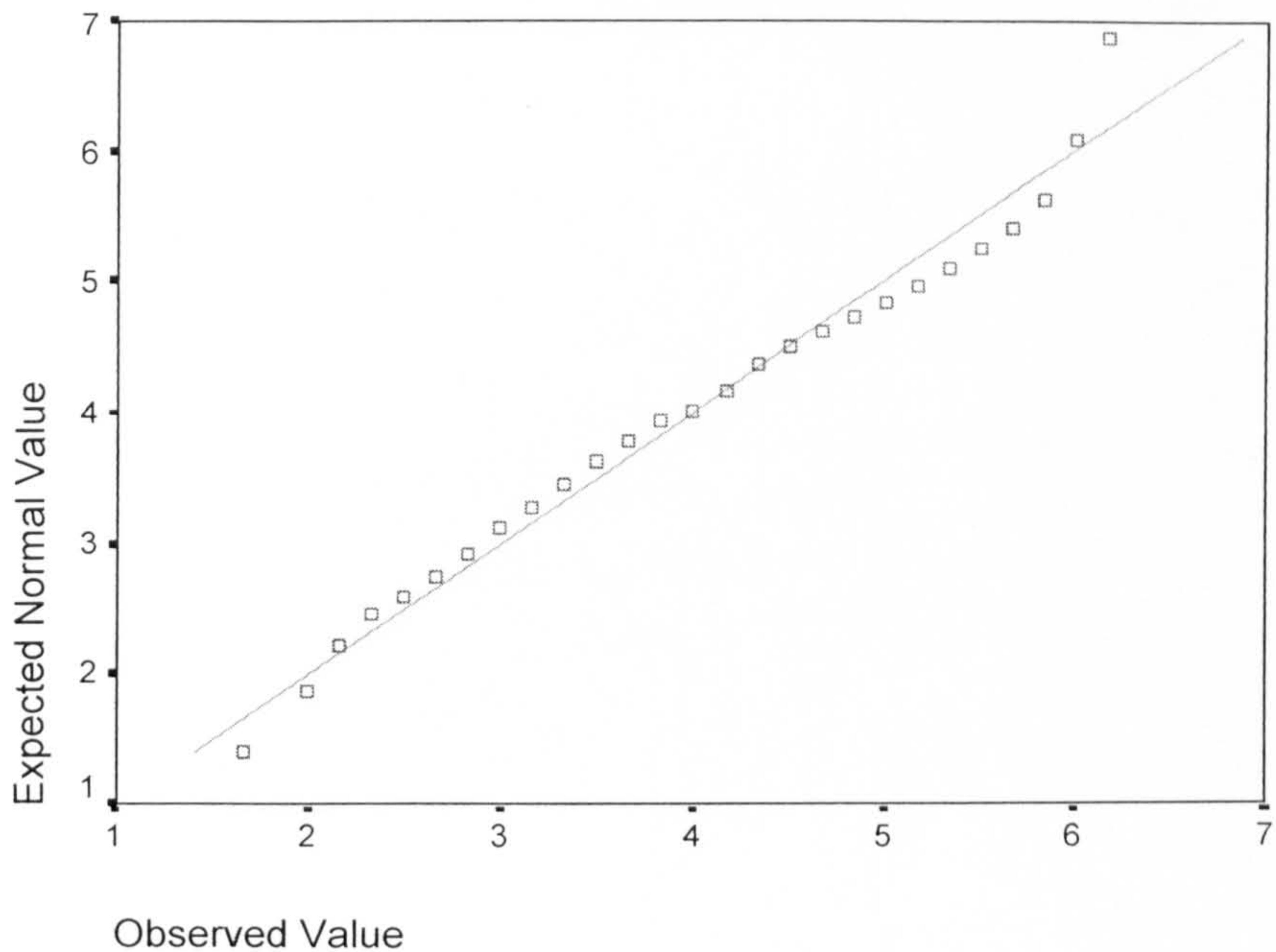
Core Brand Quality

Normal Q-Q Plot of QUALMEAN



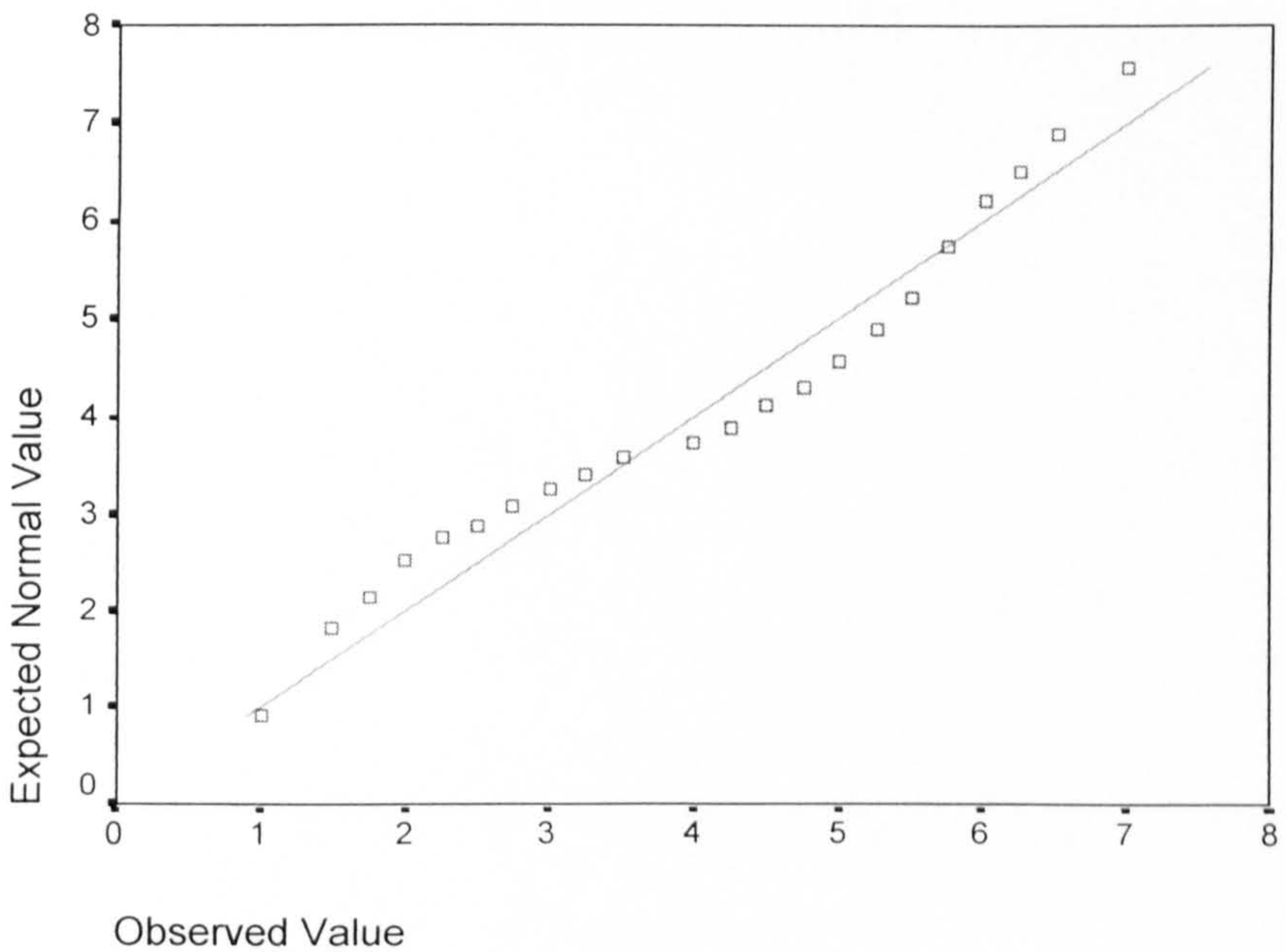
Extension Quality

Normal Q-Q Plot of QUALMSEX



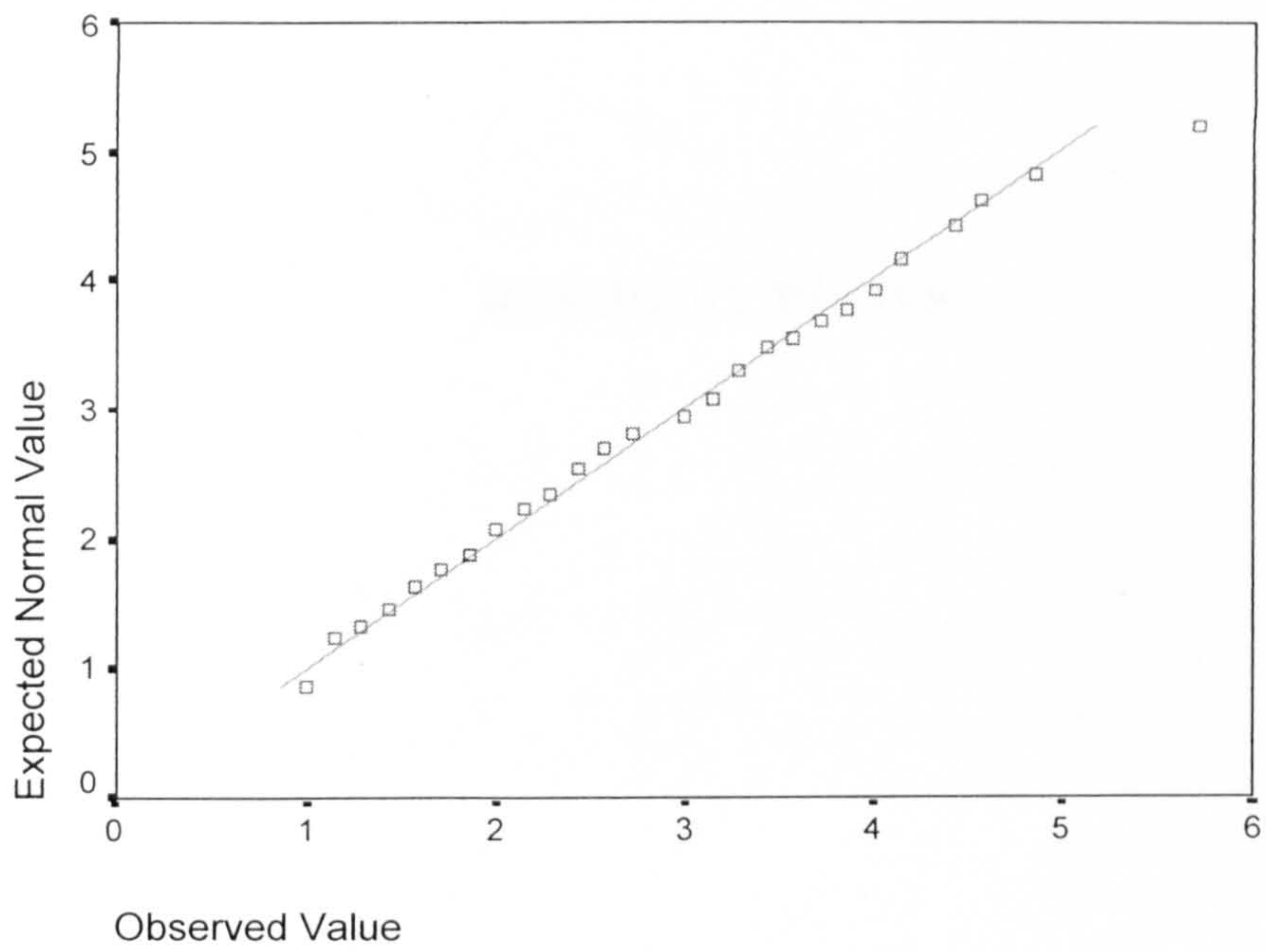
Extension Fit

Normal Q-Q Plot of FITMEAN



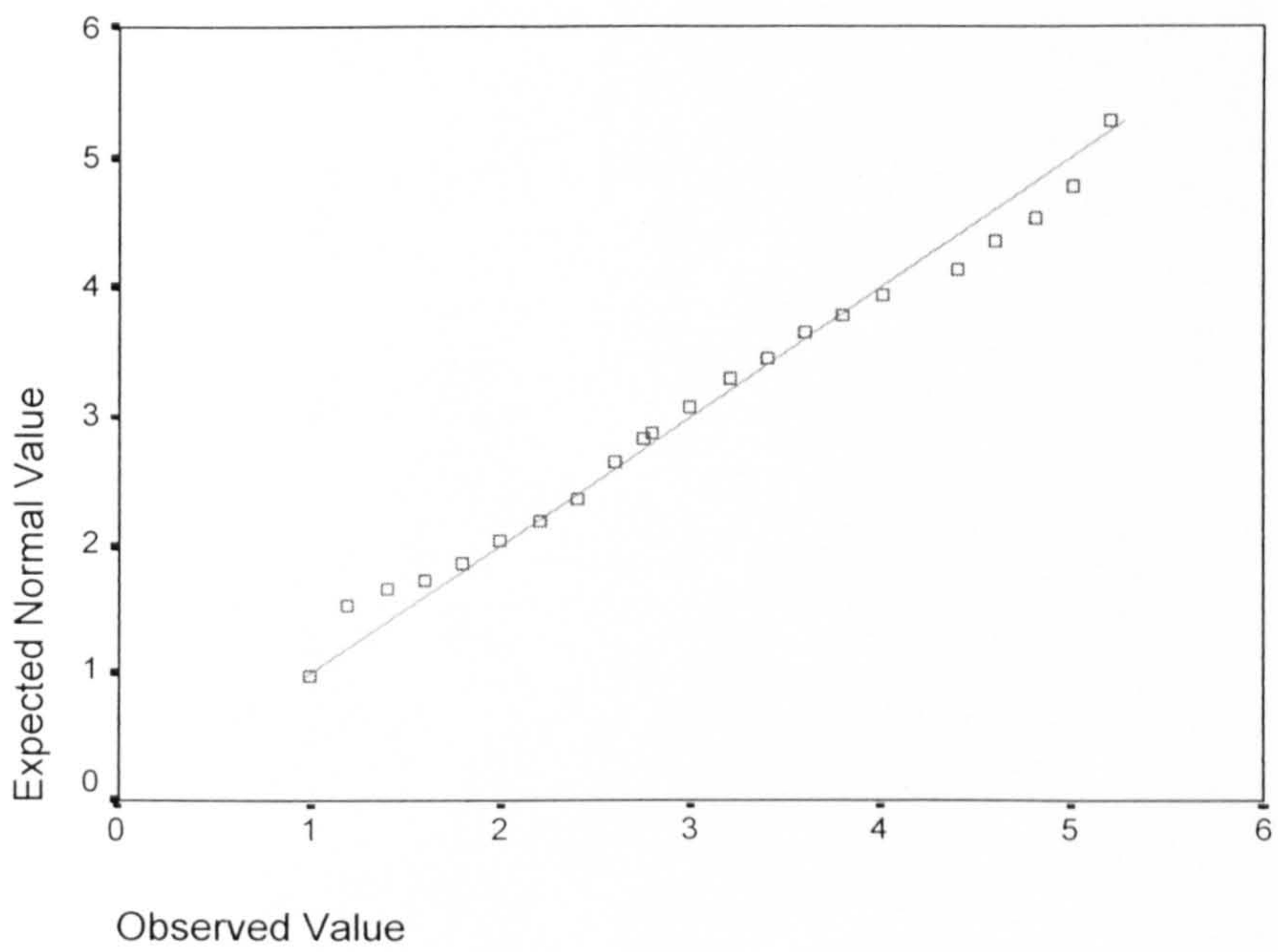
Consumer Knowledge (A)

