AN INVESTIGATION INTO THREE CONSUMER CONSTRUCTS: EXPLAINING THE NATURE OF RELATIONS INFLUENCING BRAND RELATIONSHIP QUALITY

Thesis submitted in fulfilment of the requirements for the

DEGREE OF DOCTOR OF PHILOSOPHY

Bradley James Wilson
B.Bus (Marketing)
AdCert. Bus (Marketing)

School of Economics, Finance and Marketing
Business College
RMIT University

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; and the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of this thesis is the result of work which has been carried out since the official commencement date of the approved research program; and any editorial work, paid or unpaid, carried out by a third party is acknowledged.

Based on the research presented in this thesis, the following papers have been published with supervisory panel members¹:


¹ Supervisory panel arrangements altered throughout tenure. All co-authors are recognised supervisors or associates on my official PhD panel.


Signed:

Bradley James Wilson.

October, 2011.
DEDICATION

To my parents,

The continual support you have given me has provided me with opportunities you both were not afforded.

This does not go unnoticed.

Thank you.

I also dedicate this work to everyone who has a shared passion for brands, communication and strategy, many of whom have inspired me through their dialogue and readings.
“... the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all”. Ecclesiastes, 9:11.

Completing this PhD has been one of the most difficult and great challenges of my life and completing it is one of my best achievements. This is the toughest part of the thesis as I have so many people to thank in a limited amount of space.

My undergraduate career was blessed with talented lecturers who have always had their “door open for a chat”. I would specifically like to mention Associate Professor Stewart Adam, Nairy Bagdikian, Professor Rod McColl, and Hugh Hubbard. My fellow colleagues, Associate Professor Con Stavros, Associate Professor Michael Schwartz, Kathleen Griffiths and Dr Raju Mulye have always been there to listen.

During my undergraduate education I completed a few years’ work experience with Michael (Spike) Cramphorn and Sally Joubert at Advertising Development Solutions (now Luma Research). They were the first real “prac-ademics” I had met and showed me the relevance of academic excellence in a practical environment by developing leading-edge advertising and branding market research products. Their business success confirmed the stories I had read about in Waters and Peterman Management books in the 1980’s. These firms do exist!

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To my parents, Ray and Wendy, and my sister, Kylie, I cannot say enough. Words cannot express what your support has meant to me. To Verity, you listened.

Finally, I would like to express my gratitude to my Senior Supervisor, Professor Tim Fry, and Second Supervisor, Associate Professor Kathleen Westberg. Kate, your time spent commenting on countless drafts was always valuable. You are an important friend. Tim has been the supervisor I always wanted and needed from the beginning. His no-nonsense approach gave me the direction that I needed. He is a true researcher with a fine mind; I can only imagine what would have occurred if Tim had been involved in the earlier stages of my research helping shape the research agenda. If I have learnt one dictum over the journey … “A good supervisor is worth their weight in gold.” This experience will shape how I approach future supervisions with other students.
GLOSSARY OF ACRONYMS

\( \alpha \) Cronbach’s Alpha
ACM Asymptotic Covariance Matrix
ADF Asymptotic Distribution Free Estimation
AM Alternative Models Modelling Philosophy
AMOS Statistical Package for Analysis for Moment Structures
AVE Average Variance Extracted
\( \beta \) Beta Causal Path or Standardised Path Coefficient
BPS Brand Personality Scale
BRQ Brand Relationship Quality
CA Correspondence Analysis
CBSEM Covariance-based Structural Equation Modelling
CFA Confirmatory Factor Analysis
CIP Consumer Involvement Profile
CVTA Confirmatory Vanishing TETRAD Analysis
\( Df \) Degrees of Freedom
EFA Exploratory Factor Analysis
EM Expectation-Maximization Algorithm
FS Factor Scores
\( f^2 \) Effect Size Statistic
GOF Goodness-of-Fit Statistics
GOF_{PLS} Amato Goodness-of-Fit Statistic
H Hypothesis
IC Internal Consistency or Reliability

η eta Latent Variables

λ_x lambda-x Loadings for Exogenous Variables

λ_y lambda-y Loadings for Endogenous Variables

KMO statistic Kaiser-Meyer-Olkin Statistic for Factorability

LISREL Statistical Package for CBSEM Modelling

LVS Latent Variable Scores

MCA Multiple Correspondence Analysis

MDS Multiple Dimensional Scaling

MG Model Generating Modelling Philosophy

MIMIC Multiple Indicator Multiple Cause Model

ML Maximum Likelihood Estimation

MVA Missing Value Analysis

n.s. Not Significant

ρ_X Construct Reliability or Maximised Reliability

PCA Principal Components Analysis

PCM Polychoric Correlation Matrix for Ordinal Variables

PLS Partial Least Squares Algorithm or Partial Least Squares Path Modelling

PLS-Graph Partial Least Squares Statistical Software

PRELIS Software package for use prior to LISREL

q^2 Change in predictive relevance when blindfolding tests are run

Q^2 Test Stone–Geisser Predictive Relevance Test of Model for estimated PLS path model evaluation

R^2 A measure of the proportion of variability explained in dependent variable

RA Reliability Analysis
RM  Relationship Marketing
SAS  Statistical Analysis Software
SC   Strictly Confirmatory Modelling Philosophy
s.d.  Standard Deviation
s.e.  Standard Error
SEM  Structural Equation Modelling (incorporating PLS and CBSEM)
SPAD Statistical Software Package with PLS Modelling Option
SPSS Statistical Package for Social Sciences
t-statistic Studentised t-statistic for significance
WLS  Weighted Least Squares Estimation (similar to ADF estimation)
$\chi^2$ Chi-square Statistic
X    Independent variable/Construct
XZ   Interaction Term/Construct. Product of X multiplied by Z.
Y    Dependent Variable/Construct
Z    Moderator Variable/Construct
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ABSTRACT

Understanding brands and consumer brand relationships is imperative in contemporary marketing practice. Corporations recognise the need to protect and grow brand equities (Biel 1991; 1993). From an internal company perspective brands are viewed as important corporate assets (Macrae 1996); from a consumer perspective Keller (1993) has argued that brand image is a collective concept consisting of all accumulated consumer knowledge inclusive of functional, emotional and intangible brand meanings. Understanding how a brand’s image impacts the level of consumer loyalty is the primary motivation for this study. A need for research is established as it is believed that strong images lead to strong brands (Riesenbeck and Perrey 2009). Brand personality, as a key component of brand image (D. Aaker 1996; Korchia 1999) is, therefore, included within this study.

Following the Aaker (1995) original conceptualisation, brand personality is viewed as analogous to human personality which purports that brands can develop trait-like personality characteristics. The objective of this study is to advance theory concerning the effect of brand personality on the consumer-brand nexus in relation to brand personality and brand loyalty. Specifically, the analysis pays particular attention to the effect brand personality has on Brand Relationship Quality (BRQ). As a refined articulation of loyalty, BRQ encapsulates key components of the consumer-brand bond (D. Aaker 1996; Fournier 1994). To better understand the dynamics that exist between brand personality and BRQ, various structural models are examined. An extensive literature review demonstrates there is considerable interest in each individual domain, however, studies exploring relations between these constructs have been relatively sparse. Additionally, the investigation explores the impact of product class involvement as a moderator of this relationship.

To address the research goals, data were collected which canvassed consumer perceptions and attitudes to 12 well-known brands. Given the current level of theoretical development, the non-
normal data characteristics and a complex structural model, PLS path modelling was used. Standard research practice in psychometric testing was applied and extended to analyse the three main higher-order constructs domains. The results reveal that all measurement models were adequate except for the Probability of Mispurchase construct within the Consumer Involvement Profile (CIP). This construct was removed prior to the main analyses being undertaken. The measurement models for brand personality were also tested using Confirmatory Vanishing Tetrad Analysis to further assess path directionality (Bollen and Ting 2000). These findings maintain brand personality as a reflective orientation which supplements the existing brand personality literature.

The main analyses reveal that there is a strong positive relationship between brand personality and BRQ. In addition, CIP is shown to have a small and significant moderating effect on this main effects relationship. The models demonstrate a strong predictive capacity. Additional analyses established that relations between brand personality and BRQ are linear. The moderation effect is also best represented as linear for this data. Furthermore, when involvement is grouped into low, medium and high involvement classifications, the effect of the moderator is more pronounced for higher involvement groupings. Following the process of Sharma, Durand and Gur-arie (1981), the type of moderation is established as quasi-moderation. These results suggest that brand personality is important in fostering brand relations with this relationship being more pronounced as involvement increases. This work also makes contributions in the methodological and managerial domains. This study advances PLS path modelling theory and outlines suitable analytical process for models incorporating higher-order constructs (with interactions). The findings have a high degree of managerial relevance with many practical branding and communication tactical implications outlined. The value of involvement as a key segmentation variable is particularly highlighted throughout and supported within the findings.
CHAPTER 1

INTRODUCTION

“It is when we enter the realm of differentiation that the metaphor of brand personality becomes extremely valuable. But it all develops naturally from the idea of consistency and familiarity. In dealing with people, ‘personality’ describes the ways in which we anticipate an individual will behave in particular circumstances. Of course, no one is totally predictable: but on the whole, they are predictable enough for human relationships to depend largely on this construct. Thus we create our friends, our acquaintances, and our enemies. The same is true of brand”.

(Feldwick 1991, p. 26).

1.1 Background to the Research

Questions regarding brand loyalty and brand equity have existed since the establishment of marketing thought with Levy (1959) outlining that consumers buy brands with relevant meaning. During the late 1980’s the area of brand equity measurement became an acknowledged concern for both academic and practical researchers (Barwise 1993). More recently, The Marketing Science Institute’s (MSI 2010) stated research priorities reflect a charter for the necessity of stakeholders to understand the management of brands in transformed marketplaces. The MSI (2010, p. 8) acknowledges “that customers co-create brands and firms do not completely control brand equity” in modern commerce. As a result, MSI emphasises that research is needed to identify effective strategies to cope with the continued expansion of consumer touchpoints, communication avenues and the increasing number of strategic and tactical choices which are becoming exponentially more complex and diverse. Given the trend towards global brand management, an understanding of how consumers view and conceptualise branding is crucial in both short and long-term strategic decision-making activities for firms worldwide (D. Aaker 1991; Macrae 1996). As managers adapt to these new commercial realities they must assess which actions positively affect brand image and offer the best leverage for enhanced loyalty for continued brand success. This is no
simple task as Patterson (1999) was scathing when reconciling brand research from 1950-1999 and outlined that brand image concept development was weak and could be substantially improved.

Brand image represents “the perceptions and beliefs held by consumers, as reflected in the associations held in consumer memory” (Kotler and Keller 2006, p. 286). These collective beliefs incorporate a mix of functional and emotional attributes. Keller (2003) maintains that one of the benefits of a positive brand image is greater brand loyalty and Madden, Ferle and Fournier (2006) emphasise that overall brand value is a function of all collective brand relationships. Brand image and brand personality terms have often been used interchangeably by practitioners and academics (Batra, Lehmann and Singh 1993). A vital component of brand image is brand personality which represents what Biel (1992) calls soft attributes and allows more personally meaningful connections to be facilitated. Softer image attributes are often associated with the more symbolic and emotional side of branding and can influence actual behaviour and competitive positioning strategy (Hooley and Saunders 1993). In addition, D. Aaker (1996) believes that strong brand personalities provide one avenue for image enhancement enabling sustainable competitive differentiation. Understanding a brand’s personality allows better brand positioning and enhances communication effectiveness through clearer associated imagery (de Chernatony 2001). Brand personalities also have broader practical appeal in that intended meanings are easily transferred via these communication platforms. They assist in increasing the meaning of the brand (Fournier 1998). These dynamics mirror conclusions within the personal relationship literature which has highlighted the importance of personality in successful relationships (Robins, Caspi and Moffitt 2000). It is well-accepted that a strong brand image is a powerful contributor to brand equity (van Rekom, Jacobs and Verlegh 2006) and a consistent image enhances long-term success of the brand (Gardener and Levy 1955; Park, Jaworski and MacInnis 1986). In
summary, it has been acknowledged that the softer attributes of a brand’s image such as brand personality, influence and causally relate to brand loyalty (D. Aaker and Biel 1993).

A number of influential books and seminal articles have proposed the positive effect of brand image on loyalty (D. Aaker 1991; Jacoby and Chestnut 1978; Kapferer 1992; Keller 1993). So, what is brand loyalty and how do we define it? Jaccard and Jacoby (2010) believe that a concept can only achieve legitimacy when the common meaning of the concept is socially shared by all stakeholders. Even some of the earliest literature discussed marketing concepts like brand loyalty and more than 50 definitions of brand loyalty were found (Jacoby and Chestnut 1978) and the proliferation has not abated (Jaccard and Jacoby 2010). The preferred modern definition presented by D. Aaker (1991, p. 32) states that “brand loyalty is a measure of the attachment that a customer has to a brand”. This definition highlights the importance of consumers having a psychological and behavioural relationship with the brand. Therefore, brand loyalty has a dual role both as a driver of brand equity as well as a behavioural outcome (or implied behavioural outcome) (D. Aaker 1991). Measurement has often focused on these dual platforms by assessing the respective attachment dynamics (via bonding constructs) for the consumer-brand relationship or profiling behavioural outcomes of choice. The need for research is highlighted further by Aaker2 who clearly articulates the necessity for further testing, stating:

“The brand personality framework and scale … can be used to gain theoretical and practical insight into the antecedents and consequences of brand personality, which have received a significant amount of attention but little empirical testing” (Aaker 1997, p. 354).

Based on these calls for research, there is a need to further explore the strength of relations between brand personality and brand equity (Biel 1993). D. Aaker (1996) further elucidates the dynamics of how brand personality can influence brand equity when he

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2 Aaker is utilised throughout this thesis to identify the author Jennifer Aaker, whereas, D. Aaker is used to denote the writings of David Aaker.
proposes that this may occur through three main routes. Within his proposed framework (see Section 2.8.1 for a full exposition) the three routes are: the self-expression model, the relationship basis model and the functional benefit representational model. The self-expression model operates on the premise that brand choices serve a self-expressive function for the consumer. That is, the brand supplements our notion of self. This perspective supports the role of brand personality in supplementing positive consumer meaning and self-expressive consumption. This naturally adds to overall brand memory associations and image perceptions. Brand personality can facilitate consumer self-identity and reference group identity (Escalas 2004; Escalas and Bettman 2005) and, therefore, strengthens brand equity.

The relationship basis model’s main premise is that branding elements such as brand personality can assist to build and sustain stronger overall consumer-brand relationships. D. Aaker (1996) has also discussed the “brand as a friend” perspective as a valuable metaphor for exploring the consumer brand dynamic. This notion has been adopted by others (Callingham and Baker 2001).

Finally, the third function of brand personality/brand equity enhancement, the functional benefit representation model, highlights the route by which brand personality (through design, delivery and communications) imparts functional benefits into the brand.

Although all three routes illustrate how brand personality can ultimately influence brand equity, this thesis focuses primarily on the relationship basis model, that is, the role of brand personality within the centrality of consumer-brand relations. This decision is undertaken to place some delimitations on the overall research scope. Aaker (1995) has already extensively investigated brand personality from the self-expressive perspective. Researchers have yet to investigate dynamics within the relationship basis model. Also, Keller (2003) has called for research to better articulate and extend different brand equity perspectives. The functional benefit model has already received significant attention and is also not a focus herein.
Therefore, to further explore the relationship basis model, this research study specifically focuses on the measurement and validation of three separate but interrelated domains: brand personality, brand relationship quality and consumer involvement profile. The main constructs are described next.

The first construct integral to this research, brand personality, is conceptualised and operationalised initially from the well-established “Big Five” theory of human personality (Norman 1963), with Aaker (1995) refining this theory to develop a Brand Personality Scale (BPS). Aaker (1997, p. 348) believes that, “personality traits come to be associated with a brand in a direct way by the people associated with the brand - such as the brand's user imagery”. Therefore, brand personality is constructed through “the set of human characteristics associated with the typical user of a brand; the company's employees or CEO; and the brand's product endorsers” (Aaker, 1997, p. 348). By the process of meaning transfer and developed narrative, the consumer engenders the brand with a personality. Levy (1959) first highlighted that people often think of inanimate objects as having a gender, age or a class structure. Brand personalities enable anthropomorphisation of the brand (Aaker 1997), that is, the brand becomes a quasi-human entity (Freling and Forbes 2005).

Aaker (1995) constructed a brand personality scale using a calibration and validation sample analysis approach. The research established that brand personality is best represented as a second-order representation made up of five first-order constructs. The following facets (in brackets) were obtained for each of the constructs: Sincerity (down-to-earth, honest, wholesome, cheerful); Excitement (daring, spirited, imaginative, up-to-date); Competence (reliable, intelligent, successful); Sophistication (upper class, charming); and Ruggedness (outdoorsy, tough). Aaker’s work was regarded by many as ground-breaking and inspired the development of other brand personality instruments (Strausbaugh 1998).

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3 BPS represents Brand Personality Scale. BP represents brand personality. In general, the terms can be used interchangeably throughout this thesis.
Cross-cultural replications and alternative uses of the Aaker brand personality scale have since been undertaken often requiring local contextual refinements (e.g., Aaker, Benet-Martinez and Garloli 2001; Bromley 2000; Davies, Chun and da Silva 2001; Caprara, Barbaranelli and Guido 1998; 2001; Deane, Smith and Adams 2003; Kim, Han and Park 2001; Merrilees and Miller 2001; Okazaki 2006; Venables, Rose and Gilbert 2003). These are further elaborated within Chapter 2.

The second construct domain, Brand Relationship Quality (BRQ) is concerned with numerous consumer relationship dimensions which aim to measure the quality or strength of a person-brand dyadic relationship. The concept of BRQ was first posited by Fournier (1994) in her thesis, “A Consumer-Brand Relationship Framework for Strategic Brand Management”. Although her qualitative findings are widely disseminated (Fournier 1998), she also developed a scale for the multi-faceted measurement of BRQ. This scale provides an extension to the traditional loyalty notion by encompassing other constructs central to the consumer brand bond. D. Aaker (1996, p. 167) re-emphasises BRQ being a refined loyalty articulation by stating that, “the dimensions can be viewed as variants of brand loyalty”. Fournier (1994), using structural equation modelling techniques on a calibration and validation sample, revealed BRQ to be a second-order construct with seven reflective first-order constructs. Subsequent work revealed that the constructs were: brand partner quality, love and passion, intimacy, self-connection, nostalgic connection, interdependence and commitment.

The third construct to be explored in this thesis, which measures product class involvement, is called the Consumer Involvement Profile (CIP) and was initially developed by Laurent and Kapferer (1985). The CIP was developed to be a multi-dimensional measure of involvement (Laurent and Kapferer 1985). The CIP was developed to recognise previous involvement research by Arora (1982) that conceptualised involvement as being multi-
dimensional in nature. The CIP consists of five first-order constructs, namely: product risk/importance, symbolic value, hedonic value, probability of mispurchase, and enduring interest.

Overall, these three construct domains were selected due to their large-scale sample development and sound psychometric properties. All reflect higher-order representations. In the next section, the research goals and research questions of this thesis are outlined. Also, the motivation and need for research into the relationship between these constructs is elaborated on specifically.

1.2 Research Goals and Research Questions

The main goal of this work is to develop theory to explain the impact of a brand’s personality impact on BRQ. The overall predictive impact of brand personality on brand relationship quality is the focus. Second, the influence of involvement is also a concentration. The specific research questions are:

*RQ1:* What is the impact of Brand Personality on BRQ? Does Brand Personality have a significant positive effect on BRQ? Is Brand Personality a relatively strong or a weak contributor to overall BRQ?

*RQ2:* Is product class involvement (CIP) a moderating influence on the relationship between Brand Personality and BRQ? Does this impact change the relative impact for Brand Personality and BRQ at different levels (high, medium and low) of product class involvement? What form does this relationship take (linear, non-linear, etc.)?

The current research aims to advance knowledge by exploring these relationships at the second-order latent construct level, that is, this investigation focuses on the higher-order level of abstraction (Chin 1998a). The primary constructs of interest are depicted in Figure 1.1.
1.3 Motivation for the Research

It is believed that a clear need for research exists to fill this gap in our knowledge. The measures developed by Aaker (1995; 1997) and Fournier (1994) enable such avenues to be explored. Research centred on measuring and evaluating BPS and BRQ, singly and jointly, is developing but is, comparatively, still in its infancy. There has been select academic and business community interest in both domains, collectively (Melser and Ringham 1998; Wilson 2005b; 2010). Cliffe and Motion (2005) establish, from in-depth interview findings incorporating both consumer and management teams in a sponsorship domain, that brand personality is critical for building consumer-brand relationships.

The most comprehensive published studies in scale and scope emanate from the original Fournier (1994) and Aaker (1995) US studies. This is especially true of BRQ which has received significantly less attention within the literature (Ekinci, Yoon and Oppewal 2004). Fournier (1994; 1998) believes there is a need to investigate the impact of brand personality on BRQ. The works of Fournier and Aaker have been eloquently summarised and reported in D. Aaker’s (1996) book “Building Strong Brands”. D. Aaker (1996, p. 165) makes a strong case for investigating specific relations between BPS and BRQ when he states, “brand behavior and imputed motivations, in addition to affecting brand personality, can also directly
affect the brand-customer relationship”. More recently, it has also been outlined that it “… is unclear whether brand personality affects some Consumer Based Brand Equity facets” (Netemeyer, Krishnan et al. 2004, p. 222). Many others also concur with the need for such research (Korchia 1999; Neal 1985; Phillips 1996a). The majority of leading brands have images that develop two or more multi-faceted personalities (Opoku 2006) and this thesis aims to investigate this premise further. Sweeney and Brandon (2006) also highlight that it is important for managers to understand brand personality to effectively respond to dynamic market conditions.

Finally, Fournier (1994; 1998) highlights the importance that product class involvement may have as a potential moderator within the BRQ System Model and analyses these effects within her seminal dissertation. These analyses revealed no significant differences in a two group (high vs. low involvement) analysis for BRQ (Fournier 1994). In other words, product class involvement, as conceptualised and analysed, did not illuminate any significant differences for BRQ. To further explore the role of product class involvement and to test the BPS→BRQ relationship dynamics, involvement is included as a key construct in the proposed model. The work of Fournier (1994) is complemented and extended by including involvement in a broader structural model and aims to contribute to the body of knowledge pertaining to involvement’s continued use as a moderator in marketing studies (Laaksonen 1994).

Overall, it is apparent from the literature that the need for research is strong as a plethora of studies focus predominantly on the functional drivers of brand loyalty (Biel 1993; Buzzell and Gale 1987; Zeithaml 1988). These works mainly focus on how issues like price and quality drive image perceptions and become embedded within overall image perceptions. The notion of how perceived quality contributes to overall value perceptions is also commonly represented (Gale 1994). This study aims to focus on softer brand image issues to fill the void in the literature about which concern has been expressed (Kim et al. 2001).
A review of theory in both parent and focal disciplines is presented in Chapter 2. This involves the substantiation of the developed structural model. The measures for each construct are outlined in Chapter 3.

1.4 Methodology

To address the research questions, a large-scale quantitative study was implemented. Data was acquired utilising systematic random sampling of consumers Australia-wide, and was collected using self-administered mail questionnaires. The main study investigated twelve brands within six product classes. The study generated 1,290 effective responses. The questionnaire features item batteries representing each main domain of interest, as well as collecting standard information on respondent demographic characteristics.

The analytical methodology implemented involves modelling structural relations (Wold 1980). Partial Least Squares path modelling was chosen as the preferred method given the complexity of the model, inherent data distributional patterns and newness of the theoretical domains under study (Chin 1998b; Wilson 2004). The robustness and flexibility of this method for interactions modelling has been substantiated (Chin, Marcolin and Newsted 2003; Wilson 2005b; 2010). Other analytical methods utilised include: principal components/exploratory factor analysis, confirmatory vanishing TETRAD analysis, and data visual representational techniques (multiple correspondence analysis). Chapter 3 describes the methodology in detail.

1.5 Key Findings and Contributions of the Research

The main contribution of this thesis is that it explores the relationship between the full Aaker’s BPS and Fournier’s BRQ batteries. This research is confirmatory in that it replicates previously developed batteries of BPS, BRQ and CIP in an Australian context, and is exploratory when modelling the relationships between BPS and BRQ. In general, the analysis reveals that brand personality does have a strong significant positive impact on brand
relationship quality. The predictive effect on BRQ is also large. All construct domains are replicated within Australia, with the exception of one construct within the CIP which is deleted during the measurement purification phase. The findings illustrates that Australians accept the notion that consumers can form relationships with brands [what Fournier (1994) describes as brand-as-partner (BAP) theory], and also that brands can have personalities.

Further, this study investigates the role of product class involvement in this relationship. Product class involvement has a small but significant moderating influence on the direct effect relationship between BPS and BRQ and is, therefore, worthy of inclusion within the model. Although the influence of involvement is minor, small effect sizes still offer utility and need to be considered by future researchers (Cohen 1988). This type of relationship is best represented as a linear relationship, and it is apparent that the effect of brand personality on brand relationship quality is slightly higher for respondents who are more involved in the category. Brand personality is also best represented as a reflective higher-order structure (Jarvis, MacKenzie and Podsakoff 2003).

In addition, several methodological contributions emanating from this study are applicable more generally. This thesis develops and implements a PLS path modelling application extension for the analysis of constructs at a higher-order level of abstraction. Further, this thesis follows and extends the key principles of applying best practice analytical process for modelling higher-order structural relationships. The importance of moderately large sample sizes to recognise path effects for such models is also established. This is especially relevant for researchers interested in moderator detection within their work. Overall, the thesis provides methodological guidance for analysts engaging in PLS structural models with higher-order interaction effects. Analytical procedure follows a multiple method analysis approach which assists to cross-validate the findings and limit any bias that could exist due to subjective analytical choice. Additional nested confirmatory vanishing TETRAD tests were
applied to higher-order constructs, representing another original application within the social sciences, and brand personality was confirmed as a reflective orientation (Bollen 1989).

The findings highlight the necessity for researchers to include BPS, BRQ and CIP in future validation studies (see Chapters 5 and 6). This work contributes to the understanding of branding and brand relationships within the overall discipline of marketing. Given the voluminous body of literature in branding and its far reaching consequences, there are numerous branding and communication implications. The managerial utility of this work for practitioners setting future marketing tactics is demonstrated using multiple correspondence maps allowing an exploratory representation in identifying the most discriminating constructs. The methodological contributions have broader applicability for researchers in any discipline utilising PLS path modelling. The findings, contribution and implications of the research are discussed in Chapter 6.

1.6 Delimitations

The scope of this thesis focuses on the measurement and validation of three separate but inter-related constructs within an Australian context and may not be generalisable to other countries. This thesis adopts and modifies human/brand relationship theories/frameworks despite much of the original literature being U.S.A.-centric. The premise of people forming dyadic two-way relationships with brands is assumed to exist within Australia given the similarity in cultural orientations and beliefs or values between the U.S.A. and Australia. Aaker and Williams (1998, p. 2) provide support for this stating that, “members of individualist cultures (e.g., United States, Australia, and Canada) tend to have an independent self-construal, which refers to the self as comprising a unique set of internal attributes including motivations, traits and values”. A desire for individualism is a commonality across Western countries and explains consumption of brands for self-expressive purposes (Swann 1987) and, in addition, concepts like brand personality have been successfully investigated
within SE Asian contexts (Phau and Lau 2000; 2001; Merrilees and Miller 2001). Many brands today follow standardised global branding strategies (Macrae 1996) and such brands (e.g., Coca-Cola, McDonald’s, Harley Davidson) also exhibit widespread international penetration using consistent positioning platforms (Gruber 1988). As a result, further qualitative research was not undertaken in this thesis.

Within this study, although the importance of multiple stakeholders is recognised, the primary focus remains the most important stakeholder in the relationship nexus (i.e., the consumer) and follows the approach taken by others (Agres and Dubitsky 1996; Blackston 1992; Dyson, Farr and Hollis 1996; Kamakura and Russell 1993; Lassar, Mittal and Sharma 1995; Krishnan 1996). The study investigates 12 brands in six product classes. There is a representation across category type (packaged goods, services, durables/semi-durables), product classes (softdrinks, film, airlines, credit cards, automobiles, athletics shoes). Two brands in each class were selected for investigation. However, it may not be feasible to extend conclusions beyond these categories or brands. Selected theoretical domains were structurally modelled (Aaker 1995; Fournier 1994) and, consequently, the full array of antecedent and outcome constructs was not included as such an investigation would be operationally impractical. Additionally, only three construct domains were selected for this study, given the level of methodological complexity. Sample size constraints were observed as construct domains were higher-order representations adding significantly to model complexity (Wilson 2005a). The constructs of interest are discussed conceptually in Chapter 2 and analytically implemented in Chapters 4 and 5. This study concentrates on empirically testing a more palatable, yet significant in itself, subset of theoretical relationships embedded within the context of available theory.

4 The rationale for investigating one side of the consumer brand dyad is further articulated in Sections 3.10.1 and 6.6.
1.7 Structure of the Thesis

This chapter provided an introduction to the thesis and the three domains (brand personality, BRQ and CIP) under investigation. Justification was presented as to why this is a necessary body of research. The key research questions were highlighted and a summary of the main findings and theoretical and methodological contributions was presented. A brief overview of the methodology utilised is outlined, and the structure of the thesis established, along with the perceived study delimitations.

This thesis is organised as follows. Chapter 2 presents the theoretical foundations that underpin the investigation. The first section outlines the parent disciplines of branding, brand image, consumer brand equity and brand relationships that are germane to this study. The second section leads to a more focused presentation on brand personality, antecedents of brand personality, brand relationship quality and product class involvement. From this discussion, a structural model is developed. In undertaking this review, a number of hypotheses relating to the key research questions are established.

The methodology is outlined in Chapter 3 and presents the sampling plan, data analysis philosophy and methods to be implemented. Within the chapter, the structural equation modelling analysis method is discussed with particular emphasis given to PLS path modelling. Complementing this discussion is an outline of the key steps that were followed throughout the research process, including an explanation pertaining to key statistics to aid the interpretation of the findings.

Chapter 4 presents the descriptive and data characteristics prior to summarising the results for measurement model validation. This analysis places particular emphasis on indicator directionality testing and implements standard psychometric tests to achieve adequate validity and reliability. Some measurement models are modified based on strict conceptual and statistical considerations (Chin 1998b), and each modification is substantively justified.
Overall, Chapter 4 confirms the reliability and validity (construct and discriminant) of the constructs under investigation.

Chapter 5 presents the analyses of the structural model. The nomological framework is validated by investigating the effect of product class involvement as a moderator within the model. The type of relationship (linear, non-linear etc.) and the effect of the moderator at different values are presented.

The thesis concludes in Chapter 6, which outlines the managerial implications using visual representation techniques. The results are discussed in detail outlining the practical significance and application of the findings. The unique study contributions are highlighted within the context of contemporary developments. The thesis findings supplement some of the ongoing debates within their substantive domains. Study limitations and recommendations for further research are also presented. These issues are considered with emphasis given to conceptual, methodological and practical study implications.
CHAPTER 2

LITERATURE REVIEW

“The so-called ‘softer’ side of branding ... is increasingly being recognised as, in reality, the harder, cutting-edge of brand differentiation”.

(Biel 1999, p. 162).

2.1 Overview

This chapter outlines the branding literature including the central concepts of brand image, consumer brand equity and brand loyalty. Within this discussion, the interrelated brand personality and brand relationship quality topics are given central focus. The literature has expanded from the origins of brand theory which highlighted traditional brand functions as a “means of identifying the product” and “to serve primarily as a cause for recognition” (Copeland 1923, pp. 286-287). Brand differentiation has progressed and there is increasingly a need for research into the emotional and symbolic drivers of brand relationship maintenance and enhancement (Biel 1993; Lannon 1994). Germaine literature regarding the consumer-brand relational perspective is presented and indicates that customer satisfaction and retention are integral to building and sustaining meaningful, long-term customer relationships (Buchanan and Gillies 1990; Fournier and Mick 1999; Pearson 1996; Reinartz and Kumar 2000). In addition, the use of metaphor as it pertains to the brand-as-partner analogy is substantiated and overall tenability is established. A structural model of relations between brand personality, product class involvement and brand relationship quality constructs is then presented. The body of literature provides guidance for the consolidation of separate theoretical models and justification for selecting the independent, moderator\(^5\) and outcome constructs. The literature examined within this chapter is summarised in the schematic in Figure 2.1.