Normal Q-Q Plot of KNOWMNA



Consumer Knowledge (B)

Normal Q-Q Plot of KNOWMNB





## APPENDIX 6.3

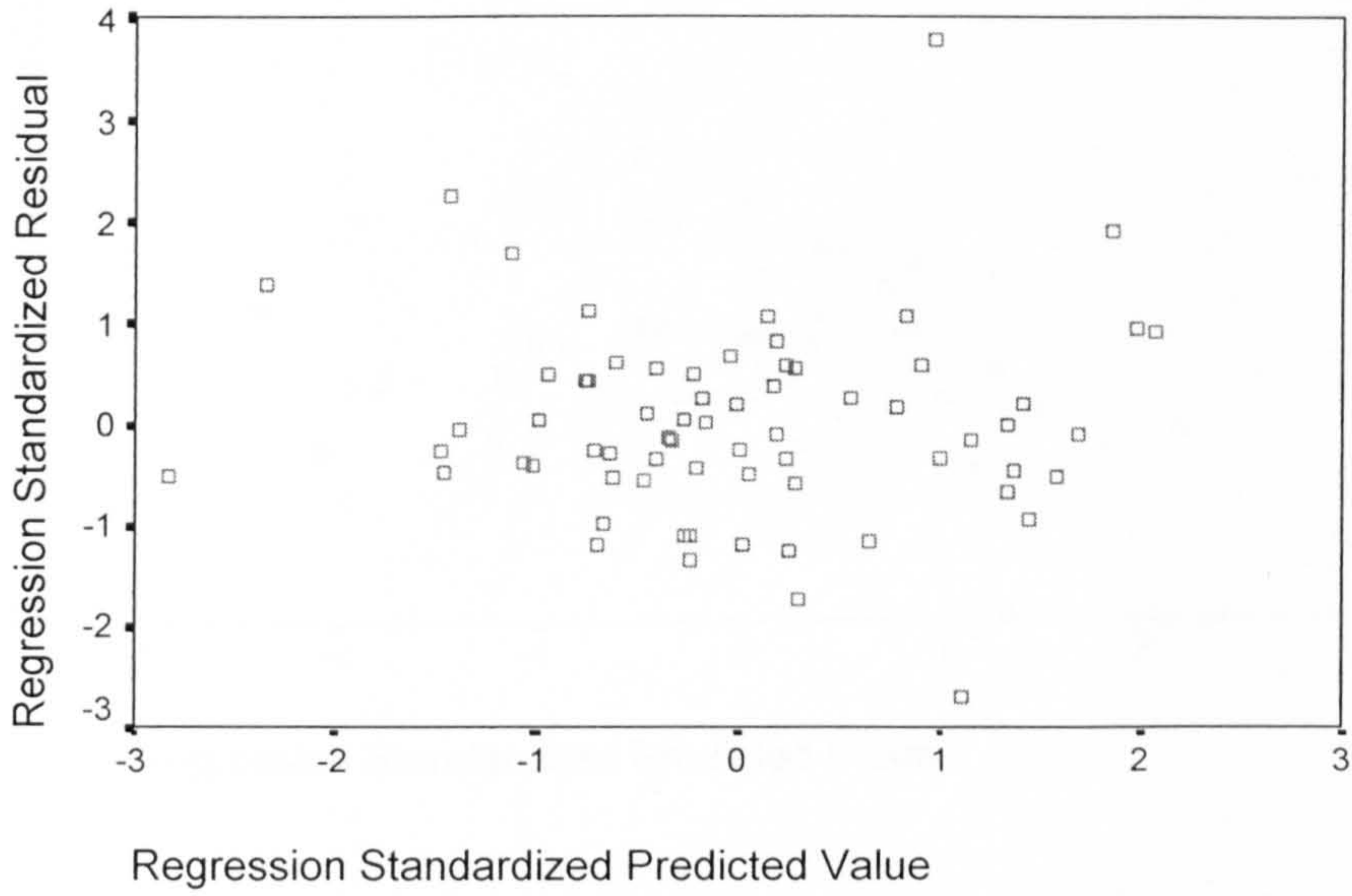
### RESIDUAL PLOTS

DEPENDENT VARIABLE – BP DIMENSIONS (pure)

Excitement (pure)

Scatterplot

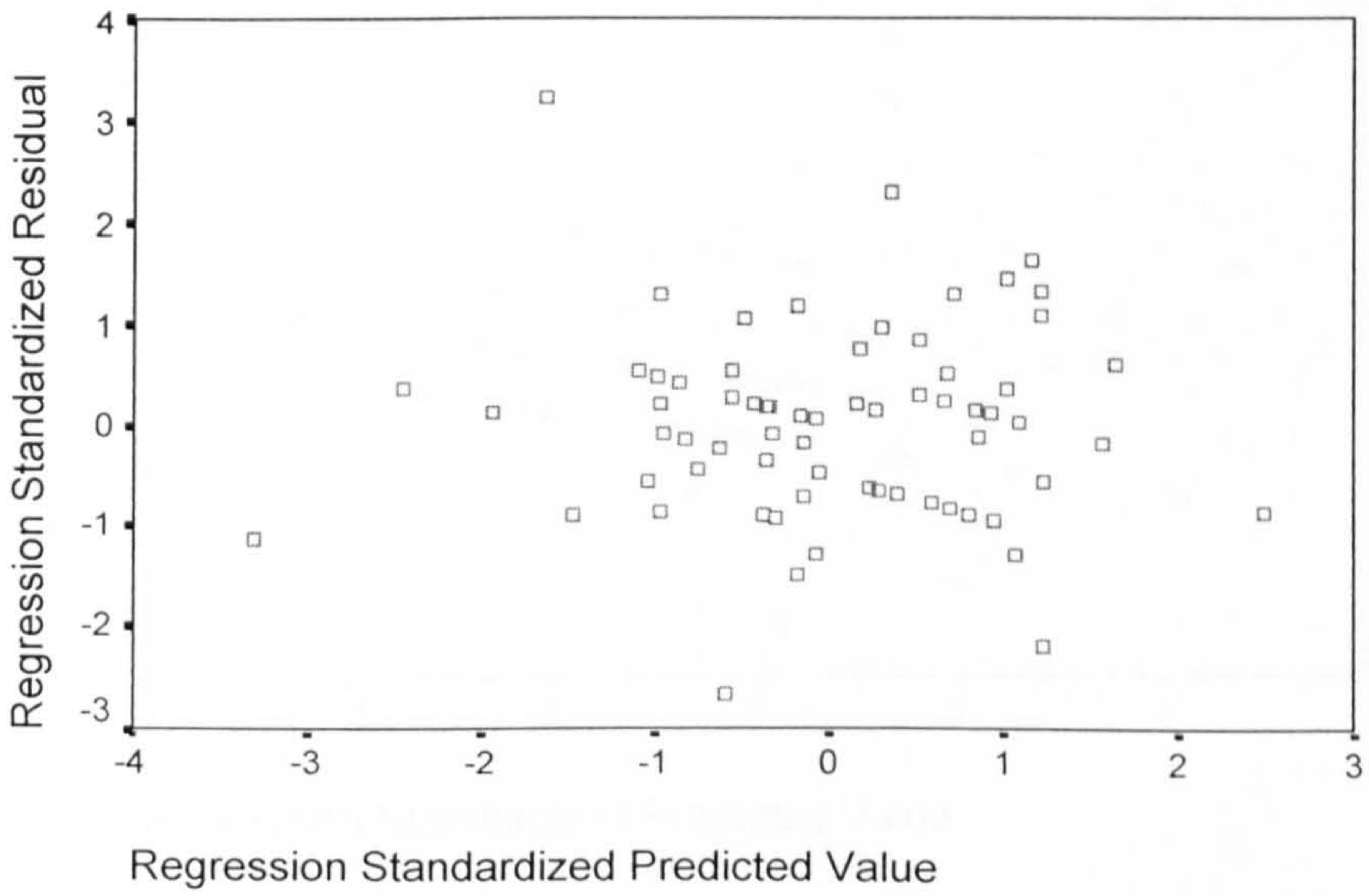
Dependent Variable: EXBPWC



Competence (pure)

Scatterplot

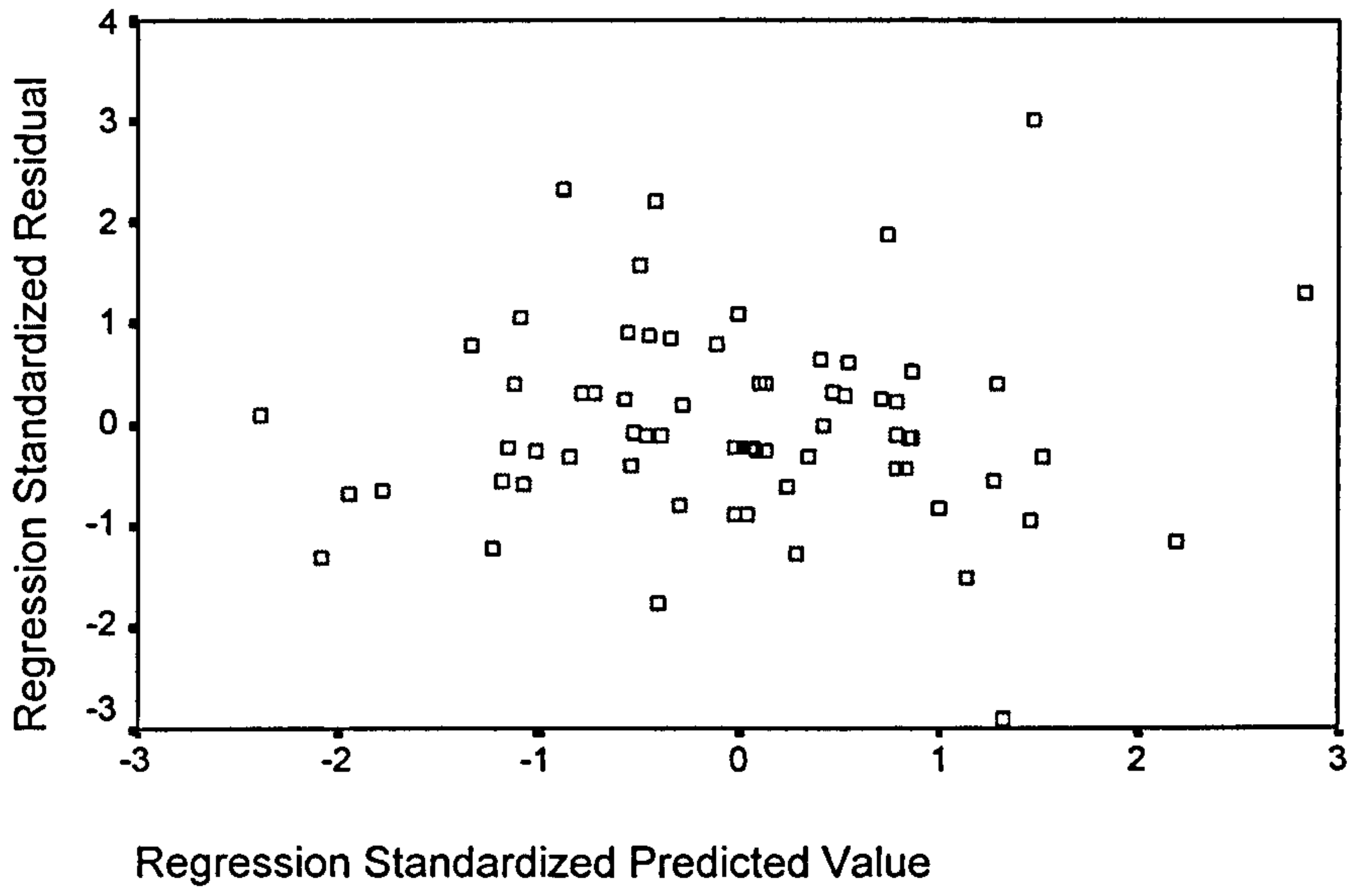
Dependent Variable: COMBPWC



Sincerity (pure)