\(^5\) For this research, the terms moderator, moderation and interaction effects are used interchangeably.
2.2 Brand Image and Consumer Relationships

In relation to consumer brand attitude and choice, Lannon and Cooper (1983) believe that it is the mix of practical/functional (rational) and symbolic attributes/benefits (emotional) that drives consumption. This array of functional and emotional (intangible) benefits helps consumers give inherent meaning and value to brands (Escalas 1996; Keller 2003). Research on the symbolic side reveals that brands are often viewed as animate, meaning-laden objects (Fournier 1998), which reflects the propensity for consumers to participate in “anthropomorphism involving the attribution of human characteristics to non-human things and events” (Freling and Forbes 2005, p. 152). Consistent with the views of Lannon and Cooper (1983), de Chernatony (1993, p. 178) asserts that, “consumers enrobe themselves with
brands, partly for what they do, but more for what they help express about their emotions, personalities and roles”.

Branding has been defined as “the promise of the bundle of attributes that someone buys and that provides satisfaction ... the attributes that make up a brand may be real or illusory, rational or emotional, tangible or invisible” (Ambler 1992, p. 17). In extending this holistic brand perspective, practitioner Alexander Biel (1997; 1999) outlines the interplay between image and relationships in his “brand magic” model (see Figure 2.2), whereby the intended brand identity (developed by manufacturers) is interpreted by consumers via collective overall brand image and personality (meaning taken out by consumers).

**Figure 2.2: Brand Magic Model Incorporating Image and Relationships**

This Figure has been Removed for Copyright Purposes. Refer to Reference Biel (1997) for Original Exposition.

Source: Adapted from Biel (1997).

The model illustrates an interactive perspective of brand as an enabled actor to reflect two-way interchanges in a relationship framework. This view implies reciprocation and respective meaning transfer within an active relationship dyad (Escalas 1996; Fournier 1994). In summary, this model represents prevailing thinking which suggests that a brand’s true source of differentiation lies not in the superiority of functional (physical) attributes of the product (D. Aaker 1996), but rather on the “softer” intangible aspects such as emotions, feelings, images and relationships with the brand (Blackett 1998).
In the next section the consumer brand equity (CBE) perspective of brand equity is highlighted. An understanding of this perspective provides insight into how brand knowledge and brand relationships may develop. Subsequently, literature is outlined to evaluate the application of the consumer brand relational metaphor and, finally, relevant focal domains (brand personality, brand relationship quality and product class involvement) are profiled.

### 2.3 Consumer Brand Equity

The brand equity definition adopted in this thesis follows Keller’s (1993, p. 2) view of consumer brand equity (CBE) that it is “the differential effect of brand knowledge on consumer response to the marketing of the brand”. As such, strong CBE occurs when the “consumer is familiar with the brand and holds some favourable, strong and unique brand associations in memory” (Keller 1993, p. 3). Keller’s definition acknowledges that brand knowledge incorporates associated brand images from which consumers derive and construct brand knowledge. Keller (1993) theorises that improving brand associations occurs via focusing on the type, strength, favourability and uniqueness of brand image associations. Grønholdt and Martensen (2004) also adopted the CBE perspective when developing a brand equity model.

The Keller model has been extended by Korchia (1999) to include associations contributed by the firm, other organisations and the evoked universe (brand personality/lifestyle, celebrities/characters, users, usage/experiences). Additional attributes including non-product-related mix components (product class, price, communication and distribution) also feature in the Korchia exposition. This extension emphasises associations derived from

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6 There are also three other brand equity perspectives. The first perspective incorporates brand equity pertaining to brand valuation, and the second perspective determines the strength of a brand’s equity relative to lower-priced generic products. Finally, the third perspective from an econometric viewpoint involves assessing brand equity as a signalling phenomenon suggesting that stakeholders look to brands for cues when there is asymmetric information (Erdem 1995; Erdem and Swait 1998). These are not presented further as they are not central to the thesis scope.
product class perceptions such as product class involvement. Based on the Korchia typology, brand personality is one concept included in brand image (Plummer 1984).

The notion of consumer brand relationships requires acceptance of the premise that consumers can form relationships with brands (Fournier 1998; Woodside 2004). These assumptions are discussed in the following sections.

2.4 The Brand as a Partner, Brand as a Friend and Brand as an Acquaintance

Metaphorical application has been utilised extensively in the psychology and linguistic literature (Bartel 1983; Katz 1989; McCabe 1983; Tourangeau and Sternberg 1982; Trick and Katz 1986) but is comparatively limited in the marketing literature (see Aaker 1997; Aaker and Fournier 1995; Fournier 1994; Thompson, Pollio and Locander 1994; Ward and Gaidis 1990; Zaltman 1996). However, Macrae (1996, p. 76) supports metaphorical application in branding stating, “If you want to gain a deeper understanding of the quality of your brand's emotional relationships with consumers, most of the analogies with human relationships are worth exploring”. Although not universally endorsed (e.g., Bengtsson 2003), there has been broad acceptance of the existence of consumer brand relationships (D. Aaker 1996; Aaker and Fournier 1995; Blackston 1994; Fournier 1994; 1998; Iacobucci and Ostrom 1996; Olsen 1999; Szmigin and Bourne 1998; Woodside 2004) with Fournier (1998) presenting valuable research outlining relational types and validating a scale to measure the strength of the relational bond.

To highlight the tenets of a relationship, the personal relationship literature has been consulted revealing that several factors are necessary to qualify as a relationship (Hinde 1995). For the purposes of this research, a relationship is defined as “a particular state of affairs - one which conveys information about how two or more persons or objects are connected” (Davis and Todd 1982, p. 93). This definition has two important elements in that

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7 This section draws from the previous work of Fournier and her developed perspectives.
it consecutively includes the feat of both people and objects having the ability to formelations between one another. This is complementary to the work of Ahuvia (1993) who
concluded after qualitative investigation that people can and do love brands. A human
relationship involves reciprocal exchanges between active and interdependent relationship
partners, is purposive, and provides a range of possible benefits for the participants. Hinde
(1995) also notes that relationships are complex process phenomena that evolve and change
over a series of interactions and in response to fluctuations in the contextual environment, that
is, relationships have a temporal aspect. Overall, it is apparent that relationships are indeed
complex in nature, and can exist between persons and objects (Carroll and Ahuvia 2006).

Fournier (1994; 1998), through the use of grounded theory methods and ethnographic
techniques, initially postulated that people in fact do have relationships with brands. Fournier
(1998) specifies 15 consumer-brand relationships including arranged marriage, casual friend,
marrage of convenience, committed partnership, best friendship, compartmentalised
friendship, courtship, dependency, fling, enslavement, enmity, kinship, rebound, childhood
friendship, and secret affair. This typology has been extended to include children (Ji 2002)
and gay men (Kates 2000) brand relationships. Fournier (1994; 1998) and subsequent work by
Woodside (2004) have also reinforced the premise that brands are given animate qualities by
their users, and provide further validity to the notion of people sustaining dyadic relationships
with brands often engendered with human-like qualities. Numerous researchers concur that
consumers have also established the tenability of consumers’ ability to form active and
reciprocal consumer-brand relationships (e.g., Andreou 1994; Hanby 1999; Hess 1998;
Macrae 1996).

The marriage analogy intimates a relatively strong relationship form exhibiting
exclusivity and, by extension, implying complete loyalty towards one brand (the Utopic state
of exhibiting single brand loyalty). Therefore, the marriage perspective may be too strong and
restrictive for application to most consumer-brand relationship types. Szmigin and Bourne (1998, pp. 553-554) suggest that, “researchers should look to develop alternative forms of relationship based on consumers' need and their view of equity; the preferred friend rather than the partner for life may be a more worthwhile goal”, and they suggest that this may explain the propensity for consumer repertoire buying. The preferred friend perspective provides a clearer distinction between personal and social relationships, and complements Fournier (1998) who similarly identified 15 relationship type variations. Once the person-brand relationship is accepted, it is not difficult to understand by extension why people experience brands as benefit bundles incorporating relevant personality associations (D. Aaker 1996; Farquhar and Herr 1993), and “including anthropomorphizing the brand as an active relationship partner - at the level of consumers lived experiences with their brands” (Woodside 2004, p. 284). The next subsection outlines the mix of benefits consumers seek and links to how this may indicate a level of internalisation.

2.4.1 Benefit Mix and Internalisation

It is important to recognise that consumer behaviour is a benefit and goal-driven activity, with Hess (1998, p. 74) establishing that “relationships in which the level of emotional benefit exchange was high but functional benefit exchange was low were relatively rare”. That is, most relationships have a mixture of both benefit types, and Hess postulates that consumer brand relationships consisting solely of functional and emotional benefits may be orthogonal in development (cf., Hess 1998, p. 114). The types exist only in very rare cases. Additionally, such work by Hess (1998) recognises the role of product category in the benefit-mix dynamic. Hess (1998, pp. 114-115) states that the benefit dynamic could “vary across product categories (e.g., intense relationships that are high on both dimensions for products providing functional value, versus intense relationships high on emotional content alone, for products
intertwined with the consumer’s self-concept)”8. It is important to note that, to a degree, the overall benefit mix sought by consumers may illustrate a level of active internalisation which supports an active brand-as-partner orientation and provides evidence of active brand dealings. The next section discusses these issues further.

2.4.2 Evidencing Internalisation Through Meaning Creation

It is readily observable that many brands elicit affect and emotions making one feel happy; others, confident or safe and other brands evoke feelings of boredom, confusion, or amusement (Biel 1993). At their strongest, brands can enable transformation of experience leading to active internalisation. A useful comparison can be drawn from highly-committed close personal relationships, about which Raush (1977, pp. 184-185) states:

“When internalization takes place, something that was initially not ‘me’ becomes a part of ‘me’. Commitment, thus, can be thought of as a process of internalization. In committing myself to another- or to a group, a concept, an ideal - that which I previously considered external to me becomes an integral part of me; and what happens to the ‘other’ is no longer ‘outside’ me”.

This process of internalisation demonstrates a level of consumer activity and reciprocation, with the effects being reflected via either an affective, cognitive and/or behavioural response. This demonstrates consumers’ continual motivation towards self-improvement, enhancement and progression towards satisfying some of their ideal desires (Wallendorf and Arnould 1988). This is one valuable benefit of consumption. Early theorising by Levy (1959) highlighted that people do not just buy products for purposes of functionality, but also for what the product collectively means to the individual (the self-expressive purpose). He contends, that consumers are able to gauge the functional and symbolic language of different objects and are able to translate those symbols and internalise pertinent meaning. The meaning can be relatively cursory or more elaborate. “A symbol is considered

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8 The role of product category in consumer brand relationships and the collective mixture of functional versus emotional benefits is a key factor highlighting the importance of the inclusion of product class involvement as a focal construct within this thesis. This is further detailed in Sections 2.14 and 2.15. The selection of brands within this thesis is also cognisant of the issues raised by Hess (1998) (see Sections 3.6 and 3.8).
appropriate when it joins with, meshes with, adds to, or reinforces the way the consumer thinks about herself” (Escalas 1996, p. 21). Shavitt (1990) observed more simply that brands are often used by consumers to reflect their underlying self-concept and value system.

The active consumer perspective is further supported by how consumers construct meaning, which can occur via two avenues. First, early theorising from McCracken (1986) illuminates how meaning is transferred from society, goods, products, brands and people. McCracken (1993, p. 129) argues that, “strong brands win loyalty because they contain appealing, useful and powerful meanings. Consumers are loyal to the brands because they want these meanings, in this configuration, with this intensity”. This meaning store is supported by advertising communication, purchase consumption rituals and other marketing activities (Fournier 1994; Dowling 1994) but can include any brand actions or feedback within the social community. These factors mesh to create brands with inherent meanings (McCracken 1988) and establish core brand values (Restall 1991). Furthermore, McCracken (1993) outlines that a brand’s personality is part of a brand’s cultural meaning, and that consumers choose those brands with cultural meanings that are best able to satisfy some aspect of the consumers’ actual or ideal selves.

Secondly, the McCracken meanings transfer model is complemented by the narrative approach outlined by Escalas (1996) where the brand becomes associated with an engaging story or narrative. Escalas (1996) believes that people create meaning in the world around them by creating narratives or stories about situations in their lives that are of primary relevance and significance. Implicit acknowledgement of the use of narrative theory is consistently employed within story-laden transformational advertising (Puto and Hoyer 1990; Puto and Wells 1984). These promotional messages are usually inherently involved within the creative execution. The story may reflect everyday life or something to which the target audience aspires. This tactic is common in communication campaigns and sequels, using real
or fictional characters (Phillips and McQuarrie 2009). For example, a campaign within Australia has a cartoon character called Louie the Fly. Louie is a cartoon animated insect who narrates his own story of how Mortein and its variants are effective at killing insects. In summary, both of these meanings creation theories support the view that consumers are active actors cumulating internalised meaning. The next section highlights the role of interactivity in consumer brand relationships.

### 2.4.3 Two-Way Interactivity and Brand Partners

Successful consumer brand relationships have two-way interactivity between the consumer and the brand (D. Aaker 1996; Thorbjørnsen, Supphellen, Nysveen and Pedersen 2002). The previous discussion highlights how the consumer may be viewed as proactive consumers through internalised meaning creation. It has been established that consumers are behaviourally a “lively participant in the satisfaction process over time” (Fournier and Mick 1999, p. 15). The act of interactivity implies that there are two actors in a relationship. On the brand/manufacturer side of the dyad, it is the marketer that actions the brand through marketing tactics (Fournier 1994; 1998). This helps facilitate consumer-brand reciprocation. Fournier (1994; 1998) has developed what she calls Brand as a Relationship Partner (BAP) theory. It is Fournier’s contention, and the position taken in this research, that people can form relationships with brands. The BAP view is also considered tenable by others (Batra, Myers and D.Aaker 1996; D. Aaker and Biel 1993; Blackston 1992; Cooper 1999). In essence, the brand is a partner with corresponding complementary or desired values and personalities (Ambler 1994). BAP theory also recognises that decision-making is a goal-driven activity cognisant of derived benefits (Bagozzi 1995; Hess 1998). Even if this is a negative relationship form, it is still a relationship of sorts (Fournier 1998). Fournier (1994) stresses that the brand and the person are not equal partners in the relationship; quite obviously, the person holds the power through the luxury of choice. This perspective has
recently received necessary attention (Pervan, Bove and Johnson 2009). Some critics argue from the perspective that brands cannot technically form a relationship because brands are passive and inanimate objects, however, brands are activated through management tactical decisions. Such criticisms may be caught up in definitional semantics surrounding how a relationship is defined. One way to dispel this myth is to use an analogy from a common personal relationship that we may all relate to. Fournier (1994, p. 28) highlights that,

“Certain interpersonal relationships involve a passive, non-reciprocating partner. Many Catholics, for example, maintain a relationship with the Church without cultivating interactions with the parish priest. Childhood friendships persist for years on end without the benefit of active interaction”.

It must be acknowledged that not all people or situations may be conducive to successful relationships. Szmigin and Bourne (1998, p. 544) believe that, “not all customers want, or gain from long-term relationships, and not all relationships may be mutually beneficial”. They go on to argue that for each party to benefit, there must be something that is mutually beneficial for each party. The ideal of mutually beneficial relationships is closely tied to equity theory, as both parties will assess the rewards and the costs of the current situation against the alternative relationships or competitive options available, and the perceived rewards must be at least equal to the perceived costs (Szmigin and Bourne 1998). Consumers must find enough overall equity in the relationship to ensure an enduring relationship to the brand over time.

If it is accepted that consumers are active participants when dealing with marketing stimuli, the level of this activity or activation and subsequently the level of reciprocation is what then forms a point of conjecture. Are consumers passive/sub-conscious participants or highly-active conscious reciprocal participants? Or, do they respond somewhere between both these points? Or is it, in fact, a mixture of active and passive modes?9 Previous work has

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9 It is beyond the scope of this research study to empirically investigate such issues, as prior work is deemed satisfactory in supporting the consumer-brand relationship premise. Limited resources and study
supported the person-brand bond (Cooper 1999; Martin 1998; Melser and Ringham 1998). What is clear is that people have established normative benefit expectations that form a baseline for exchange satisfaction. These expectations are similar in personal relationships, with partners expecting “certain behaviors of those with whom they share interpersonal relationships, but only in the predictive sense” (Douvan 1977, p. 18). Likewise, there are normative expectations that consumers aim to satisfy. Based on the previously reviewed literature, this research study adopts the consumer-brand relationship premise.

This concludes the investigation into the parent disciplines of branding, brand image, consumer brand equity and consumer brand relationships. The relevance and application of analogy and metaphor in theoretical development have been substantiated. Overall, the consumer-brand relationship proposition has been discussed and is embedded within the parent disciplines of relationship marketing and consumer brand equity. The following sections outline the literature for brand personality, brand relationship quality and product class involvement separately. Subsequently, these domains are explored in concert to further assist in positing a system of relations between constructs. The next section outlines human personality trait theory.

2.5 Human Personality Trait Theory

Brand personality research, as developed by Aaker (1995), emanated from human personality research and, more specifically, trait theory. The study of personality has origins in the early work of psychologists such as Gordon Allport and Raymond Cattell in the 1930s and 1940s. The trait approach is the longest held and most accepted approach for assessing human personality. Early personality work subsequently developed into the well-known “Big Five” model of human personality (Goldberg 1990; Norman 1963) and has presented a solid foundation for future researchers who study human uniqueness. The Big Five school of delimitations precluded finer distinctions via experimental or segmented investigations. These issues are collectively presented in later chapters.
thought uses a lexical approach encompassing personality attributes and trait descriptors which can be quantitatively analysed in a hierarchical structure, that is, words and descriptors of personality traits/attributes are encompassed in a measurement instrument (usually a survey). Human personality research has utilised numerous analysis methods over a 40-year period, including factor analysis methods, item response theory, structural equation modelling and other exploratory techniques (Finch and West 1997). There is no clear consensus on suitable analysis methods among human personality methodologists, with some preferring exploratory techniques (Macrae, Zonderman, Costa, Bond and Paunomen 1996). In short, there is still much debate over such analytical issues in human personality research.

The modern form of the Big Five model was established by Goldberg (1981) and includes the dimensions of Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism (or OCEAN, which is the commonly used acronym). Some authors have debated the form of the Big Five, with Emotional Stability being used instead of the term Neuroticism. Despite the varying naming conventions, the studies are fundamentally similar. Caprara et al. (2001) outline$^{10}$ that Openness reflects the tendency to be creative, informed, modern, up-to-date, innovative and original, that is, whether the person is accepting of new ideas/concepts and new approaches to accomplish tasks. Conscientiousness involves the ability to show self-discipline and is represented in characteristics of being constant, efficient, precise, regular, reliable and scrupulous. Extraversion is central to a person’s tendency to seek stimulation (e.g., dominant, active, competitive, energetic, happy, lively, resolute, strong). Agreeableness encompasses aspects of compassion, faithfulness, being genuine and altruistic. Neuroticism (Emotional Stability) represents somebody who is calm, level-headed, patient, stable, relaxed and can deal with emotional variations. Human personality is commonly represented as a higher-order construct (Digman 1997). Aaker’s (1995) brand personality work follows the

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$^{10}$ This section draws heavily from Caprara et al. (2001) and Aaker (1995).
same lexical approach and also establishes brand personality as a higher-order representation. The Aaker (1995) study does not show the constructs of Emotional Stability and Openness as being applicable to brand personality, however, results show that brand personality incorporates aspects of Agreeableness, Extraversion and Conscientiousness. This is discussed further in the next section.

2.6 Brand Personality

Brand personality research was substantially revived in the 1990s (Aaker 1995; 1997; Strausbaugh 1998). Many of the developed theories and scales have adopted the trait-based perspective of personality, which is also the most developed and accepted approach in human personality research. This thesis also adopts the trait perspective.

Brand personality, and brand relationships, were previously demonstrated to be key components of brand image featuring in the Korchia and Biel models (see Sections 2.2, 2.3 and Figure 2.2). The concept of brand personality has been attributed to adman, David Ogilvy, by recognising “that consumers do not buy products, rather they buy products with a personality, namely, ‘brands’” (as stated in Dowling 1994, p. 5). Practitioners have long accepted the utility of brand personality (Plummer 1984) and see it as being a legitimate communication tactic. Early academics also considered the plausibility of brand personality (Gardner and Levy 1955) to have merit. Brand personality is the outward impression consumers receive from the brand identity (Kapferer 1992; cf. Kapferer Prism of Identity). The next subsection focuses on defining brand personality and its respective components. Different theories are subsequently presented, outlining the functioning of brand personality and how it contributes to brand equity and brand relationships.

2.6.1 Brand Personality Defined

Aaker (1995, p. 141) defines brand personality as “the set of human characteristics associated with a given brand. Brand personality, like human personality, is both distinctive
and enduring”. After criticising the Aaker definition for being too broad and encompassing associations outside of traits, Azoulay and Kapferer (2003, p. 151) narrow down the Aaker derivation, highlighting that “brand personality is the set of human personality traits that are both applicable to and relevant for brands” (italics in original). This exposition limits the scope to personality traits. In short, this is a refined definition, however, the definition can be further complemented by acknowledging the relative inseparability of consumer constructed meaning. Allen and Olson (1995, p. 393) state that, “brand personality is the specific set of meanings which describe the "inner" characteristics of a brand. These meanings are constructed by a consumer, based on behaviors exhibited by personified brands or brand characters” (italics in original). Notably, the Allen and Olson (1995) definition also incorporates selected antecedent factors that could influence brand personality and highlight that the brand is inherently active. Brand personality can be shaped by the numerous contact points incorporating any direct or indirect experiences a consumer has with a brand (Plummer 1984; Srull and Wyer 1989). Fournier (1998, p. 368) acknowledges a close brand personality linkage within her BAP theory, stating that consumers construct “trait inferences … based on repeated observation of behaviors enacted by the brand at the hand of its manager, that cohere into a role perception of the brand as partner in the relationship dyad”. The adopted definition in this thesis represents an adaptation of the three abovementioned perspectives:

Brand personality is the specific set of consumer brand meanings which describe human trait-based inferences and characteristics that are based on repeated observation of behaviours enacted by the brand which are applicable and relevant for BAP relationship dyads across multiple stakeholders.

This definition acknowledges the trait-based dominant focus and the perspective of Azoulay and Kapferer (2003), Allen and Olson (1995) and also Fournier (1998), who recognise the importance of relationships. Additionally, this definition also emphasises that meaning may be co-created through social interaction residing with multiple stakeholder
groups despite the focus for investigation being solely the end consumer within this thesis (see Section 1.6).

### 2.6.2 The Aaker Brand Personality Scale

Brand personality as a topic started to receive significant attention in the 1990s and especially after the publication of the work of Aaker (1995). Primarily, Aaker (1995) needed to develop a suitable scale to continue with her second objective of establishing the role of self-congruity for various scenarios. A person’s personality and brand personality may not be able to be assessed for congruence as the domains are represented by different constructs and few studies have illustrated such connections successfully (Kassarjian 1971). Aaker (1995) has perhaps been the closest to confirming self-congruity theory in a quantitative sense but still with mixed results as two constructs are different in both domains. Self-congruity will be discussed further in Section 2.9.

An important contribution of Aaker’s work involved validating a brand personality scale. Aaker’s (1995; 1997) Brand Personality Scale (BPS) is a 42-item scale measuring brand personality. In the U.S.A. brand personality has shown a clear five-factor structure similar to the “Big Five” personality traits featured in personal psychology (Smothers 1993). Her work, based on both exploratory and confirmatory factor analyses on large brand sets (37 brands and 20 brands) and large samples (n=637 and n=180), identified that brand personality was represented by five first-order factors: Sincerity (down-to-earth, honest, wholesome, cheerful), Excitement (daring, spirited, imaginative, up-to-date), Competence (reliable, intelligent, successful), Sophistication (upper class, charming) and Ruggedness (outdoorsy, tough). The facets of each construct are represented in the brackets above. Using facets to further explain the dimensions of human personality is very common (Shaver and Brennan 1992). This set of 15 components, or facets, provided further insight into the nature of brand personality. The five brand personality factors emerged after analyses were undertaken by age.
or gender and when subsets of the brands were used. The final BPS measured the constructs’
association with brand personality. The constructs explained nearly all (93 percent) of the
observed differences between the brands that were sampled (Aaker 1995). This scale is the
most accepted brand personality scale exposition today. Figure 2.3 illustrates that brand
personality is a second-order reflective representation with five first-order level constructs.

**Figure 2.3: Higher-Order Representation of Brand Personality.**

![Higher-Order Representation of Brand Personality](image)

Source: Adapted from Aaker (1995).

The following section outlines the key theories underpinning brand personality and also
highlights three routes by which it can influence brand equity.

**2.7 Theories Underpinning Brand Personality Function**

A number of theories provide the foundation for the successful existence and operation of
brand personality. The first concerns the fact that brand personality may be central to
identification. Social identification theory centres around the degree of identification the
person derives from social (or desired) categories of membership (Tajfel and Turner 1986).
Groupings exist in many aspects of our lives (demographic groups, social groups, work
groups, etc.) (Bhattacharya, Rao and Glynn. 1995). Groups endorse consumers self-definition
of their own social surroundings (Ashforth and Mael 1989) and group conjunction helps
elucidate a feeling of belonging with either the in-group or out-group (Mael and Ashforth
1992). Separation into groups helps individuals create social identity (Tajfel 1978). In this
case, social identity is a “self-conception as a group member” (Abrams and Hogg 1990, p. 2). Participants and non-participants utilise vicarious learning in reference to group membership (Katz and Kahn 1978), which can create a degree of conflict between and within groups. The underlying motivation is, typically, to strive for self-esteem enhancement and to supplement notions of self (Sirgy 1982; Wallendorf and Arnould 1988) and social identity (Hogg 1992; Hogg, Terry and White 1995; Hogg and Turner 1985). The self-concept suggests that there is an actual self, “how a person perceives himself”; ideal self, “how a person would like to perceive himself”; “social self, “how a person thinks others perceive him”; and situational self, which is “the person’s self-image in a specific situation” (Mowen 1995, p. 229). The perception of oneself includes physical self, services/products consumer and social membership groups (Todd 2001).

Brand personality, actual usage and communication of the brand’s typical user help contribute to overall brand image (Johar and Sirgy 1991). The social categories to which we are associated also influence our perception of others (Johnson, Schaller and Mullen 2000; McCracken 1988). Categorisation allows for a preference to be developed among those in your group, and members within the same group understand each other better and are more tolerant of people, issues and events within their category (Guinote 2001; Leach, Peng and Volckens 2000). This connection with consumer, group, image and self-concept is best stated by Escalas (1996, p. 19):

“It is important to keep in mind that brand image is a function of both external influences, such as culture and marketer actions, and the personal experiences consumers bring with them as they interpret what a brand means. The four components of brand image (user image, product image, company image, and usage image) all provide opportunities for building connections to consumers’ self-concepts. Who I am may be related to the various images of the brands I use. This is also true for symbolic (and perhaps functional) product benefits: as needs are satisfied, connections may be formed. Part of these connections is brand esteem or positive sentiment towards the brand. The bottom line is that meaningful self-brand connections build brand equity and create committed buyers”.

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The Escalas (1996) perspective also acknowledges the value of the overall collective store of all images which enable self-expression and facilitate brand choice (Lannon 1993), and help augment and categorise membership so consumers can assess similarity and subscribe, as appropriate (Aaker 1998). Other dominant theories underpinning the operations of brand personality are also embedded within group consumption dynamics.

As the natural embodiment of a social exchange, consumers can experience intense emotions as a function of the degree of interdependence between exchange participants (Lawler 2001). Generally, people are seen as having a natural tendency to form relationships and are specifically driven to form relationships with groups as they derive value and utility through engaging in successful social exchanges (with each other and the collective). This illustrates the theory of relational cohesion (Lawler, Thye and Yoon 2000). There is reinforcement and value offered to participant members by seeking higher levels of relational cohesion. A model demonstrating how brand personality may impact brand image and brand equity is presented next.

2.8 Brand Personality Profiles and Brand Equity

Aaker’s (1995; 1997) results established that most brands, and especially large brands, have multi-faceted trait representations as they exist in the marketplace as different variants offered to different segments, sometimes with unique marketing strategies. That is, brands have a multi-faceted personality profile which appeals to different consumers with heterogenous needs. Fuller (1995) concurs with this notion theorising that brands can have multi-faceted personalities, and outlining that brands like Levi’s, through consistent communications, have become associated with seven dominant character or personality traits. Other brands, especially those engaging in mass target marketing with differentiated marketing practices, are believed to have multiple personality profiles, which add depth and richness to brand personality.
It has previously been established that brand personality is a key component of overall brand image. This section further classifies various image types that impact overall brand image and brand equity (see Figure 2.4). This is to allow a wider understanding on types of image.

**Figure 2.4: The Biel Brand Equity Model**

This Figure has been Removed for Copyright Purposes. Refer to Reference Biel (1993, p. 72) for Original Exposition.


First, user image is a unique concept compared with brand personality (and components of the Image of Maker and Image of Product) and focuses on the perceived human characteristics of the typical user (Biel 1993). Secondly, corporate image is the view stakeholders have of the holding company or corporate level brand. The brand personality notion has already been extended to the corporate personality level (Chun and Davies 2006; Davies et al. 2001; Davies and Chun 2002). Additionally, the competition will also have respective image meaning and will form a normative baseline for comparison. Finally, all image types reflected in Figure 2.4 can ultimately contribute to brand personality and overall brand image impressions. The functioning of brand personality and how it might impact brand equity is now discussed.

### 2.8.1 Explaining the Dynamics of Brand Personality Influencing Brand Equity

Figure 2.4 demonstrates that brand personality is a key driver impacting consumer
preference, usage and brand value. D. Aaker (1996) presents a typology outlining a three route perspective on how brand personality enhances brand equity. This includes: the self-expression model, relationship basis model and functional benefit representational model.

2.8.1.1 The Self-Expression Model

The self-expression model of brand personality supports the notion that brand choices reflect and satisfy a self-expressive function for consumers (D. Aaker 1996). See Section 2.7 for the theoretical basis. In the most extreme instances of brand attachment involving key personal possessions, the brand may become an extension of the self (Belk 1988; Belk, Bahn and Mayer 1982). The self-expression model functions via self-concept theory (Sirgy 1982) incorporating all aspects of self (see Section 2.7). Aaker (1996, p. 153) states that we express our own or ideal identities in ways such as: “job choice, friends, attitudes, opinions, activities, and lifestyles”, and brands offer consumers “value-expressive, symbolic benefits that allow them to achieve one of many identified self-motivated goals” (Escalas 1996, pp. 14-15). These identities are important as a person may have multiple personalities to project dependent on roles or various situational consumption contexts (D. Aaker, 1996). Importantly, D. Aaker (1996) acknowledges that even brands with weak (or possibly functional benefits) brand personalities can be used for self-expressive purposes, for example, to communicate frugality (cf. Dunlop Volley shoes). Functional attitude theory helps explain this identification role (Ashforth and Mael 1989). The level of self-expression an individual is motivated to seek depends on their attitude “to symbolize and express a person’s self-image through identification and salient reference groups” (Sirgy, Lee, Johar and Tidwell 2008, pp. 1092-1093). An extension to this thinking is presented by Fournier (1994) who considers how meaning may lead to stronger relational connections. Fournier (1994) illustrates differing levels of meaning leading ultimately to identity connections (see Figure 2.5). Her meanings framework highlights how various meaning levels can strengthen brand relationships.
Underpinning this model is the theory that brand consumption may be self-expressive either outwardly (for others), inwardly (for me), or may satisfy the combined functions. Self-expression and identification may not always involve other groups; it can also provide individual nurturance. Fournier’s model demonstrates that meaning may not extend past cursory utilitarian beliefs but, in some instances, it could progress towards strong internalisation, thus forming core identity connections.

**Figure 2.5: Levels of Meaning in the Brand Relationship Schema**

This Figure has been Removed for Copyright Purposes. 
Refer to Reference Fournier (1994, p. 113) for Original Exposition.

Much is dependent on the consumer’s goal-seeking behaviour and overall brand relationship history. It is apparent that the previously discussed McCracken perspective is encapsulated within the culturally shared meanings level, and the Escalas perspective is present at the personalised brand memories level. Overall, the level of meaning derived can be internalised in various ways ultimately assisting self-expression and, in some instances, full identity connections (cf. Harley Davidson).

**2.8.1.2 The Relationship Basis Model**

Brand personality assists consumers to facilitate ongoing relations with brands (Keller 2003). The relationship basis model focuses on the impact of brand personality in assisting to build and sustain a stronger overall consumer-brand relationship. The brand personality must
be seen as desirable and attractive enough that consumers desire a relationship with the brand. Brand personality can be central to the relationship between the brand and consumer (Meenaghan 1995). It is this perspective and the foundation of relationship marketing (Gronroos 1990a,b; Gummesson 1987) that leads to the brand-as-partner perspective (Fournier 1994), or what D. Aaker (1996) calls brand-as-a-friend perspective when illustrating consumer brand relations. He rationalises that we form friends (or relationships) in our lives with many different people with varied individual personalities, therefore, this relationship focus can also apply to brand personalities and our branded relationships. This relationship basis approach “can allow more scope and flexibility in the implementation of brand identity” (D. Aaker 1996, p. 161). Fournier (1995, p. 7) alludes to the necessity of integrating knowledge of brand personality and brand relationships by stating, “one way to legitimize the notion of the brand-as-relationship-partner is to highlight ways in which the brand is animated, humanized, or somehow personalized”.

It is, however, the holistic collection of marketer actions, and respective consumer perceptions of the brand as “acting”, that enables human characteristics or traits to become associated with the brand (Fournier, 1994). Act Frequency Theory implies that people’s actions imitate aspects of their own personality (Buss and Craik 1983). By extension, and as discussed in the self-expression model previously, the users and consumers of brands will infer characteristics of the brand from marketer actions. In this manner, the brand moves into the realm of being a more active partner (Fournier 1998). This has previously been referred to in Section 2.4.

Legitimising the relationship basis model further is the propensity for marketers and consumers to animate brands. This process is underpinned by the consumer tendency to give non-living objects human-like qualities (Bower 1999; Boyer 1996) through anthropomorphism (Guthrie 1993; 1997). “Between a consumer and a brand, the
responsibility for imbuing the anthropomorphism in the relationship must lie with the consumer, with the brand (or its producer) perhaps capable of aggregate behaviors that facilitate the process by which consumers conceptualize or experience the relationship” (Hess 1998, p. 19). Consumers may engage in this process for many reasons.

Guthrie (1997) believes we may frame the world with a mental model that is most familiar. He also outlines that we anthropomorphise to make things more like us and reduce our discomfort as a result. Guthrie (1993) states we may do this because of perceptual uncertainty. This may emanate from our most basic instinctual capacities that originally helped us identify other humans and animals (Guthrie 1997). Our models and schemata are “hard wired” to instinctively enhance survival and protection. In the most basic scenario, we aim to recognise other humans and animals (even though they may be objects) so as to identify threats and opportunities. This response may be automatic and unconscious. People also try to predict the world based on the balance of probabilities (Dennett 1991) to reduce high levels of object uncertainty. By engaging in a process of anthropomorphism, the reference object becomes value laden and inherently intertwined in the context of our interaction within the environment (Caporael and Heyes 1997). In other words, anthropomorphism transfers the source object’s value system. For example, a car designed, communicated or even just imagined as like a fast hunting cat (cheetah) will adopt the same value or ethics code and imply certain social consequences for objects (Caporael and Heyes 1997). This transfer of values allows relations between partners. Another explanation, although more consistent with the self-expression model, is that people also animate objects to allow attribution of more relevant meaning to subsequently supplement self and identity. Anthropomorphism acts as a form of closure when uncertainty is present and assists in providing cognitive order (Jackson 2002).
Overall, the relationship basis perspective is supported in practice by Zinkhan (1993, p. vii) who states, “an important communication objective is to breathe life into otherwise inanimate objects”. This creative approach is natural and organically embedded within storytelling to give life and realism to the constructed story (to satisfy marketing objectives) (Zaltman and Higie-Coulter 1995), and is present within many marketing tactical elements (brand name, design and identity, communication approach, etc.). Consumers appear willing to assign such properties to consumer products (Fournier 1998; Fournier and Mick 1999; Hanby 1999; Neal 1985). In conclusion, this section has specifically outlined theory supporting the relationship basis approach that subsequently impacts brand equity. The relationship basis approach provides the foundation and evidence supporting the functioning of an entire brand relationship quality system (Fournier 1994; 1998). This will be discussed in Section 2.13.2 within this chapter.

2.8.1.3 The Functional Benefit Representation Model

Finally, the third way in which brand personality can impact brand equity is the functional benefit model which highlights the importance of imbuing the brand (through design, delivery or communication) with functional benefits. De Chernatony and McWilliam (1989) argue that brands can be described by the extent to which they satisfy performance needs (functionality) and personal expression needs (representationality). This is very much in congruence with the functional theory of attitudes, suggesting that attitudes provide multiple benefits for an individual consumer (D. Katz 1960).

Brand personality can “cue functional benefits and attributes” (D. Aaker 1996, p. 168). Product-related characteristics can be primary drivers of a brand personality and even the product class can affect personality perception. A bank or insurance company, for example, will tend to assume a stereotypical "banker" personality (competent, serious, masculine, older, and upper-class). Some of these characteristics are uncontrollable by the firm in the short
term. The product class in which a company operates is largely determined by past product/service offerings. Design decisions through packaging assist with communicating key brand personality impressions (Orth and Malkewitz 2008). Designs may create impressions of being like animals, other people, myths, etc. This is another example of animism (see previous section). The function of the product through shape, size, colour and texture influence brand personality (Aaker, 1997), and these physical aspects provide key cues to users and potential consumers. In many respects, the branding symbolism and consistent brand identity elements mentioned above (D. Aaker 1991; Kapferer 1992) are reflective of totemism. Symbolism through branding and use of characterisation can strongly supplement brand personality (Phillips 1996a). Branding totemism also contributes to the overall level of anthropomorphism.

Many brands aim to functionally animate the product or service offering. The phenomenon of Hello Kitty which redefined cute is one example (Marcus 2002). A brand name can imply certain functionality but also be central to brand personality, for example, Sunbeam's food processor named Oskar, or the insect killer Rentokil. For complex tasks, brand personality can imply certain functional advantages and, therefore, act as a valuable decision aid leading to custom (Lannon 1993). Thus, many of the tools that assist in expressing the functional benefits are now explained. They can also act to form key antecedents to brand personality and assist in creating the overall brand personality impressions derived by consumers (see Section 2.10).

The origin of the brand also contributes to the functional benefits that are embedded within the brand image. “Brand origin is the place, region or country to which the brand is perceived to belong by its target consumers” (Thakor 1996, p. 27) and “refers to signifiers of origin beyond those that merely indicate a country” (Thakor 1996, p. 33). He outlines that brand origin communicates the demographic variables of the brand and makes age, gender
and social class readily observable. This section has illustrated how brand personality can act as a cue for brand attributes leading to equity enhancement. This concludes the discussion and background on how brand personality can impact brand equity. In the next section, the topic of self-congruity is outlined.

2.9 The Self-Congruity Theory and Brand Personality

As discussed previously in Sections 2.7 and 2.8.1.1, the self-expressive function of brands is important for consumer notions of self and identity enhancement. Self-congruity theory contends that consumers will have a preference for and choose brands that are congruent with their own notions of self (Sirgy 1982). “Self-congruity is made up of two components, namely, product image and self-image” (Quester, Karunaratna and Goh 2000, p. 525). Brand use often mirrors overall consumer identity (Reed 2004) and is strongly associated with social identity (Weiss 1974). There is a greater confidence in selecting brands that reflect self-identity (Escalas and Bettman 2005) and encourage social group memberships (Escalas and Bettman 2009; Muniz, Albert Jr. and Schau 2001). Self-congruity theory was initially developed around a belief of an image congruence hypothesis that goods and services have intrinsic and extrinsic values, and there is a reference group or individual which values this meaning to such a degree that the individual will act to reward and supplement their self-image (Grubb and Grathwohl 1967). In other words, there is an image match between consumer self-image and product image, brand image or corporate image (Sirgy 1986).

Work in this area has matched desired self-image with brand image, often using calculated difference scores (Dolich 1969; Grubb and Grathwohl 1967; Sirgy 1986). A notable common finding is that when researchers have previously attempted to demonstrate image self-congruity, the results have been mixed. A criticism of this approach is that it is not known whether respondents are superimposing their notions of actual or desired selves in their image matching assessments in the rating task (Aaker 1999; Sirgy 1982; 1986). That is,
consumers may not know or be able to articulate the difference between their actual and ideal selves\textsuperscript{11}. The question of what constitutes a large difference can also be posed. This separation and conceptualisation is difficult and may explain some of the conflicting results for self-congruity studies in general (Malhotra 1988). Results illustrated that actual self-image was a better predictor of purchase intention than ideal self-image (Belch and Landon Jr. 1977). These results were not to a priori expectation. Although, the self-congruity hypothesis was initially applied to the reconciliation of brand image and self-image, this thinking can be extended to apply to brand personality and human personality congruence. This was not always particularly successful due to correlational methodologies and the application of personality scales that were not adapted suitably for brand personality assessment (Kassarjian 1971).

There is a problem with how to match brand personality and human personality to enable the self-congruity issue to be accurately assessed; the Aaker (1995) brand personality structure is not the same as the human personality structure. As has been highlighted, not all consumers may be using brands to supplement self-identity (see Section 2.8.1.3); it is also difficult to assess actual, ideal or social self-congruency, in general (Hughes and Guerrero 1971). An alternative explanation is that for many low-involvement products, consumers may not be able to assimilate and relate the information to notions of self. The information is not fully activated within the consumers’ self-schema for low-involvement products and, in some instances, the purchasing may be either conscious or subconscious (Bargh 1994). That is, “consumers apparently do not expend the cognitive effort that would produce a self-congruity

\textsuperscript{11} This may be also accentuated when consumers are required to respond on forced-choice scales. The actual and ideal self is also a construct that is uniquely personal to the respondent and, therefore, global scales may not encompass all dimensions. There are often issues concerning measurement of such constructs. Measurement typically uses difference scores in attempting to reconcile differences between brand image and self-image/concept. This introduces added complexity to the modelling task. The question, “What constitutes a large or small difference for an individual and indicates degree of self-congruence?” is left up to arbitrary researcher classification. This normally occurs via median splits etc. which may not truly represent when a small or large difference score for one individual is actually representative of congruence or not.
effect’ (Barone, Shimp and Sprott 1999, p. 82). A more salient self-schema for the brand, through ownership or involvement, may enhance self-congruity assessments (Barone et al. 1999). This has been one of the major criticisms regarding self-congruity effects not emerging for such products (Kassarjian 1978)\textsuperscript{12}. The same issues come to the fore for consumer personality–brand personality congruence assessment and, therefore, make this concept a difficult measurement proposition. It is also known that brand personality may influence brand equity through differing routes (cf. D. Aaker 1996 and Section 2.8.1).

The brand personality structure does not perfectly match well-known, established human personality structures (e.g., the Big Five) although three constructs are relatively similar (Aaker, 1995; refer to Sections 2.5 and 2.6.2). Sung and Tinkham (2005) concur that these domains do not match. Even when more direct methods are used with global measures (“Brand X reflects who I am”) to evaluate congruity, the link has not been proven between self-identity and brand image (Escalas 2004, cf. p. 175). This global assessment approach does not delineate between actual and ideal self-concepts. Therefore, due to the above highlighted reasons involving the comparison of differing personality structures, coupled with past conflicting study results and associated methodological difficulties (e.g., difference scores), it is believed that congruence assessment cannot be accomplished. Overall, a congruence assessment for brand personality and human personality constructs is not implemented in this thesis. The specific effect of brand personality on brand relationship quality is given precedence over new scale development for self-congruity, given that many

\textsuperscript{12} This is one of the most compelling reasons for deciding to include product class involvement as a key construct within this research. Product class involvement is treated as a potential moderating influence between brand personality and brand relationship quality. That is, self-congruity is not operationalised within this study as the brands selected for the main study include some typical low involvement products/brands. Product ownership may be a key dimension for the successful demonstration of self-congruity effects. This ownership aspect could have been used as a moderator or screening criteria within the analyses. However, product category involvement was deemed more suitable as non-users and lapsed users of a brand are also exposed to a brand and many consumers within these categories have sound knowledge of the brand’s underlying brand personality. Therefore, there are many benefits for investigating the level of product class involvement and demonstrating this differential effect compared with level of ownership. The generalisability of the study results is enhanced by including user and non-user groups collectively.
previous attempts to utilise a self congruity approach had demonstrated mixed results at achieving such bold objectives. It will become apparent that a construct called self-concept connection is one of the key constructs within the BRQ domain (see Section 2.13.1) and, although it is different from the personality congruence, it does assess overall self-connection providing a surrogate measure of the concept. The next section presents selected antecedents contributing to brand personality.

2.10 Selected Antecedents Influencing Brand Personality

Brand personality can be influenced by any direct or indirect contact a consumer has with a brand (Plummer 1984). Aaker (1997, pp. 397-398) believes that,

“Personality traits come to be associated with a brand in a direct way by the people associated with the brand - such as the brand's user imagery, which is defined by her as "the set of human characteristics associated with the typical user of a brand"; the company's employees or CEO; and the brand's product endorsers" (p. 348). Other “strategies used by advertisers to imbue a brand with personality traits include: anthropomorphization, personification, and the creation of user imagery” (p. 347).

Non-product-related characteristics that can also affect brand personality include advertising style, country of origin, company image (McKenna 1991), and celebrity endorsers. Some tactics used in advertising to create brand personality include: the on-camera spokesperson; a human or animated character; people representing a particular lifestyle (usually aspirational) or the target audience and a ‘voice-over’ (adapted from Dowling 1994, p. 14). The use of celebrities, spokespeople and sporting heroes is common in brand advertising. For instance, the use of a celebrity endorser and/or animated characters may have a personality trait “rub-off” effect into the brand (Callcott and Lee 1994). Macrae (1996) states that this can also encompass either human or animal forms to imbue a brand with personality. Trade characters have been prevalent throughout advertising’s history (Phillips 1996a,b).

Influencing a brand’s personality through these avenues is a longer term proposition and consistency is important (Aaker 1995) especially with communication (Kim et al. 2001).
Macrae (1996, p. 49) states, in respect to the influence of advertising in building meaning and personalities,

“Advertising turns products into brands by mythologising them - by humanising them and giving them distinct identities, personalities and sensibilities that reflect our own. In some sense, advertising brands have, in our consumption-driven society, come to serve a similar function as the ancient Greeks' Pantheon of Gods”.

The influence of culture also has an influence on brand personality (McCracken 1988). The expressive and animated qualities of brands have been posited to be more pronounced in individualist cultures as opposed to collectivist cultures (Aaker and Williams 1998; Aaker and Schmitt 1998). Individualist cultures, such as Australia, place greater emphasis on self-expression, whereas collectivist cultures place greater emphasis on the maintenance of the group or organisation. Australian culture, by being predominantly individualist implies that there is an increased value placed on self-expressive desires. Therefore, brands will be perceived by consumers to be more engendered with emotional imagery and animated qualities.

Brand personality is also influenced by the overall corporate character or personality (Bromley 2000; Chun and Davies 2006; Davies et al. 2001; Davies and Chun 2002). The retail environment and branding can impact on brand personality (Merrilees and Miller 2001). Even specific relationship marketing programs (frequent user incentives, benefits of customer relationship programs, aftermarket support and mass customisation) affect brand personality perceptions (Sheth and Parvatiyar 1995). Sales force training, product/brand order of entry and other brands in corporate brand portfolios may contribute (Yoo, Donthu and Lee 2000). Associations of the product category (Vigneron and Johnson 1998), name of the brand, logo/symbol and distribution channel, can shape brand personality (Ferrandi, Valette-Florence and Fine-Faley 2000). Overall, the engagement in R&D behaviour (Bhat and Bowonder 2001; Doyle 2000) and internal policies, including internal branding, may also affect trait perceptions (Bergstrom, Blumenthal and Crothers 2002). The dominant brand values
expressed by cause-related marketing engagement (Pringle and Thompson 1999) and political affiliations can also shape brand image perceptions (Kates 2000). In summary, the body of evidence is growing regarding a vast array of antecedents that may shape brand personality. There are too many to include within this study and, as a result, they are not investigated further. The next section reviews the germane literature in brand personality with particular emphasis on BPS replications and extensions.

2.11 Brand Personality Studies

Numerous studies (Aaker et al. 2001; Kim 2000; Smit, van den Berge and Franzen 2003) have attempted cross-cultural replications of Aaker’s BPS, whilst other studies have focused on applying brand personality to different contexts: corporate/organisational personality (Bromley, 2000; Davies et al. 2001); brand extension (Diamantopoulos, Smith and Grime 2005; Lau and Phau 2007); non-profit entity personality (Venables et al. 2003); online personality (Okazaki 2006); and sport sponsorship (Deane et al. 2003). In this respect, there is a dearth of studies relating BP to other constructs with limited exceptions (Ambroise et al. 2005; Ekinci and Hosany 2006; Hayes, Alford, Silver and York 2006).

The Aaker (1995) scale forms the basis for most work undertaken. Table 2.1 summarises the key publications. Studies completed on other contexts (e.g., corporate personality, brand extension, etc.) are not included. Overall, the studies demonstrate mixed replication results across countries with unique cultural settings. Cultures that have western characteristics replicate well, that is, the Aaker (1995) BPS when applied to large brand sets and samples, in most cases, performs admirably in individualist cultures. Another notable finding after reviewing the body of studies is that there is a clear need for research to further explore the effect of brand personality on dependent measures. In general, the reconciled literature has concentrated on scale development and replication, with limited investigation into the impact brand personality may have on dependent variables. Such studies are scarce and normally
include selected brand personality constructs (see Table 2.1). In conclusion, the Aaker BPS is
the primary instrument selected by those instigating brand personality studies. Following this
section, the literature regarding brand relationship quality is presented.
<table>
<thead>
<tr>
<th>Study Description/ Author(s)</th>
<th>Product/ Brand</th>
<th>Sample (N)</th>
<th>Methods Employed</th>
<th>Similar Dimensions</th>
<th>Different Dimensions</th>
<th>Dependent Variables Included</th>
<th>Results/ Comments</th>
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<tbody>
<tr>
<td>Aaker (1995; 1997)</td>
<td>Four product groups/37 brands. Hold out sample: 20 brands.</td>
<td>USA National random sample. N= 631. Hold out sample: N= 180.</td>
<td>Exploratory (EFA: Q analysis) and Confirmatory Factor Analysis (CFA). Cluster Analysis. Correlation Analysis.</td>
<td>Contemporary study established: Sincerity, sophistication, ruggedness, competence, and excitement.</td>
<td>Nil. This is the baseline study with which others are compared.</td>
<td>Preference.</td>
<td>This is the first study that re-invigorated the study of brand personality. Three of the factors closely mirrored human personality traits (i.e., sincerity/agreeableness, competence/conscientiousness and sophistication/extraversion). Sincerity is only construct significantly correlated with preference. 45 item scale.</td>
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<tr>
<td>Ferrandi, Valette- Florence and Fine-Faley (2000).</td>
<td>Three product groups and 12 brands were studied.</td>
<td>French Convenience student sample. N=246.</td>
<td>EFA Principal Components Analysis and CFA. French language back translation of BPS (Aaker 1997).</td>
<td>Sincerity.</td>
<td>Dynamism, femininity, robustness, and conviviality.</td>
<td>Nil.</td>
<td>33 item validated scale developed in French. Interpretation that Aaker (1997) scale may be different from one country to the next. Acknowledgement that their work is exploratory due to methods employed requiring further validation.</td>
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<tr>
<td>Kim (2000).</td>
<td>Two product groups of 11 brands each. Fashion brands only.</td>
<td>USA self-administered questionnaires. N = 507. Single item measures only were used from Aaker (1997).</td>
<td>EFA. T-tests on means across brands. Correlation analysis.</td>
<td>All dimensions were used and reproduced.</td>
<td>None reported.</td>
<td>Brand attitude.</td>
<td>Original Aaker (1995) BPS structure reproduced. The process of item deletion and validation is not clear as it is not reported. Correlations with brands and brand attitude ranged from -0.02 to 0.70 for respective brand personality traits. Most correlations were significant.</td>
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<tr>
<td>Aaker (2000).</td>
<td>Cruise line Cologne/ perfume.</td>
<td>Convenience Student sample in US and Tokyo. N=74 Mall intercept. N=198.</td>
<td>EFA. Experimental design.</td>
<td>Sincerity, sophistication, competence, and excitement.</td>
<td>Peacefulness.</td>
<td>Nil.</td>
<td>This study reveals a striking resemblance to the original Aaker (1995) study with four out of five constructs replicated. Peacefulness was a newly compiled construct that was revealed to be important for the Japanese cohort. The results show “that high culture-distinct associations lead to more favorable attitudes from individuals in the target culture relative to a nontarget culture, while low culture distinct associations lead to more attitudinal similarity across cultural boundaries” (Aaker 2000; p. 340). Results are difficult to generalise from small brand sample.</td>
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<td>Phau and Lau (2001).</td>
<td>One brand: Tiger Beer.</td>
<td>Singapore: Mixed data collection of street contact and mail/fax response was employed. N=197. Two groups were created to represent cultural tendency of the respondents.</td>
<td>Multiple indices were developed are titled the ‘personality preference index’ (PPI) and ‘brand personality index’ (BPI) for perceived brand personality to measure self congruence (cf. Phau and Lau 2001). Regression OLS.</td>
<td>Sincerity, competence excitement, sophistication and ruggedness.</td>
<td>Not reported.</td>
<td>PPI and BPI were dependent constructs.</td>
<td>Procedure for BPS scale replication not fully detailed. Collectivists and individualists were grouped and compared against PPI and BPI indices. “This supports the hypothesis that the personality preference of the respondents in Group 1 has a positive influence on the perceived brand personality of a preferred brand. Individualists did not demonstrate any significant beta values for the dimensions of ‘excitement’ and ‘ruggedness’. This shows that personality preferences have a higher magnitude of positive influence on perceived personality for individualists than for collectivists” (Phau and Lau 2001, p. 437). Overall, the author’s demonstrate that self-congruity with a brand personality is much stronger for the individualist group.</td>
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<td>Alvarez-Ortiz and Harris (2002).</td>
<td>20 brands Mix of Global and Local brands.</td>
<td>Mexican face-to-face interviews. N=2000. English and Spanish questionnaire back translation.</td>
<td>CFA.</td>
<td>Did not state except that the Aaker (1997) scale did not replicate well.</td>
<td>Not reported.</td>
<td>Nil.</td>
<td>Problems with the Aaker (1997) ruggedness dimensions found. The new Mexican structure was not reported in this conference abstract. Study does not attempt to link with any dependent variables. It is difficult to comment further as reporting was not complete.</td>
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<tr>
<td>Ferrandi, Merunka, Valette-Florence and De Barnier (2003).</td>
<td>Five brands evaluated.</td>
<td>Canadian and French student convenience sample. N = 1000 (200 for 5 brands rated by each respondent). French and English questionnaire versions.</td>
<td>EFA (principal components: promax rotation). CFA.</td>
<td>This study did not apply the Aaker (1997) BPS. This study had the goal of setting a new brand personality scale.</td>
<td>Extraversion, agreeableness, conscientiousness, stability and openness.</td>
<td>Nil.</td>
<td>After stacking all brands for combined analysis, the results revealed a separate brand personality typology to Aaker (1997). The article demonstrates significant differences in brand scores across countries. However, the results do not link with any dependent variables.</td>
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<td>Smit, van den Berge and Franzen (2003).</td>
<td>20 brands in 5 product catogories. Phase 1. Association Pattern Method testing. Phase 2. Studies 1 and 2. 93 brands evaluated.</td>
<td>Dutch: Phase 2. online panel administration. Study 1. N=1009. Study 2=3524. Experience with brand and brand likeability was measured.</td>
<td>Analysed 103 descriptors (adding Dutch terms) using Association Pattern Method. E.g., respondents select appropriate items describing each brand. EFA. (principal components analysis: varimax rotation).</td>
<td>Competence, excitement, ruggedness and sophistication. (Sophistication was removed in a subsequent item reduction exercise).</td>
<td>Gentle, annoying, distinguishing.</td>
<td>Brand attitude.</td>
<td>Dutch specific trait descriptors were added to BPS (Aaker 1997) after the Association Pattern Method phase. This resulted in some unique Dutch constructs. An ideal brand had a higher brand attitude rating. The experience with brand and brand likeability issues were not reported despite being mentioned as variables. Much effort was devoted to scale development with new descriptors and constructs revealed. Despite, problems within previously reported studies, ruggedness was represented. A very large brand and consumer sample was an integral factor contributing to study success.</td>
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<td>Supphellen and Gronhaug (2003).</td>
<td>Two brands only included in study.</td>
<td>Russia: St Petersburg. N=200.</td>
<td>CFA was implemented first. Followed by EFA to represent more exploratory nature of analyses. Principal Components Analysis: varimax rotation.</td>
<td>Successful and contemporaneous, contemporary, excitement, sophistication and ruggedness.</td>
<td>Successful and contemporary.</td>
<td>Attitude to the brand.</td>
<td>This is one of few studies to link brand personality dimensions to a dependent variable. There are differential results. The results reveal that both ruggedness and sophistication traits have a significant positive influence on attitude towards the Ford car brand. The sophistication trait demonstrated a positive impact on the attitude towards the Levi’s brand. Suprisingly, the sincerity trait revealed a negative influence in regards to attitude to Levi’s. The successful and contemporary trait was a merging across four different BPS dimensions.</td>
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<tr>
<td>Austin, Siguaw and Mattila (2003).</td>
<td>One category; restaurants. McDonald’s, Burger King, Wendy’s, Chili’s, T.G.I. Friday, and Applebee’s – including three brand names of local upscale restaurants.</td>
<td>USA: student sample. N= 247.</td>
<td>Reliability Analysis. CFA. A separate CFA model for each of the nine restaurant brands was run. Then an aggregated CFA analysis was undertaken under three restaurant groupings.</td>
<td>Sincerity, competence excitement, sophistication and ruggedness.</td>
<td>Nil.</td>
<td>Nil.</td>
<td>This study unsuccessfully applies the BPS scale to a small brand sample. The results do not provide satisfactory fit for any of the nine brands. It is believed this is the reason for unsuccessful replication of the Aaker (1995) BPS. The author’s contend that brand personality can only be generalised at the aggregate level. That is, the scale should be used with aggregated data across many categories and brands and future researchers completing new studies need to heed such recommendations for successful implementation.</td>
</tr>
<tr>
<td>Deane et al. (2003).</td>
<td>Golf : The Ryder Cup and IBM. Brand Personality Transfer Study.</td>
<td>British Sample: self-completion questionnaire of main population with knowledge of golf. N=109.</td>
<td>EFA.</td>
<td>Sincerity, competence excitement, sophistication and ruggedness.</td>
<td>Nil.</td>
<td>Perception of sponsor fit between brand/event and brand personality.</td>
<td>Sincerity and excitement were the most descriptive factors for golf with the Ryder Cup being considered high on excitement. IBM which is strong on competence has been reinforced with the excitement trait from Ryder Cup. Recommends that brands seek partners with similar brand personalities.</td>
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<td>Rojas-Mendez, Erenchun-odlech and Silva-Olave (2004).</td>
<td>One brand: Ford.</td>
<td>Chile: self-administered questionnaire. N = 388. Spanish questionnaire translations from BPS (Aaker 1997).</td>
<td>CFA. 16 item scale. Cluster Analysis for image segment analysis.</td>
<td>Excitement, sincerity, competence and sophistication.</td>
<td>Not reported.</td>
<td>Nil.</td>
<td>The measurement model revealed one second-order brand personality construct. This is a very close replication of the original Aaker BPS. Loadings were all in the 0.70 to 0.99 range between each brand personality construct and the higher-order brand personality construct. Ruggedness did not reveal itself in analyses. The results compared owner and non-owner groups using computed factor scores. No significant differences on the four factors were found across these groups.</td>
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<td>Venables, Rose, Bush and Gilbert (2005).</td>
<td>Three brands: Charitable brands.</td>
<td>USA: Study 1. student sample. N= 403 Study 2. N = 355. Validation study. National stratified sampling with telephone survey. N=1029.</td>
<td>EFA. 54 item scale. CFA. Correlation Analysis.</td>
<td>Ruggedness, sophistication.</td>
<td>Integrity, nurturance.</td>
<td>Likelihood to contribute to charity.</td>
<td>Four factors replicated well from a series of large scale validation studies. This study specifically developed the scale for charitable brands. Ruggedness and sophistication were retained with two new constructs (integrity and nurturance) deemed suitable for charities. Significant correlations between brand personalities and likelihood to contribute to a charity were calculated showing values between 0.104 and 0.432.</td>
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<tr>
<td>Sung and Tinkham (2005).</td>
<td>13 brands that were both available in Korea and USA were included in this study.</td>
<td>Korea: student sample. N= 337, USA: student sample. N= 320.</td>
<td>EFA. (Principal components: promax rotation). 80 attribute items tested. CFA, Correlational Analysis between Cultures.</td>
<td>Competence, sophistication and ruggedness</td>
<td>Korea: Passive Likeableness and Ascendancy. USA: White Collar and Androgyny. Common factor across both cultures: likeableness.</td>
<td>Nil.</td>
<td>Pooled data set to uncover dimensional structure which is common in brand personality studies. Uses pooled factor scores to complete further analyses across cultures. This demonstrated some differences across traits. Also separates the data to complete for each culture due to poor structural model fit statistics for pooled data. This scale development work establishes separate scales relevant for both USA and Korea.</td>
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<tr>
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<td>Freling and Forbes (2005).</td>
<td>Fictional brand personality scenarios for bottles of water.</td>
<td>Experimental design for a study on a bottle of water with surrogate information about the brand personality of the water. N=192. Student sample.</td>
<td>MANOVA for each brand personality type. Covariates. Familiarity, involvement, product knowledge.</td>
<td>All dimensions were used.</td>
<td>None revealed.</td>
<td>Attitude to the brand. Purchase Intention. Brand Association. Brand recall (1 week after).</td>
<td>The results reveal that consumers that have brand personality information for the bottle of water leads to a more favourable attitude and purchase intention towards that brand than consumers exposed to the same product, without brand personality information [adapted from Venables et al. (2005)]. The condition with brand personality information transferred more brand associations reflecting more cognitive elements/beliefs being taken away. Brand recall was also higher for the brand personality group.</td>
</tr>
<tr>
<td>Ambroise et al. (2005).</td>
<td>Sportswear brands: Nike and Adidas. Cola brands: Coca Cola and Pepsi.</td>
<td>France: N=1089 for scale validation. N= 175 for Cola and N= 167 for Sportswear from French student sample. Each respondent rated two brands in the category and these were stacked for Sportswear and Cola analyses.</td>
<td>Different brand personality scale to Aaker (1997) Uses EFA and CFA. BPS. ANOVA on factor scores for brand personality for each brand. Brand personality is treated as a global factor. Structural equation modelling. Two groups to test moderation of involvement. Also stepwise OLS regression on dependents.</td>
<td>New dimensions.</td>
<td>Charming, reliable, classic, elegant, creative, attractive and enthusiasm.</td>
<td>Commitment to the brand. Attitude to the brand. Involvement in the product category as a moderator.</td>
<td>This conference paper does not report full fit statistics and results in sections. Uses a global brand personality measure after revealing high first-order construct correlations. This study showed that global brand personality has an impact for sportswear brands on commitment only. When a mediator is introduced into the model (attitude to the brand) between personality and commitment there is a strong relationship revealed between personality and attitude for both categories. Therefore, the effect of brand personality is indirect through a construct called attitude to the brand influencing commitment. A key point to note is that product category involvement is treated as a moderator. The results reveal that when involvement is high, global brand personality has a significant positive effect on commitment. Also, atypical results show that brand personality has a significant negative impact on commitment and the attitude to the brand is not a mediator of the relation when product category involvement is low. They speculate that non-involved consumers may perceive some brand personality traits negatively.</td>
</tr>
<tr>
<td>Study Description/Author(s)</td>
<td>Product/Brand</td>
<td>Sample (N)</td>
<td>Methods Employed</td>
<td>Similar Dimensions</td>
<td>Different Dimensions</td>
<td>Dependent Variables Included</td>
<td>Results/Comments</td>
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<tr>
<td>Ekinci and Hosany (2006).</td>
<td>Investigation of Destination Personality. Tourism Context.</td>
<td>N= 275. Self-completion questionnaires. Tourists returning to Britain, Europe.</td>
<td>EFA following same process as Aaker (1997). Principal Component Analysis. Rotation: Varimax. CFA on same data. OLS regression to investigate dependent variable impacts.</td>
<td>Sincerity, excitement.</td>
<td>Conviviality.</td>
<td>Affective Image. Cognitive Image. Intention to Recommend.</td>
<td>The Aaker (1997) BPS did not replicate well in reference to tourism destinations. A new construct was established consisting of traits such as family-oriented, charming and friendly. This represents the experiential nature of travel recreation consumption. The destination personality dimensions demonstrate positive effects on tourists’ intention to recommend. Results on the dependent variables were spurious and the authors changed their model to start treating brand personality traits as moderators without giving any substantive rationale. The authors acknowledge that their work is exploratory.</td>
</tr>
<tr>
<td>Hayes, Alford, Silver and York (2006).</td>
<td>Sunglasses: Oakley M-Frame.</td>
<td>USA: N= 142. Student sample. Incentives of cash prizes were offered at random up to a value of $500.</td>
<td>CFA (CBSEM) for the measurement constructs. OLS regression was used for structural results. Two group OLS test for moderation of attractiveness. An abbreviated Aaker (1997) BPS was implemented with only 10 indicants.</td>
<td>Sincerity, excitement and ruggedness (only three constructs chosen).</td>
<td>Partner Quality. Perceived Attractiveness of the Brand.</td>
<td>This study embraces brand personality as part of the relationship basis model (D. Aaker 1996). The brand personality dimensions of sincerity, excitement and ruggedness are related to partner quality. All results exhibit significant medium effects (0.25 approx.) for the brand personality traits impacting partner quality. Perceived attractiveness of the brand appears to have a moderating effect between brand personality and partner quality. Hayes et al. (2006) theorise that attractiveness may offer greater explanatory potential and may replace the excitement trait. The interpersonal attraction literature was selected with it being measured with only two items. They acknowledge the necessity for further research into other product categories.</td>
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2.12 Brand Loyalty and Brand Relationship Quality

The development of Brand Relationship Quality has provided opportunities for researchers to extend capabilities beyond isolated implementation of brand image and brand personality batteries (Blackston 1992; Kassarjian 1971). Blackston (1992) states that neither brand image nor brand personality adequately compasses the complete essence of a brand's relationship with the consumer. It is argued that the problem lies not just in inadequate means of measurement (this area has been rectified by J. Aaker, 1995; 1997), but is deep seated in the underlying concepts of brand image and brand personality, which only report the brand as the object of consumers' attitudinal ratings. Blackston (1992) claims these constructs do not capture the entire two-way nature of the consumer brand relationship. Blackston (1992), to rectify these shortcomings, developed a methodology with particular concentration on gaining views from respondents on what the consumer thinks of the brand and, conversely, requires the consumer to record what the brand might think of them. Using indirect self-projection methods (cartoon completion), Blackston qualitatively investigates what the consumer thinks of the brand (this is measured in most brand attitudinal studies) and then asks the consumer what they believe the brand ‘thinks’ of them/or the situation. This approach provides some perspectives of both sides of the relationship, from the consumers’ perspective. It considers the interaction between both brand and consumer. The Blackston method taps the reciprocity that exists in person-brand relationships and complements the dyadic principles required in a relationship. His method has a disadvantage in that it is qualitative and difficult to interpret. Further, the Blackston (1992) methodology is a proprietary commercial product not available for use and would be much more onerous for data collection purposes. Fournier (1994) subsequently developed the BRQ construct which provides a quantitative avenue for assessing the richer dimensionality of consumer brand relations. This construct measures the strength of the consumer-brand relationship and is discussed in the next section.
The BRQ construct can be considered as a major reconceptualisation of the loyalty notion. Early literature considered brand loyalty as a relational concept. In its most basic form, brand loyalty was believed to be a function of purchase frequency (Sheth 1968). However, Jacoby and Kyner (1973, p. 2) outline that, “brand loyalty is essentially a relational phenomenon. It describes preferential behavior toward one or more alternatives out of a larger field containing competing alternatives. Brand loyalty serves an acceptance-rejection function. Not only does it ‘select in’ certain brands, it also ‘selects out’ certain others”. At this time, Jacoby and Chestnut (1978, p. 31) believed that, “… brand loyalty research can be characterized as that of a construct undergoing substantial revision and redirection in measurement orientation”. Additionally, they go on to acknowledge that there are three categories for measuring loyalty: behavioural, attitudinal or a composite of both. The attitudinal components appear more sensitive than behavioural components in tapping brand loyalty (Rundle-Thiele and Bennett 2001).