Scatterplot

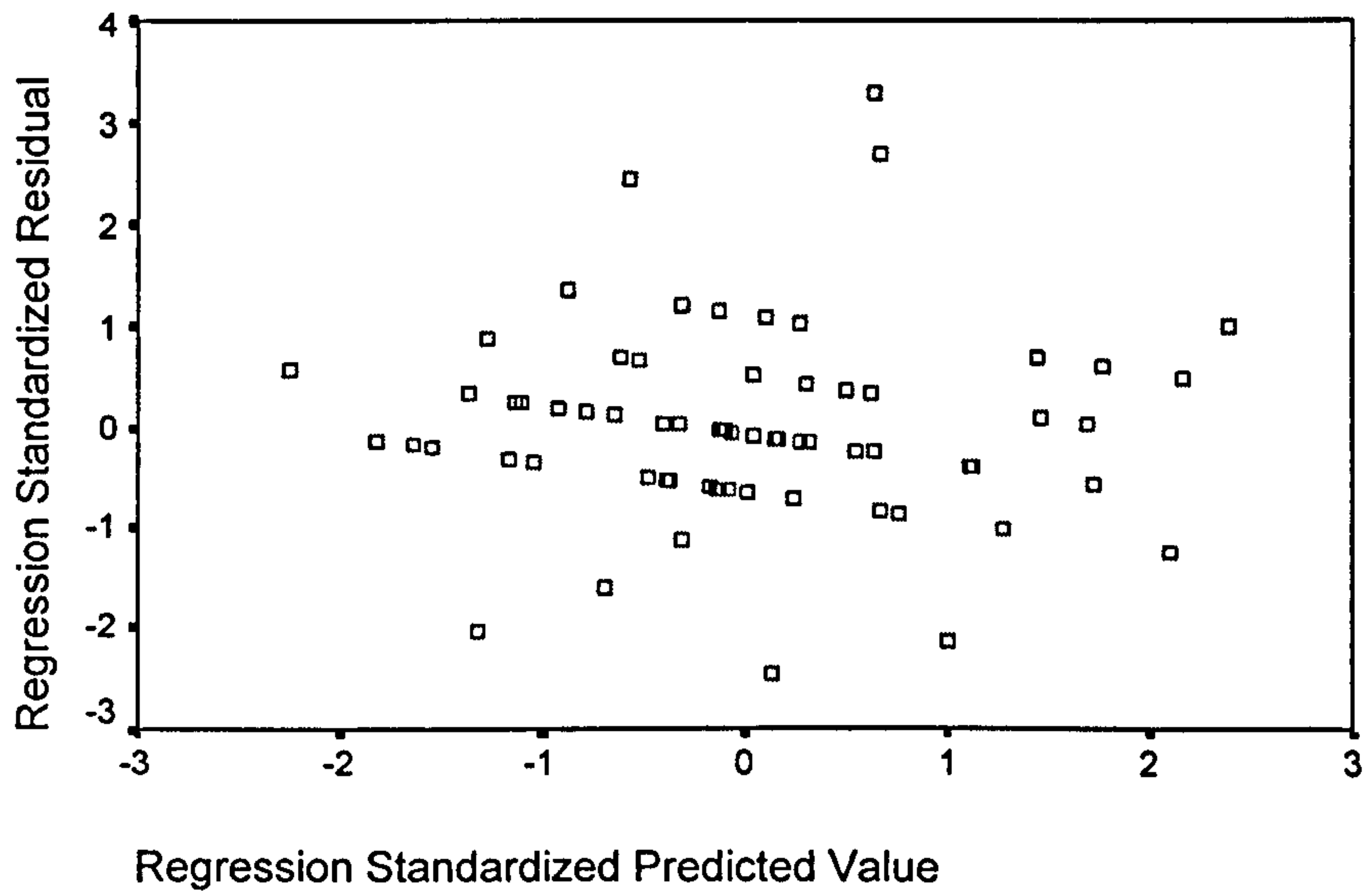
Dependent Variable: SINBPWC



Ruggedness (pure)

Scatterplot

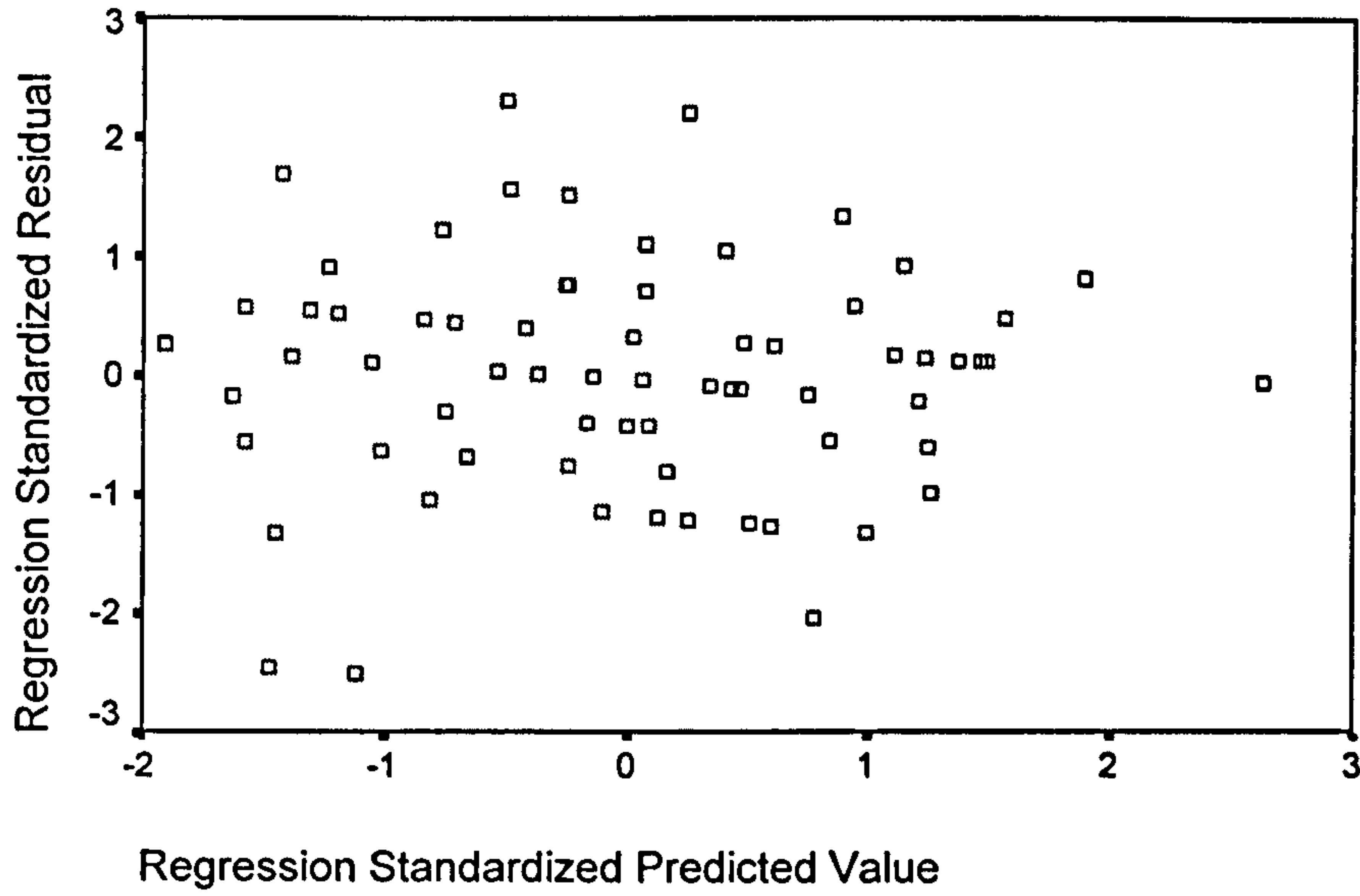
Dependent Variable: RUGBPWC



Sophistication (pure)

Scatterplot

Dependent Variable: SOPHBPWC

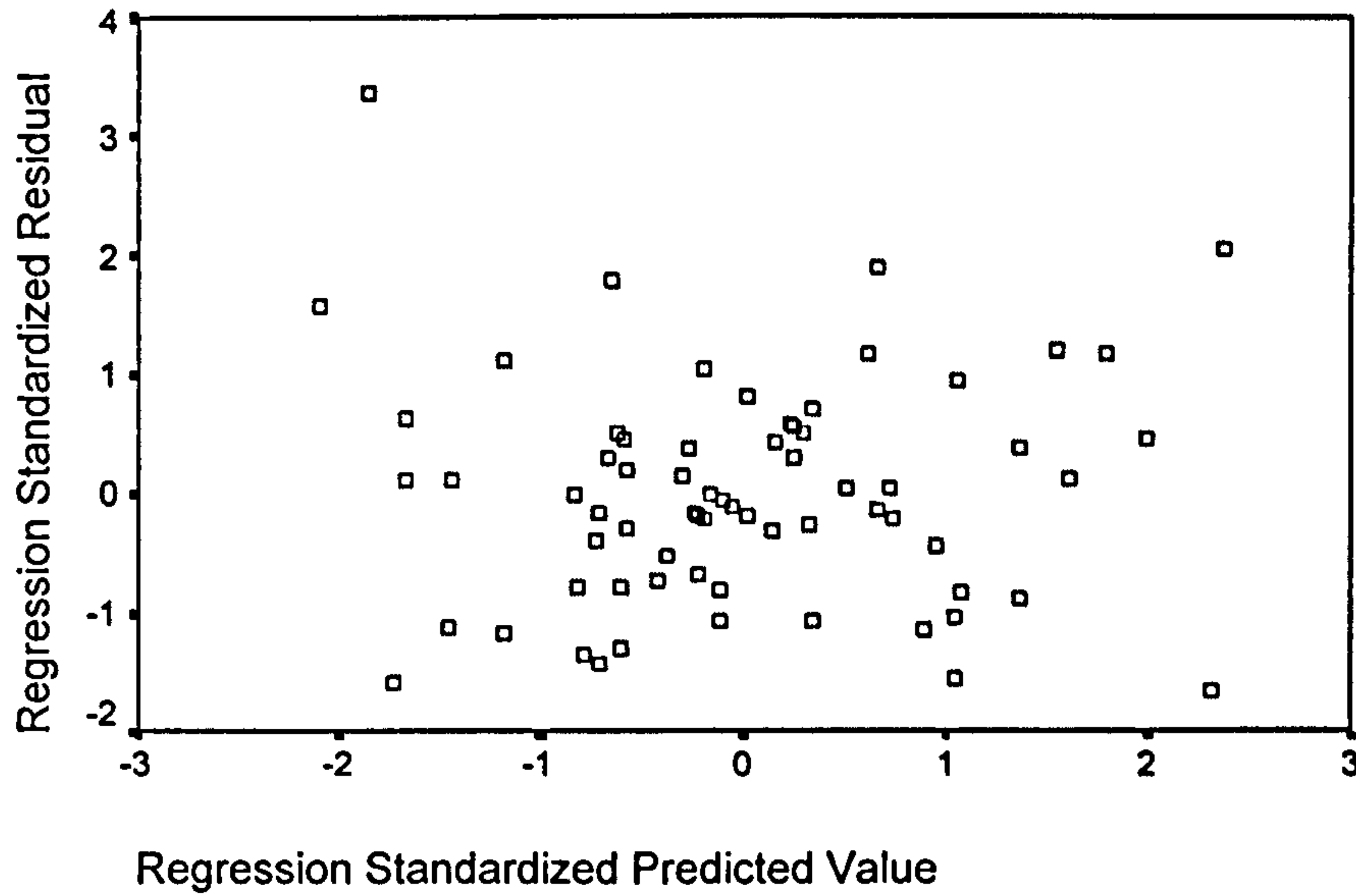


DEPENDENT VARIABLE – BP DIMENSIONS (after)

Excitement (after)

Scatterplot

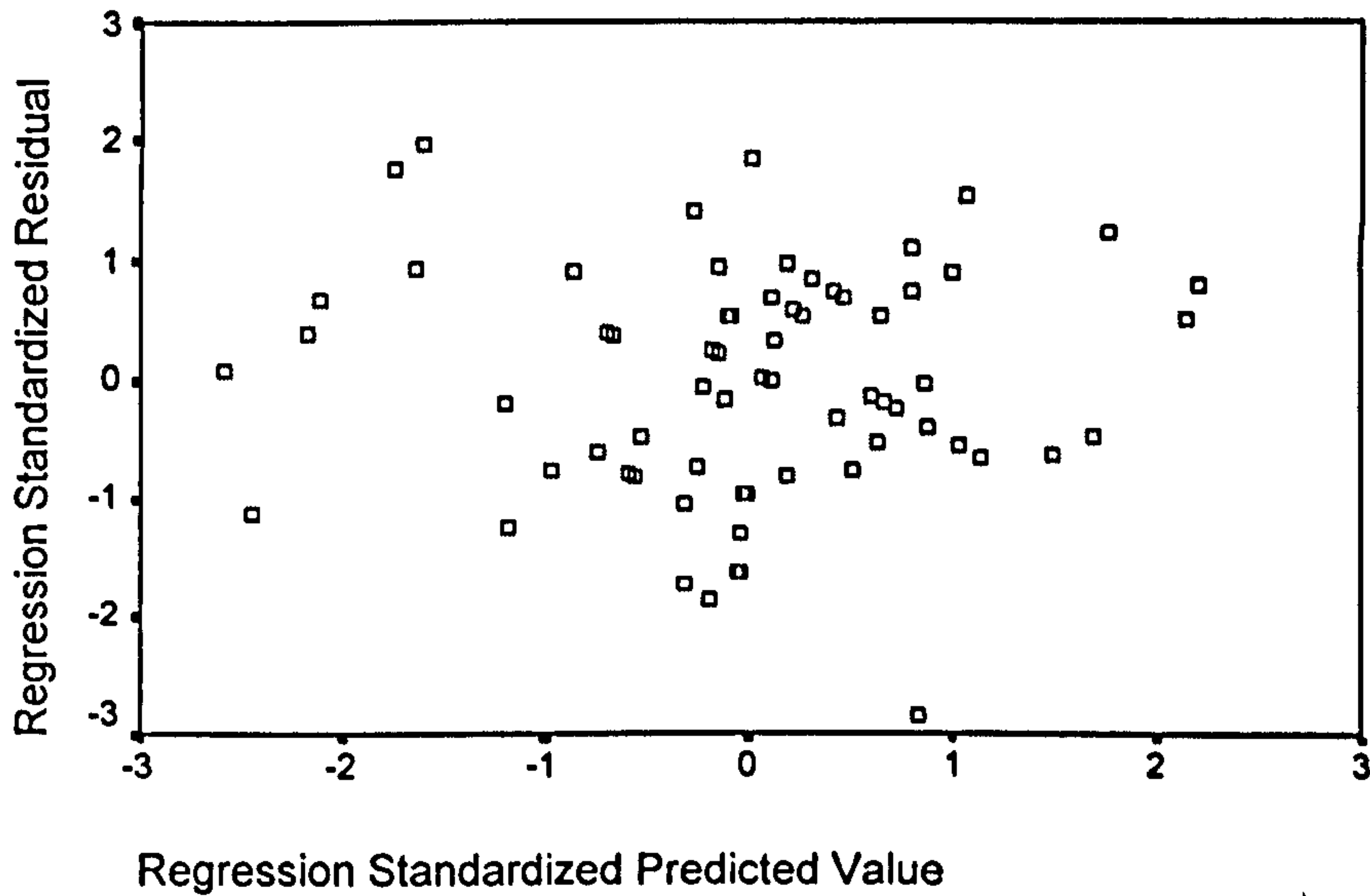
Dependent Variable: EXCITEM2



Competence (after)