This line of enquiry has been extended into the satisfaction literature, where it was believed that consumers became loyal by moving through cognitive, affective and conative phases (Oliver 1997). Oliver’s premise is that customer loyalty is a function of perceived product superiority, social bonding, personal fortitude and the synergy this creates. Fournier and Yao (1997) have called for an extension to loyalty research within a relational framework. It is apparent that most brand loyalty frameworks are multi-dimensional representations (Dick and Basu 1994). The continued search for improvement in brand loyalty measurement has resulted in the development of the BRQ scale. Fournier (1994, p. 125) eloquently describes the connection with brand loyalty and BRQ’s superiority, when she states:

“The multi-faceted BRQ construct attempts to dimensionalise the attitudinal component of brand loyalty and specify the sources from which this positive affect accrues. In this sense, the BRQ measure encompasses and extends existing concepts of brand loyalty toward the goal of better understanding consumer-brand dynamics. The BRQ notion can be similarly compared with traditional measures of customer satisfaction or brand attitude. Again, customer satisfaction/attitude is implied in the
BRQ notion since an attempt is made to articulate the sources from which satisfaction and positive affect are derived”.

Before one can speak of being loyal or having strong relationship quality, one must have the opportunity for being disloyal; there must be a choice. Jacoby and Chestnut (1978, p. 84) recognise this point, stating:

“While practitioners are primarily interested in the ‘select in’ aspect of loyalty, scientific inquiry and good managerial sense require that all aspects of the phenomenon, including its inverse, be studied to reach comprehensive understanding”.

They continue to outline (p. 84) that:

“As a result of this decision-making, evaluative process, the individual develops a degree of commitment to the brand(s) in question; he is ‘loyal’. The concept of commitment provides an essential basis for distinguishing between brand loyalty and other forms of repeat purchasing behavior (RPB) and holds promise for assessing the relative degrees of BL”.

Modern theory and assessment practice has evolved, with BRQ now having the ability to assess the level of commitment to the brand as well as other pertinent constructs central to relationship quality. The next section elaborates on the specific characteristics and structure of BRQ.

2.13 Brand Relationship Quality\textsuperscript{13}

The BRQ scale was developed using confirmatory factor analysis techniques on a calibration (n=270) and validation sample (n=209). BRQ was revealed to be a second-order construct with seven reflective first-order constructs. The BRQ is best outlined by Fournier (1994, p. 124) when she states that it is a:

“… customer-based indicator of the strength and depth of the person-brand relationship. It reflects the intensity and viability of the enduring association between a consumer and a brand … In a sense, BRQ captures the positive magnetic force that keeps the person and brand together in the face of resistance and tension. High brand relationship quality implies that the association between the person and the brand is capable of developing further, and, that under favorable conditions, it will prosper”.

\textsuperscript{13} This section draws heavily from the work of Fournier.
This perspective is consistent with Keller’s (1993) definition of consumer brand equity. There are some unique characteristics underpinning BRQ which have also been outlined by Fournier (1994, p. 125):

“Several fundamental principles apply to the brand relationship quality construct which also serve to differentiate it from existing marketing constructs (such as brand loyalty, satisfaction, etc.):

1. **BRQ is a property of the relationship between a person and a brand**: BRQ is not a characteristic of either the individual or the brand per se, but rather reflects an aspect of the intersection or joining of the two parties.
2. **BRQ is dynamic**: it changes as a function of time in line with evolution in relationship partners and in response to specific behaviors enacted by them in the context of the relationship. Static measures of BRQ identify characteristics of the relationship at a given point in time. This research measures the person-brand relationship at one point in time. The results presented represent a cross-sectional measurement of the person-brand relationship. However, it must be acknowledged that this person-brand relationship is continually evolving and developing over time.
3. **BRQ is defined as perceived by the individual in the relationship**: it is reflected in the thoughts, feelings, and behaviors exhibited by the person toward a particular brand and is not an objective characteristic of the brand relationship (as with statistical quality control measures of product performance, for example).”

What is noticeable within the scarce body of literature is that the number of constructs and naming of BRQ constructs has altered slightly. Construct naming differences have occurred without detailed substantiation, with an exception being the original Fournier (1994) developmental works. Table 2.2 illustrates BRQ construct development. The constructs initially posited in Fournier’s (1994) study have been only slightly modified and developed over time in various research studies, however, reporting has not always shown a consistent representation over time. It is clear that theorists believe that BRQ is best represented by either a six to eight BRQ construct exposition. The most common application is via the seven BRQ construct version. There appears to be only subtle differences in the structure of BRQ between studies (see comments in Table 2.2). Therefore, based on the body of evidence...
presented (e.g., Fournier 1994; D. Aaker 1996; Park, Kim and Kim 2002), a seven-facet representation was deemed most appropriate for this work\textsuperscript{14}.

The representation adopted showing the seven facets is presented in Figure 2.6. BRQ is considered a function of the relationship dimensions measured and, thus, is represented as a second-order latent construct.

**Figure 2.6: Higher-order Representation of Brand Relationship Quality**

![Higher-order Representation of Brand Relationship Quality](image)


In Figure 2.6 construct names have been abridged for presentation purposes. Interdependence has been abridged; Behavioural Interdependence (the full unabridged title) is shown as Interdependence in Figure 2.6. Love/Passion has also been abridged for presentation simplicity; Love and Passion is the full construct title. This labelling is continued throughout the thesis. Yoon, Ekinci and Oppewal (2004) and Ekinci et al. (2004) also used a reduced BRQ scale when investigating restaurant brands within the UK. However, their work only investigated selected BRQ constructs for a small brand set and their results are not outlined further. The comments in Table 2.2 detail pertinent study findings and demonstrate BRQ construct evolution over a number of relevant studies.

\textsuperscript{14} Fournier kindly supplied and identified seven relevant constructs and item information for the questionnaire, and that version was implemented in this thesis.
### Table 2.2: Brand Relationship Quality Constructs Reported in Different Studies

<table>
<thead>
<tr>
<th>Source</th>
<th>No of Original Constructs</th>
<th>The Constructs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Fournier (1994) Conceptual Model Prior to Any Testing.</td>
<td>Six.</td>
<td>1) Personal Commitment 2) Behavioral Interdependence 3) Intimacy 4) Love/Passion 5) Partner Quality 6) Attachment</td>
<td>An initial six construct representation was featured post the literature review in Fournier (1994). Although, Attachment did not reproduce in the calibration and validation studies it’s main nuance is still captured. “Attachment directly reflects the degree to which the partner has been incorporated into one’s concept of self” (Fournier 1994, p. 129).</td>
</tr>
<tr>
<td>2) Fournier (1994) Original Model. Calibration Sample.</td>
<td>Seven.</td>
<td>1) Personal Commitment 2) Behavioral Interdependence 3) Self-Concept Connection 4) Intimacy 5) Love/passion 6) Nostalgic Connection 7) Partner Quality</td>
<td>A seven construct representation was established in initial scale development in a calibration sample in the Fournier dissertation. This revealed a Nostalgic Connection and Self-Concept Connection construct with the Attachment construct not replicating but being separated into these two domains.</td>
</tr>
<tr>
<td>3) Fournier (1994) Revised Model. Validation Sample.</td>
<td>Seven.</td>
<td>1) Personal Commitment 2) Self-Concept Connection 3) Intimacy 4) Love 5) Passionate Attachment 6) Nostalgic Connection 7) Partner Quality</td>
<td>A revised BRQ model was established after scale development when a validation sample was analysed. The love/passion construct was split and selected items were merged with the interdependence construct to form a passionate attachment construct. The love facet remained without the passion items related to it. The changes involved two constructs only. Overall, this represented a relatively minor amendment to the prior calibration specification.</td>
</tr>
<tr>
<td>4) Fournier (1998) JCR BRQ Systems Model Figure.</td>
<td>Six.</td>
<td>1) Commitment 2) Interdependence 3) Self-Connection 4) Love/Passion 5) Intimacy 6) Brand Partner Quality</td>
<td>This representation reflected in the Preliminary Model for Brand Relationship Quality (p. 366) does not include the Nostalgic Connection construct. This article primarily outlines the reporting and theoretical development emanating from the seminal qualitative research undertaken. There is no rationale for Nostalgic Connection not being represented within the figure. The Love/passion construct is re-instigated in its original formulation. Again there is no rationale indicating why the construct may have altered from the passionate attachment exposition in Fournier (1994). It appears that Self-Connection encompasses the domains of both Self-Concept Connection and Nostalgic Connection into one merged construct. This cannot be confirmed as it is not fully elaborated.</td>
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<tr>
<td>Source</td>
<td>Facets</td>
<td>Notes</td>
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</table>
| 5) Aaker (1996) BRQ Model.                 | 1) Personal Commitment  
  2) Behavioral Interdependence  
  3) Self-Concept Connection  
  4) Intimacy  
  5) Love and Passion  
  6) Nostalgic Connection  
  7) Partner Quality | This representation represents the original exposition with some slight wording modification to the constructs. Therefore, this representation appears to reflect the original specification and the JCR model with Nostalgic Connection construct included within this exposition. |
| 6) Gifford (1997) HBR article outlining BRQ | 1) Commitment  
  2) Interdependence  
  3) Self-Concept Connection  
  4) Intimacy  
  5) Love and Passion  
  6) Nostalgic Attachment  
  7) Partner Quality | This short Harvard Business Review summary outlines BRQ and defines the respective constructs. This exposition is similar to Fournier (1994) and D. Aaker (1996). However, Nostalgic Connection is now called Nostalgic Attachment. This change in naming is not elaborated further but it does reflect the fact that the naming reflects the original attachment domain. |
  2) Interdependence  
  3) Intimacy  
  4) Love  
  5) Identity attachment  
  6) Partner Quality | This presentation was illustrated as a conference abstract only. Therefore, no full paper or reporting are available. Full details of scale changes were not published in full. Note: Email correspondence with author prior to this identified that Fournier (1994) and D. Aaker (1996) have the best current working model. The questionnaire was approved through University Ethics around this time prior to this study being known to have been published. |
| 8) Park et al. (2002). Brand Extension BRQ article. | 1) Commitment  
  2) Interdependency  
  3) Trust  
  4) Self-Connection  
  5) Intimacy  
  6) Love/passion  
  7) Nostalgic Connection  
  8) Partner Quality | It is uncertain as to why Trust was included within this exposition. In this instance there appears to be an oversight by the authors. The above authors’ claim to have followed the most recent work disseminated by Fournier (2000, 2001). This is noticeably different to the previous six facet representation which was summarily reported in the Fournier (2001) abstract paper. This study used an Indexing approach for BRQ. Therefore elements of final structure were not comprehensively reported. It is assumed the above construct structure did not change. However, it is noticeable that the other seven constructs (excluding trust) mirrored the works of Fournier (1994) and D. Aaker (1996) cf., points 2 & 5. Trust appears to have been erroneously added into the BRQ in this study. Arguably elements of trust are generally already encompassed within measures of the Partner Quality construct (Gifford 1997). |

Overall, research in 2) and 5) appear identical in structure and naming for BRQ constructs. Research in 6) and 8) also appears to roughly mirror (with minor naming changes) the seven facet BRQ structure of 2) and 5). HBR = Harvard Business Review. JCR = Journal of Consumer Research.
2.13.1 The Brand Relationship Quality Constructs

This section outlines the constructs comprising BRQ. These BRQ constructs include: Personal Commitment, Behavioural Interdependence, Self-Concept Connection, Intimacy, Love and Passion, Nostalgic Connection and Partner Quality. Much of the work below is referenced heavily from the seminal Fournier (1994; 1998) works and D. Aaker (1996).

**Personal Commitment** represents an investment with the brand; it is the intent to continue a relationship over time. In the sense of relationships between people, it is conceived as spending a little time together “the commitment to spending a lifetime together” (Rosenblatt 1977, p. 74). “Commitment might be based on customers' intentions and plans for the future” (Storbacka, Strandvik, and Gronroos 1994, p. 27). In personal relationships parlance, “he or she is likely to stick with it and see it through to its finish” (Kelley 1983, p. 287). Arguably, this construct emanated out of the business-to-business literature it is related to and shared common goals between parties and respective investment levels (Pels 1992). Commitment involves a temporal understanding that the relationship will endure. For strong commitment, an assessment is made of the “reward gain from a relationship and the stability of the particular relationship” (Soellner 1994, p. 2). Commitment can represent emotional and time-oriented investments leading to relationship stability over time (Fournier 1994). D. Aaker (1996, p. 167) outlines commitment as “a desire to improve or maintain the quality of the relationship over time, and guilt is felt when it is compromised”. Therefore, this construct encompasses whether a consumer will stay with the product through good and bad times or maintains a degree of faithfulness towards the brand.

**Behavioural Interdependence** represents “the degree to which the actions and reactions of the relationship partners are intertwined” (Fournier 1994, p. 127). This construct concerns frequent brand interactions (Fournier 1998). Gifford (1997, p. 10) states that interdependence illustrates that “the brand is inextricably woven into the consumer's daily life and routine”. The personal relationship literature would suggest that “two people are in a relationship with one another if they have an impact on each other, if they are interdependent in the sense that a
change in one causes a change in the other” (Berscheid and Paplau 1983, p. 12). The construct of the brand being represented strongly in everyday life and routines canvasses the level of brand impact on the consumer and also the reciprocal impact the consumer has on the brand. D. Aaker (1996, p. 166) outlines that interdependence is “the degree to which the action of the relationship partners are intertwined [and] is indicated by frequency of, importance of, and involvement in the interaction”. In other words, it represents a mutual dependency of sorts.

**Self-Concept Connection** (also called self-connection) represents “the degree to which the brand delivers on important identity concerns, tasks, or themes, thereby expressing a significant aspect of self” (Fournier 1998, p. 364). The items are specifically designed to assess “the bonds formed between the brand and the person’s current (real or ideal) self-concept or image” (Fournier 1994, p. 137). See also the self-expressive model in Section 2.8.1.1. In many respects, this is a self-congruity assessment for the brand and consumer relationship. Gifford (1997) outlines that it is broader in context than image matching and the construct assesses whether the brand can assist in addressing a life issue, for example, the need to belong or the fear of growing old. Thus, the consumer-brand partners “share common interest, activities and opinions (D. Aaker 1996, p. 167).” Overall, this construct assesses whether there is a belief that the partners share much in common.

**Intimacy** is when the “consumer describes a sense of deep familiarity with the product and an understanding of its attributes” (Gifford 1997, p. 10). A deep understanding is implied between partners and a closeness develops (D. Aaker 1996). Ahuvia (1993, p. 27) theorises that intimacy is an “emotional investment in a relationship” and refers to “feelings of closeness, connectedness, and bondedness”. Intimacy is created by information sharing and

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15 This is noticeably different to person/brand personality congruence and the self-concept connection construct is more a global image matching measure and as such is more appropriate to include. The use of self-congruity measures for human personality/brand personality congruence has been previously discussed and several disadvantages were outlined in Section 2.9. i.e., methodologically, difference scores can be very problematic to operationalise and interpret. The global BRQ self-concept connection construct was deemed to be not as cumbersome to analyse.
disclosure of details between partners (Fournier 1994); it includes knowledge about the brand. It can include myths about superior product performance and utilitarian functioning (Fournier 1998). In addition, Fournier (1998) elaborates that advertising cues can help build understanding through slogans and brand characters or even brand nick-names. It can also be facilitated through ritualistic brand behaviours and marketing programs (Fournier, 1994). Intimacy is the perception consumers have in evaluating the brand’s intimate actions towards themselves.

**Love and Passion** is an affective or socio-emotive attachment that is greater than simple brand preference (Fournier 1998); it has developed from research on delight, love and consumer brand relationships. The construct is considerably more intense than liking (Carroll and Ahuvia 2006). Fournier and Mick (1999) suggest that satisfaction can have love elements. In the personal relationship literature, Sternberg's (1986) triangular theory of love outlines that passion is a key component of love. He believes that interpersonal love is a three-way interaction between intimacy, decision/commitment and passion (Sternberg 1986). Noticeably, in contrast to the Sternberg model, commitment and intimacy are separate constructs represented in BRQ. There are similarities between interpersonal love and consumer love towards objects (Shimp and Madden 1988). This domain encompasses the “inability to tolerate separation” and the use of other product “substitutes creates discomfort” (D. Aaker 1996, p. 167). Overall, “(t)he consumer feels affection or passion for the product or is obsessed with it - and can experience separation anxiety if the product is not available” (Gifford 1997, p. 10). Therefore, love and passion represents your feelings towards the brand. Within the personal relationship literature, passion “can also exist in non-sexual relationships based on needs for ‘self-esteem, succorance, nurturance, affiliation, dominance, submission, and self-actualization’”, adapted from Ahuvia (1993, p. 27). This recognises the fact that such constructs can have brand-related practical application.
**Nostalgic Connection** is a refined iteration of Self-Concept Connection that encompasses “connections between the brand and an earlier concept of self that have been stored in the person’s memory” (Fournier 1994, p. 137). Brand memories from earlier usage or association with other significant others/events are incorporated (Gifford 1997), including relationships with brands remembered from childhood (Ji 2002). That is, nostalgic connections are overall memories of the good times (D. Aaker 1996), and can incorporate events with loved ones. “Possessions are a convenient means of storing the memories and feelings that attach our sense of past” (Belk 1988, p. 148). Nostalgia allows us to relive a feeling of joy and happiness through previously developed memory associations (Holbrook 1993). The brand relationship is enhanced over time through nostalgia and may mature as consumers move through different lifestages. That is, development results from the “continual satisfaction of life themes … forms the strongest brand relationships during lifestage’s changes” (Olsen 1999, p. 2). A brand’s heritage has long been recognised as a major asset for the firm (Macrae 1996), and this construct has its origins in attachment (see Table 2.2, study 1).

**Partner Quality** is defined as a consumer judgement of the brand’s “reliability and predictability in executing its partnership role” (Fournier 1998, p. 365). This is a rating of the brand’s performance in this role (Fournier 1994). It is only natural that a consumer will seek some positive aspects in the brand “such as dependability, trustworthiness, and accountability” (Gifford 1997, p. 10). This facet also includes an assessment of the attitude of the other partner, and the perception of whether the brand appreciates and treats them as a valued customer (D. Aaker 1996). Overall, this assessment incorporates role enactment perceptions of the partner. Fournier (1998) theorises that partner quality reflects a positive orientation towards the customer, as well as dependability, reliability and predictability and delivery of the relationship contract. The benefits derived through enhanced partner
knowledge are that consumers develop trust and comfort as well as perceived brand accountability (Fournier 1998).

This concludes the presentation of the BRQ constructs. The next section presents a model for the BRQ system of relations and outlines some key antecedent and outcome variables.

2.13.2 The Brand Relationship Quality System

The BRQ system (see Figure 2.7) illustrates the systems of relations including both antecedent and outcome variables surrounding BRQ constructs. The focus of this research is primarily to investigate relations between selected antecedent constructs and BRQ, that is, brand personality, brand relationship quality and product class involvement. These constructs are classified within the brand and product class characteristics tab within the BRQ system diagram. As stated previously and outlined in Table 2.2, the original BRQ system diagram, as featured in Fournier (1994), was slightly modified over various studies. BRQ, as reflected in Figure 2.7, represents constructs established within study 3 of Table 2.2.

Fournier (1994, p. 25) has underlined the need to investigate the impact of brand personality variables on relationship variables by stating, “The influence of brand personality on these and other important relationship variables has been obscured in a focus upon trait-based measures of the construct and the attendant concern with the correlation between brand and consumer images”.

Therefore, there is a driving need for research investigating these areas. Fournier (1994, p. 150) states:

“BRQ has been offered as a tool for diagnosing the strength of a consumer’s relationship with a brand by articulating the sources that contribute to the quality of that relationship. Discrimination between BRQ and other consumer behavior constructs that claim similar diagnostic power must be investigated further. Is BRQ different from traditional ratings of customer satisfaction, for example? From stated intentions regarding brand loyalty? From proclamations of involvement with the brand? A thorough investigation of the web of relationships connecting the summary constructs would be valuable in assessing the incremental value afforded by the BRQ notion”.
It is clear from Figure 2.7 that brand personality is an antecedent to BRQ. The previous quote also emphasises the need for research to incorporate involvement. The BRQ system intimates, too, that a domain like product class involvement should also be considered as a possible antecedent to BRQ. Based on this evidence, the domain of product class involvement is outlined next. Specifically, the role it may have within a broader structural model is discussed prior to developing formal hypotheses.

2.14 Product Class Involvement

Martin (1998, p. 8) states that “product meanings are illuminated by the construct of product involvement”. Research on involvement has been prolific for thirty years in marketing and communication, and involvement has been conceptualised in different ways by different authors (Freedman 1964). Therefore, it is important to delineate that involvement research can be at the product category or brand level (Day, Royne Stafford and Camacho 1995; Mitchell 1999). Involvement is typically referred to as emanating from one of two main types: product involvement and brand-level involvement. Product involvement is also often referred to as product class or product category involvement within the literature. The use of the word involvement within this thesis pertains to this form of involvement.
The two main types of involvement highlight a fine distinction, but an important one, whereby brand-level involvement is the involvement a consumer feels whilst making a brand selection and, conversely, product class involvement relates to the level of involvement a consumer has within a product class (Zaichkowsky 1985). This thesis uses product category involvement as the focal construct of interest which is consistent with the work of Fournier (1994) and also reflects that brand level relations are comprehensively assessed by the BRQ constructs.

The plethora of involvement definitions make it difficult for researchers attempting to include it in their own research (Andrews, Durvasula and Akhter 1990). Tyebjee (1979) found little agreement about an acceptable definition for involvement but did contend that involvement is typically related to commitment. Generally speaking, the concept of involvement tries to capture and interpret interpersonal differences within a product class, and intrapersonal differences across product classes, thus explaining the distinction between consumer and product class involvement. Involvement is a motivating condition with higher levels of involvement influencing consumer decision making and the degree of cognitive processing (cf. Elaboration Likelihood Model) (Kapferer and Laurent 1985). Higher involvement would predict a more knowledgeable and expert consumer willing to process information (Sujan 1985). Accordingly, product class involvement is viewed as a motivating condition, taking the stance that involvement is, in part, a function of personal relevance (Greenwald and Leavitt 1984; Krugman 1967; Mitchell 1979; Rothschild 1984). This mirrors one of the most accepted definitions where involvement is defined as “the perceived personal relevance of a product to an individual, based on inherent needs, values and interests” (in Richins and Bloch 1986, citing Zaichkowsky 1985, p. 342). Laaksonen (1994) classifies this perspective as predominantly cognitive whereby the operations of involvement occur through “either an attitude structure or a product-related knowledge structure” (Dholakia 1997, p.
Self-relevance is important in consumer goal-driven behaviour (Houston and Walker 1996). It is acknowledged that involvement should also encompass items associated with perceived pleasure or sign value that are more affective in nature (Berens, van Riel and van Bruggen 2005).

Muehling, Laczniak and Andrews (1993) have outlined that involvement incorporates aspects of ego-involvement and commitment. However, Traylor (1984) contends that such issues as higher levels of involvement leading to greater levels of commitment are not always coupled together in a complementary manner. The converse case is also made for lower levels of involvement. “This is because involvement and loyalty are consumer-defined, as opposed to product defined” (Quester and Lim 2003, p. 23). Involvement represents a consumer continuum of response. Criticism has been directed towards correlational studies when exploring the involvement and commitment link (Iwasaki and Havitz 1998) as no causality can be established (cf. Quester and Lim 2003). A small sample exposition has provided some support for the involvement and loyalty link and cautions future researchers against “assuming or oversimplifying the link between product involvement and brand loyalty in a dichotomous manner… (as it)… obscures much of the understanding of this relationship” (Quester and Lim 2003, p. 34, emphasis added).

Many academics have demonstrated that the same product category can have varying involvement levels across people (personal) (Lastovicka and Gardner 1978). In this respect, it is an individual level variable that may vary within and between categories. Clarke and Belk (1978) have placed emphasis on different purchasing situations for products causing differences in search and evaluation, or raising the level of involvement at the place of purchase (situational involvement).

Based on prior research, many involvement scales have been developed that measure differences across people, objects, media and situations. The Consumer Involvement Profile
(CIP) (Kapferer and Laurent 1986) and the Personal Involvement Inventory (PII) (Zaichkowsky 1985; 1994) are two of the more widely-accepted scales for measuring product class involvement. The research undertaken by Fournier (1994) uses the PII as a measure of involvement. The PII is believed to give a more global evaluative measure of the involvement construct (Jain and Srinivasan 1990). However, Mittal (1995) did not concur with the Jain and Srinivasan (1990) conclusions finding that many PII studies were multi-dimensional structures. In contrast to PII, the CIP was designed to be a more multi-dimensional conceptualisation of involvement, incorporating antecedents of involvement in keeping with previous studies (Arora 1982; Day et al. 1995). Fundamentally, the CIP offers some flexibility as it has also been used to construct global involvement scores (Kapferer and Laurent 1985). The CIP consists of five first-order constructs which subsequently form involvement profiles. The factors that are measured in the CIP involvement construct include: perceived importance/risk of product class, probability of mispurchase, symbolic/sign value, hedonic value and interest (Bearden, Netemeyer and Mobley 1993). These constructs are explained in the next section.

Both expositions have been preferred by methodologists for differing reasons and have been validated or subsequently improved over time (Jain and Srinivasan 1990; Kapferer and Laurent 1986). Both scales are short and simple to operationalise and administer relative to other involvement scale methodologies. This has some appeal given the length of the questionnaire used in this research. Overall, the PII is selected when researchers require a singular measure for involvement, whilst CIP allows a greater multi-dimensional representation.

The measurement of enduring involvement is considered important in this research as the study is focusing on relational notions, and the CIP has a specific construct related to this notion. Enduring involvement is long-lived, determined by the stable elements of the
individual’s identity (Dholakia 1997; Laaksonen 1994). Enduring involvement is distinct from situational involvement, response involvement and other forms of involvement (Arora 1982).

Involvement could also encompass situationally contextualised notions. It must be acknowledged that the situation is often a key determinant in brand choice behaviour, and it may be the collective contribution of each consumption situation that helps develop the level of enduring involvement. Aaker (1995) has illustrated the importance of choosing a brand with an appropriate personality to represent the situational usage context within which it is consumed. For instance, After Eight mints are more likely to be chosen for dinner parties to reflect style, quality and sophistication, whereas, Cadbury’s Dairy Milk Chocolate would be chosen for a reward and treat for the whole family. There is also a temporal context to involvement (Richins and Bloch 1986). Therefore, the consumption situation can influence the brand ultimately chosen. Specific situational influences of brand purchasing are beyond the scope of this thesis and will not be investigated. Finally, it needs to be acknowledged that situational involvement is not included due to study constraints, not because it is not considered important16.

Another area of involvement involves social issue involvement. The degree of overall issue involvement can also increase persuasion for cognitive response for communication (Petty and Cacioppo 1979) or commitment to the issue object. This, again, was not contextualised in this study for previously outlined reasons.

Early work in psychology illustrated that differences in involvement level were exhibited by various personal relationship types (friendship, acquaintance, enmity, and formal interaction). The level of involvement distinguishes the different types of relationships (Levinger and Snoek 1972). Fournier (1994) also originally analysed BRQ profile scores across high- and low-involvement groupings, and the findings revealed no significant effects.

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16 To investigate the effects of situational involvement would entail adding to the length of the questionnaire significantly by including multiple situation scenarios.
To use involvement as a moderator and grouping variable has proven valuable for some researchers. The rationale for selecting product class involvement in this thesis is because “it is generally conceived as a property of the relationship between a person and a product category, rather than a specific possession” (Ball and Tasaki 1992, p. 159). Therefore, a measure for this relation is provided. The specific possession between brands and the degree of consumer possession is already assessed via the BRQ constructs. Also, the CIP taps characteristics of the products/brands themselves that act to arouse consumers’ respective involvement, thus providing a strong rationale for the inclusion of the product class involvement domain. The CIP is specifically discussed next.