Scatterplot

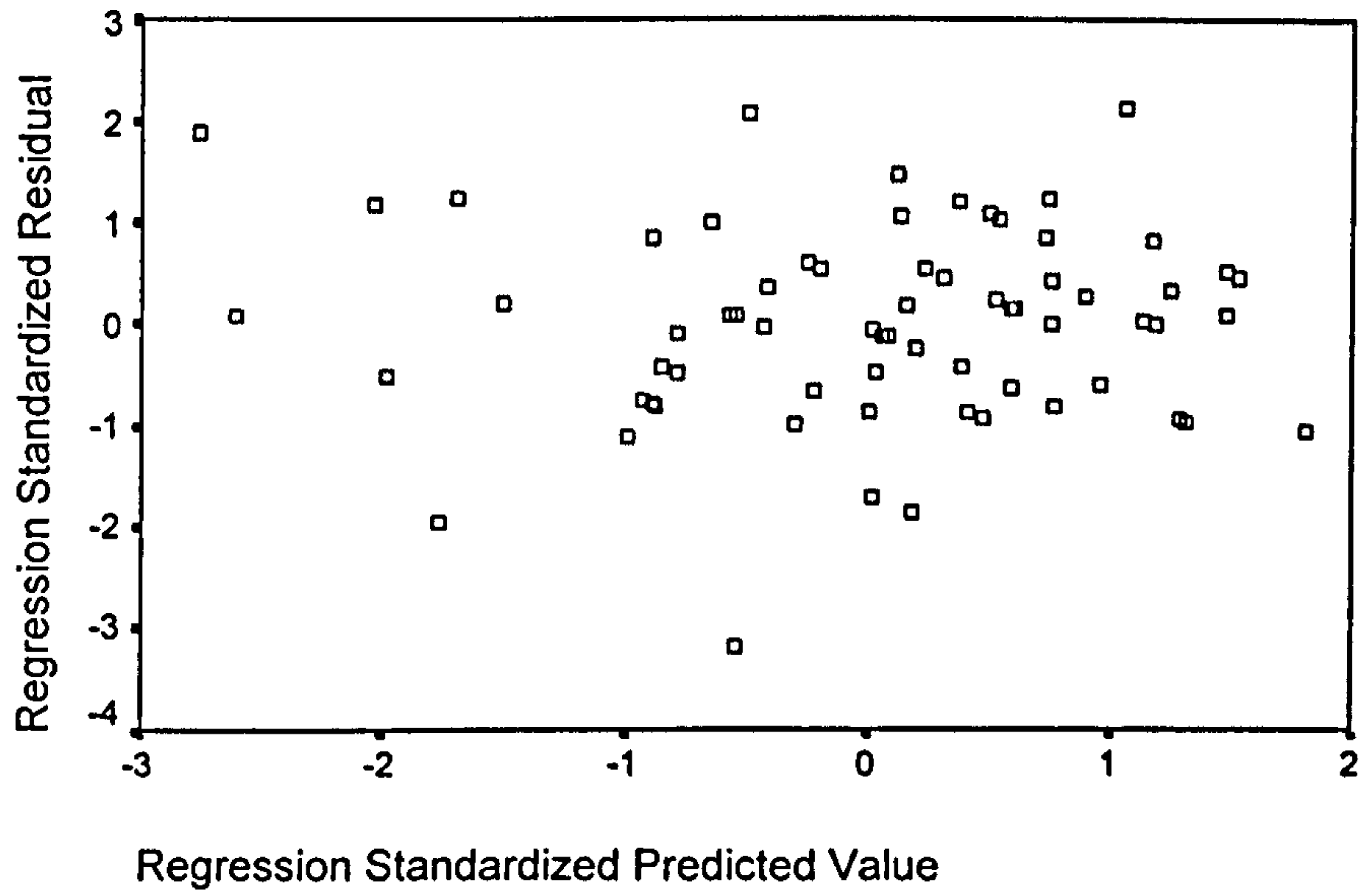
Dependent Variable: COMPETE2



Sincerity (after)

Scatterplot

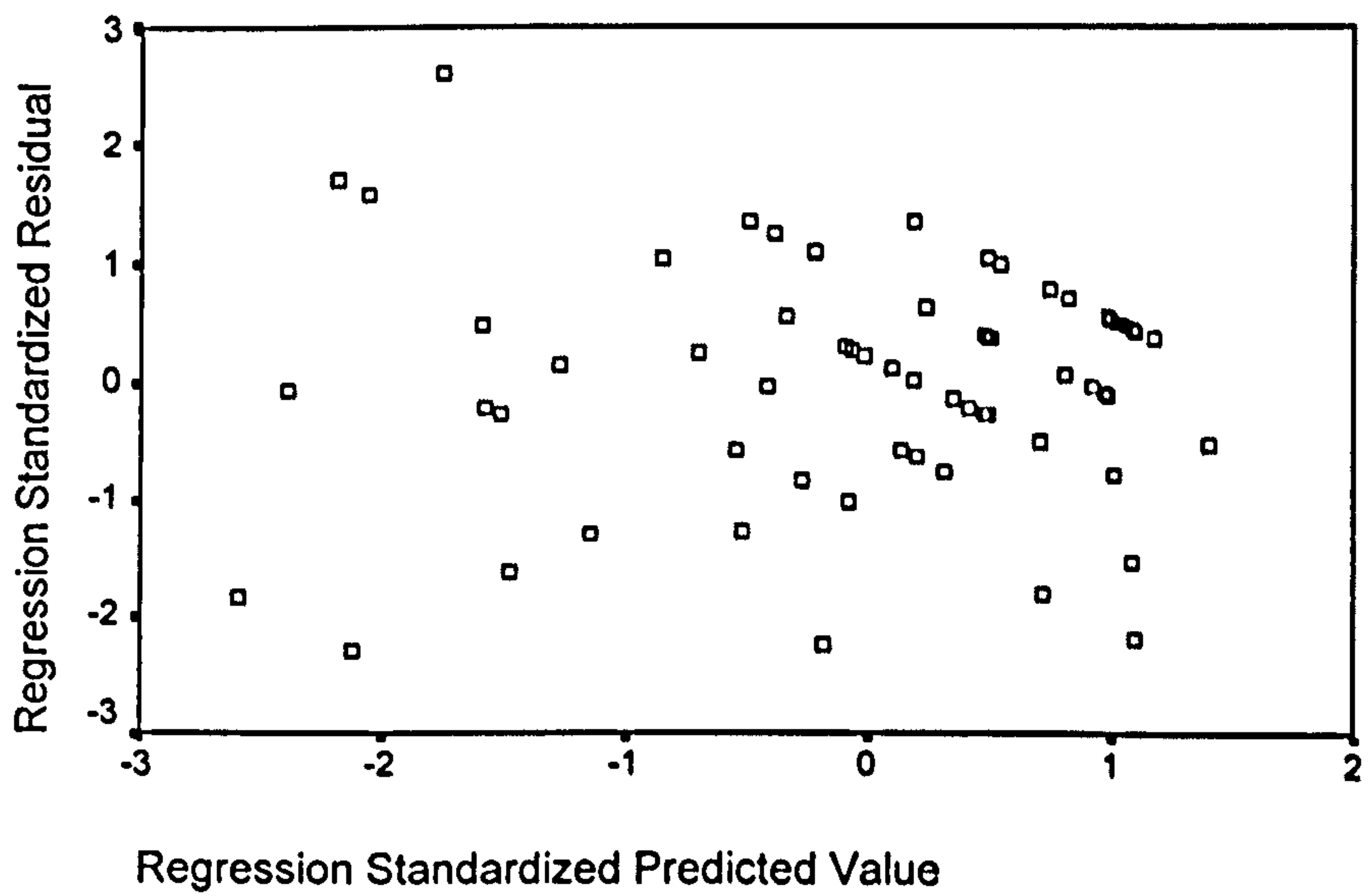
Dependent Variable: SINCER12



Ruggedness (after)

Scatterplot

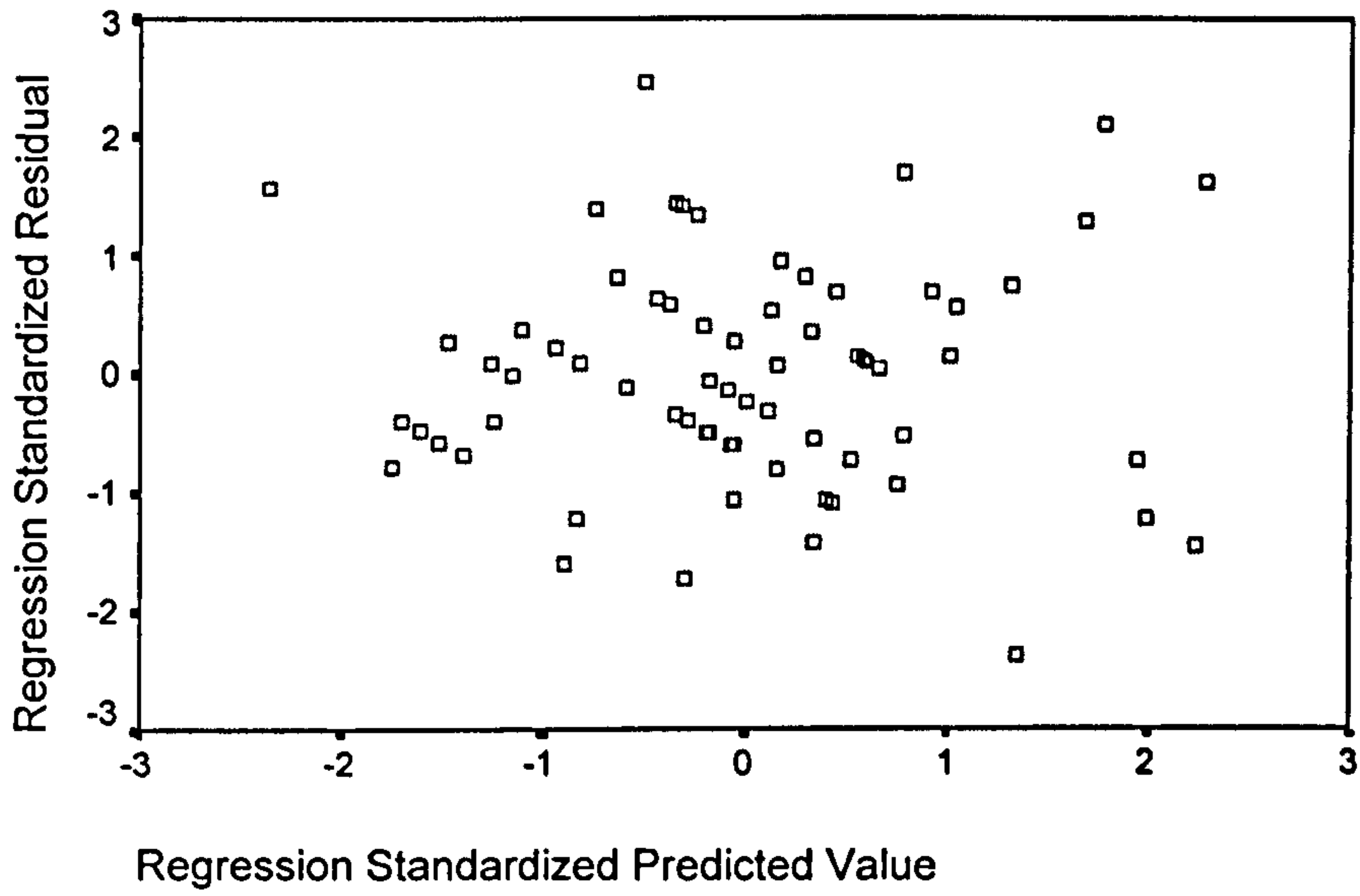
Dependent Variable: RUGGEDN2



Sophistication (after)