2.14.1 The Consumer Involvement Profile

The final CIP scale consists of five first-order constructs which subsequently reflect involvement profiles. The factors that are measured in the CIP involvement construct include: perceived importance/risk of product class, probability of mispurchase, symbolic/sign value, and hedonic value and interest (Bearden et al. 1993). This is presented in Figure 2.8.

The perceived importance and risk of the product class reflects “its personal meaning and relevance, and the perceived importance of the consequences of a mispurchase” (Bearden et al. 1993, p. 145). The second construct involves the subjective probability of making a mispurchase, and incorporates the possibility of making a poor choice in the category. The third construct concerns the “symbolic or sign value attributed by the consumer to the product class, its purchase, or its consumption” (Bearden et al. 1993, p. 145). There is a multitude of perceived risks (functional, financial, physical, psychological and social) (Erdem 1995). The psycho-social risks are encompassed in the third construct. The fourth construct is outlined as the hedonic value of the product class which includes “its emotional appeal, its ability to provide pleasure and affect” (Bearden et al. 1993, p. 145). Finally, interest represents the ongoing enduring relationship with the product class.
The CIP has the advantage that “it measures conditions which may cause a person to be more involved with a particular product rather than simply the amount of involvement” (Browne and Kaldenberg 1997, p. 35). In summary, the CIP encapsulates multi-dimensional aspects of involvement assessing multiple components. The first two CIP constructs reflect negative aspects of purchasing in a product class. That is, risks of purchase and the probability of making a mispurchase. The other three constructs are oriented to more positive product class perceptions.

Laurent and Kapferer (1985) presented initial results from three samples with data collected via in-home interviewing. Using reliability and exploratory factor analysis, they found that the perceived risk/importance facet and the probability of mispurchase were not distinct facets. Discriminant validity was adequately demonstrated with low between-construct intercorrelations. This was deemed satisfactory. The interest facet was not included in the initial 1985 study and was added after further research. The four facets in the Laurent and Kapferer (1985) article for the 14 product categories under investigation were presented as averages and scored to 100.

Kapferer and Laurent (1985; 1986) undertook further studies and refined the CIP by including the interest construct. This new structure was examined for validity and reliability with a sample of 1,568 across some 20 product categories. Nomological validity was supported by investigation of relationships with several dependent measures, such as level of...
extensive decision-making, brand commitment, and reading articles (Bearden et al. 1993). Subsequent studies have transformed the original Likert scale format into semantic differential formats (Jain and Srinivasan 1990). However, a 5-point Likert scale is implemented in the original versions. The final CIP is a collection of 16 items that measure five first-order constructs.

Some believe that product class involvement should not encompass perceived risk and should be kept separate from involvement (Patterson, Johnson and Spreng 1997). However, Browne and Kaldenberg (1997) successfully use CIP as a total involvement score, in concert with a construct level analysis, which illustrates that opinion is divided. A final reason why the CIP is an attractive scale to implement, is because it is a multi-dimensional second-order structure and, as such, facilitates comparison with the other higher-order domains of interest, following the advice of Chin (1998a).

This concludes the literature review for the focal domains of interest. The next section discusses the respective causal ordering of domains, presents pertinent hypotheses and a posited structural model.

2.15 Determining the System of Relations between Constructs

The literature review has presented research on selected antecedents (namely, involvement and brand personality) and BRQ. Therefore, given that the specific domains previously discussed are higher-order representations, it is now important to establish which construct domains are antecedent versus outcome constructs. Figures 2.9 and 2.10 present a visual representation of the structural models to be investigated. The main effects model is featured in Figure 2.9. This represents a structural model at a higher level of abstraction. The moderation model is presented in Figure 2.10 (with the lower-order constructs suppressed).


**Figure 2.9: Operational Model (excluding Moderator CIP)**

![Operational Model Diagram](image)

Source: developed for this research.

**Figure 2.10: Higher-Order Operational Model (with Moderator CIP)**

![Higher-Order Model Diagram](image)

Source: Developed for this research.

### 2.15.1 Hypotheses to be Investigated

The body of literature reviewed, and particularly the BRQ system (see Section 2.13.2 and Figure 2.7), highlights selected antecedents and outcome constructs within the overall system of BRQ relations. In the context of this thesis, “nomological validity is assessed by testing the relationships with other constructs in the nomological net” (Steenkamp and van Trijp 1991, p. 294). The study hypotheses are formulated from the literature review and aim to test important relations.

As part of this study, the measurement model will need to be tested and, if necessary, modified for the Australian context. This is commonly known as measurement model validation (Chin 1998b). This study assesses whether the domains are multi-dimensional, that
is, whether they comprise multiple constructs. In some research studies, the testing of measurement models may be explicitly stated in separate hypotheses (Byrne 2001). This is not the case here. However, it should be emphasised that this measurement model validation task is substantially more extensive as it involves three separate, complex, higher-order construct representations. Each measurement model is now outlined and has been substantiated previously within this chapter. As such, the following will be investigated:

*Brand personality could be explained by five lower-order constructs (Sincerity, Excitement, Competence, Sophistication and Ruggedness), and one second-order construct (Brand Personality).*

*The strength of a brand-person relationship could be explained by seven lower-order constructs (Partner Quality, Love/passion, Intimacy, Self-Concept Connection, Nostalgic Connection, Commitment and Interdependence), and one second-order construct (Brand Relationship Quality).*

*The consumer involvement profile could be explained by five lower-order constructs (Product risk/importance, Symbolic value, Hedonic value, Probability of mispurchase and Interest), and one second-order construct (Consumer Involvement Profile).*

The main hypotheses of interest \((H_1 \text{ to } H_2)\) specifically investigate relations between the three focal theoretical domains. Furthermore, the type of moderating effect (Sharma, Durand and Gur-arie 1981), whether there are differential effects at different moderator levels (high, medium and low product class involvement), and finally whether the nature of moderator relations is best operationalised as a linear relationship, are dealt with in the remaining hypotheses \((H_3 \text{ to } H_4)\).

Extending the logic emanating from the BRQ system, D. Aaker (1996, p. 165) makes a strong case for investigating specific relations between brand personality and brand relationships when he states, “brand behavior and imputed motivations, in addition to
affecting brand personality, can also directly affect the brand-customer relationship”. Aaker and Drolet (1996, p. 391) also pose the question, “What impact does brand personality have on loyalty?” As BRQ is a refined brand loyalty notion (Fournier 1994), it would intimate that a path should be explored between these two higher-order representations. Netemeyer et al. (2004, p. 222) have echoed this sentiment stating that, “It is unclear whether brand personality affects some Consumer-Based Brand Equity facets”. There is no underlying rationale posited in the existing literature that these established second-order representations should be adapted in any way. Philosophically, relationships should be modelled at a similar level of abstraction (Chin 1998a)\(^\text{17}\). This was a key determinant for a structural model including relations at a similar level of abstraction.

In summary, these authors expressed the need to investigate the connection. Implicit in this assertion, and consistent with the Keller Model, is the positioning of brand personality as an antecedent to loyalty/BRQ. This connection is investigated by linking the $\text{BPS} \rightarrow \text{BRQ}$ construct.

This hypothesis is:

$H_1$: A **significant positive relationship exists between brand personality (BPS) and brand relationship quality (BRQ)**.

This hypothesis is also referred to as the Main Effects structural relationship.

The second hypothesis is posited after considering the effect that product class involvement might have on the Main Effects structural relationship. The literature on involvement is not entirely clear about whether involvement should be investigated as an antecedent to BRQ, or a mediator between $\text{BPS} \rightarrow \text{BRQ}$. The only application of involvement and BRQ is undertaken by Fournier (1994). Fournier utilises a two-group comparison of

\(^{17}\) I would like to thank Professor Wynne Chin for bringing this point to my attention via discussion and correspondence that modelling is best to occur at the same level of abstraction. This key consideration facilitated the choice of the moderator construct (e.g., CIP).
involvement and overall BRQ scores. She found that product class involvement based on median splits does not show significant differences. Her two-group analysis application would imply that involvement is being treated as a moderator, which has been demonstrated in other work albeit in unrelated contexts (Rivera and Satorra 2002; Williams, Edwards and Vandenberg 2003). Ambroise et al. (2005) use product class involvement as a moderator when investigating whether brand personality impacts on commitment for selected French brands (see Table 2.1). They established a significant moderating effect for product class involvement in higher involvement groups via two group analyses. As the modelling of BPS, BRQ and CIP together is an original contribution, the involvement literature was consulted to determine whether involvement has featured predominantly as a moderator or a mediator

Work within sport marketing indicates that spectators who are highly involved may be more loyal (Gwinner and Swanson 2003). The vast involvement literature typically includes or recommends involvement constructs be utilised as a moderator construct within research (Anderson 1994; Berens et al. 2005; Bloemer and Kasper 1995; Fournier 1994; Gordon and van der Sprong 1998; Homburg and Giering 2001; Laaksonen 1994; Low and Mohr 2001; McIntyre, Thomas Jr. and Gilbert 1999; Miniard, Bhatla, et al. 1991). However, some studies use involvement as a mediator (Mittal 1995; O'Cass 2002a,b; O'Cass and Pecotich 2005) or an independent construct (Bennett, Härtel and McColl-Kennedy 2005). In contrast, Dick and Basu (1994, p. 110), in their conceptual paper on brand loyalty, established a proposition that states, “the higher the involvement in a consumption category, the greater the likelihood of loyalty toward specific offerings within that category”. Product class involvement is important to consider as it can delineate the “depth, complexity and extensiveness of

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18 A moderator is defined as, "a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent and dependent or criterion variable" (Baron and Kenny, 1986, p. 1174). Moderation should not be confused with mediation. Baron and Kenny (1986, p. 1176) define a mediator as any variable which "accounts for the relation between the predictor and the criterion".
cognitive and behavioral processes during the consumer choice process” (Dholakia 1997, p. 159).

Therefore, based on the extensive evidence in the literature and complementary work conducted by Fournier (1994) and other reviewed literature, CIP is treated as a potential moderator. This results in the following moderation hypothesis:

\[ H_2: \text{Product class involvement (CIP) will moderate the impact of brand personality on the brand relationship quality. This moderating relationship will be greater (less) when product class involvement is higher (lower).} \]

The goal is to investigate whether CIP has a large, medium, small or no effect when included as a moderator (Cohen 1988). Or, in other words, what is the true role product class involvement plays in influencing the main effects relationship? Does the strength of the relationship between BPS→BRQ depend on the level of CIP? If significant, this result would imply it should be included in future studies. This structural model including CIP as a moderator\(^{19}\) is referred to as the Interactions Effects structural relationship. The type of moderation, if established, should also be investigated. The moderation testing approach involves extending the investigation into the specific operations of involvement at different levels of the moderator (high, medium and low) (Aiken and West 1991). The investigation of moderation at different levels of CIP can determine whether the influence has more impact by level.

This hypothesis concerning involvement moderation level states:

\[ H_3: \text{The relationship between brand personality (BPS) and brand relationship quality (BRQ) will exhibit significant differences when the involvement moderator is classified as low, medium or high. Higher levels of product category involvement will moderate} \]

\(^{19}\) The author would like to thank Professor Fournier for initially inspiring this research avenue. A majority of the work in the literature review stems from ideas developed in her seminal dissertation and subsequent journal publications.
the BPS→BRQ relationship in a more positive manner and have a greater impact compared with medium and low levels of involvement.

When investigating relationships it is important to understand the type of effect CIP might have on the Main Effects structural relation. There are four types of relationship that can exist when a third variable is introduced into a structural model (Sharma et al. 1981). The four types can include the third construct being either a homologizer, quasi moderator, pure moderator and either predictor, intervening, antecedent or suppressor variable. Not all classifications are moderation types. Overall, there are two possible types of moderators (quasi moderator and pure moderator). Pure modification and quasi moderation “basically modifies the form of the relationship between the criterion and predictor variables” (Sharma et al. 1981, p. 293). See Section 5.5 for an extended discussion on the forms and types of testing required. It is posited that CIP is either a quasi moderator or a pure moderator of the relationship between BPS→BRQ. This particular issue in classifying moderation type is rarely explored in any social research (Voss and Voss 2000). There have been no previous studies that have investigated the type of moderation that may be occurring for the three construct domains.

The current literature provides limited evidence that involvement does play an active moderating role for the focal constructs, with the exception of Ambroise et al. (2005) who report (see Table 2.1) that, for higher levels of involvement, the impact of brand personality on commitment is greater. Fournier (1994) does not find a significant effect for involvement when treated as a moderator and, therefore, does not explore further any aspects of the type of moderation that may exist. It is possible the results might support a positive direct relationship between BPS and involvement. If this is the case, involvement may act as a quasi moderator variable. Involvement is posited to both interact with the predictor variable (e.g., BPS) and is
related independently to the dependent variable (BRQ). Therefore, this substantiates why the type of moderation will also be investigated.

Separating the moderator by levels of high, medium and low involvement types may indicate whether a nonlinear relationship is prevalent with the hypothesised relations. The linearity assumption is tested for the potential effect on the moderator. Although there is no reason to suggest that the relationships could be nonlinear, it is possible that the constructs have threshold levels. This could be analogous to the nonlinear dynamics established in the relationship between loyalty and satisfaction (Oliver 1997). That is, satisfaction increases initially result in large increases in loyalty, up until a zone of tolerance point where increases in satisfaction lead to minimal or no further increases in loyalty (Heskett, Sasser Jr. and Schlesinger 1997). Consumer satisfaction moving into delight has also illustrated such nonlinear threshold behaviour (Finne 2005). The testing of the linearity assumptions in the main effects relation, and also between moderators, has not been previously reported in the literature and should be integrated to follow robust and advanced analytical procedure. The assumption of linearity is most often adopted and testing this assumption represents an advancement that is unique to this thesis. This hypothesis states:

\( H_4 \): The effect of the moderator (CIP) on the \( \text{BPS} \rightarrow \text{BRQ} \) relationship is occurring in a linear (not quadratic, cubic, etc.) manner.

This concludes the outline of the hypotheses. Some hypotheses are conditional on appropriate measurement model validation, that is, without successful measurement model validation the ability to continue with the testing of structural hypotheses (\( H_1 - H_4 \)) may not be able to be accomplished without measurement and structural model modifications. All theoretical domains are complex measurement models and are higher-order, Type I, reflective representations (Jarvis et al. 2003). See Figures 2.3, 2.6 and 2.8.
2.16 Concluding Comments

In this chapter, relevant theories have been discussed within parent and related literature for the main domains under investigation. A structural model is constructed from germane literature. It was established that there is a clear need for research into the effects of the “softer” aspects of branding on relational outcomes. This view is shared by Keller and Lehmann (2006) when outlining their view of the most important future branding research priorities. They identify the area of branding intangibles and domains, such as brand personality and BRQ, as being very important future concerns especially taking into account aspects of how product category and marketing stimuli may impact decision-making behaviour. Hypotheses were developed for a Main Effects and Interactions Effects structural model. Additional hypotheses are posited to investigate the type of moderation, linearity of relations and also effects at different levels of involvement.

As a recap, all of the hypotheses are now presented.

Summary of Hypotheses

This thesis will investigate a number of hypotheses:

$H_1$: A significant positive relationship exists between brand personality (BPS) and brand relationship quality (BRQ).

$H_2$: Product class involvement (CIP) will have a positive and significant moderating influence on the impact of brand personality on the brand relationship quality. This moderating relationship will be greater when product class involvement is higher.

$H_3$: The relationship between brand personality (BPS) and brand relationship quality (BRQ) will display significant differences when the involvement moderator is classified as low, medium or high. Higher levels of product category involvement will moderate the $\text{BPS} \rightarrow \text{BRQ}$ relationship in a more positive manner and have a greater impact compared with medium and low levels of involvement.

$H_4$: The effect of the moderator (CIP) on the $\text{BPS} \rightarrow \text{BRQ}$ relationship is occurring in a linear (not quadratic, cubic, etc.) manner.
The next chapter discusses issues pertinent to data collection, research design and dominant modelling philosophy. The sample size and data analysis approaches in concert with key statistics are also outlined.
CHAPTER 3

METHODOLOGY

“The more sophisticated the theory and precise the observations, the more work approaches the scientific goal of understanding causal mechanisms. Before we reach that point, however, we need a research tool that allows us to examine the immense complexity that exists in the social and behavioral sciences”.

(Falk and Miller 1992, p. 92).

3.1 Introduction

This chapter focuses on outlining the data collection methods, sample selection, research design, reporting of studies to select brands investigated and measurement instruments utilised. The use of an expert panel was engaged at various stages. Finally, the analytical design is discussed to enable the hypotheses to be tested.

The process undertaken in developing and conducting this research is adapted from Churchill Jr. (2001) and represented diagrammatically in Figure 3.1.

3.2 Justification of the Research Paradigm

To discuss the method applied to this research, it is necessary to consider the fundamental purpose of this research and establish the appropriate paradigm. Explanatory research explores the behaviour or cause of a particular relationship (Neuman 2003), and is distinct from exploratory and descriptive research (Punch 1998). This is in contrast to Fournier (1994) who originally adopted an exploratory and descriptive approach in the spirit of being discovery-oriented.

The model in this thesis is designed to explore a nomological network of proposed relationships or, in other words, the effect of brand personality on brand relationship quality, and the effect of product category involvement as a potential moderator in the relationship. In a literal interpretation, it could be interpreted as a “cause and effect” analysis that is typical
when undertaking structural equation modelling explanatory research. However, this thesis deviates from that tradition to test the aforementioned theoretically-developed model by adding statistical rigour via exploratory model testing. Research into these domains may be considered to be in the nascent stages, and the body of theory is still emerging in this stream of research. Theory development and refinement can also benefit from the use of advanced methods and statistical rigour (Hunter, Schmidt and Jackson 1983).

**Figure 3.1: Summary of the Research Process**

Source: Adapted from Churchill Jr. (2001).

In addition, it must be recognised that such structural models or explanatory research can also be conducted in an exploratory manner (Falk and Miller 1992; Jöreskog 1993). That is, if alternative models are specified or the original model is altered through validation testing and purification, then the research study may be exploratory (Bollen 1989). Experimental
Techniques are believed to be the most robust and suitable for studying “cause and effect” relationships (Churchill Jr. 2001). However, many researchers test structural models with non-experimental research methods utilising survey information (MacKenzie 2001). The directionality of relationships between constructs is not validated by experimental design constraints but by establishing time order preference and theory development through extensive literature review, expert consensus and post hoc statistical directionality assessment techniques (Bollen and Ting 1993). For example, the Brand Relationship System (Fournier 1994) that is central in highlighting the core theoretical basis for path directionality in this study did not entail experimental work. Hoyle and Smith (1994, p. 439) state that:

“In reality, most quasi and non-experimental research designs involve gathering data in such a way that directionality of influence cannot be ascertained. … At this point … the researcher must resort to logic, previous research, or compelling theoretical arguments”.

Through deduction, a model has been posited for further testing. Having established the underlying research purpose, it is important to identify the dominant research paradigm. Categories that are relevant to social science research include positivism and interpretivism (May 1997; Neuman 2003). The positivist perspective is concerned with deductive logic using empirical data to explain and predict behaviour (Carson, Gilmore, Perry and Gronhaug 2001; Neuman 2003). The positivist approach uses methods including surveys, experiments and statistical analysis. MacCallum and Austin (2000) states that the majority of relationship oriented studies utilise structural equation modelling. On the other hand, interpretivism involves understanding phenomena through observation. This particular perspective tries to build a theory using an inductive approach, typically using qualitative approaches (Blaikie 1993).

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20 This section does not aim to encompass a collective review for all research paradigms. It must be acknowledged that there are many paradigms with varying nuances. An exhaustive review of these paradigms is featured within Blaikie (1993), Carson et al. (2001), May (1997) and Neuman (2003).
The selected positivist approach complements the aims of this study - to test hypotheses that have been derived from available theories. To test structural models, and in keeping with the positivist approach, quantitative methods are favoured. By following a positivistic approach the research is concerned with facts (Popper 1959). A process of fact finding is involved as well as the use of scientific methods to test those facts. The scientific method compels a reliance on objective measures to support findings (Wicks and Freeman 1998, cf. p. 125). This work aims to quantify key relationships which have previously been identified as needing further investigation (see Section 1.4). The research method is discussed next.

3.3 Research Method

To address the hypotheses of this thesis a cross-sectional study is used, specifically, a self-administered mail questionnaire. Self-administered mail questionnaires are used extensively in marketing, and surveys are the most common form of data collection (Sudman, Bradburn and Schwarz 1996). This method is useful when a lot of information needs to be collected and there are no excessive time constraints on data collection (Kerlinger 1992). Surveys are suitable when moderate to lengthy levels of response are required, and they have the advantage of being rather cost-effective (Dillman 1978) and realistic when compared with experimental design implementation (Kerlinger 1992). Other branding researchers (Aaker 1995; 1997; Fournier 1994; Laurent and Kapferer 1985) have used this technique, therefore, this method was considered appropriate to collect the data needed to test the hypotheses.

3.4 Research Design

The research design for the main study was set up with the objective of making the results generalisable to many product classes. The design needed to consider the range of variance in the items so that sufficient information is collected for the constructs under assessment. The choice of a survey method assists to optimise the population representativeness, thus improving study generalisability (Scandura and Williams 2000). This thesis evaluates two
brands within six separate product classes. Three category types are represented from the durable/semi-durable, services, and fast-moving consumer goods (FMCG) domains. This mirrors the design followed by Fournier (1994). The chosen brands and product classes are outlined after presentation of results for four separate brand selection studies (see Section 3.8 and Tables 3.1 and 3.2). The next section outlines important procedures followed in the construction and administration of self-administered mail surveys.

3.5 Mail Questionnaire Design

The mail questionnaire was designed after consulting relevant literature (Hoinville and Jowell 1982; Moser and Kalton 1981). The questionnaire is composed as a self-administered structure-disguised questionnaire. This involved respondents answering questions that were not central to this research study to lessen respondent learning and to control for biases (Sudman et al. 1996). Some information has been reserved for future analyses. A decision was taken to make the questionnaire as simple and to-the-point as possible, while keeping the disguised principles in mind (Frazer and Lawley 2000). Respondents answered questions related to two brands for a particular product class, using forced-choice measurement scales, which is consistent with other studies that involved respondents rating multiple brands (Aaker 1995; 1997; Aaker et al. 2001; Ferrandi et al. 2000; Fournier 1994). Forced-choice scales expedite the time for completion (Dillman 1978). These decisions involved a trade-off between greater brand representation allowing greater generalisability, and possible respondent fatigue.

Consideration was given to the length of the questionnaire, although, mail questionnaires have a tendency to be longer than other survey methods (Dillman 1978). Research has found that longer questionnaires do not necessarily have an adverse affect on response rates (Scott 1961). The questionnaire length was 12 pages, which met the recommended maximum threshold of twelve pages for mail questionnaires (Frazer and Lawley 2000). In addition, final
decisions about questionnaire length were made after consultation with an expert panel and after implementing a pilot study. Clear instructions preceded each question battery (Oppenheim 1986) using simple language to avoid confusion (Frazer and Lawley 2000). Straightforward questions that took minimal time to complete were placed at the beginning of the questionnaire; the major item batteries and more difficult items were placed within the middle of the instrument (Sudman et al. 1996). The questionnaire is featured in Appendix A.

3.5.1 Covering Letters

A cover letter was included with the questionnaire to explain the purpose of the research, to provide an assurance of confidentiality and to state why the respondent should reply. This letter followed recommendations from the RMIT Ethics Committee, and Cavusgil and Elvey-Kirk (1998). The study was referred to as a brand study and words such as “selected and chosen” were used, as is recommended practice (Erdos 1970; Hoinville and Jowell 1982). The letters were printed on Colour University letterhead of a higher weight stock of 150grm, in the belief that such letters produce a better response (Jobber 1985; Kanuk and Berenson 1975). Letters were all personalised by addressing respondents by their Christian and surnames (no title), and each letter was signed in blue ink to make the personalisation noticeable by potential respondents (Dillman 1978; Linsky 1975). Respondents were assured of confidentiality and anonymity (Heneman III 1974), and that results were not to be used for commercial gain. Incentives were used to improve the response rate (Cavusgil and Elvey-Kirk 1998; Delener 1995). Respondents were also made aware that they would be sent a gift and, subsequently, received a movie ticket. The use of incentives has also been implemented in other brand personality studies (Aaker et al. 2001; Otto 1997).

The envelopes featured the University’s logo and had a clearly identifiable stamp. Highlighting these issues and having “university identification” was believed to be a good mail survey style (Cavusgil and Elvey-Kirk 1998) to deliver higher response rates. A reply-
paid envelope, again clearly marked with the University’s name and logo to encourage a response, was also included with each questionnaire sent (Cavusgil and Elvey-Kirk 1998; Ferriss 1951).

3.5.2 Follow-Up Letters

After the questionnaires were sent out, response levels over following days and weeks were recorded. Follow-up letters are a powerful means of increasing response rates when responses plateau (Moser and Kalton 1981; Sudman et al. 1996), and consideration was given to sending another copy of the entire questionnaire with a follow-up letter, but budgetary constraints precluded this. Dillman’s study demonstrated that it is better to send two reminder letters (Dillman 1978). Reminder letters were personalised using University letterhead and all were individually signed in blue ink (Dillman 1978). Two waves of follow-up letters were sent when the response rate slowed (Blumberg, Fuller and Hare 1974). The first and second follow-up letters were sent 11 days and 21 days, respectively, after the original was administered. Such actions in mail survey administration facilitated response (see Section 4.2).

3.5.3 Mail Questionnaire Pilot Studies

The mail questionnaire was initially checked for flow and understanding of the proposed question items and batteries using a sample of ten undergraduate marketing students. The small sample pilot did not allow preliminary reliability and validity analyses, but the pilot was useful with some minor spelling errors being identified (Frazer and Lawley 2000). Completion speed and completeness was also examined. The questionnaire took about 30-45 minutes to complete. The approach of starting with general questions followed by more specific and directed questions later in the questionnaire (Sekran 2000) was judged to be suitable. The preliminary pre-test identified no apparent issues with order bias. The instruction and item wording was also thought acceptable (Frazer and Lawley 2000). An expert panel consisting of twelve marketing faculty members agreed with the length of the
questionnaire and the benefits of following the disguised approach, even though it did contribute to overall survey length. The questionnaire was similar in length to studies by Fournier (1994) and Aaker (1995).

3.6 Brand Selection and Student Sample Justification

This section features a summary of the four studies, two of which used student samples, that helped select the categories and brands to be included in the main study. Hulland, Chow and Lam (1996, p. 193) found that the use of student samples has increased and that they have the advantage of being “relatively homogeneous, introducing less random noise into the modeling process”, as well as the disadvantage of “generalizability of researchers' findings in the longer run”. Although, student samples have been carried out for two preliminary studies, this is counterbalanced by presenting expert panel results and a separate, large, random sample study using commercial marketing research data. A brief summary of the results from these brand selection studies follows.

3.7 Expert Panel Justification

An expert panel consisting of twelve marketing faculty members (plus two from the candidate’s supervisory team) was consulted on issues for this thesis. The expert panel was used to aid with tasks including: the brand selection, questionnaire pre-testing, item domain specification, addition of items and the likely path directionality for items and constructs. The expert panel results are presented within the respective sections below.

3.8 Establishing the Brands and Categories to be Studied

A major consideration within this thesis was to decide which brands are suitable to be studied. One guiding axiom was that the brands selected had to be well-known to most Australians. Adequate brand awareness and national penetration within the mainstream market is necessary. This process removed many niche brands and regionally distributed
brands. Recently, Sung and Kim (2010) have adopted this approach in a brand personality study.

Another consideration when choosing the brands to be studied was that the brands had to come from diverse categories. A diverse category selection would make inferences more justifiable to other brand categories. Also, by selecting a diverse representation of categories it was more likely to be representative of varied brand personality structures that might prevail. Another important factor in establishing the sample frame is that the awareness levels for each product class need to be high (Callaghan and Wilson 1998). The choice of product class for the main study is also cognisant of an “ability or willingness to respond” factor. Overall, the final brand set was chosen to preserve consistency between international BRQ studies (Fournier 1994). Brands were also chosen to reflect a greater breadth in brand personality. Although many brands and categories were not included, it does not necessarily imply that concepts like brand personality and brand relationship quality are not important. However, the final decisions on brand studied were mindful of study resource constraints. Strategies needed to be fulfilled to ensure responses would be received in the administration of a national mail questionnaire.

The product classes and brands to be researched were selected based on four separate studies. These studies are summarised in Table 3.2. Appendix B presents extended results related specifically to study four.

Overall, after assimilating the collective results from four studies, the product classes and brands to be studied are featured in Table 3.1. One point of view is that selecting well-known brands may predispose the results to be of a positive nature. This was not considered sound for several reasons. First, the national mail survey and sample frame provided a mix of users (current and lapsed) and non-users for each brand set that would provide opinions in both affirmative and negative directions. Second, the selected brands displayed enough response
variations, both in direction and intensity, for brand study questions. Overall, it is envisaged that people will not have strong relationships with all the brands in the study, and reinforces the selected brands as being suitable for the administration of a national mail survey.

Table 3.1: Categories, Product Classes and Brands Selected for Study

<table>
<thead>
<tr>
<th>Category Type</th>
<th>Product Class</th>
<th>Brands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaged Goods</td>
<td>Cola Soft Drinks</td>
<td>Coca-Cola, Pepsi</td>
</tr>
<tr>
<td></td>
<td>Film</td>
<td>Kodak, Fuji</td>
</tr>
<tr>
<td>Services</td>
<td>Airlines</td>
<td>Qantas, Ansett</td>
</tr>
<tr>
<td></td>
<td>Credit Cards</td>
<td>American Express, Visa</td>
</tr>
<tr>
<td>Durables/ Semi-Durables</td>
<td>Cars</td>
<td>Holden, Ford</td>
</tr>
<tr>
<td></td>
<td>Athletics Shoes</td>
<td>Nike, Reebok</td>
</tr>
</tbody>
</table>

3.9 Ethical Clearance to Proceed

Ethics approval was obtained through the University’s Ethics Committee. The committee was satisfied with the use of incentives and the project was seen as having small impact on respondents. The administration followed university dictum in underlining that participation was voluntary and respondents were provided with a clear feedback mechanism if they had any objections or questions.

3.10 Sampling and Sample Selection

For the main study, respondents were randomly selected from a consolidated national residential listing database, sourced from a software directory product called Marketing Pro which consolidates some 6.8 million residential listings Australia wide. Given the selected brands, a residential white pages directory was used as a sample frame as it enables widespread potential respondent accessibility. For this study, only one country, Australia, was selected because of time and budgetary constraints.
The sample was drawn by the computer software in a systematic fashion with the first number being selected by a random number generator. Such an approach allows greater representation of the population (Nunnally 1978). Selected participants from the database were mailed the questionnaire, and the questionnaires for all categories were posted within the same week to ensure constancy of conditions.

3.10.1 Unit of Analysis

The unit of analysis was the consumer, which was considered appropriate to capture consumer-brand relationships and ensure a range of brand personality judgments. Careful consideration was given to measuring the consumer brand dyad but it was decided the focus should be solely on the consumer side. Researchers in the field of psychology often research both members (e.g., husband and wife) of a relationship, as shown by Kelley, Berscheid et al. (1983), Kenny, Kashy and Cook (2006) and McClintock (1983). Obviously, the members and dynamics are different within brand relationship research. Identification of the partner on the brand side (manufacturer, marketing manager, team, advertising team, etc.) is much more complex than respondent identification on the consumer side (Wilson 2008). Therefore, the consumer was the chosen focus in this thesis, making the unit selected similar to previous studies conducted by Fournier (1994) and Aaker (1995) in order to be of greater practitioner interest.

\[21\] A dyad for a consumer brand relationship would encompass the consumer and manufacturer/marketer/advertisers being considered separate entities in the dyad. This would add substantial complexity to the research. The researcher would need to consider: constructing different measurement instruments of alternative forms for each party, respondent identification problems and many advanced analytical concerns may arise [difference score analysis, small versus large sample size integration and comparison issues, etc.] (Kenny et al. 2006; Wilson 2008). Based on the relevant literature and with the consumer scales (Aaker 1995; 1997; Fournier 1994) being still rather new and possibly needing further refinement, this thesis is substantial in its own right. The objective of this thesis is to concentrate on these issues before more ambitious work is undertaken researching other parties to the relationship. Scale development work on the manufacturer/marketer/advertiser side of the dyad would require further extensive developmental work that, if undertaken in isolation from addressing the consumer side, represents enough work for a separate dissertation topic in itself.
Table 3.2: Summary Table for Brand Selection Studies (1-4)

<table>
<thead>
<tr>
<th>Study</th>
<th>Description/Administration</th>
<th>Characteristics</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Expert panel respondents were presented the aims and ideas involved in the thesis and asked to identify six product classes and two brands from each product class recommended. There was no prompting other than to state that respondents were asked to think of brands with clearly defined personalities and with which consumers have a brand relationship. No advice was given to suggest that this brand relationship had to be of a positive or negative nature. The relationship intensity (weak or strong) was also not prompted. Respondents recommended two product classes under each of the three category types (durables, packaged goods and services).</td>
<td>Twelve RMIT marketing staff members (ranging from lecturers to professoriate level).</td>
<td>Many product classes were mentioned such as: cola drinks, insurance, banking, airlines, cosmetics, computers, telecommunications, luxury cars, fashion clothing, soap, coffee, tea, laundry detergents, software and consumer electronics. There was great variation in the brands mentioned. From here, it was necessary to carry out another brand selection study.</td>
</tr>
<tr>
<td>Two</td>
<td>An undergraduate student sample was canvassed. The students were dealt out a voluntary questionnaire taking about five minutes of their time in class. The study received full participation. The questionnaire was run in a group setting in a quiet room. There was no obvious interaction between respondents when filling in the questionnaire. To cross-check whether interaction had taken place responses were compared for those sitting in the same vicinity. Three questions were asked.</td>
<td>Forty-four undergraduate students. The student sample represented a rough even split between female (52.3%) and male (47.7%) respondents. Most of the respondents (47.7%) were between the ages of 20-24 years followed by 20.5% who were aged 25-29 years. Representation for people aged 30-34 years and 35-39 years was 15.9% and 6.8%, respectively. The age distribution may show response bias towards youth oriented brands.</td>
<td>For question 1, brands such as: Coca-Cola (68%), Pepsi (14%), McDonald’s (20%), Toyota (23%), Nike (30%), Holden (16%), and Ford (36%) were the most salient. For question 2, people considered brands such as: Coca-Cola (23%), Levi’s (16%), Nike (23%), Holden (14%), Cadbury (16%), Sony (14%), Mercedes (9%), Honda (11%), and Nestle (11%) to be meaningful brands for them. In total, 144 different brands were mentioned as being meaningful to respondents. The breadth and variety of brand comments for such a small sample (n=44) shows cursorily that the brand relationship and self-concept connection theory is well represented and considered to have face validity by respondents. For question three, 90 different brands were mentioned. Among those brands that people believed to have clear well-defined personalities were: Coca-Cola (59%), Nike (34%), Levi’s (25%), Pepsi (20%), McDonald’s (20%), Ford (16%), Mercedes (14%), Holden (9%), Toyota (9%) and BMW (14%). Overall, results are influenced by youth skew and</td>
</tr>
</tbody>
</table>
3) The final question asked consumers to identify five brands that have “clear, well-defined personalities”.

Another study was necessary to gain older age representation. However, results provide some preliminary evidence towards supporting the use of metaphor when referring to brands in humanistic terms such as the ability to have a brand relationship and for brands to have a distinct brand personality.

Three Study three involved two undergraduate classes responding to an identical question. No course credit was given, however, mini-chocolate bars were given out afterwards as a token of appreciation. It is expected that a broad cross-section of brands would be mentioned (not only those brands with youth appeal) as class two had older students enrolled and this would help counter the youth skew and brands mentioned in Study Two. The question asked:

1. Please think for a moment about all the different brands you buy and use. Try to consider the whole range of categories that you see or are involved in: including, for example, packaged food products, cleaning supplies, beverages, clothing, personal care items, cars, sporting goods, computers, electronic equipment, magazines, stores, restaurants, school supplies, airlines, telephone services, credit cards - the list is virtually endless.

For this exercise you are required to choose one brand to which you feel closest. This may be a brand you have been using frequently for years or have strong opinions about. There is no right or wrong answer.

The brand I feel closest to is: Please specify ............................................ (if you have many just choose one).

The sample sizes were 85 and 54, respectively. The first class was comprised mainly of full-time undergraduate students. The second class was representative of more part-time students engaging in study while working full-time. The sample sizes were 85 and 54, respectively. The first class was comprised mainly of full-time undergraduate students. The second class was representative of more part-time students engaging in study while working full-time.

Across 139 respondents, 82 different brands were mentioned. This provides some evidence towards supporting the notion that people can feel close to a brand. The total number of brands mentioned also shows that this is reasonable and credible for a wide cross-section of brands in various categories. The scope of categories mentioned includes: Adventure clothing (Patagonia), Computers (Apple, Acer, Intel), Cosmetics (Revlon, Chanel, MAC cosmetics, Clairol, Clinique, Avon), Airlines (Qantas, Ansett, United Airlines), Clothing (Esprit, RM Williams, Country Road, Dangerfield, Freshjive, Mooks, Levi’s, Billabong, Rip Curl) Alcoholic Beverages (Victoria Bitter, Melbourne Bitter, Penfold’s Wines, Napoleon Brandy), Toothpaste (Colgate), Tea and Coffee (Lipton’s Tea, Nescafe), Soft Drinks (Coca-Cola, Pepsi, Diet Coke, Pepsi Max, Sprite), Toilet Paper (Sorbent), Sports Shoes (Nike, Adidas, Asics) Cars (Honda, Holden, Ford, Proton), Chocolate (Cadbury’s, Hershey’s, M&M’s) and others. Other categories mentioned included: magazines, fast foods, wallpaper, watches, breakfast cereals, perfumes, deodorants, telecommunications, motorcycles, retail stores, electronic goods, chewing gum and milk flavourings. Repetitive mentions were featured for Coca-Cola (8%), Nike (4%), Esprit (5%), Cadbury (3.5%), Honda (3%), Pepsi (3%), McDonald’s (3%), Victoria Bitter (3%), and Colgate (2.5%).
There is some consistency of response for product classes between studies 1, 2 and 3 with certain durables and services product classes (such as banks and credit cards) being occasionally mentioned.

| Four | Study four involved examining the results of a mail panel survey conducted annually by AMR-Quantum in Australia. A brand equity measure was operationalised and was based on the extent to which the respondent perceived the brand as one that “reflects the values you stand for” (Callaghan and Wilson 1998). In this respect, it can be viewed as being similar to the “meaningful to you” question implemented in question 2 of study 2.
If respondents did not consider they knew enough about a brand they were not required to rate it and this is the basis of the awareness definition used. An important consideration given the sampling frame implemented within this thesis is that the mean awareness levels for product classes need to be high (Callaghan and Wilson 1998).
No niche brands were involved. Some brands were state-based, such as beers and newspapers, but all could be viewed as mainstream and this needs to be taken into consideration when interpreting the results. |
<table>
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<tbody>
<tr>
<td>Four</td>
<td>The data was made available from the social values research instrument AustraliaScan. This is an omnibus instrument and the survey is randomly administered to 2000 consumers rating some 80 brands in 20 product classes. The brands covered were generally well known nationally distributed brands and the leaders in their respective categories.</td>
</tr>
<tr>
<td>Four</td>
<td>The results indicated (see Appendix B) that: photographic film (scoring 7.91 out of 10), airlines (7.15), biscuits (7.15), breakfast cereals (7.99), department stores (7.11) and electronic goods (7.19) product classes received the highest equity scores out of ten. It is not surprising that banks (4.75) as a category fare badly given their poor perceived service levels and widespread criticism. Equity measures for telecommunications suppliers (6.05), insurance companies (5.43), fast food (5.88) and soft drinks (6.32) have levels below what might be expected. The relatively better performance of categories such as photographic film, electronic equipment, airlines and computers suggests that consumers are likely to have relationships with these categories. The alcohol, hardware, retail store and newspaper categories were considered inappropriate for the main study due to some brands having regional presence. The results become more pronounced at the brand level. As expected, the leading two brands in each category normally have the highest awareness and equity scores. This is one of the underlying rationales behind choosing the top two leading brands in the chosen product classes for the main data collection phase.</td>
</tr>
</tbody>
</table>
3.11 Measurement Instruments for Constructs

It was considered prudent to base the work on existing instruments because it is also important that researchers develop or use valid and reliable measures of unobservable constructs (Churchill Jr. 1979). There were three main item batteries used to test the proposed model (Brand Personality Scale: 47 items, Brand Relationship Quality Scale: 62 items, Consumer Involvement Profile: 16 items). These batteries all had multiple measures for each construct under study. “A multiple-indicator approach tends to reduce the overall effect of measurement error of any individual, observed variable on the accuracy of the results” (Kline 1998, p. 189). Besides gathering information on the item batteries, the questionnaire also contained questions on awareness, usage and demographic data about respondents. Question items assigned to their respective constructs are presented in Appendices A and D.

An expert panel was also consulted about the suitability of these battery items in representing their respective constructs, and whether an Australian sample may have any recognisable difficulty with the language, question ordering and other potential systematic errors. This was done to help screen out problem questions that were found to have multiple interpretations or questionable nuances, but no such problems were judged to exist. Question ordering was considered acceptable and is in line with previous studies. However, some brand personality items were added following the expert panel review, and this process is outlined next.

3.11.1 Brand Personality Scale

The Brand Personality Scale (BPS) consists of a series of single word items or trait descriptors measured on a five-point scale. The BPS of Aaker (1995; 1997) was adapted slightly to reflect the Australian English language and culture. In deciding to add items, the expert panel discussed the suitability of each trait descriptor to the Australian culture. Two items were added to the scale as it was judged that Australian respondents would not perceive
the same meaning for items such as: western and small-town. There was also consensus that
the sophistication trait descriptors were not clear enough. Thus, two items were added to the
original 45-item scale: sophisticated and outback. At the end of this process, 12 items
represented Sincerity, 12 items represented Excitement, 9 items represented Competence, 7
items represented Sophistication, and 7 items represented Ruggedness. The same panel of
experts also assessed the potential for item misinterpretation with the other scales included
within the questionnaire. It was considered that misinterpretation was unlikely. The BPS was
measured on a 5-point modified semantic differential scale (not at all descriptive—extremely
descriptive).

3.11.2 Brand Relationship Quality Measures

The Brand Relationship Quality (BRQ) battery implemented within this study was a
refined articulation of the original battery developed by Fournier (1994). Fournier supplied an
extended version that was being subjected to further scale validation in continuing research. There were minor differences between the two versions. Some constructs had benefited from
the slight rewording of statements to make them more succinct. The items used a 7-point scale
which was increased from the 5-point scale in Fournier’s (1994) original BRQ scale, to allow
greater discrimination, as recommended by Fournier (1994; 1998). The scale was a modified
semantic differential (Does not describe my feelings toward the brand at all – Does describe
my feelings toward the brand very well). Agreement on the number of scale points to use
varies between authors (Dolan 1994), but it is broadly accepted that between five and nine
response choices are ideal for most uses and to provide measurement instrument sensitivity
(Ebel 1969; Nunnally 1978). There was consensus from the expert panel that the constructs
were being adequately tapped by the multiple items representing each construct. The scale
consists of 8 statements for commitment, 8 for interdependence, 11 for partner quality, 9 for

22 The author would like to gratefully acknowledge Professor Fournier for her initial support, inspiration and for
supplying the most up to date BRQ scale for investigation.
love and passion, 11 for intimacy, 7 for self-concept connection, and 7 for nostalgic connection.

3.11.3 Consumer Involvement Profile Measures

A 16-item scale represents the five constructs for the Consumer Involvement Profile (CIP) (Bearden et al. 1993; Kapferer and Laurent 1985; 1986; Laurent and Kapferer 1985). A 5-point Likert scale was considered appropriate in keeping with the previous research (agree/disagree). There were three statements used for measuring: interest, perceived product importance/risk, symbolic/sign value, hedonic value; and four items representing probability of mispurchase. The expert panel identified no underlying problems with the CIP item battery. The brand selection studies and the use of a panel of experts reinforce face validity for the constructs under investigation (Nunnally 1978).

The next section discusses issues that are relevant to theoretical domain specification and affects the selection of proper data analysis techniques. Issues of indicator directionality are explained with particular emphasis on defining reflective and formative measurement characteristics.

3.11.4 Reflective versus Formative Measurement Orientation

Conventionally, there are two main types of indicators discussed in the literature, reflective (effect) and formative (causative), and there is also a third, less common, model which is a hybrid of these. They are each considered here in turn.

The first type of indicators are called reflective measures which are also referred to as a Mode A representation (Lohmöller 1989). As the term implies, the indicants reflect the latent, unobservable variable. Bollen and Lennox (1991) believe reflective indicators are dependent on a latent variable. As the latent variable determines its indicators, the causal direction flows from the latent variables to the reflective item indicators (see Figure 3.2[1a]). Formative indicators are “causes of the construct, such that variation in the measures produces variation in the construct” (Williams et al. 2003, p. 906).
Bollen and Lennox (1991) refer to formative indicators as causal indicators that create emergent constructs (see Figure 3.2[1b]). This is also commonly known as a Mode B representation (Lohmöller 1989). When using formative indicators, we represent a distinct dimension of the construct, pointing out the construct must be a multi-dimensional concept. Fornell and Bookstein (1982) considered the variables measuring the "marketing mix" to be formative, as would the belief evaluation in the Fishbein and Ajzen (1975) attitudinal model (section adapted from Jarvis et al. 2003). Therefore, for formative indicants, correlations between the indicators are not always necessarily high as a change in the latent variable may result from a change in any one of the indicators, while the others remain unchanged. To adequately capture a formative construct, ideally, the universe of relevant items should be included in the questionnaire because selectively removing one indicator from the posited construct model would lead to dire repercussions as it “changes the composition of the latent variable” (Bollen and Lennox 1991, p. 308).

**Figure 3.2: Dominant Measurement Orientations**

![Diagram of measurement orientations](image)

1a: Mode A: Reflective  
1b: Mode B: Formative  
1c: Mode C: Hybrid


Finally, it is possible to have a type of indicator representation called Mode C in which an arrow scheme uses both formative and reflective indicators to represent one construct (Chin and Newsted 1999; Lohmöller 1989) (see Figure 3.2[1c]). As a Mode C representation is not of interest to this work, it is not discussed further.
All measures in this study were treated as being reflective, in keeping with the initial mode for which they were specified. Fornell and Bookstein (1982, p. 292) believe that “constructs such as ‘personality’ or ‘attitude’ are typically viewed as underlying factors that give rise to something that is observed. Their indicators tend to be realised, then, as reflective”. The previous statement about human personality has been naturally transferred to brand personality measurement (Aaker 1995). Similarly, items within the brand relationship quality and involvement construct are all “attitudinal-style” items. The panel of experts agreed that the items were reflective when briefed on the individual items representing constructs.

The work of Jarvis et al. (2003) was consulted post hoc by the expert panel to confirm whether a reflective or formative operationalisation should be applied. All agreed with their originally-developed conceptualisations. Bollen and Ting’s (2000) study would suggest the implementation of a Confirmatory Vanishing Tetrad Analysis (CTA) as a quantitative test that is more data driven23 as another post hoc test of directionality assessment. Using such complex procedures is becoming part of standard research procedure in marketing studies and is also used within this study (Coltman, Devinney, Midgley and Venaik 2008; Wilson, Vocino, Adam and Stella 2008; 2011).

3.12 Modelling Philosophies

The proposed model is best tested with a dependence method such as regression analysis or structural equation modelling techniques (Hair, Anderson, Tatham and Black 1995). Given the complexity of the proposed model and the fact that interrelationships between latent constructs were of interest, regression analysis was not considered suitable (Bollen 1989; Chin 1998a,b; Jöreskog 1967). Aaker and Bagozzi (1979, p. 153) have stated that model development and later theory development should be iterative:

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23 CTA is explained in greater detail in Chapters 4 and 5 in the additional analyses section.
“Ideally, one's theory will dictate a unique structural equation model, …. In practice, however, the researcher will more often begin with a tentative model as a hypothesis which then needs to be tested, refined, and retested before a satisfactory model can emerge. Further, a researcher also is likely to have several structural equation models to investigate as rival hypotheses. This likelihood is partly a result of the immaturity of theory in marketing and the social sciences and partly a consequence of the complexity of marketing problems and the uncertainty inherent in all phases of the research process”.

Although the BPS, CIP and BRQ have been at first developed with CBSEM methods in their original scale derivations based on the above advice it is prudent for analysts to be flexible with positing alternative models assessed with other analytical methods. This is necessary given the lack of theoretical development, lack of replication, new country context (Australia) and overall model complexity. This thesis adopts the perspective that “model construction is an evolutionary process” (Wold 1981, p. 70). The two main structural equation modelling approaches are discussed next.

3.13 Analytical Methodology

This section involves a discussion outlining structural equation modelling (SEM) analytical methods. These methods are proper when the researcher needs to indirectly estimate unobserved latent variables (Burt 1973; Carmines and McIver 1981; Chin and Todd 1995). This section selects a suitable analytical method after highlighting the strengths and weaknesses of each technique.

In SEM there is a requirement for the estimation of a measurement model. This model tests relations between the reflective variables and construct to establish suitable reliability and validity. This model is often referred to as a block (Fornell and Cha 1994; Kmenta and Ramsey 1980). Therefore, a block consists of a set of indicators for a particular latent construct (Falk and Miller 1992). A series of blocks of indicators for all latent variables comprise the measurement models or outer model (Fornell and Cha 1994). The structural (inner) model is represented by relations among the exogenous and endogenous constructs (Falk and Miller 1992). This is the structural model and highlights the strength and degree of
relation between latent constructs. Overall, the structural model examines the hypothesised relationships between constructs.

Two structural equation modelling methods are critiqued in the next section. The first analytical technique is Covariance Based Structural Equation Modelling (CBSEM) and is also known as the LISREL\textsuperscript{24} model (Jöreskog 1971; Jöreskog and Sörbom 1996). The second analytical technique is Partial Least Squares (PLS) (Wold 1973; 1974; 1975)\textsuperscript{25}. Falk and Miller (1992) label each of the approaches hard versus soft modelling. “The mathematics underlying the PLS system are rigorous, but the mathematical model is soft in the sense that it makes no measurement, distributional, or sample size assumptions” (Falk and Miller 1992, p. 3). It has long been established by the founders of both techniques, Karl Jöreskog and Herman Wold, that these methods are complementary. They state that:

“The ML (maximum likelihood) and PLS approaches to path models with latent variables are complementary rather than competitive. ML is theory-oriented, and emphasizes the transition from exploratory to confirmatory analysis. PLS is primarily intended for causal-predictive analysis in situations of high complexity but low theoretical information” (Jöreskog and Wold 1982, p. 270).

\subsection*{3.13.1 Covariance-Based Structural Equation Modelling}

CBSEM aims to compare the difference between an algorithm estimated matrix with the observed sample covariance matrix for the data collected. It is the difference between the estimated and observed data matrices that signals whether the implied model fits the data in question (Bollen 1989). When carrying out CBSEM the loadings are fixed or assigned to specified constructs before estimation occurs (Jöreskog 1967; 1971; Long 1983; Steenkamp and van Trijp 1991). The estimated model parameters attempt to reproduce the covariance matrix of the observed measures (Jöreskog and Sörbom 1996). This technique assumes that theoretical development is strong (Falk and Miller 1992) as it aims to reproduce the observed

\textsuperscript{24} It is assumed that CBSEM methods, its estimators/principles are familiar to most readers. (See Bollen 1989; Byrne 2001; Hoyle 1995; Kelloway 1995; Kline 1998, for a complete review).

\textsuperscript{25} Professor Herman Wold was Chair of the Department of Statistics at Uppsala University and was Karl Jöreskog’s PhD supervisor in the late 1960’s (Cudeck, Du Toit and Sörbom 2001).
data covariance matrix against an estimated\textsuperscript{26} covariance matrix (Bollen 1989). Performing this method requires that certain underlying assumptions are met. Typically, the observed variables need to follow a specific multivariate distribution (normality for the Maximum Likelihood - ML estimation function) and data observations should be independent of each other (Wold 1981). There estimators available to deal with non-normality using distribution-free estimation techniques [ADF (Browne 1984) or WLS (Bollen 1989)]. Some academics believe the use of ML is robust to mild normality deviations (Boomsma 1983; Muthen and Kaplan 1985). Others are stronger advocates for using ADF/WLS when data is non-normal (Byrne 1998; Holmes-Smith and Rowe 1994). ADF is computationally intensive (Liang, Lawrence, Bennett and Whitelaw 1990) and needs larger often prohibitive sample sizes (Muthen and Kaplan 1992; Tanaka 1987). These issues are important in this research given the distributional concerns the preliminary data analysis reveals (see Section 4.3.2).

One of the benefits of using CBSEM is there are many fit statistics that can be evaluated to assess models (Bollen 1989; 1990; Kline 1998). It is acknowledged that CBSEM requires “relatively high-quality data and the need for relatively strong developmental ideas” (McArdle and Aber 1990, p. 157). It must be noted that CBSEM estimation is often difficult when data displays distributional problems for complex models (Chin 1998b; Wilson 2005a,b; 2010). The second SEM technique is now outlined.

\textbf{3.13.2 PLS Structural Equation Modelling}

PLS is similar to ordinary least squares regression, but being a components-based structural equations modelling technique (Chin, Marcolin and Newsted 1996; Lohmöller 1989) it obtains estimates by simultaneously modelling the structural (inner) paths and measurement (outer) paths. PLS is seen as a forerunner to future CBSEM analyses (Chin and Newsted 1993). PLS is selected by methodologists for many reasons (Lee 2000). One benefit

\textsuperscript{26} The estimated matrix is constructed via selected typical estimator algorithms: maximum likelihood, asymptotic distribution-free/weighted least squares, unweighted least squares or generalised least squares estimators. (See Hayduk 1987; Jöreskog and Sörbom 1993; 1996; Kline 1998, for a discussion).
of PLS is that it can cope with multicollinearity and converge to a solution (Fornell and Bookstein 1982).

Fornell and Bookstein (1982) have used both methods. They initially use CBSEM methods and after obtaining improper solutions (negative error variances and standardised loadings greater than 1), they finish their analysis with PLS where the method is more data sensitive and subsequently converges to a solution. More recently, while studying mobile phone data for the European Customer Satisfaction Index (ECSI) Tenenhaus, Vinzi, Chatelin and Lauro (2005) test a reduced form of the full ECSI model (with fewer constructs included) to compare LISREL and PLS estimates due to LISREL non-convergence of the full ECSI model.

It appears that LISREL may have limits when researchers are examining complex models with sample size constraints (Chin and Newsted 1999). PLS is considered capable of explaining complex models (Chin 1998b; Fornell and Bookstein 1982) and nearly always converges (Wold 1981). PLS is robust against deviations from the normal distribution (Cassel, Hackl and Westlund 1999). PLS also overcomes the factor indeterminacy problem of CBSEM (Fornell and Bookstein 1982), can deal with smaller sample sizes (Wettingslow and Markham 1999), is better able to cope with formative measures (Anderson and Gerbing 1988), and does not rest on the assumption of observation independence (Falk and Miller 1992). Although sample size is not as prohibitive in PLS, there is still limited guidance as the PLS Monte Carlo literature about such sample size recommendations are scarce. PLS cannot

---

27 It must be noted that authors of such articles evidencing non-convergence problems do not outline the specific causes for non-convergence. This may be explained by many issues including: “(1) sampling fluctuations, (2) model mis-specification to the extent that no factor analysis model will fit the data, and (3) “indefiniteness” (under-identification) of the model, (4) empirical under-identification (Rindskopf 1984), and (5) outliers/influential cases” (as modified from Chen, Bollen, Paxton, Curran and Kirby 2001, p. 470).

28 Marketers often carry out attitudinal studies and present the same item battery sometimes many times for the same individual. Data is often then stacked for analysis. E.g., each respondent rates five brands on the same scale (Aaker 1995). This violates the independence of case assumption needed in CBSEM.

29 The required sample size for PLS based studies will be discussed in a later section. Some Monte Carlo studies in PLS are investigating minimum sample size thresholds (Wilson and Henseler 2007a,b; Henseler, Wilson
be used for reciprocal causative models and is inflexible in dealing with correlated error terms (Carmines and McIver 1981). That is, recursive models cannot be investigated\(^\text{30}\) (e.g., loop-free or causal chain models). This thesis does not need to test such models.

Table 3.3 compares both dominant SEM perspectives. The utility and key differences of both techniques are outlined as they may apply to testing moderational hypotheses. The following section justifies the selection of PLS path modelling.

### 3.14 Justification for Selecting PLS Path Modelling

As this study investigates complex models with moderating effects (CIP) it was considered prudent to select the method that is best able to handle these issues. The complete rationale encompasses:

- Model complexity is amplified with the study of higher-order abstract relationships.
- Model complexity is high for testing of moderation hypotheses (that is, introducing interaction terms).
- The data in this study is not normally distributed (see Section 4.3 and Appendix C).
- The focus is on causal-predictive analysis. That is, what is the predictive effect of BPS on BRQ.
- Given overall model complexity the effective sample size obtained is relatively small (Wilson and Henseler 2007a,b) (see Sections 3.19 and 4.2).
- The theoretical development and replication for most construct domains (BPS and BRQ) is limited within Australia.

This rationale for PLS selection is supported by a recent Monte Carlo study where Reinartz, Haenlein and Henseler (2009) demonstrate that when a study is concerned with prediction and theory development, is hindered with a small sample and may be prone to improper solutions it is the most appropriate choice. The analysis process undertaken to investigate the measurement and structural (interactions) models is directly described in Chapters 4 and 5 prior to the presentation of findings. The two-step modelling approach is now discussed followed by an explanation of unique PLS statistics and their interpretation.
Table 3.3: Comparison of Partial Least Squares (PLS) and Covariance-Based Structural Equation Modelling (Moderator Analysis incl.)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Covariance-Based Structural Equation Modelling</th>
<th>Partial Least Squares (PLS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Parameter oriented. Therefore, optimal for parameter accuracy.</td>
<td>Prediction oriented (maximises variance). Therefore, optimal for prediction accuracy.</td>
</tr>
<tr>
<td><strong>Estimator Approach</strong></td>
<td>Covariance-based.</td>
<td>Variance-based.</td>
</tr>
<tr>
<td><strong>Assumptions</strong></td>
<td>Stronger Assumptions – usually needs data normality and independent observation assumptions.</td>
<td>Weaker Assumptions – distribution-free method. Observations do not have to be independent.</td>
</tr>
<tr>
<td><strong>Model Identification</strong></td>
<td>Identification problems without constraints and careful model design. More pronounced with formative models but also needs 4 items for reflective models.</td>
<td>Model specification is straightforward. Empirical identification for reflective and formative model is simply specified.</td>
</tr>
<tr>
<td><strong>Parameter Estimate Accuracy</strong></td>
<td>Consistent in all large sample conditions.</td>
<td>Consistent at large – both number of indicants and sample size must increase.</td>
</tr>
<tr>
<td><strong>Model Complexity</strong></td>
<td>Can estimate and converge with models of small to moderate complexity (e.g., around 100 indicants).</td>
<td>Can estimate and converge with very complex models (e.g., many constructs and 1000+ indicants).</td>
</tr>
<tr>
<td><strong>Latent Variable Scores (important in higher-order models)</strong></td>
<td>Can be estimated but generally indeterminate.</td>
<td>Can be estimated as a function of estimation.</td>
</tr>
<tr>
<td><strong>Relationship between Latent Variable and Indicators</strong></td>
<td>Can estimate both reflective and formative models. Model identification is more problematic and becomes complex for formative representations.</td>
<td>Can estimate in reflective and formative modes. No identification issues.</td>
</tr>
<tr>
<td><strong>Model Evaluation</strong></td>
<td>Many Goodness-of-Fit Statistics are calculated for model selection. When alternative models are involved: nested difference tests.</td>
<td>Focus on Prediction. High $R^2$, cross-validation tests for predictive capabilities, significance of estimates from bootstrapping or jackknifing. When alternative models are involved, effect size statistics can evaluate alternative models (Cohen 1988).</td>
</tr>
<tr>
<td>Sample Size</td>
<td>Normally in the range of 200-300+ when data displays normality and is being used for a rather simple model without too many indicants.</td>
<td>Can converge with very small sample sizes even for rather complex models.</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Model specification for Moderators</td>
<td>Tedious and technically demanding – requiring the researcher, in addition to creating product indicators, to operationally: Specify correlated errors, Use mean-covariance analysis, Algebraically calculate both linear and non-linear constraints for model specification. These constraints grow exponentially with the number of interactions.</td>
<td>Rather simple – operationally requires the creation of product indicators. Note: interaction modelling approaches with PLS are fully outlined in Chapter 5. There is limited prior literature guidance on this within the PLS literature for higher-order models [see Wilson 2005b; 2010]. Results from multiple PLS interactions approaches are discussed in Chapters 4 and 5.</td>
</tr>
<tr>
<td>Sample size issues for moderation</td>
<td>- constraints</td>
<td>Constrained by number of interaction indicators. Eg., as model complexity increases usually does the number of constraints to reduce degrees of freedom.</td>
</tr>
<tr>
<td></td>
<td>- Heuristic rule</td>
<td>Needs about 100-200 minimum sample size for very small models, but increases with the number of interaction term indicators because of the number of parameters being estimated.</td>
</tr>
<tr>
<td>Types of indicators for moderation analysis</td>
<td>Reflective only.</td>
<td>Reflective or formative.</td>
</tr>
<tr>
<td>Run-time estimation</td>
<td>- errors occurring during estimation</td>
<td>Typical in large models. Might not converge for 40-50 indicators or greater.</td>
</tr>
<tr>
<td></td>
<td>Interaction Construct Score</td>
<td>Indeterminate – not part of the estimation process.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Technically and operationally demanding, data normality conditions often not met, and computational solutions may not be obtained.</td>
<td>Operationally simpler, results are consistently obtained given data non-normality and greater model complexity.</td>
</tr>
</tbody>
</table>

Adapted from: Bagozzi and Yi 1994; Chin 1998b; Chin PLS course notes; Chin, Marcolin and Newsted 2003; Chin and Newsted 1999; Cortina, Chen and Dunlap 2001; Kenny and Judd 1984; Jöreskog and Yang 1996; Ping Jr. 1995; Ping Jr. 1996a.
3.15 The Two-Step Modelling Approach

The modelling approach adopted is the two-step approach. The two-step approach involves estimating the measurement model before undertaking an analysis of the structural model (Barclay, Higgins and Thompson 1995). This requires the separate estimation of measurement models for each construct. The measurement model is initially tested to establish the validity and unidimensionality of the constructs under investigation (Chin 1998b; Fornell and Cha 1994; Hattie 1985). If the specified indicators for a construct do not relate to that construct, the overall theory or construct should be considered for appropriate modification before the structural testing proceeds. This is undertaken using EFA/PCA following accepted procedure (Grace and O’Cass 2003; O’Cass 2002a,b; O’Cass and Grace 2003). Also, estimation of the measurement model occurs separately for each higher-order construct domain (Wilson 2010).

After the measurement models are considered suitable, the structural modelling for the inner model relationships can be completed. The structural modelling provides an assessment of nomological validity (Chin 1998b; Fornell and Cha 1994; Tenenhaus et al. 2005). This two-step approach is attractive when models and measures are not well developed and higher-order constructs are involved (Venaik 1999). Some relevant PLS statistics and an explanation how they should be interpreted are now presented.

3.16 Statistics for PLS Model Evaluation

Evaluation of a measurement and structural model using PLS involves statistics that assess path/loading estimates, predictiveness ($R^2$) and the Stone-Geisser Q-square test for predictive relevance (Geisser 1975; Stone 1974). The inner model structural coefficients are assessed for their respective sign and contribution. The PLS estimator iterates to a solution (Chin 1998b; Falk and Miller 1992; Sellin 1990). See Figure 3.3. The primary goal of PLS is prediction, that is, to maximise variance explained (Barclay et al. 1995). PLS estimates tend
to exhibit some bias (Cassel, Hackl and Westlund 2000; Chin 1998b; Fornell and Cha 1994). The estimator aggregates values and as a function of this process measurement error is included in the estimation of the loadings and structural parameters. Error is contained within the PLS model and this necessitates researcher’s select indicants that have high item reliabilities (Falk and Miller 1992).

**Figure 3.3: PLS Estimation Process**

This Figure has been Removed for Copyright Purposes.
Refer to Reference Sellin (1990, p. 11) for Original Exposition.