Scatterplot

Dependent Variable: SOPHIST2

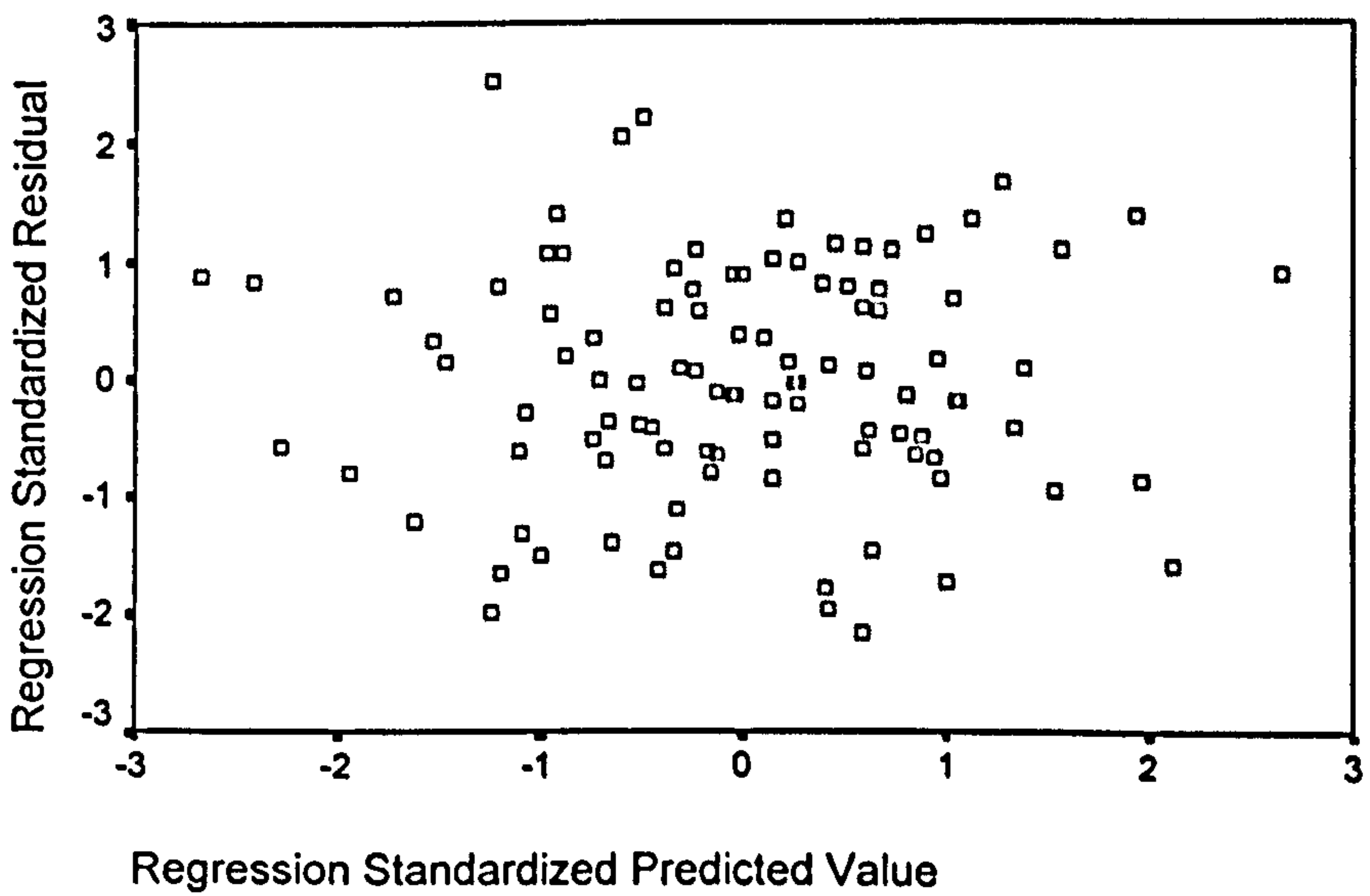


DEPENDENT VARIABLE – BP DIMENSIONS (before)

Excitement (before)

Scatterplot

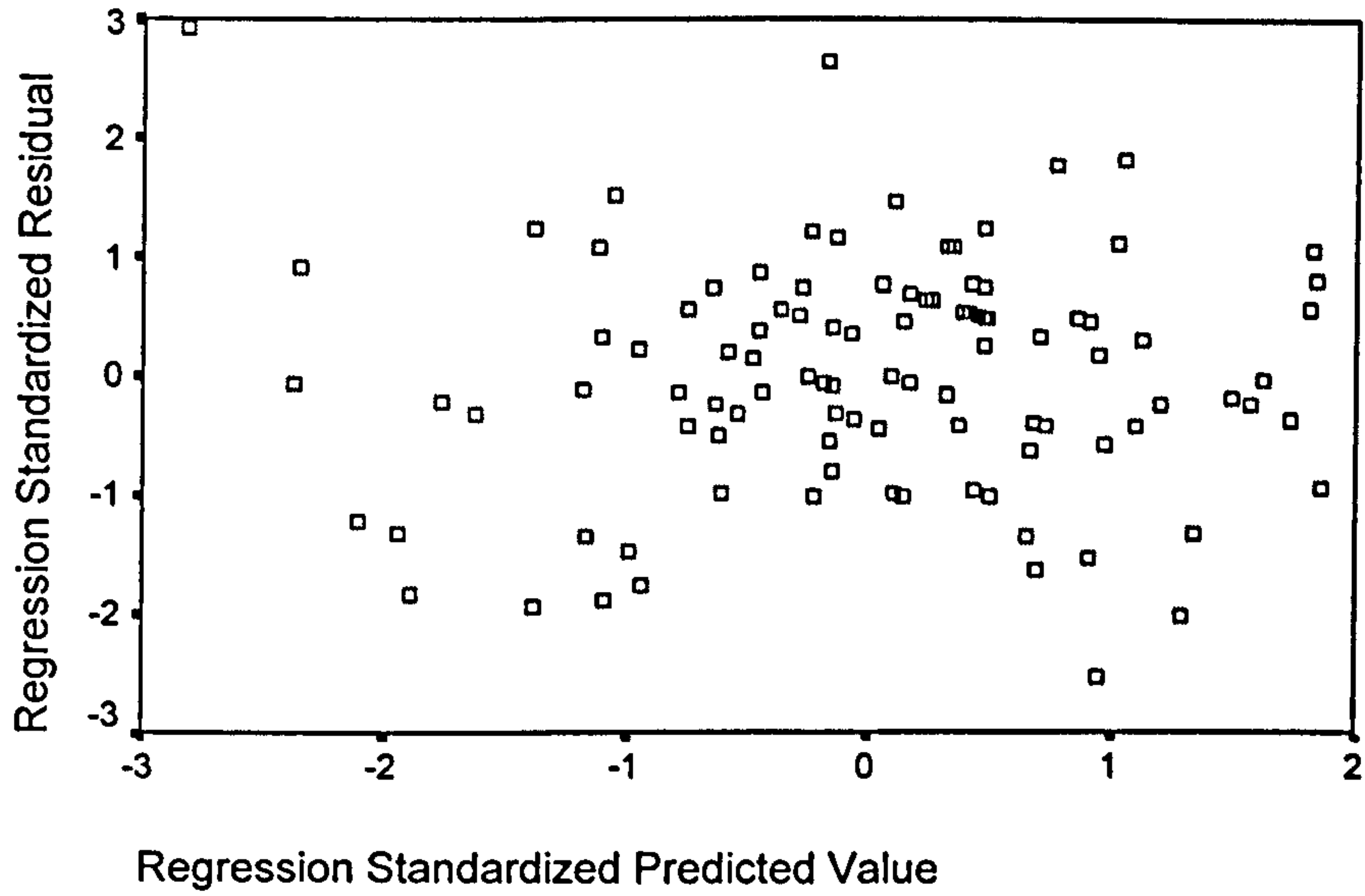
Dependent Variable: EXCITEME



Competence (before)

Scatterplot

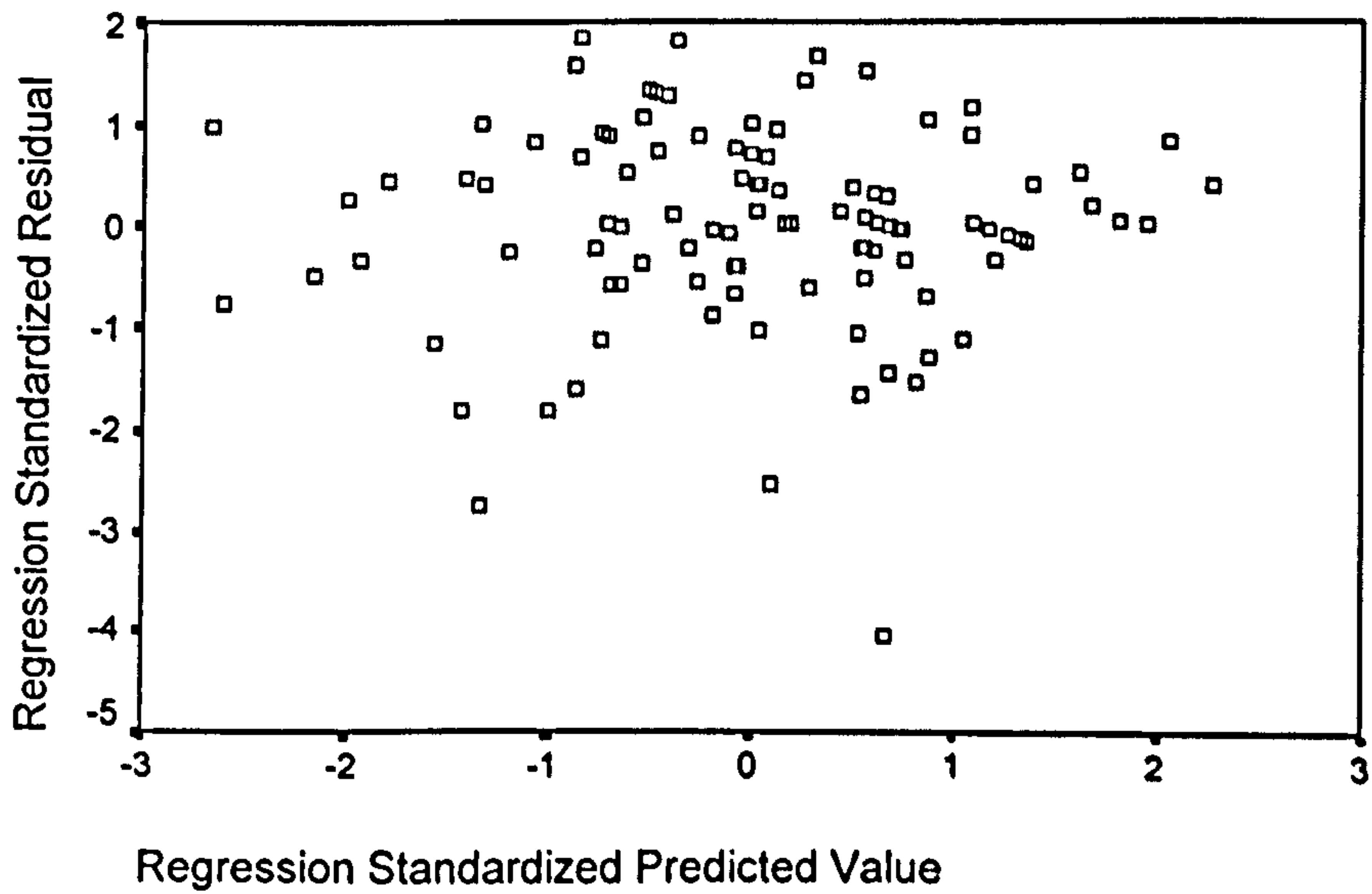
Dependent Variable: COMPETEN



Sincerity (before)

Scatterplot

Dependent Variable: SINCERIT

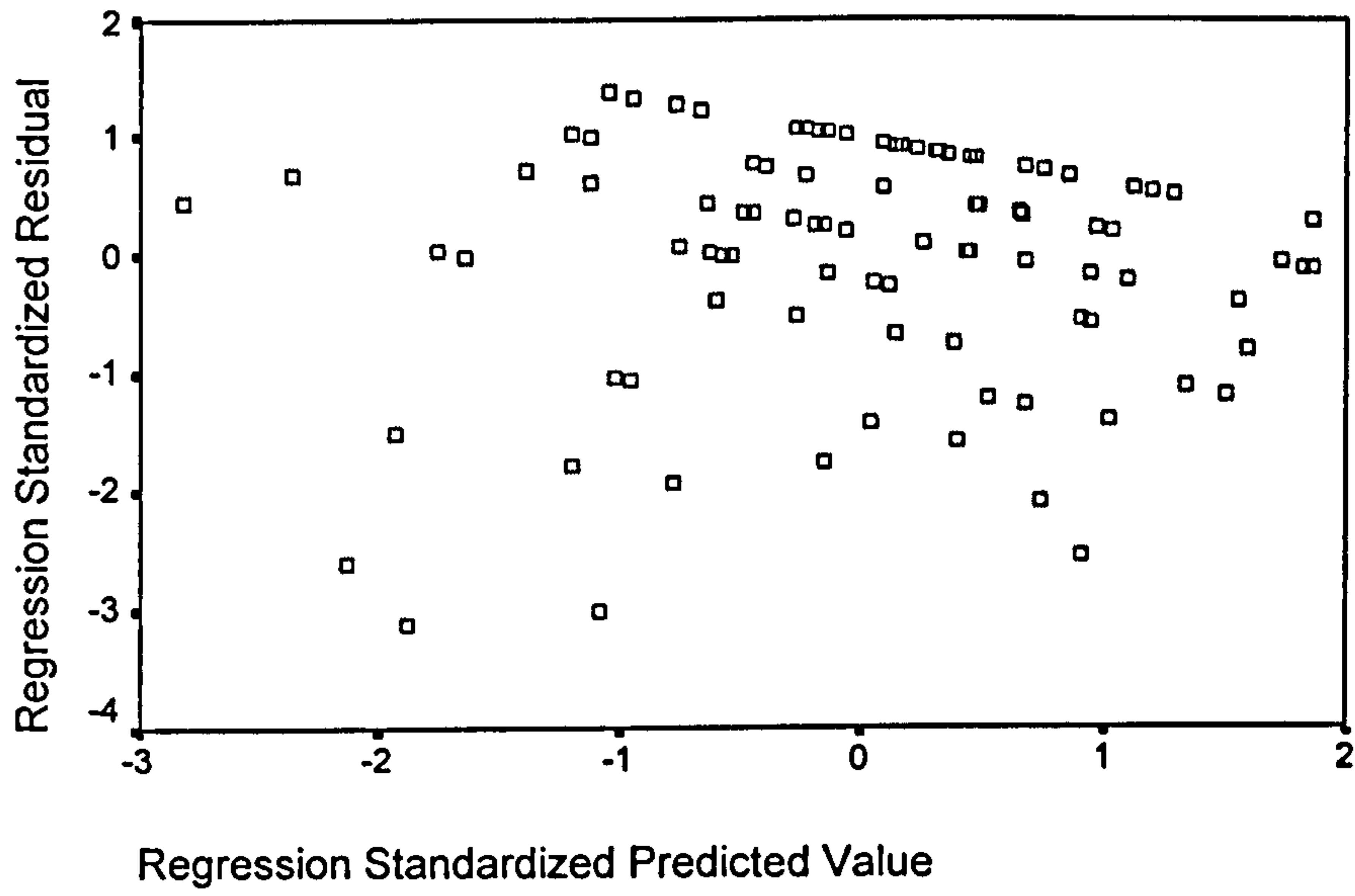




Ruggedness (before)

Scatterplot

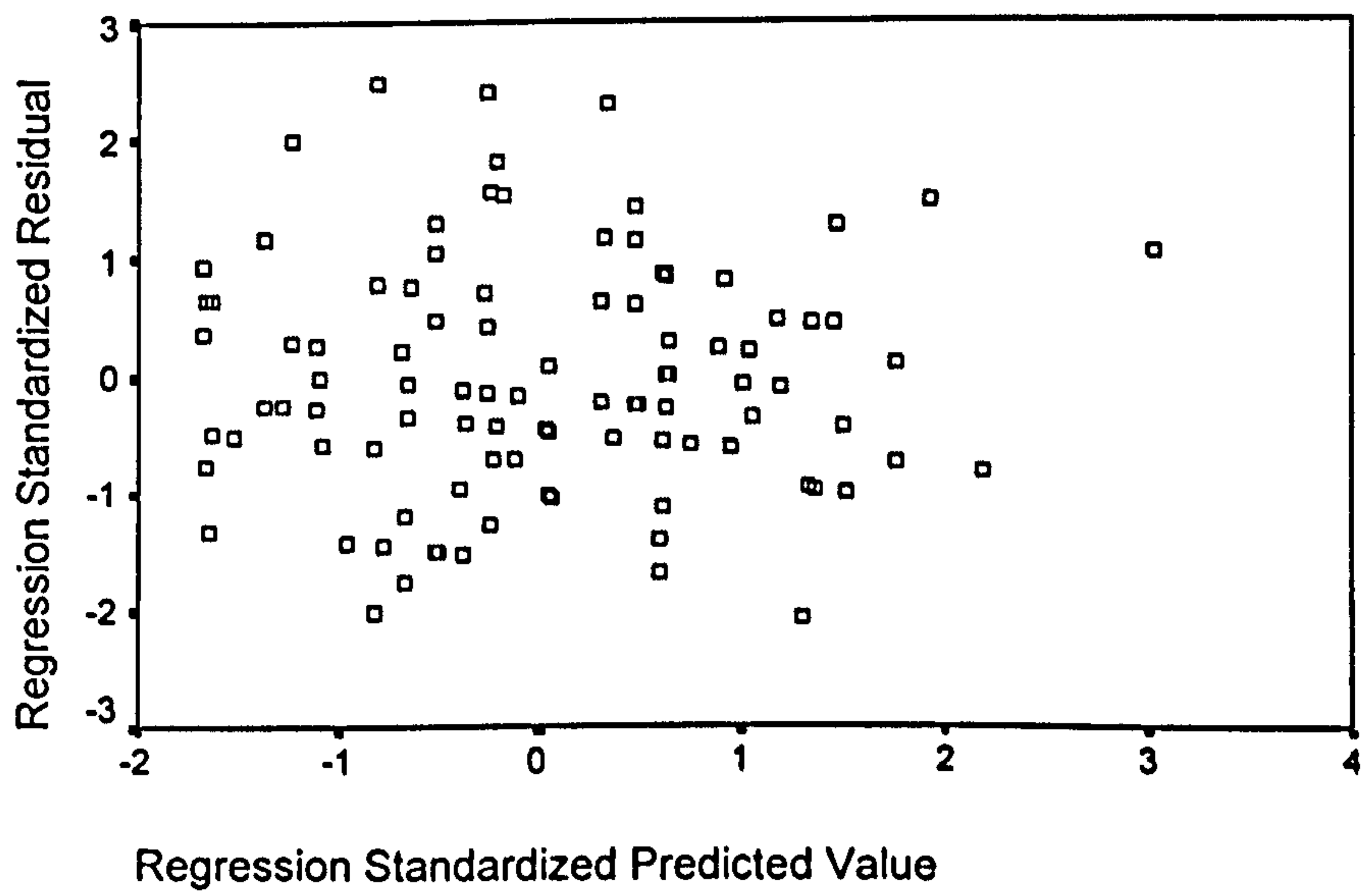
Dependent Variable: RUGGEDNE



Sophistication (before)

Scatterplot

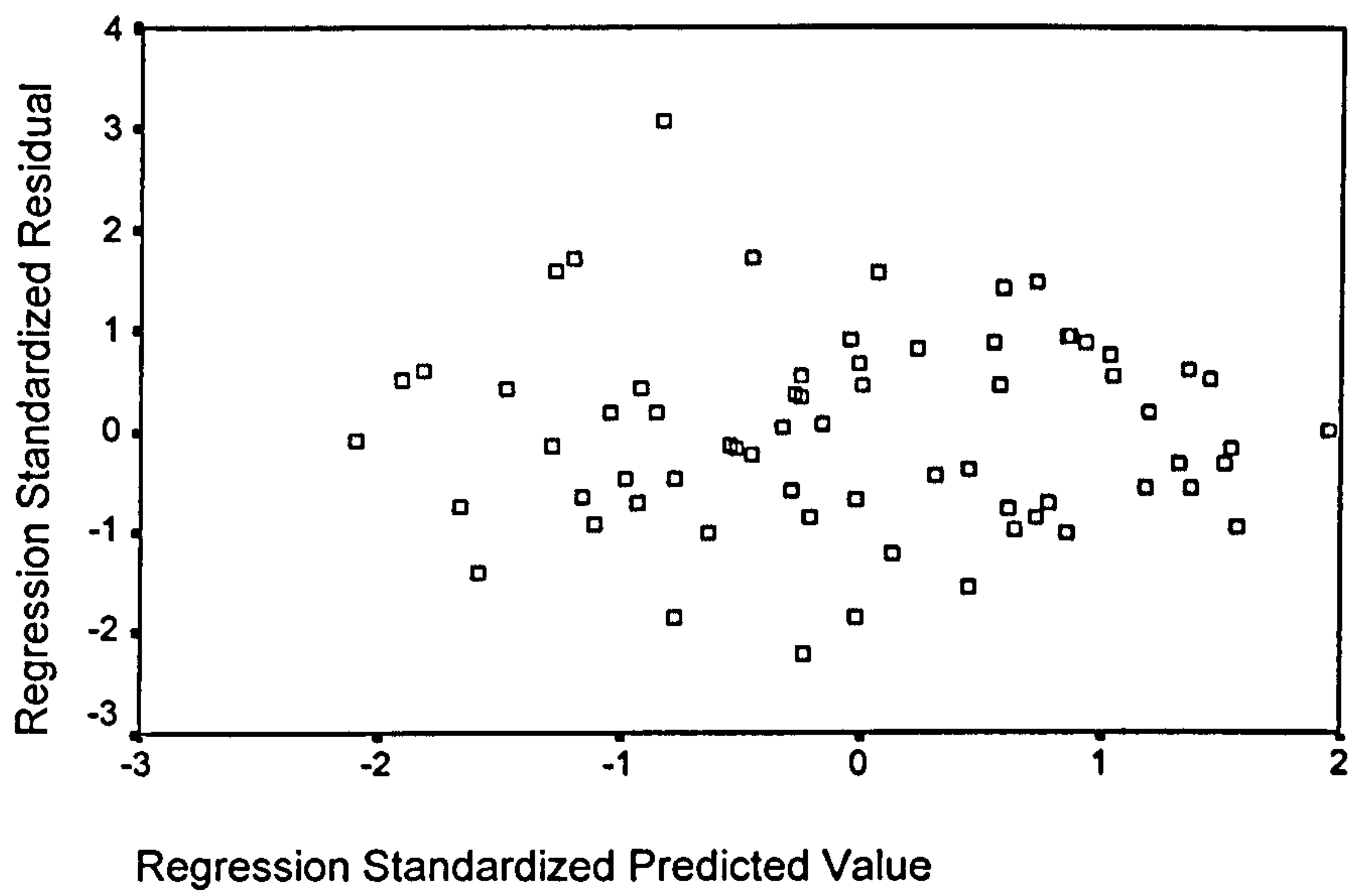
Dependent Variable: SOPHISTI



DEPENDENT VARIABLE – EXTENSION QUALITY

Scatterplot

Dependent Variable: QUALMNEX



## **APPENDIX 6.4**

### **COLLINEARITY DIAGNOSTICS**

DEPENDENT VARIABLE – BP DIMENSIONS (pure)

An Example of Collinearity Levels

Please note: collinearity levels are the same for each BP dimension (pure) as the same independent variables are used and therefore there is no need to report collinearity levels for each individual dimension.

Excitement (pure)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.525	1.903
Core Brand Quality	.795	1.259
Extension Quality	.465	2.150
Consumer knowledge	.918	1.090

**Collinearity Diagnostics**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	FITMEAN	QUALME AN	KNOWMN A	QUALMN EX
1	1	4.706	1.000	.00	.00	.00	.00	.00
	2	.159	5.442	.02	.51	.01	.08	.00
	3	9.211E-02	7.148	.03	.02	.04	.86	.03
	4	2.536E-02	13.623	.27	.43	.02	.06	.87
	5	1.720E-02	16.542	.69	.03	.92	.01	.09

a. Dependent Variable: EXBPWC

DEPENDENT VARIABLE – BP DIMENSIONS (after)

Collinearity Levels

Excitement (after)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.519	1.925
Core Brand Quality	.785	1.274
Extension Quality	.463	2.159
Consumer knowledge	.914	1.094
Excitement (before)	.928	1.078

**Collinearity Diagnostcs**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	FITMEAN	QUALME AN	KNOWMN A	QUALMN EX	EXCITEME
1	1	5.645	1.000	.00	.00	.00	.00	.00	.00
	2	.166	5.826	.01	.51	.01	.02	.00	.02
	3	.104	7.358	.00	.00	.01	.85	.01	.07
	4	4.464E-02	11.246	.00	.07	.12	.04	.17	.66
	5	2.333E-02	15.556	.15	.42	.19	.06	.78	.12
	6	1.602E-02	18.773	.82	.00	.67	.02	.03	.12

a. Dependent Variable: EXCITEM2

Competence (after)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.524	1.907
Core Brand Quality	.582	1.718
Extension Quality	.464	2.153
Consumer knowledge	.910	1.099
Competence (before)	.666	1.501

**Collinearity Diagnostcs**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	FITMEAN	QUALME AN	KNOWMN A	QUALMN EX	COMPET EN
1	1	5.670	1.000	.00	.00	.00	.00	.00	.00
	2	.171	5.758	.01	.50	.01	.02	.00	.01
	3	.102	7.467	.00	.00	.01	.90	.02	.01
	4	2.811E-02	14.203	.05	.45	.00	.02	.86	.07
	5	1.727E-02	18.121	.59	.02	.58	.01	.06	.01
	6	1.166E-02	22.052	.34	.03	.40	.05	.06	.90

a. Dependent Variable: COMPETE2

Sincerity (after)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.519	1.926
Core Brand Quality	.671	1.490
Extension Quality	.457	2.187
Consumer knowledge	.885	1.130
Sincerity (before)	.728	1.374

**Collinearity Diagnostics**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	FITMEAN	QUALME AN	KNOWMN A	QUALMN EX	SINCERIT
1	1	5.658	1.000	.00	.00	.00	.00	.00	.00
	2	.175	5.683	.01	.48	.01	.02	.01	.02
	3	9.651E-02	7.657	.01	.00	.02	.91	.02	.02
	4	2.875E-02	14.029	.04	.27	.01	.03	.37	.72
	5	2.463E-02	15.157	.47	.22	.03	.03	.52	.18
	6	1.675E-02	18.379	.47	.02	.93	.01	.08	.07

a. Dependent Variable: SINCER12

Ruggedness (after)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.522	1.917
Core Brand Quality	.747	1.338
Extension Quality	.453	2.208
Consumer knowledge	.895	1.118
Ruggedness (before)	.858	1.165

**Collinearity Diagnostics**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	FITMEAN	QUALME AN	KNOWMN A	QUALMN EX	RUGGED NE
1	1	5.668	1.000	.00	.00	.00	.00	.00	.00
	2	.174	5.714	.01	.49	.01	.01	.00	.01
	3	.102	7.441	.00	.00	.01	.89	.02	.01
	4	2.856E-02	14.088	.07	.41	.04	.01	.69	.07
	5	1.944E-02	17.075	.03	.10	.94	.01	.28	.06
	6	8.037E-03	26.556	.89	.00	.00	.07	.01	.85

a. Dependent Variable: RUGGEDN2

Sophistication (after)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Fit	.525	1.903
Core Brand Quality	.782	1.279
Extension Quality	.451	2.219
Consumer knowledge	.916	1.091
Sophistication (before)	.941	1.063

**Collinearity Diagnostiçs**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	FITMEAN	QUALMEAN	KNOWMN A	QUALMN EX	SOPHISTI
1	1	5.633	1.000	.00	.00	.00	.00	.00	.00
	2	.168	5.783	.01	.51	.01	.02	.00	.03
	3	.101	7.460	.01	.00	.01	.88	.01	.10
	4	5.856E-02	9.807	.01	.04	.14	.04	.05	.63
	5	2.501E-02	15.006	.16	.44	.08	.05	.85	.01
	6	1.423E-02	19.893	.82	.01	.77	.01	.08	.23

a. Dependent Variable: SOPHIST2

DEPENDENT VARIABLE – BP DIMENSIONS (before)

An Example of Collinearity Levels

Please note: collinearity levels are the same for each BP dimension (before) as the same independent variables are used and therefore there is no need to report collinearity levels for each individual dimension.