Source: Sellin (1990, p. 11)

Bootstrapping is also used to assess parameter significance of paths and loadings and also the stability of the estimates. Typical PLS statistics are now highlighted.

### 3.17 Measurement (Outer) Model Evaluation

The following statistics are outlined to aid interpretation for PLS results featured in Chapters 4 and 5.

#### 3.17.1 Loadings – Reflective Indicants

A loading represents the relationship where the indicants reflect (Mode A) the construct. Falk and Miller (1992) suggest that loadings of indicators on constructs need to be greater than 0.55. The square of the loading is equal to the variance contributed/shared by the variable and construct (Fornell and Larcker 1981). Therefore, it is preferable that measures share at least 50% of the variance with the construct as this means the measurement error variance is less than 50% (Barclay et al. 1995). Most suggest that loadings need to be above 0.707 to be
appropriate (Chin 1998b). For first time studies, loadings can be between 0.5 and 0.6 (Barclay et al. 1995; Chin and Newsted 1999). The threshold within this study is 0.6 and above.

3.17.2 Internal Consistency – Composite or Maximised Reliability

Internal consistency statistics can only be used for reflective constructs (Chin 1998b). The first measure of internal consistency is Cronbach’s Alpha (Cronbach 1951) and is a lower bound estimate of reliability (Raykov 1997). The conventional reliability cut-off is 0.7 (Nunnally 1978). However, more credence should be given to the composite reliability estimate (Raykov and Shrout 2002). High reliability would signal less influence of error variance (Raykov 2001). Werts, Linn and Jöreskog (1974) composed this composite reliability statistic that proportionately weights indicant contribution (unlike Cronbach’s Alpha which is unitary weighted). This is sometimes called construct validity (Fornell and Larcker 1981; Holmes-Smith and Rowe 1994). The formula is below:

\[ \rho_c = \frac{\left( \sum_{i=1}^{n} \lambda_{yi} \right)^2}{\left( \sum_{i=1}^{n} \lambda_{yi} \right)^2 + \sum_{i=1}^{n} \left(1 - \lambda_{yi}^2\right)} \]

Chin (1998b) believes the cut-off for maximised/composite reliability should be 0.7. Discriminant validity represents the extent to which indicators of a given latent variable differ from indicators/constructs of the other latent variables (Campbell and Fiske 1959). The correlation between constructs (off-diagonal elements) needs to be lower than the reliability estimates (diagonal elements) (Gaski and Nevin 1985; O'Cass 2002a,b; O'Cass and Pecotich 2005; Patterson and Smith 2003).

3.17.3 Cross-loadings in PLS Analyses

Cross-loadings should be inspected to assess discriminant validity. Generally, the absence of correlations between measures of of unrelated constructs is indicative that discriminant validity exists (DeVellis 2003). The interpretation is similar to inspecting cross-loadings in a
traditional factor analysis. That is, the measure should load better on the intended construct than on other less relevant constructs (Agarwal and Karahanna 2000; Chin 1998b).

3.17.4 Average Variance Extracted Statistic

Fornell and Larcker (1981) composed a statistic called the Average Variance Extracted (AVE) to assess convergent validity. A value of greater than 0.5 illustrates the amount of variance captured by the construct (through its items) is more than the variance due to measurement error (Fornell and Larcker 1981). The formula for AVE is below:

\[
\text{AVE}_c = \frac{\sum_{i=1}^{n} \lambda_{yi}^2}{\sum_{i=1}^{n} \lambda_{yi}^2 + \sum_{i=1}^{n} (1 - \lambda_{yi}^2)}
\]

Therefore, AVE should be greater than 0.5 to point to convergent validity.

3.17.5 Assessing Parameter and Loading Significance

The significance of parameter estimates can be undertaken using bootstrapping or jackknife options (Chin 1998b). These are both resampling techniques. Both derive t-statistics on which decisions can be made on parameter significance. In this work, the critical ratios to decide parameter significance were estimated by the more acceptable method of bootstrapping (Efron and Tibshirani 1993). The number of samples in the bootstrap procedure was set to 500 exceeding the recommendation of 200 by Chin (1998b, cf. p. 320). For 2-tail tests the observed z-value should be 1.96 to reject null hypothesis at 0.05 level (2.58 at 0.01 level). For directional hypotheses 1-tail tests are used and the value should be 1.65 to reject the null hypothesis at 0.05 level (2.33 at 0.01 level).

3.18 Statistics to Assess the PLS Structural (Inner) Model

Parameter estimates in terms of their size, sign and statistical significance are first inspected. Other statistics to assess the structural model include the: $R^2$ to assess the
predictiveness and the Stone-Geisser Q-Square test for predictive relevance (Stone 1974). Assessing the proportion of explained variance, $R^2$, associated with each dependent construct is important. This gives an indication of nomological validity (Sarkar, Echambadi, Cavusgil and Aulakh 2001).

It is also necessary to calculate the Q-Square statistic (Geisser 1975; Stone 1974). The Q-Square is a statistic of how well the observed values are reconstructed by the model in the estimated parameters (Chin 1998b). These statistics are now briefly outlined.

3.18.1 Interpretation of Statistics for Assessing PLS Inner Model

First, the PLS estimates need to conform with the a priori hypotheses on sign and significance. In social and behavioural research (Cohen and Cohen 1983, p. 161) define $R^2$ values 0.25 as large, 0.09 as medium and 0.01 as small. Chin (1998b, p. 323) outlines that $R^2$ values of 0.7 are ‘strong’, 0.3 are ‘moderate’, and 0.2 are ‘weak’. The Chin (1998b) classification is preferred as it is based around PLS methods.

Second, the $R^2$ associated with each endogenous variable is reported. The effect size can also be estimated when a variable is removed or added to the model (Cohen 1988). In this study there is an addition of the moderation term.

Third, the contribution of each variable/construct that is added to the model is later tested to assess the utility for inclusion. First, the $R^2$ for the full interaction model is noted. Then, product class involvement (CIP) is removed from the model and the corresponding effect size is calculated via the new and original $R^2$ value. The change in the $R^2$ value reflects the explanatory power of the omitted variable on BRQ and, essentially, ensures the moderator construct (CIP) is either useful or not (Chin 1998b). The effect size is calculated using:

\[
(iii) \quad f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}.
\]
If the effect size is considered suitable, that is, a value of 0.35 for a large effect, 0.15 for a medium and 0.02 for a small effect (Cohen 1988), then it helps assess whether the inclusion of that construct has utility or not.

Finally, it is important to assess the predictive ability of the model using statistics unique to PLS. The Stone–Geisser $Q^2$ statistic measures the ability of the model as a whole to predict BRQ (Geisser 1975; Stone 1974) after omitting observations. That is, it assesses the predictive quality of the model as a whole (Dijkstra 1983). The analyst is required to specify an omission distance (between the number of variables and observations) which acts as a prompt to omit observations in the dependent construct of interest. With these observations omitted the model is re-estimated. Omission distances of 10 and 50 are chosen for this study to contrast, respectively. A $Q^2$ greater than 0 is interpreted as the model having sufficient predictive relevance concerning the dependent, whereas a $Q^2$ less than 0 highlights the model lacks predictive relevance (Apel and Wold 1982; Fornell and Bookstein 1982). Apel and Wold suggest that a $Q^2$ value in the range 0.4 to 0.6 is satisfactory and 0.7 to 0.8 is exceptional. In theory, a $Q^2$ equal to one can be interpreted as BRQ being perfectly able to be reconstructed. Two omission distances are chosen for cross-validation purposes. These are the main PLS statistics referred to within the results chapters.

### 3.19 Sample Size

There is little consensus on what sample size is adequate for use within PLS research. Until recently, this is an issue that has not been investigated with PLS models for higher-order constructs (Wilson and Henseler 2007a,b). It is generally accepted that PLS converges and can calculate estimates with small samples (Barclay et al. 1995; Chin and Newsted 1999; Hulland 1999). However, the merits of PLS as a robust small sample technique are being questioned in the literature (Goodhue, Lewis and Thompson 2006; Wilson and Henseler 2007a,b).
Many researchers follow the guidance from studies using regression techniques. Older style heuristics and rules of thumb are transposed (Bentler 1993; Mueller 1996; Tanaka 1987). “If the subject/parameter ratio is less than 5:1, the statistical stability of the results may be doubtful” (Kline 1998, p. 112). A 10:1 ratio is preferred (Kline 1998). Chin (1998b) has suggested a rule of thumb for PLS models, which is that sample size should be set upwards of 10 times the largest number of structural paths directed at a particular variable in the structural model. For this research study, a total of 12 brands will be investigated (i.e., 2 [brands] x 3 [category types] x 2 [product classes] = 12 brands) using 125 items. Following Chin (1998b), a minimum sample of 250 is required (e.g., interaction construct with 25 variables). When the Kline (1998) guidelines are applied then the required main study sample size requirement increases to 1250 respondents.

However, these rules of thumb are hampered by being mere decision heuristics. Required sample size needs to be determined by taking into account model type (complex vs. simple), indicant type (reflective vs. formative), effect sizes existing between variables and prevailing data input characteristics (data distribution). For moderately complex higher-order PLS models it has been established that sample sizes greater than 300 are required (Wilson and Henseler 2007a,b). Thus, researchers should have samples greater than 300 if the model is more complex. Given the complexity in this thesis, it is recommended sample size should be 300-500 to ensure adequate power to detect possible small effects.

3.20 Summary

In short, this chapter presented the data collection and analytical methodologies. The data collection process involved a structured, disguised self-administered mail questionnaire. This chapter presented results from four separate brand selection studies, the questionnaire pre-test procedures and specifically outlined a discussion of structural equation modelling methods before providing a rationale and justification for selecting PLS path modelling as the preferred
approach. Statistics that are utilised within PLS were discussed with relevant cut-off criteria outlined. A two-step modelling approach was recommended with specific reference to second-order constructs. Higher-order constructs “need to be related with other factors that are at a similar level of abstraction …” (Chin 1998a, p. x). Conceptually, all three major construct domains are at a similar level of abstraction allowing the analyses to proceed.

In the next chapter, the sample characteristics and assessment of descriptive statistics are outlined. Also, the results in confirming the adequacy of the measurement models are presented. Chapter 5 then presents the results for the posited structural model.
CHAPTER 4

DATA DESCRIPTION AND MEASUREMENT MODEL RESULTS

“The testing of the structural model ... may be meaningless unless it is first established that the measurement model holds. If the chosen indicators for a construct do not measure that construct, the specified theory must be modified before it can be tested”.

(Jöreskog and Sörbom 1993, p. 113).

4.1 Introduction

This chapter focuses on outlining the data characteristics and reporting measurement models that will subsequently be used for addressing the structural hypotheses. The next section encompasses a response analysis of sample characteristics and study response rates. The data description involves data screening for analysis suitability. Specifically, all variables were examined for missing data patterns and descriptives are presented. Finally, the measurement models process is outlined to ensure adequate unidimensionality and validity, as is required following established psychometric principles.

4.2 Response Analysis

There were several steps taken to minimise the chances of sampling error. Incentives were utilised in the form of a “gift for completion” for those who successfully responded to the questionnaire. An initial mailout of 5200 questionnaires was undertaken. This represented 860 questionnaires for each product class and brand group. There were 155 questionnaires returned due to non-mailable addresses, 27 were returned at the request of the chosen participant (e.g., marked ‘return to sender’), and 22 questionnaires were indecipherable for coding purposes and were subsequently eliminated.

A final effective sample size of 1290 was obtained from 4996 questionnaires originally sent. The effective response rate was 25.8%. This was considered a satisfactory result given the
size of the incentive, the length of the questionnaire, that it was sent by mail and that respondents may be approached by other researchers throughout the year. Acceptable response rates for cross-sectional survey studies normally range between 12% and 20% (Churchill and Iacobucci 2009; O’Sullivan and Abela 2007).

To investigate some of the reasons for nonresponse, a random selection of 50 non-respondents was contacted. The main reasons for not undertaking the mail questionnaire involved a lack of interest in the topic area, not enough time to complete, participating in too many marketing research surveys already, and that they do not typically participate in these tasks at all. These reasons suggest the nonresponse is unique to these individuals. A comparison was undertaken with early and late respondents (Armstrong and Overton 1977). A one-way ANOVA was implemented to test for differences between early respondents and late respondents on demographic variables (female/male, age, income, education and occupation). Systematic response bias was not found, therefore, respondents were aggregated together.

The sample size for each Category Type and Product Class is featured in Table 4.1. Not surprisingly, the credit card product class experienced lower participation rates, most likely as a result of it being a sensitive response topic for some respondents.

Table 4.1: Response by Category Type and Product Class

<table>
<thead>
<tr>
<th>Category Type</th>
<th>Product Class</th>
<th>No. of Effective Responses</th>
<th>Percentage of Overall Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaged Goods</td>
<td>Cola Soft Drinks</td>
<td>272</td>
<td>21.1%</td>
</tr>
<tr>
<td></td>
<td>Film</td>
<td>228</td>
<td>17.7%</td>
</tr>
<tr>
<td>Services</td>
<td>Airlines</td>
<td>204</td>
<td>15.8%</td>
</tr>
<tr>
<td></td>
<td>Credit Cards</td>
<td>142</td>
<td>11.0%</td>
</tr>
<tr>
<td>Durables/Semi-Durables</td>
<td>Cars</td>
<td>214</td>
<td>16.6%</td>
</tr>
<tr>
<td></td>
<td>Athletics Shoes</td>
<td>230</td>
<td>17.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1290</td>
<td></td>
</tr>
</tbody>
</table>

The next section outlines some of the sample characteristics.
4.2.1 Demographic Composition of the Sample

An analysis of the sample characteristics indicates that it is representative of the Australian population. A respondent table is featured in Table 4.2.

Table 4.2: Respondent Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46.6%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>53.4%</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td>6.2%</td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>10.1%</td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>13.2%</td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>14.5%</td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>50-54</td>
<td>11.0%</td>
<td></td>
</tr>
<tr>
<td>55-59</td>
<td>7.5%</td>
<td></td>
</tr>
<tr>
<td>60-64</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>65-69</td>
<td>5.4%</td>
<td></td>
</tr>
<tr>
<td>70+</td>
<td>7.0%</td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>46.9%</td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>25.2%</td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td>23.3%</td>
<td></td>
</tr>
<tr>
<td>Marital/Relationship Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>63.2%</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>13.9%</td>
<td></td>
</tr>
<tr>
<td>De facto Couple</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>11.5%</td>
<td></td>
</tr>
<tr>
<td>Deceased Partner</td>
<td>4.8%</td>
<td></td>
</tr>
</tbody>
</table>

A distribution of the age of respondents revealed that 22% were aged 15-34, 51% were aged 35-54 and 27% were aged 55-75. This is similar to the age distribution within the general population. The gender split was 53% males and 47% females. Again, this mirrored roughly the composition within Australian society, with a slight over-representation of male respondents. Around half of the sample indicated having at least a high school education, with a further quarter having undergraduate and another quarter having completed postgraduate study.
People indicated they had a high level of knowledge and familiarity of the brands for which they were responding. Around 43% of total respondents had purchased the brands under study in the past year, and 68% had at least bought and used the brand at some time in their life. This was deemed to represent a good mix of users, lapsed users and non-users. The sample was deemed adequate for further analysis.

Preliminary and descriptive analyses are now reported.

4.3 Preliminary Data Analysis

The preliminary data analysis involved two procedures: missing value analysis and descriptive analysis. The missing value analysis was carried out to examine and produce a complete data set for subsequent model estimation. The analysis of descriptives provided estimates of the characteristics of the data. Descriptives such as the mean, variance and correlations between variables were also examined for appropriateness prior to estimation of the measurement models. It is important to check that there are no coding errors, that variables have been recoded appropriately, if necessary, and that missing values have been dealt with properly (Baumgartner and Homburg 1996). These activities were all undertaken and are detailed below.

4.3.1 Missing Values Analysis

Questionnaires were visually examined prior to coding to ascertain the extent and pattern of missing data within the collected sample. Questionnaires with more than 20% of missing data were all examined individually. Cases that exhibited limited variation in response pattern were also examined as this could be indicative of poor effort and discrimination by respondents when filling in the questionnaire. Of the remaining cases, an analysis was conducted to determine whether the data was Missing at Random (MAR) or Missing Completely at Random (MCAR) (Hair et al. 1995; Schafer and Yucel 2002). A test was constructed by coding the missing data with a value of one, and complete data cases were recoded with a value of zero. A correlation of these dichotomous variables was then run. Low
between variables correlations is indicative of low association between the missing data process for those two variables (Hair et al. 1995). A review of these correlations revealed that these values were all low. Furthermore, to verify the values are MCAR, Chi-square tests were carried out (for various data splits including: category and brand usage, years of use, age and sex) to explore patterns between the cases with and without missing data. No significant relationships were found between cases with and without missing data, therefore, the data were determined to be MCAR.

Missing data imputation was considered appropriate to apply to this data (Hair et al. 1995). Expectation-Maximization (EM) imputation was chosen for a number of reasons (Little and Rubin 1987; Rubin 1987). Firstly, when the data values are MCAR, it is tenable to utilise the EM algorithm as it does not alter the nature of the relationship among variables (Cohen and Cohen 1983). This has the obvious advantage of maintaining the sample size and enables more power in statistical tests. Secondly, replacing missing data also has benefits when modelling interactions, as the data eventually needs to be ‘mean centred’ prior to creating product interaction terms \((X.Z)^{31}\). The use of the EM algorithm will help minimise these effects when centring occurs\(^{32}\). Mean centring helps eliminate the effects of multicollinearity that are created when working with interaction terms (Cortina et al. 2001). The use of EM imputation in other studies was considered superior, as reported by Rigdon (1998) and Schafer and Yucel (2002). Therefore, replacing missing values with the EM algorithm minimises bias especially in moderation studies (Newman 2009) and, as shown by Enders (2006), the EM algorithm has been commonly used in other studies.

---

\(^{31}\) Where \(X_j\) is the independent variable and \(Z_j\) is the moderating variable. \(X_j.Z_j\) is the product variable created by the multiplication of the two.

\(^{32}\) Mean replacement as a missing data imputation technique is considered inappropriate when analysing models with interaction terms.
4.3.2 Descriptive Analysis

The mean, standard deviation, and normality statistics were computed for each of the variables used in the model (Appendix C). Inspection of the measures showed that values were in the permissible range, and an analysis of frequencies shows that all items have been responded to along the entire range of the constructed scales. Cases where there was limited variability in response across a scale were visually inspected, and offending cases were subsequently removed. Finally, the remaining data was deemed to have reasonable variance, suggesting that the measures are appropriate for a correlational study.

The data were then tested for violations of normality. This was calculated in SPSS and PRELIS as both software packages present different statistics. Each variable was tested for adequate skewness and kurtosis (see Appendix C, Table C.1). Each item was also observed on a PP plot to assess departures from normality. Inspection of skewness and kurtosis values for all variables revealed that most variables were significantly non-normal. The PP graphs also supported this. The Kolmogorov-Smirnov test of normality was calculated (Bontis 1998). These normality statistics are also presented for the derived factor scores that were used within structural modelling later in the analysis (see Appendix C, Table C.2). These tests were derived in PRELIS. The skewness and kurtosis test discussed in Bollen (1989) helped assess normality, singly and jointly.

Pedhazur and Pedhazur (1991, p. 650) believe that “for multivariate normality to hold, it is necessary, although not sufficient, that each of the variables be normally distributed or that all bivariate distributions be normal”. Therefore, the data were also tested for multivariate normality using Mardia's (1970) test of multivariate kurtosis. The multivariate normal distribution examines the joint distribution of more than two variables (Pedhazur and Pedhazur 1991). This test was calculated for each of the 17 constructs separately, and also for
each of the three construct domains collectively (BPS, CIP and BRQ)\textsuperscript{33}. The results indicated that the normalised estimate of multivariate kurtosis was significant for all tests. Therefore, this data set clearly has normality and multivariate normality problems.

Next, the correlation matrix between all variables was visually examined. The correlation matrix can assist to initially assess the convergent and discriminant validity of the items for each construct (Chin and Gopal 1995; DeVellis 2003; Sullivan and Feldman 1979). To be valid measures of a construct, the variables should have a high correlation with each other (of the same kind) and a low correlation with the measures representing other constructs. It must be noted that as the main effects model involves the investigation of second-order constructs, there is expected to be higher than normal item correlations (Wilson, Callaghan and Stainforth 2007; Wilson 2010). These higher than normal first-order construct intercorrelations are indicative that the first-order factors are representative of a higher second-order construct (Breivik and Thorbjørnsen 2008). A visual inspection of the derived large correlation matrix containing over 10,000 correlations suggests that the item measures for each construct have adequate convergent and discriminant validity. This is a preliminary assessment. Since the correlation matrix is very large, it is not included within an appendix. Instead, a smaller correlation matrix for the constructs used in the final analysis, namely, a matrix of correlations between the 17 main constructs of interest, is included (Appendix E).

The preliminary data analysis has provided a clean and complete set of observations that is appropriate for testing the proposed measurement models. Having applied an appropriate missing data imputation technique, and adequately inspected the data distributional properties, the next step was to assess the measurement and structural models.

\textsuperscript{33} This was accomplished using AMOS 6.0 and using the output test for normality function which calculates the Mardia statistic.
4.4 Measurement Model Method of Analysis

This section outlines the analysis procedure undertaken in establishing the adequacy of the construct measurement models. Exploratory factor analysis and reliability analyses are implemented to confirm the adequacy of the measurement models for all 17 constructs. Key statistics such as construct reliability and average variance extracted (AVE) are presented and the internal consistency of items is established.

Exploratory Factor Analysis (EFA) is often utilised in research within marketing studies (Bontis 1998; Davies et al. 2001; Kamakura and Wedel 2000; McColl-Kennedy and Fetter Jr. 1999; Massy 1971) and is designed to assist the researcher in revealing the underlying relationships between observed variables and latent constructs. There are some disadvantages in using EFA in scale construction that must be noted (Kim and Mueller 1978). The term exploratory factor analysis implies that during estimation each item is free (not fixed) to load across constructs, which also implies that there is the possibility for an item to load on more than one construct. This can raise questions about the validity of certain variables (Gorsuch 1983). Measurement model constructs in this study are assessed to be unitary, therefore, this is not of concern in this work. Another disadvantage of EFA is that it allows variables to freely load across constructs and does not adequately take into account the level of theoretical development and attribution of specified variables to constructs (Aaker 1995; Fournier 1994). This was taken into account within the analyses, and constructs were investigated in a stepwise fashion at the same level of abstraction. Other researchers have followed this approach of using EFA/PCA for measurement model validation to derive unitary constructs (Barnes, Bauer, Neumann and Huber 2007), prior to utilising PLS (Bontis 1998; Dawes, Lee and Dowling 1998; Grace and O’Cass 2003; O’Cass 2002a,b; O’Cass and Fenech 2003; O’Cass and Grace 2004; O’Cass and Pecotich 2005; Pavlou and Chai 2002).
Subsequent to EFA, latent variable scores are derived for the three main higher-order models, respectively. This secondary higher-order measurement model validation process is described in Section 4.6 within this chapter.

Fournier (1994) experienced difficulties with BRQ variables that were negatively skewed. In her work variables were transformed (square root or logarithmic) and then the items were standardised prior to continuing the analysis. This may be considered appropriate for scale development purposes but, given that this thesis aims to investigate higher-order relations with interaction effects, it was not deemed appropriate. Although transformation has often been considered when faced with these problems (Goldberger 1973), data transformations also affect collinearity between variables and constructs (Belsley, Kuh and Welsch 1980) and can be present when undertaking interaction modelling. Constructing interaction terms require that multicollinearity be assessed (Kline 1998). Multicollinearity tests for cross-product terms are presented within Section 5.8. Another disadvantage is that the underlying conceptual meaning is altered with different scaling units constructed (log or square units) which is not always desirable for the reader or analyst (Emerson and Stoto 1983). For these reasons, the above transformations were not deemed appropriate. Hence, PLS path modelling was adopted. The following section presents a summary of the measurement model analyses.

4.5 Summary of Results for the Measurement Model

The measurement models for the three main theoretical domains are separately reported in Appendix D and progressively outlined for the respective brand personality constructs, then the brand relationship quality constructs and, finally, the consumer involvement profile. In total, 17 measurement model findings are presented and a summary of Step One is listed in Table 4.3.
Table 4.3: Measurement Model Construct Summary

<table>
<thead>
<tr>
<th>Construct</th>
<th>Original No. of Ind</th>
<th>After No. of Ind</th>
<th>Item Loading (λ) Range</th>
<th>Alpha^d (α)</th>
<th>Construct Reliability (ρ_e^X)</th>
<th>AVE^f</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand Personality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sincerity (SIN)</td>
<td>12</td>
<td>11</td>
<td>0.699 → 0.806</td>
<td>0.9309</td>
<td>0.9410</td>
<td>0.5946</td>
</tr>
<tr>
<td>Excitement (EXC)</td>
<td>12</td>
<td>12</td>
<td>0.657 → 0.809</td>
<td>0.9259</td>
<td>0.9369</td>
<td>0.5538</td>
</tr>
<tr>
<td>Competence (COMP)</td>
<td>9</td>
<td>9</td>
<td>0.645 → 0.837</td>
<td>0.8986</td>
<td>0.9181</td>
<td>0.5554</td>
</tr>
<tr>
<td>Sophistication (SOP)</td>
<td>7</td>
<td>7</td>
<td>0.710 → 0.843</td>
<td>0.8977</td>
<td>0.9200</td>
<td>0.6202</td>
</tr>
<tr>
<td>Ruggedness (RUG)</td>
<td>7</td>
<td>7</td>
<td>0.602 → 0.821</td>
<td>0.8460</td>
<td>0.8840</td>
<td>0.5249</td>
</tr>
<tr>
<td><strong>Brand Relationship Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment (COMM)</td>
<td>9</td>
<td>9</td>
<td>0.704 → 0.847</td>
<td>0.9304</td>
<td>0.9422</td>
<td>0.6468</td>
</tr>
<tr>
<td>Interdependence (INTD)</td>
<td>8</td>
<td>8</td>
<td>0.658 → 0.849</td>
<td>0.9213</td>
<td>0.9360</td>
<td>0.6541</td>
</tr>
<tr>
<td>Partner Quality (PQUAL)</td>
<td>11</td>
<td>11</td>
<td>0.699 → 0.826</td>
<td>0.9316</td>
<td>0.9419</td>
<td>0.5962</td>
</tr>
<tr>
<td>Love and Passion (LOV)</td>
<td>9</td>
<td>9</td>
<td>0.677 → 0.858</td>
<td>0.9288</td>
<td>0.9408</td>
<td>0.6426</td>
</tr>
<tr>
<td>Intimacy (INTM)</td>
<td>11</td>
<td>9</td>
<td>0.604 → 0.822</td>
<td>0.8875</td>
<td>0.9108</td>
<td>0.5313</td>
</tr>
<tr>
<td>Self-Connection (SCON)</td>
<td>7</td>
<td>7</td>
<td>0.781 → 0.852</td>
<td>0.9227</td>
<td>0.9388</td>
<td>0.6859</td>
</tr>
<tr>
<td>Nostalgic Connection (NCON)</td>
<td>7</td>
<td>7</td>
<td>0.640 → 0.822</td>
<td>0.8917</td>
<td>0.9170</td>
<td>0.6081</td>
</tr>
<tr>
<td><strong>Consumer Involvement Profile</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest (INT)</td>
<td>3</td>
<td>3</td>
<td>0.636 → 0.907</td>
<td>0.7378</td>
<td>0.8521</td>
<td>0.6693</td>
</tr>
<tr>
<td>Product Risk/Importance (PPI)</td>
<td>3</td>
<td>3</td>
<td>0.646 → 0.820</td>
<td>0.6313</td>
<td>0.8029</td>
<td>0.5775</td>
</tr>
<tr>
<td>Symbolic Value (SYMV)</td>
<td>3</td>
<td>3</td>
<td>0.849 → 0.914</td>
<td>0.8527</td>
<td>0.9109</td>
<td>0.7726</td>
</tr>
<tr>
<td>Hedonic Value (HEDV)</td>
<td>3</td>
<td>3</td>
<td>0.898 → 0.907</td>
<td>0.8840</td>
<td>0.9286</td>
<td>0.8116</td>
</tr>
<tr>
<td>Probability of Mispurchase (PMIS)</td>
<td>4</td>
<td>4</td>
<td>0.717 → 0.844</td>
<td>0.8138</td>
<td>0.8789</td>
<td>0.6319</td>
</tr>
</tbody>
</table>

This table also illustrates Construct Reliabilities (Werts et al. 1974) for each construct (often referred to as Internal Consistency (IC) statistic, Maximised Reliability, Composite Reliability or Dillon-Goldstein statistic). The construct reliability statistic is considered to be a better indicator of the unidimensionality of a block than the Cronbach's Alpha (Chin 1998b, p. 320). These reliabilities provide evidence of unidimensionality and illustrate that the constructs are suitable for further analysis (Hattie 1985). All construct reliabilities were high ranging, between .80 and .94, which further confirmed the reliability of each construct. The table also features the calculation of Average Variance Extracted (AVE). The AVE illustrates the amount of variance the items share with the construct it purports to measure (Fornell and Larcker 1981). All AVE values are greater than .50. It is important that the items share more
variance with its measures than with other constructs in a given model. These results will be outlined further in Section 4.13 Convergent Validity in this chapter.

Given the hypothesised model (see Figure 2.10) it is necessary to also validate the higher-order measurement models before proceeding with the testing of the structural model. Therefore, the analysis of the measurement models is only partially complete. Measurement model validation also involves assessing the three separate construct domains at the higher-order level of abstraction. The next section outlines the process that has been followed prior to presenting the final measurement model results.

4.6 Describing the Approaches for Higher-order Measurement Models in Partial Least Squares Modelling (PLS)

Within this thesis, there are three higher-order measurement models to be assessed. This tests whether the first-order constructs load onto their posited second-order constructs. Following the advice of Chin (1998a, p. x) it is required to follow this process in a step-wise manner. It must be noted that there is relatively limited guidance within the germane literature on how social researchers should approach the modelling of higher-order constructs with PLS. When modelling higher-order constructs with PLS the three measurement models (BPS, CIP, and BRQ) were estimated separately using the repeated indicators approach, also known as the hierarchical components model suggested by Wold (Lohmöller 1989, cf. pp. 130-133; Chin et al. 2003). Within this approach, the second-order factor is measured by all the first-order factors; that is, they are repeated measures in the analysis (Reinartz, Krafft and Hoyer 2003, p. 19). Standardised latent scores (representing the first-order constructs) are saved during this stage of the analysis. The standardised scores are automatically computed in the PLS analysis. These scores are copied into the PLS data file for further analysis.

These scores subsequently become the observed variables representing the first-order constructs in the structural model. Factor scores are frequently estimated and used as input for
further statistical calculations (Field 2005; Hair et al. 1995). The PLS estimator utilised for factor score derivation was the factor weighting scheme which does not take into account path direction like the path weighting scheme (Chin 2004). This approach is most commonly utilised and is chosen also in this work. The hierarchical components model is diagrammatically represented in Figure 4.1.

Other researchers have implemented the PLS repeated indicators approach and utilised latent construct scores in further analyses within models in recent times (e.g., Reinartz, Krafft and Hoyer 2004; Roldan, Real and Leal 2005; Venaik 1999; Venaik, Midgley and Devinney 2001; 2005; Zhang, Li and Sun 2006)35.

Figure 4.1: Conceptual Representation of Hierarchical Components Model

In concluding, Chin and Newsted (1999, p. 337) illustrate that the selection of PLS path modelling is appropriate for the research domain if it is “relatively new or changing and the theoretical model measures are not well formed ... the model is relatively complex with large

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34 LV = Latent Variable. “In this scheme, the neighboring LV’s of an LV are weighted by the correlation coefficients between a target LV and its neighboring LV’s, regardless of causal order. There, the LV becomes "principal component' of its neighboring LV’s” (Fornell and Cha 1994, p. 65). This ensures optimal factor scores are not affected by path directionality. This is important when completing higher-order analyses in PLS (Lohmöller 1984). Three weighting schemes (centroid, factor or path) can be selected for PLS analyses. The schemes typically derive similar solutions (Chin 1998b). Most PLS studies do not even report the PLS weighting scheme used. The factor weighting scheme was used here to derive latent variable scores following personal communication with Chin (2004-2006). Given that there was no advice in this area for higher-order PLS structural models, Wilson and Henseler (2007a,b) constructed a Monte Carlo PLS Higher-order design to test different: modelling approaches, weighting scheme stability, sample size, level of accuracy and precision of loading and parameters (Wilson and Henseler 2007a,b). For the structural modelling analysis (see Chapter 5) the centroid and factor schemes converge to identically precise results and reach stability only when the sample sizes exceed 300+ observations (Wilson and Henseler 2007a,b). There are many references the interested reader should consult on the three PLS weighting methods (Fornell and Cha 1994; Lohmöller 1989; Tenenhaus et al. 2005).