Excitement (before)

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Core Brand Quality	.997	
Consumer knowledge	.997	1.003

**Collinearity Diagnostics<sup>a</sup>**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	QUALME AN	KNOWMN A
1	1	2.890	1.000	.00	.01	.01
	2	8.916E-02	5.693	.03	.12	.90
	3	2.092E-02	11.754	.96	.87	.08

a. Dependent Variable: EXCITEME



DEPENDENT VARIABLE – EXTENSION QUALITY

Extension quality

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Core Brand Quality	.650	1.537
Fit	.899	1.113
Consumer knowledge	.911	1.098
Competence (before)	.667	1.499

**Collinearity Diagnostiĉs**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	QUALME AN	FITMEAN	KNOWMN A	COMPET EN
1	1	4.706	1.000	.00	.00	.01	.00	.00
	2	.167	5.305	.01	.01	.96	.01	.01
	3	9.711E-02	6.961	.01	.02	.03	.93	.02
	4	1.773E-02	16.293	.61	.66	.00	.01	.00
	5	1.204E-02	19.772	.37	.32	.00	.05	.97

a. Dependent Variable: QUALMNEX

## **APPENDIX 6.5**

### **ASSUMPTION TESTING**

#### **FACTORABILITY**

BP DIMENSION SINCERITY (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.737
Bartlett's Test of Sphericity	Approx. Chi-Square	276.492
	df	55
	Sig.	.000

BP DIMENSION SINCERITY (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.736
Bartlett's Test of Sphericity	Approx. Chi-Square	291.174
	df	55
	Sig.	.000

BP DIMENSION EXCITEMENT (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.788
Bartlett's Test of Sphericity	Approx. Chi-Square	373.182
	df	55
	Sig.	.000

BP DIMENSION EXCITEMENT (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.811
Bartlett's Test of Sphericity	Approx. Chi-Square	393.242
	df	55
	Sig.	.000

BP DIMENSION COMPETENCE (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.797
Bartlett's Test of Sphericity	Approx. Chi-Square	237.636
	df	36
	Sig.	.000

BP DIMENSION COMPETENCE (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742
Bartlett's Test of Sphericity	Approx. Chi-Square	225.710
	df	36
	Sig.	.000

BP DIMENSION SOPHISTICATION (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.743
Bartlett's Test of Sphericity	Approx. Chi-Square	164.901
	df	15
	Sig.	.000

BP DIMENSION SOPHISTICATION (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.765
Bartlett's Test of Sphericity	Approx. Chi-Square	113.601
	df	15
	Sig.	.000

BP DIMENSION RUGGEDNESS (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.716
Bartlett's Test of Sphericity	Approx. Chi-Square	176.831
	df	6
	Sig.	.000

BP DIMENSION RUGGEDNESS (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	133.305
	df	6
	Sig.	.000

BP DIMENSIONS COMBINED (Before)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.661
Bartlett's Test of Sphericity	Approx. Chi-Square	168.916
	df	10
	Sig.	.000

BP DIMENSIONS COMBINED (After)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.616
Bartlett's Test of Sphericity	Approx. Chi-Square	161.120
	df	10
	Sig.	.000

## QUALITY OF CORE BRAND

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	367.504
	df	28
	Sig.	.000

## QUALITY OF EXTENSION

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	327.216
	df	28
	Sig.	.000

## EXTENSION FIT

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.779
Bartlett's Test of Sphericity	Approx. Chi-Square	338.579
	df	10
	Sig.	.000

CONSUMER KNOWLEDGE (A)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.844
Bartlett's Test of Sphericity	Approx. Chi-Square	362.520
	df	10
	Sig.	.000

CONSUMER KNOWLEDGE (B)

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	327.420
	df	28
	Sig.	.000

# **APPENDIX 7.1**

## **ANOVA RESULTS**

### **BRAND PERSONALITY EVALUATIONS**



EFFECTS OF FIT UPON BP (pure) EVALUATIONS - EXCITEMENT

Tests of Between-Subjects Effects

Dependent Variable: EXBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	.142 <sup>b</sup>	1	.142	.577	.450	.577	.116
Intercept	2.040	1	2.040	8.274	.005	8.274	.809
TYPEOFEX	.142	1	.142	.577	.450	.577	.116
Error	16.276	66	.247				
Total	18.459	68					
Corrected Total	16.418	67					

a. Computed using alpha = .05

b. R Squared = .009 (Adjusted R Squared = -.006)

EFFECTS OF FIT UPON BP (pure) EVALUATIONS – COMPETENCE

Tests of Between-Subjects Effects

Dependent Variable: COMBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	.471E-02 <sup>b</sup>	1	.471E-02	.058	.810	.058	.056
Intercept	.298	1	.298	1.176	.282	1.176	.183
TYPEOFEX	.471E-02	1	.471E-02	.058	.810	.058	.056
Error	16.700	66	.253				
Total	17.013	68					
Corrected Total	16.715	67					

a. Computed using alpha = .05

b. R Squared = .001 (Adjusted R Squared = -.014)

EFFECTS OF FIT UPON BP (pure) EVALUATIONS – SINCERITY

Tests of Between-Subjects Effects

Dependent Variable: SINBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	.212 <sup>b</sup>	1	.212	.820	.369	.820	.145
Intercept	.220	1	.220	.850	.360	.850	.149
TYPEOFEX	.212	1	.212	.820	.369	.820	.145
Error	17.095	66	.259				
Total	17.528	68					
Corrected Total	17.308	67					

a. Computed using alpha = .05

b. R Squared = .012 (Adjusted R Squared = -.003)

## EFFECTS OF FIT UPON BP (pure) EVALUATIONS – RUGGEDNES

### Tests of Between-Subjects Effects

Dependent Variable: RUGBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	.298 <sup>b</sup>	1	.298	1.619	.208	1.619	.241
Intercept	.941	1	.941	5.112	.027	5.112	.606
TYPEOFEX	.298	1	.298	1.619	.208	1.619	.241
Error	12.143	66	.184				
Total	13.382	68					
Corrected Total	12.441	67					

a. Computed using alpha = .05

b. R Squared = .024 (Adjusted R Squared = .009)

## EFFECTS OF FIT UPON BP (pure) EVALUATIONS – SOPHISTICATION

### Tests of Between-Subjects Effects

Dependent Variable: SOPHBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	.311 <sup>b</sup>	1	.311	1.155	.286	1.155	.185
Intercept	.212	1	.212	.788	.378	.788	.141
TYPEOFEX	.311	1	.311	1.155	.286	1.155	.185
Error	17.780	66	.269				
Total	18.304	68					
Corrected Total	18.091	67					

a. Computed using alpha = .05

b. R Squared = .017 (Adjusted R Squared = .002)

**APPENDIX 7.2**

**ANOVA RESULTS**

**EXTENSION EVALUATIONS**

# EFFECTS OF FIT UPON EXTENSION EVALUATIONS

## Tests of Between-Subjects Effects

Dependent Variable: QUALMNX

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	33.882 <sup>b</sup>	1	33.882	34.547	.000	34.547	1.000
Intercept	1239.609	1	1239.609	1263.923	.000	1263.923	1.000
TYPEOFEX	33.882	1	33.882	34.547	.000	34.547	1.000
Error	64.730	66	.981				
Total	1338.222	68					
Corrected Total	98.613	67					

a. Computed using alpha = .05

b. R Squared = .344 (Adjusted R Squared = .334)

## APPENDIX 7.3

### INITIAL ANCOVA RESULTS

ANCOVA ANALYSIS - BP (pure) EVALUATIONS - EXCITEMENT

Tests of Between-Subjects Effects

Dependent Variable: EXBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	1.929 <sup>b</sup>	6	.321	1.353	.248	8.120	.490
Intercept	.289	1	.289	1.219	.274	1.219	.192
QUALMEAN	1.613	1	1.613	6.789	.012	6.789	.727
QUALMNEX	2.564E-02	1	2.564E-02	.108	.744	.108	.062
KNOWMNA	2.247E-02	1	2.247E-02	.095	.759	.095	.061
AGE	6.604E-02	1	6.604E-02	.278	.600	.278	.081
HIGHQUAL	1.814E-05	1	1.814E-05	.000	.993	.000	.050
TYPEOFEX	.385	1	.385	1.623	.208	1.623	.241
Error	14.490	61	.238				
Total	18.459	68					
Corrected Total	16.418	67					

a. Computed using alpha = .05

b. R Squared = .117 (Adjusted R Squared = .031)

ANCOVA ANALYSIS - BP (pure) EVALUATIONS - COMPETENCE

Tests of Between-Subjects Effects

Dependent Variable: COMBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	3.551 <sup>b</sup>	6	.592	2.742	.020	16.452	.839
Intercept	7.322E-02	1	7.322E-02	.339	.562	.339	.088
QUALMEAN	2.576	1	2.576	11.938	.001	11.938	.925
QUALMNEX	1.024	1	1.024	4.745	.033	4.745	.573
KNOWMNA	.121	1	.121	.559	.458	.559	.114
AGE	.350	1	.350	1.624	.207	1.624	.241
HIGHQUAL	6.466E-02	1	6.466E-02	.300	.586	.300	.084
TYPEOFEX	8.647E-04	1	8.647E-04	.004	.950	.004	.050
Error	13.164	61	.216				
Total	17.013	68					
Corrected Total	16.715	67					

a. Computed using alpha = .05

b. R Squared = .212 (Adjusted R Squared = .135)

ANCOVA ANALYSIS - BP (pure) EVALUATIONS – SINCERITY

Tests of Between-Subjects Effects

Dependent Variable: SINBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	2.422 <sup>b</sup>	6	.404	1.654	.148	9.925	.588
Intercept	2.101	1	2.101	8.609	.005	8.609	.823
QUALMEAN	.641	1	.641	2.625	.110	2.625	.358
QUALMNEX	1.666E-02	1	1.666E-02	.068	.795	.068	.058
KNOWMNA	.338	1	.338	1.385	.244	1.385	.212
AGE	.271	1	.271	1.112	.296	1.112	.180
HIGHQUAL	.883	1	.883	3.617	.062	3.617	.465
TYPEOFEX	1.224E-04	1	1.224E-04	.001	.982	.001	.050
Error	14.886	61	.244				
Total	17.528	68					
Corrected Total	17.308	67					

a. Computed using alpha = .05

b. R Squared = .140 (Adjusted R Squared = .055)

ANCOVA ANALYSIS - BP (pure) EVALUATIONS – RUGGEDNESS

Tests of Between-Subjects Effects

Dependent Variable: RUGBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	1.112 <sup>b</sup>	6	.185	.997	.435	5.985	.364
Intercept	6.907E-02	1	6.907E-02	.372	.544	.372	.092
QUALMEAN	.666	1	.666	3.586	.063	3.586	.462
QUALMNEX	6.748E-03	1	6.748E-03	.036	.849	.036	.054
KNOWMNA	2.373E-02	1	2.373E-02	.128	.722	.128	.064
AGE	7.665E-02	1	7.665E-02	.413	.523	.413	.097
HIGHQUAL	2.384E-03	1	2.384E-03	.013	.910	.013	.051
TYPEOFEX	4.437E-02	1	4.437E-02	.239	.627	.239	.077
Error	11.330	61	.186				
Total	13.382	68					
Corrected Total	12.441	67					

a. Computed using alpha = .05

b. R Squared = .089 (Adjusted R Squared = .000)

**ANCOVA ANALYSIS - BP (pure) EVALUATIONS – SOPHISTICATION**

**Tests of Between-Subjects Effects**

Dependent Variable: SOPHBPWC

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	1.174 <sup>b</sup>	6	.196	.705	.646	4.232	.259
Intercept	.114	1	.114	.410	.524	.410	.097
QUALMEAN	2.185E-03	1	2.185E-03	.008	.930	.008	.051
QUALMNEX	1.960E-02	1	1.960E-02	.071	.791	.071	.058
KNOWMNA	.223	1	.223	.803	.374	.803	.143
AGE	6.877E-02	1	6.877E-02	.248	.620	.248	.078
HIGHQUAL	.473	1	.473	1.707	.196	1.707	.251
TYPEOFEX	.137	1	.137	.495	.485	.495	.106
Error	16.918	61	.277				
Total	18.304	68					
Corrected Total	18.091	67					

a. Computed using alpha = .05

b. R Squared = .065 (Adjusted R Squared = -.027)

**ANCOVA ANALYSIS - BP (after) EVALUATIONS – EXCITEMENT**

**Tests of Between-Subjects Effects**

Dependent Variable: EXCITEM2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	15.418 <sup>b</sup>	7	2.203	11.206	.000	78.440	1.000
Intercept	1.098	1	1.098	5.588	.021	5.588	.643
QUALMEAN	1.230	1	1.230	6.255	.015	6.255	.692
QUALMNEX	.162	1	.162	.827	.367	.827	.146
KNOWMNA	2.625E-03	1	2.625E-03	.013	.908	.013	.051
EXCITEME	12.331	1	12.331	62.736	.000	62.736	1.000
AGE	3.512E-02	1	3.512E-02	.179	.674	.179	.070
HIGHQUAL	5.636E-02	1	5.636E-02	.287	.594	.287	.082
TYPEOFEX	.398	1	.398	2.027	.160	2.027	.288
Error	11.793	60	.197				
Total	539.630	68					
Corrected Total	27.211	67					

a. Computed using alpha = .05

b. R Squared = .567 (Adjusted R Squared = .516)



## ANCOVA ANALYSIS - BP (after) EVALUATIONS – COMPETENCE

### Tests of Between-Subjects Effects

Dependent Variable: COMPETE2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	7.930 <sup>b</sup>	7	1.133	9.086	.000	63.604	1.000
Intercept	.733	1	.733	5.879	.018	5.879	.665
QUALMEAN	1.131E-02	1	1.131E-02	.091	.764	.091	.060
QUALMNEX	1.816	1	1.816	14.567	.000	14.567	.964
KNOWMNA	3.688E-02	1	3.688E-02	.296	.589	.296	.083
AGE	.123	1	.123	.991	.324	.991	.165
HIGHQUAL	1.649E-02	1	1.649E-02	.132	.717	.132	.065
COMPETEN	2.724	1	2.724	21.847	.000	21.847	.996
TYPEOFEX	.131	1	.131	1.050	.310	1.050	.172
Error	7.480	60	.125				
Total	894.531	68					
Corrected Total	15.410	67					

a. Computed using alpha = .05

b. R Squared = .515 (Adjusted R Squared = .458)

## ANCOVA ANALYSIS - BP (after) EVALUATIONS – SINCERITY

### Tests of Between-Subjects Effects

Dependent Variable: SINCER12

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	12.427 <sup>b</sup>	7	1.775	11.649	.000	81.543	1.000
Intercept	2.494	1	2.494	16.368	.000	16.368	.978
QUALMEAN	.109	1	.109	.718	.400	.718	.133
QUALMNEX	.111	1	.111	.730	.396	.730	.134
KNOWMNA	5.631E-03	1	5.631E-03	.037	.848	.037	.054
AGE	.453	1	.453	2.976	.090	2.976	.397
HIGHQUAL	.501	1	.501	3.288	.075	3.288	.430
SINCERIT	6.259	1	6.259	41.069	.000	41.069	1.000
TYPEOFEX	.363	1	.363	2.380	.128	2.380	.329
Error	9.144	60	.152				
Total	714.056	68					
Corrected Total	21.570	67					

a. Computed using alpha = .05

b. R Squared = .576 (Adjusted R Squared = .527)

ANCOVA ANALYSIS - BP (after) EVALUATIONS – RUGGEDNESS

**Tests of Between-Subjects Effects**

Dependent Variable: RUGGEDN2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	9.498 <sup>b</sup>	7	1.357	9.138	.000	63.964	1.000
Intercept	.909	1	.909	6.119	.016	6.119	.682
QUALMEAN	.175	1	.175	1.178	.282	1.178	.187
QUALMNEX	5.103E-02	1	5.103E-02	.344	.560	.344	.089
KNOWMNA	1.473E-02	1	1.473E-02	.099	.754	.099	.061
AGE	1.792E-03	1	1.792E-03	.012	.913	.012	.051
HIGHQUAL	3.682E-02	1	3.682E-02	.248	.620	.248	.078
RUGGEDNE	8.162	1	8.162	54.966	.000	54.966	1.000
TYPEOFEX	2.712E-02	1	2.712E-02	.183	.671	.183	.070
Error	8.909	60	.148				
Total	1348.563	68					
Corrected Total	18.407	67					

a. Computed using alpha = .05

b. R Squared = .516 (Adjusted R Squared = .460)

ANCOVA ANALYSIS - BP (after) EVALUATIONS – SOPHISTICATION

**Tests of Between-Subjects Effects**

Dependent Variable: SOPHIST2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	12.720 <sup>b</sup>	7	1.817	9.056	.000	63.390	1.000
Intercept	.703	1	.703	3.503	.066	3.503	.453
QUALMEAN	.107	1	.107	.533	.468	.533	.111
QUALMNEX	.134	1	.134	.666	.418	.666	.127
KNOWMNA	.348	1	.348	1.733	.193	1.733	.254
AGE	1.306E-02	1	1.306E-02	.065	.800	.065	.057
HIGHQUAL	.244	1	.244	1.216	.275	1.216	.192
SOPHISTI	10.424	1	10.424	51.949	.000	51.949	1.000
TYPEOFEX	.275	1	.275	1.370	.246	1.370	.210
Error	12.040	60	.201				
Total	450.760	68					
Corrected Total	24.759	67					

a. Computed using alpha = .05

b. R Squared = .514 (Adjusted R Squared = .457)

ANCOVA ANALYSIS - EXTENSION EVALUATIONS

Tests of Between-Subjects Effects

Dependent Variable: QUALMNEX

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	41.069 <sup>b</sup>	6	6.845	7.256	.000	43.535	.999
Intercept	2.527	1	2.527	2.679	.107	2.679	.364
QUALMEAN	1.379	1	1.379	1.462	.231	1.462	.222
KNOWMNA	.403	1	.403	.427	.516	.427	.099
AGE	.158	1	.158	.167	.684	.167	.069
HIGHQUAL	4.978E-04	1	4.978E-04	.001	.982	.001	.050
COMPETEN	1.241	1	1.241	1.315	.256	1.315	.204
TYPEOFEX	19.870	1	19.870	21.064	.000	21.064	.995
Error	57.544	61	.943				
Total	1338.222	68					
Corrected Total	98.613	67					

a. Computed using alpha = .05

b. R Squared = .416 (Adjusted R Squared = .359)

## **APPENDIX 7.4**

### **ANCOVA RESULTS**

#### **SEPERATING CORE BRAND QUALITY AND COMPETENCE**

## SEPARATE ANCOVA'S – EXTENSION EVALUATIONS

### Core Brand Quality

#### Tests of Between-Subjects Effects

Dependent Variable: QUALMNEX

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	39.548 <sup>b</sup>	3	13.183	14.284	.000	42.852	1.000
Intercept	12.106	1	12.106	13.117	.001	13.117	.946
QUALMEAN	5.009	1	5.009	5.428	.023	5.428	.631
KNOWMNA	.340	1	.340	.368	.546	.368	.092
TYPEOFEX	19.946	1	19.946	21.612	.000	21.612	.996
Error	59.065	64	.923				
Total	1338.222	68					
Corrected Total	98.613	67					

a. Computed using alpha = .05

b. R Squared = .401 (Adjusted R Squared = .373)

### Competence

#### Tests of Between-Subjects Effects

Dependent Variable: QUALMNEX

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	39.518 <sup>b</sup>	3	13.173	14.266	.000	42.798	1.000
Intercept	9.044	1	9.044	9.795	.003	9.795	.869
KNOWMNA	.619	1	.619	.670	.416	.670	.127
COMPETEN	4.979	1	4.979	5.393	.023	5.393	.623
TYPEOFEX	27.339	1	27.339	29.608	.000	29.608	1.000
Error	59.095	64	.923				
Total	1338.222	68					
Corrected Total	98.613	67					

a. Computed using alpha = .05

b. R Squared = .401 (Adjusted R Squared = .373)

## **APPENDIX 7.5**

### **SEPARATE REGRESSION RESULTS SELECTED CASES ATV & AFTERSHAVE**

**Regression Statistics For Brand Personality (pure) – SELECTED CASES ATV  
(GOOD FIT)**

**Excitement**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.481	.231	.125	2.178	.096	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.005	.071	.186	.843	.406
Core Brand Quality	-.145	.096	-.289	-1.521	.139
Extension Quality	-.004	.105	-.092	-.419	.678
Consumer Knowledge	-.107	.068	-.264	-1.579	.125

**Competence**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.301	.090	-.035	.721	.585	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.005	.087	.145	.605	.550
Core Brand Quality	-.009	.118	-.174	-.842	.406
Extension Quality	.003	.130	.061	.256	.800
Consumer Knowledge	.005	.084	.130	.714	.481

**Sincerity**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.227	.052	-.079	.395	.810	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.002	.093	-.068	-.279	.782
Core Brand Quality	-.007	.126	-.123	-.585	.563
Extension Quality	.002	.139	.039	-.161	.873
Consumer Knowledge	-.008	.090	-.180	-.977	.340

Ruggedness

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.456	.208	.098	1.899	.137	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.000	.059	.012	.055	.956
Core Brand Quality	-.177	.081	-.423	-2.197	.036
Extension Quality	.111	.089	.279	1.248	.222
Consumer Knowledge	-.000	.057	-.013	-.079	.938

Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.292	.085	-.041	.676	.614	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.000	.102	.022	.089	.929
Core Brand Quality	.002	.138	.043	.208	.837
Extension Quality	-.157	.152	-.248	-1.031	.311
Consumer Knowledge	.119	.098	.221	1.211	.236



**Regression Statistics For Brand Personality (pure) – SELECTED CASES  
AFTERSHAVE (POOR FIT)**

**Excitement**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.458	.210	.101	1.924	.133	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.006	.082	-.152	-.839	.408
Core Brand Quality	-.190	.109	-.307	-1.751	.091
Extension Quality	.006	.096	.132	.712	.482
Consumer Knowledge	.228	.103	.375	2.202	.036

**Competence**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.640	.409	.328	5.025	.003	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.005	.065	-.128	-.816	.421
Core Brand Quality	-.367	.086	-.648	-4.275	.000
Extension Quality	.194	.076	.407	2.542	.017
Consumer Knowledge	.002	.082	.047	.320	.751

**Sincerity**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.341	.116	-.006	.951	.449	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.002	.077	.066	.347	.731
Core Brand Quality	-.178	.102	-.322	-1.736	.093
Extension Quality	-.002	.091	-.048	-.243	.809
Consumer Knowledge	-.002	.098	-.055	-.303	.764

Ruggedness

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.266	.071	-.057	.552	.699	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.005	.079	-.129	-.655	.518
Core Brand Quality	-.004	.104	-.088	-.463	.646
Extension Quality	-.006	.093	-.143	-.714	.481
Consumer Knowledge	.005	.099	.095	.512	.613

Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.329	.108	-.015	.877	.490	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.101	.068	.284	1.477	.150
Core Brand Quality	-.006	.091	-.134	-.717	.479
Extension Quality	.004	.081	.108	.551	.586
Consumer Knowledge	-.002	.087	-.050	-.276	.785

**Regression Statistics For Brand Personality Dimension Excitement (after) –  
SELECTED CASES ATV (GOOD FIT)**

**Excitement**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.841	.708	.656	13.574	.000	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.009	.069	.198	1.385	.177
Core Brand Quality	-.121	.091	-.160	-1.331	.194
Extension Quality	-.006	.100	-.094	-.675	.505
Consumer Knowledge	-.107	.064	-.175	-1.673	.1045
Excitement	.771	.109	.749	7.082	.000

**Competence**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.690	.476	.383	2.231	.034	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.007	.061	.212	1.143	.263
Core Brand Quality	.004	.087	.083	.500	.621
Extension Quality	.008	.092	.166	.893	.380
Consumer Knowledge	.004	.059	.097	.690	.496
Competence	.383	.112	.507	3.341	.002

**Sincerity**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.691	.478	.385	5.127	.002	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.002	.078	.051	.270	.789
Core Brand Quality	.009	.114	.147	.848	.404
Extension Quality	.005	.116	.092	.497	.623
Consumer Knowledge	.000	.078	.006	.040	.968

Sincerity	.473	.140	.564	3.365	.002
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Ruggedness

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.836	.699	.645	12.985	.000	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.000	.056	-.016	-.111	.912
Core Brand Quality	-.148	.077	-.235	-1.909	.067
Extension Quality	.137	.085	.230	1.621	.116
Consumer Knowledge	-.001	.054	-.031	-.290	.774
Ruggedness	.778	.105	.809	7.418	.000

Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.716	.512	.425	5.887	.001	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.009	.088	.136	.748	.461
Core Brand Quality	-.003	.118	-.041	-.264	.794
Extension Quality	-.137	.129	-.189	-1.058	.299
Consumer Knowledge	.122	.083	.136	.748	.461
Sophistication	.566	.124	.642	4.575	.000

**Regression Statistics For Brand Personality Dimension Excitement (after) --  
SELECTED CASES AFTERSHAVE (POOR FIT)**

**Excitement**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.716	.512	.425	5.884	.001	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.006	.069	-.139	-.957	.347
Core Brand Quality	-.130	.093	-.200	-1.406	.171
Extension Quality	.127	.083	.233	1.542	.134
Consumer Knowledge	.193	.087	.302	2.204	.036
Excitement	.559	.122	.640	4.563	.000

**Competence**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.732	.536	.453	6.476	.000	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.002	.058	-.065	-.458	.650
Core Brand Quality	-.007	.121	-.137	-.622	.539
Extension Quality	.205	.067	.441	3.048	.005
Consumer Knowledge	.000	.072	.003	.022	.982
Competence	.467	.174	.592	2.692	.012

**Sincerity**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.776	.602	.531	8.486	.000	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.001	.061	-.023	-.177	.861
Core Brand Quality	.003	.094	.054	.366	.717
Extension Quality	.003	.073	.064	.474	.639
Consumer Knowledge	.000	.077	.000	.000	1.000
Sincerity	.530	.108	.723	4.908	.000

Ruggedness

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.673	.453	.355	4.630	.003	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	-.009	.064	-.245	-1.572	.127
Core Brand Quality	.004	.086	.088	.573	.571
Extension Quality	-.002	.074	-.059	-.376	.710
Consumer Knowledge	-.003	.081	-.055	-.372	.712
Ruggedness	.455	.129	.545	3.532	.001

Sophistication

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.783	.614	.545	8.892	.000	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.005	.059	.124	.939	.356
Core Brand Quality	-.004	.076	-.078	-.627	.536
Extension Quality	.125	.071	.244	1.758	.090
Consumer Knowledge	.001	.073	.026	.212	.834
Sophistication	.593	.111	.675	5.340	.000

**Regression Statistics For Extension Evaluation– SELECTED CASES ATV  
(GOOD FIT)**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.677	.458	.384	6.132	.001	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.420	.097	.629	4.355	.000
Core Brand Quality	.372	.162	.354	2.305	.029
Consumer Knowledge	.003	.119	.042	.300	.766
Competence	.116	.224	.076	.518	.608

**Regression Statistics For Extension Evaluation– SELECTED CASES  
AFTERSHAVE (POOR FIT)**

Summary Statistics					
Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	Sig-F	
.456	.208	.099	1.904	.137	
Parameter Analysis					
Independent Variable	B	SE B	BETA	t-value	Sig.
Fit	.269	.151	.310	1.780	.086
Core Brand Quality	.275	.332	.231	.829	.414
Consumer Knowledge	-.008	.200	-.072	-.421	.677
Competence	.138	.479	.081	.289	.775