35 The authors of these studies do not state the PLS weighting schemes they have utilised.
numbers of indicators and/or LVs (latent variables) and data conditions relating to normal
distribution, independence, and/or sample size are not met”. This reflects the situation in the
current work. This study, therefore, represents a first attempt at consolidating both the brand
personality and brand relationship quality domains (with small to moderate sample sizes
given the overall model complexity). Barclay et al. (1995) suggest that PLS is suitable for
theory development with complex models. In fact, the presumption that the application of
CBSEM to theories at such an early stage of theoretical development may be viewed as being
premature for some research (Avolio, Howell and Sosik 1999). The next section presents
measurement model results for the three separate construct domains. This is to ensure that the
higher-order constructs under investigation are unidimensional, reliable and valid.

4.7 Results for the Higher-order Measurement Models in Partial Least Squares
Modelling (PLS)

There are three separate analyses required as there are three separate measurement models
(one each for BPS, CIP and BRQ). The results are presented in Table 4.4. This tests whether
the first-order constructs loaded onto their posited second-order constructs. That is, are the
loadings substantial? Is the construct unitary? Is it a valid representation?

In essence, it is the same process that was undertaken when investigating the 17 construct
measurement models. This is the approach recommended by Chin (1998b) to maintain
validity testing at the same level of the construct abstraction. It must be remembered that the
analyses subsequently presented represent three separate PLS analyses. All loadings and path
coefficients between the first-order (as represented by latent variable scores) and second-order
constructs were inspected, and significance was assessed via 500 bootstrapped iterations. This
surpasses conventional recommendations when applying bootstrapping to estimate a
parameter using a single sample (Mooney and Duval 1993; White, Varadarajan and Dacin
2003).
Table 4.4: Hierarchical Measurement Model Results

<table>
<thead>
<tr>
<th>Higher-order Construct Name</th>
<th>Component Name</th>
<th>Loading ($\lambda_{ij}$)</th>
<th>Significance$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Personality</td>
<td>Sincerity (SIN)</td>
<td>0.9216</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Excitement (EXC)</td>
<td>0.9302</td>
<td>***</td>
</tr>
<tr>
<td>$\rho_{XX} = 0.9761$</td>
<td>Competence (COMP)</td>
<td>0.9193</td>
<td>***</td>
</tr>
<tr>
<td>AVE = 0.8277</td>
<td>Sophistication (SOP)</td>
<td>0.8941</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Ruggedness (RUG)</td>
<td>0.8785</td>
<td>***</td>
</tr>
<tr>
<td>Brand Relationship Quality</td>
<td>Partner Quality (PQUAL)</td>
<td>0.8944</td>
<td>***</td>
</tr>
<tr>
<td>$\rho_{XX} = 0.9860$</td>
<td>Love and Passion (LOV)</td>
<td>0.9589</td>
<td>***</td>
</tr>
<tr>
<td>AVE = 0.8788</td>
<td>Intimacy (INTM)</td>
<td>0.9188</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Self-Connection (SCON)</td>
<td>0.9459</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Nostalgic Connection (NCON)</td>
<td>0.9403</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Commitment (COMM)</td>
<td>0.9601</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Interdependence (INTD)</td>
<td>0.9404</td>
<td>***</td>
</tr>
<tr>
<td>Consumer Involvement Profile</td>
<td>Product Risk/Importance (PPI)</td>
<td>0.5753</td>
<td>***</td>
</tr>
<tr>
<td>$\rho_{XX} = 0.8256$</td>
<td>Symbolic Value (SYMV)</td>
<td>0.5947</td>
<td>***</td>
</tr>
<tr>
<td>AVE = 0.4830</td>
<td>Hedonic Value (HEDV)</td>
<td>0.8074</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Probability of Mispurchase (PMIS)</td>
<td>0.2961</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Interest (INT)</td>
<td>0.7928</td>
<td>***</td>
</tr>
<tr>
<td>Consumer Involvement Profile</td>
<td>Product Risk/Importance (PPI)</td>
<td>0.5202</td>
<td>***</td>
</tr>
<tr>
<td>Re-estimated $\rho_{XX} = 0.8674$</td>
<td>Symbolic Value (SYMV)</td>
<td>0.5977</td>
<td>***</td>
</tr>
<tr>
<td>AVE = 0.5095</td>
<td>Hedonic Value (HEDV)</td>
<td>0.8552</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Interest (INT)</td>
<td>0.8358</td>
<td>***</td>
</tr>
</tbody>
</table>

$^a$ Bootstrapping results (n=500)  
*** $p<0.001$  ** $p<0.01$  * $p<0.05$  n.s = not significant

The standardised factor scores or latent variable scores were saved. The structural modelling undertaken in Chapter 5 subsequently occurs with these saved latent variable scores.

Also, three separate EFA analyses were undertaken using these saved scores, and confirmed both brand personality and brand relationship quality as being unitary constructs. Loadings for the components representing the BPS and BRQ construct ranged between .88 <-> .93 and .89 <-> .96, respectively. The CIP revealed a two component representation with the component Probability of Mispurchase loading highly by itself. This was not surprising as the earlier results showed that this construct had the lowest path coefficient of .30. This was by far the lowest value compared with the other four paths reflecting the involvement construct. Earlier studies by Laurent and Kapferer (1985) also found problems with this construct. As a
result, this construct was deleted and re-estimated. Another PCA was re-estimated and loadings now ranged between 0.546 and 0.849. The construct is now unitary. This hierarchical measurement model was re-run without the Probability of Mispurchase construct, and factor scores were again derived. Table 4.4 presents the results without this construct and it is evident that this deletion improves composite reliability. Also, the AVE is now in an acceptable range. This confirms that the remaining items represent more than 50% of the explained variance in the construct. This is indicative of convergent validity (see also, Section 4.13). The composite reliability estimates were all acceptable (BPS .9761, CIP .8674, and BRQ .9860). The results in relation to the outer components of the structural model are all adequate and the critical ratios are all significant (p<.01).

The next section explores directionality issues as they pertain to item level measurement models and also the higher-order measurement models. This is investigated further as the human personality literature has suggested the possibility that constructs within the “Big Five” personality framework could, in fact, be formative in representation (Wilson at al. 2006).

4.8 Determining the Directionality of the Measurement Models

The directionality of the arrows linking items and constructs can concern the item-to-construct level or it can also apply to relations that occur at a higher-order of abstraction (e.g., second-order construct representations and within structural models). Conventionally, there are two types of indicators that are discussed; reflective (effect) and formative (causative).

An expert panel was consulted post hoc to qualitatively assess and review the directionality criteria of Jarvis et al. (2003). This qualitative assessment led to agreement that a reflective orientation was appropriate firstly, between item-to-construct; and secondly, construct to higher-order constructs. However, additional quantitative testing was also implemented based on literature relating to human personality. In the next section, the
motivation for undertaking additional analyses is outlined. The human personality literature raises the possibility that human personality constructs could be causative (formative) in orientation.

4.9 Rationale for Investigating Alternative Measurement Model Specifications

Most human personality research is typically represented by low correlations between facets or items (Ferrando and Chico 2001; Goldberg 1990). This has caused personality researchers to review whether confirmatory factor analysis methods are very useful at all in this domain (Macrae, Zonderman, Costa, Bond and Paunomen 1996). Such low intercorrelations may raise questions about the unidimensionality of human personality traits. Within this thesis, it must be noted that intercorrelations at the item level and construct-to-construct level are acceptable (Hair et al. 1995). Ozer and Reise (1994), in an excellent review of human personality assessment, summarise some of the major strengths and weaknesses of current personality theory. They illustrate (pp. 363-365) that some components could possibly be emergent (formative) (Ozer and Reise 1994). Fundamentally, the appropriateness of measurement structures is usually established theoretically and, as such, given this work it is prudent to also consider further directionality testing for brand personality. It is not uncommon for researcher’s to implement a quantitative test to supplement decision-making on directionality.

There are a number of techniques that could be used to ascertain indicator directionality with non-experimental designs. The techniques include Exploratory TETRAD analysis (Glymour, Scheines, Spirites and Kelly 1987), Confirmatory\textsuperscript{36} TETRAD analysis CTA (Bollen and Ting 1993), CBSEM nested tests, and Cohen’s Path Analysis (Cohen, Carlsson, Ballesteros and Amant 1993; Callaghan, Wilson, Henseler and Ringle 2007) which could all

\textsuperscript{36} The author realises that directionality can never be confirmed, per se, and does not have the space required to discuss the varying opinions on the philosophy of causation. Experimental design methods are ideal but often not practical to implement in complex SEM models. The name CTA is in reference to the method being “confirmatory” in that it fixes a specific path for investigation (Bollen and Ting 1993).
be considered. After due consideration, CTA was accepted as it is the most common approach adopted within the literature (Bucic and Gudergan 2004; Venaik, Midgley and Devinney 2004) and a model structure is prevalent, ruling out the more exploratory procedures of Exploratory Tetrad analysis and Cohen’s Path method. The CTA testing is now presented and a guide for results interpretation is provided.

4.10 Confirmatory Vanishing TETRAD Test Analysis Process

“Tetrad refers to the difference between the product of a pair of covariances and the product of another pair among four random variables” (Bollen and Ting 2000, p. 5). A tetrad for four variables $g, h, i, j$ is defined as:

$$\tau_{ghij} = \sigma_{gh} \sigma_{ij} - \sigma_{gi} \sigma_{hj}$$

where $\sigma$ indicates the covariance between the subscripted variables. A tetrad that is equal to zero is called a "vanishing tetrad" (Rigdon 2006). The vanishing tetrad test is confirmatory in the sense that models are specified in advance to be tested. This has been accomplished with five separate measurement models at the item level, and one measurement model at the construct level, using PLS latent variable scores for brand personality. The analysis followed the steps recommended by Bollen and Ting (2000, p. 5) in (a) specifying the most plausible models of the relationship between indicators and latent variables, (b) identifying the model-implied vanishing tetrads for each model, (c) eliminating redundant vanishing tetrads, and (d) performing a simultaneous vanishing tetrad test. Following this process, the implied covariance matrix was estimated [step (a) (Ting 1995)]. The CTA was then run through specialist software using a SAS macro that automatically performs steps (b), (c) and (d) above. The null hypothesis is that the tetrad is equal to zero, that is, the difference between the product of a pair of covariances and the product of another pair of four random variables is zero. Rejecting this hypothesis would suggest a possible problem with the hypothesised
model. A result that fails to reject the null hypothesis would indicate “support to the model that implies vanishing tetrads in the test” (Ting 1995, p. 165). In other words, a significant result would indicate that there is a formative specification. It must be noted that truly reflective measures have tetrads equal to zero. This, effectively, translates into the null hypothesis for the test, that is, the directionality of items for the constructs are reflective. “Failure to reject indicates consistency between the model and the data” (Hipp and Bollen 2003, p. 275). The tetrad test is based on covariances (not correlations) and is, therefore, unique to reliability analysis. Just because a construct is unidimensional does not confirm that the measures are reflective in nature (Hipp, Bauer and Bollen 2005).

The CTA-SAS macro uses the fitted model implied covariance matrix as input to run the test, and produces a statistic similar to an asymptotic \( \chi^2 \) distribution with degree of freedom equal to the number of nonredundant tetrads tested. A nonredundant tetrad is a tetrad that is linearly related. The assumption of multivariate normality is not always met (as is the case with this data set) and Hipp et al. (2005) have developed a new, revised form SAS macro to take this into account. This revised macro utilises the polychoric correlation (PCM) matrix and asymptotic covariance matrix (ACM) derived from PRELIS, as well as the implied covariance matrix, and is more suitable to categorical data (Hipp et al. 2005). By using the PCM and ACM it takes into account the ordinal structure of the data in a more accurate way (Jöreskog and Sörbom 1993). The new CTA macro was applied where possible\(^\text{37}\). This newer macro also works with continuous data, which is the case in the nested tetrad analyses, as we are working with derived latent variable scores as a means to calculating the implied

\(^{37}\) Typically, Confirmatory Vanishing Tetrad Analysis is completed at the first stage of analysis, that is, at the single construct level only. Given that this work is investigating higher-order measurement models, it is necessary to also apply the tetrad test to this level of abstraction as well. These tests are also completed in two stages. The single construct CTA results are firstly presented within this chapter. This analysis was supplemented following personal communication with developers to also apply the test to the higher level of abstraction (Hipp 2006). It must be acknowledged that if the Tetrad test establishes that the constructs may be better explained by a formative structure, then, all previous tests establishing unidimensionality and validity in the reflective orientation would be considered inappropriate as these tests are not suitable for formative indicants (Jarvis et al. 2005). This caveat should be kept in mind.
covariance matrices\textsuperscript{38}. The CTA results are now presented for the brand personality constructs.

4.11 Confirmatory Vanishing TETRAD Test Measurement Model Results

This section presents the results of additional analyses of each item-to-construct model for the brand personality constructs: sincerity, excitement, sophistication, competence and ruggedness. CTA were run separately for each construct at the item level. A significant $\chi^2$ result in this instance would indicate that the model is formative in nature. The results revealed: Sincerity $\chi^2 = 0.03$ (44 df, $p=1.00$); Excitement $\chi^2 = 0.02$ (54 df, $p=1.00$); Sophistication $\chi^2 = 0.01$ (14 df, $p=1.00$); Competence $\chi^2 = 0.01$ (27 df, $p=1.00$); and Ruggedness $\chi^2 = 0.01$ (14 df, $p=1.00$) nonsignificant results, indicating the measurement models are best dealt with as having reflective item measures. These results clearly support these single construct models being conceptualised in a reflective manner. This strongly supports the adopted research process to establish adequate measurement model reliability and validity.

A separate CTA for the Brand Personality construct was then completed. The tetrad test revealed similar results with this construct $\chi^2 =0.01$ with 5df, $p=1.00$. It was also concluded that this result supports a reflective modelling orientation. This step-wise tetrad analysis provided evidence that the brand personality construct is a reflective orientation at the item level and when also tested at a higher level of abstraction.

This concludes the assessment of the measurement models. Adequate unidimensionality, reliability and construct validity have been verified at each stage. These results for the brand personality measurement models confirm the directionality for the brand personality construct

\textsuperscript{38}In some instances due to the use of the complete data with imputed values, PRELIS would not calculate the PCM and ACM as there are greater than 15 categories in the data. The software automatically treats the data as continuous in such situations. This cannot be overridden by the analyst.
in a data driven manner. Next, an analysis of common method bias is completed before investigating the requirements of convergent and discriminant validity.

4.12 Common Method Bias

Common method bias can arise when using similar scales with the same number of response options. A similar source can introduce spurious relationships among the variables. Common method bias could be exacerbated as higher-order constructs for the main measurement models are represented by components measured in a similar format. Each question is obviously different, as are the constructs and all measurement models (see preceding discussion). A factor analysis (ex post one-factor test) was run to demonstrate that there is no common factor loading on all measures. This is the same as Harman’s one factor test (Podsakoff, MacKenzie, Lee and Podsakoff 2003). The results revealed that there was no common factor loading on all measures (Podsakoff and Organ 1986), therefore, common method bias was not considered to be a problem with this dataset.

4.13 Convergent Validity

Fornell and Larcker (1981) were the first to derive the Average Variance Extracted (AVE) statistic. AVE should be greater than .50 to satisfy the requirements for convergent validity (Vandenbosch 1996). The AVE illustrates the amount of variance the items share with the construct it purports to measure (Fornell and Larcker 1981). It is important that the items share more variance with its measures than with other constructs in a given model. The calculated AVE (see Table 4.3) were: Sincerity (0.5946), Excitement (0.5538), Competence (0.5554), Sophistication (0.6202), Ruggedness (0.5249), Commitment (0.6468), Interdependence (0.6541), Partner Quality (0.5962), Love and Passion (0.5962), Intimacy (0.5313), Self-Connection (0.6859), Nostalgic Connection (0.6081), Interest (0.6693), Product Risk/Importance (0.5775), Symbolic Value (0.7726), Hedonic Value (0.8116) and Probability of Mispurchase (0.6319). These values range from 0.5313 to 0.8116 and are all greater than
the .50 level that is required. Therefore, the results demonstrate adequate convergent validity and unidimensionality. When the measurement models are investigated at the higher level of abstraction, the AVE for the three construct domains are: brand personality (0.8277), brand relationship quality (0.8788) and consumer involvement profile (0.4830). After the probability of mispurchase construct was deleted, the AVE was deemed satisfactory (0.5095). These results all demonstrate convergent validity.

4.14 Discriminant Validity

Having computed the latent variable scores from the measurement models, an assessment of discriminant validity was initiated. This was assessed in three ways using a test proposed by Gaski and Nevin (1985), by inspecting a matrix of cross-loadings (Chin 1998b), and visually using factor score plots. An initial inspection of correlations demonstrated that items were correlated with their respective constructs more strongly than others which is indicative of discriminant validity (DeVellis 2003). Gaski and Nevin (1985) outline that if the correlation between constructs is less than their reliability estimates, then discriminant validity is demonstrated. This approach has been followed previously (Grace and O’Cass 2005; O’Cass 2002a,b; O’Cass and Grace 2003; O’Cass and Ngo 2007; Patterson and Smith 2003; Wilson 2005b; 2010). The construct correlations were inspected (see Appendix E), and it is relevant to consider the correlations between higher-order relations. These higher-order constructs are often correlated more strongly (Bollen 1989), and this was evident. Next, these construct correlations were compared to the reliability estimates as outlined in Gaski and Nevin (1985).

The correlations between constructs ranged from .05 to .92 and the reliabilities ranged from .80 to .94. A comparison was made for over 200 construct correlations which illustrated that all correlations were satisfactorily meeting the above conditions, and, therefore, discriminant validity was satisfied (Gaski and Nevin 1985).
The second assessment of discriminant validity involves calculating the matrix of cross-loadings. This is done so as to ascertain whether an indicator loads higher with other constructs than the one it is intended to measure (Chin 1998b). If an item cross-loads or substantially loads on a construct other than what was initially intended, it may not exhibit adequate discriminant validity (Agarwal and Karahanna 2000; Yi and Hwang 2003). This analysis involves calculating the correlations between the latent variable component scores with indicators other than within its own block or construct (Chin 1998b). Table 4.5 illustrates the table of cross-loadings.

Table 4.5: Table of Cross-loadings

<table>
<thead>
<tr>
<th>Construct</th>
<th>Higher</th>
<th>Order</th>
<th>Construct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BPS</td>
<td>BRQ</td>
<td>CIP</td>
</tr>
<tr>
<td>SIN</td>
<td>0.9117</td>
<td>0.6138</td>
<td>0.2402</td>
</tr>
<tr>
<td>SOP</td>
<td>0.8960</td>
<td>0.5126</td>
<td>0.2652</td>
</tr>
<tr>
<td>EXC</td>
<td>0.9143</td>
<td>0.5376</td>
<td>0.1541</td>
</tr>
<tr>
<td>CMP</td>
<td>0.9246</td>
<td>0.5626</td>
<td>0.2527</td>
</tr>
<tr>
<td>RUG</td>
<td>0.8866</td>
<td>0.4763</td>
<td>0.2333</td>
</tr>
<tr>
<td>PQ</td>
<td>0.5951</td>
<td>0.8823</td>
<td>0.2757</td>
</tr>
<tr>
<td>LV</td>
<td>0.5764</td>
<td>0.9620</td>
<td>0.2978</td>
</tr>
<tr>
<td>INM</td>
<td>0.6024</td>
<td>0.9981</td>
<td>0.3149</td>
</tr>
<tr>
<td>NA</td>
<td>0.5679</td>
<td>0.9472</td>
<td>0.3256</td>
</tr>
<tr>
<td>IND</td>
<td>0.5400</td>
<td>0.9477</td>
<td>0.2534</td>
</tr>
<tr>
<td>COM</td>
<td>0.5620</td>
<td>0.9617</td>
<td>0.2788</td>
</tr>
<tr>
<td>SC</td>
<td>0.5442</td>
<td>0.9531</td>
<td>0.3097</td>
</tr>
<tr>
<td>RIS</td>
<td>0.1193</td>
<td>0.1297</td>
<td>0.5021</td>
</tr>
<tr>
<td>PRM*</td>
<td>0.0556</td>
<td>0.0002</td>
<td>0.0575</td>
</tr>
<tr>
<td>SYM</td>
<td>0.0846</td>
<td>0.1020</td>
<td>0.4945</td>
</tr>
<tr>
<td>HED</td>
<td>0.2358</td>
<td>0.2405</td>
<td>0.8474</td>
</tr>
<tr>
<td>INT</td>
<td>0.2284</td>
<td>0.3235</td>
<td>0.9058</td>
</tr>
</tbody>
</table>

* PRM to be deleted.

The cross-loadings illustrate which constructs are related to each respective domain (BPS, BRQ and CIP) demonstrating what the construct is more strongly purporting to represent (Chin 1998b). It is also important for each item to load more substantially on its own respective construct (Agarwal and Karahanna 2000). The cross-loadings results support the deletion of the probability of mispurchase construct in earlier measurement model analyses.
Finally, a third visual assessment of discriminant validity was implemented. A three dimensional factor score plot is constructed with SIMCA software. Figure 4.2 shows the clear separation of the three theoretical domains. The BRQ- 7 constructs are located close to the origin, BPS- 5 constructs are on the bottom right hand region, and CIP- 4 constructs are on the left hand face of the graph. The weakest domain is for the CIP constructs. There is some minimal within-domain construct separation (see the top left-hand face of Figure 4.2. This is exaggerated for presentation purposes using more pronounced grid line spacing.

**Figure 4.2: Exploratory PCA: 3-Dimensional Construct Plot**

Note: Construct labels are omitted for presentation clarity

To ascertain whether CIP is best represented as unitary, an exploratory data-driven Autofit function was run in SIMCA software. This finds the optimal number of components based on cumulative R-square statistics and cumulative Q-square statistics. In this instance, for the 16 constructs (with the CIP construct Probability of Mispurchase deleted), the Autofit function
reveals an optimal 3 component solution (BRQ, CIP and BPS). Therefore, despite the visual separation of CIP constructs, this analysis reveals it is best to remain intact and unitary.

Overall, discriminant validity exists based on these collective results\textsuperscript{39}.

4.15 Summary

The response analysis outlined that response rates were high and the representativeness of the sample was adequate. Preliminary data analyses revealed that variables exhibited significant normality problems. Following standard conventions for structural equation modelling studies, the measurement models and the structural models should be assessed separately (Vandenbosch 1996).

This chapter has demonstrated adequate measurement models for the 17 constructs under investigation. Throughout this section multiple data analysis methods were implemented. This analysis included: correlation analysis, exploratory factor analysis, reliability analysis and confirmatory vanishing tetrad analysis. Adequate construct validity, reliability, unidimensionality, convergent validity and discriminant validity was demonstrated. Another separate measurement model validation stage was included investigating the higher-order structure. Hierarchical PLS analyses were run for these three study domains. Various higher-order modelling approaches were considered and the final approach adopted follows best known procedure (Wilson and Henseler 2007b). There is a dearth of literature to rely on for guidance in modelling multiple higher-order constructs with PLS, except for the work published by Wilson (2005b; 2010). Latent variable scores were derived and the next chapter implements PLS path analysis to test the structural hypotheses of interest.

\textsuperscript{39} It has been acknowledged that higher between construct correlations might be more pronounced in BRQ research (Breivik and Thorbjørnsen 2008). They cite previous work emanating from this thesis (Wilson et al. 2007) indicating that higher-order construct validation may exhibit such dynamics. Yoo and Donthu (2001) also acknowledge that components of brand equity are expected to be highly correlated.
CHAPTER 5

STRUCTURAL MODEL RESULTS

“As complex as pathway modeling may sound, it should make the eyes of marketers light up because it allows them to quantify the potential impact of brand initiatives on customer loyalty, which can be translated into dollars and cents”.


5.1 Introduction

The sections below address the structural hypotheses. First, the proposed model examines the effect of brand personality on brand relationship quality. Second, an interactions model investigates the effect of adding the consumer involvement profile and interaction term within this model. The interactions modelling approach is presented before the analysis proceeds. The data is assessed with two PLS software packages. PLS path modelling considers both the size of relationship effect and also the overall predictive ability (Fornell and Cha 1994) of BPS on BRQ. Additional analyses assess the differential effect of involvement (high, medium and low) on the BPS→BRQ relationship. Also, the models were subjected to linearity tests. Finally, the analysis closes with a nested vanishing confirmatory tetrad analysis and PLS path model for two structural models with differing path directionalities.

5.2 Structural Model Results for Brand Personality and Brand Relationship Quality

This section of the analysis presents the effect of BPS on BRQ. The first stage involves undertaking an assessment of the path coefficients of the model and determining whether the sign and statistical significance is satisfactory (James, Mulaik and Brett 1982). Table 5.1

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40 SPAD 6.0 and PLS-Graph 3.0 were the PLS packages used. Zumastat 3.1 (an SPSS add-in) was used to create the interaction terms. Multiple packages were implemented to cross-check estimate similarity. All solutions were near identical.
illustrates the results for the outside model. All relations were in the intended direction. Weights are shown but it is the loadings that should be referred to for reflective variables (Chin 1998b). The bootstrapped critical ratios are all acceptable for the loading and structural estimates ($p<.01$). The structural model results for BPS$\rightarrow$BRQ are featured in Figure 5.1.

Table 5.1: Outer Model Results for Brand Personality and Brand Relationship Quality Structural Model

<table>
<thead>
<tr>
<th>Higher-order Construct</th>
<th>Construct</th>
<th>Weight</th>
<th>Loading</th>
<th>Bootstrapped Standard Dev*</th>
<th>t-value**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Personality</td>
<td>SIN</td>
<td>0.2502</td>
<td>0.9183</td>
<td>0.2771</td>
<td>3.3138</td>
</tr>
<tr>
<td></td>
<td>SOP</td>
<td>0.2076</td>
<td>0.8991</td>
<td>0.3046</td>
<td>2.9515</td>
</tr>
<tr>
<td></td>
<td>EXC</td>
<td>0.2171</td>
<td>0.9194</td>
<td>0.2755</td>
<td>3.3374</td>
</tr>
<tr>
<td></td>
<td>COMP</td>
<td>0.2285</td>
<td>0.9231</td>
<td>0.2694</td>
<td>3.4270</td>
</tr>
<tr>
<td></td>
<td>RUG</td>
<td>0.1941</td>
<td>0.8892</td>
<td>0.3184</td>
<td>2.7926</td>
</tr>
<tr>
<td>Brand Relationship</td>
<td>PQUAL</td>
<td>0.1605</td>
<td>0.8896</td>
<td>0.3159</td>
<td>2.8158</td>
</tr>
<tr>
<td>Quality</td>
<td>LOV</td>
<td>0.1558</td>
<td>0.9580</td>
<td>0.2054</td>
<td>4.6642</td>
</tr>
<tr>
<td></td>
<td>INTM</td>
<td>0.1514</td>
<td>0.9198</td>
<td>0.2741</td>
<td>3.3558</td>
</tr>
<tr>
<td></td>
<td>NCON</td>
<td>0.1541</td>
<td>0.9435</td>
<td>0.2348</td>
<td>4.0186</td>
</tr>
<tr>
<td></td>
<td>INTD</td>
<td>0.1460</td>
<td>0.9413</td>
<td>0.2388</td>
<td>3.9420</td>
</tr>
<tr>
<td></td>
<td>COMM</td>
<td>0.1518</td>
<td>0.9583</td>
<td>0.2035</td>
<td>4.7085</td>
</tr>
<tr>
<td></td>
<td>SCON</td>
<td>0.1471</td>
<td>0.9490</td>
<td>0.2244</td>
<td>4.2285</td>
</tr>
</tbody>
</table>

* Bootstrapped standard deviation calculated from 500 bootstrapped samples.
** t-values greater than 1.96 are significant at .05 level.

Figure 5.1: Brand Personality and Brand Relationship Quality Structural Model Results
Paths are interpreted as standardised beta (\(\beta\)) weights similar to a simple regression analysis (Agarwal and Karahanna 2000). Chin (1998a, p. xiii) states that, “Standardized paths should be at least 0.20 and, ideally, above 0.30 in order to be considered meaningful”. Cohen (1988) classifies standardised path coefficients with absolute values less than 0.10 as a “small” effect, values of 0.30 as a “medium” effect, and values greater than 0.50 as “large” effects. The result from this analysis reveals the path coefficient is large and meaningful (0.6009). The large \(\beta\) parameter estimate displays a fairly strong effect for BPS on BRQ. Because this model uses standardised values, the beta values (\(\beta\)) can be interpreted directly.

### Table 5.2: Brand Personality and Brand Relationship Quality Structural Model Results

<table>
<thead>
<tr>
<th>Structural Relation</th>
<th>Estimates</th>
<th>R²</th>
<th>R² adjusted</th>
<th>Stone–Geisser Q² test (Omission =10)</th>
<th>Stone–Geisser Q² test (Omission =50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path Coeff Sig. 0.6009 ***</td>
<td></td>
<td></td>
<td>BPS: 0.8225</td>
<td>BPS: 0.8260</td>
</tr>
<tr>
<td></td>
<td>Cont R² 100%</td>
<td></td>
<td></td>
<td>BRQ: 0.8755</td>
<td>BRQ: 0.8763</td>
</tr>
<tr>
<td></td>
<td>Path Coefficient CI 0.5742: 0.6286</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus, a one standard deviation increase in brand personality results in, *other things being equal*, a 0.6009 standard deviation increase in brand relationship quality. The bootstrapped critical ratios are all acceptable for outside loading and inside parameter estimates (\(p<.01\)). See Tables 5.1 and 5.2. One-tail tests at the 5% significance level are used for all unidirectional hypotheses. The between-blocks correlation coefficients of the residuals were all low and trending towards zero. This suggests the construct blocks are distinctively defined (Falk and Miller 1992).

Eigenvalues greater than 1 confirmed that variables are assigned to only two separate constructs. This result confirms block unidimensionality. There were high communalities within reflective blocks, and similarly low residual covariances (Lohmöller 1989).
Covariances between outer residuals and latent variables are close to zero. Collectively, these results show a sound model.

5.2.1 Assessing the Predictive Capacity of the Structural Model

Cohen and Cohen (1983) define $R^2$ values of 0.25 as large, 0.09 as medium and 0.01 as small, and argue that these figures are “broadly appropriate for the behavioral sciences” (Cohen and Cohen 1983, p. 160). For this model the adjusted $R^2$ value was 0.3610. This model, therefore, has a large $R^2$. “A criterion for evaluating the significance of the individual paths is the product of the path coefficient and the relevant correlation coefficient” (Falk and Miller 1992, p. 74). The variance accounted for in an endogenous latent variable (BRQ) is revealed by multiplying the path coefficient with the corresponding correlation coefficient. The result should be greater than 1.5% (Falk and Miller 1992). This model is meaningful with strong predictive capacity.

The Stone–Geisser $Q^2$ should be studied with the $R^2$. The $Q^2$ test proves the predictive relevance of the model (Geisser 1975a; Stone 1974b). The $Q^2$ statistic measures the degree to which the observed values and derived parameter estimates are reproduced by the model when cases are removed from the analysis while reestimating the model (e.g., blindfolding).

Chin (1998b, p. 317) explains blindfolding as:

“A procedure that omits a part of the data for a particular block of indicators during parameter estimations and then attempts to estimate the omitted part using the estimated parameters. This procedure is repeated until every data point has been omitted and estimated. As a result of this procedure, a generalized cross-validation measure and jackknife standard deviations of parameter estimates can be obtained”.

The jackknife standard deviations were compared with those calculated from previous bootstrapping analyses to also assess parameter significance, and the results were the same. The standard convention of presenting the bootstrapped critical ratios was followed (Chin 1998b). $Q^2$ values need to be greater than zero for a model to have predictive relevance. Values less than zero signal that the predictive relevance of the model may not be sound.
(Wold 1982). The dependent variable is perfectly represented by the model when a $Q^2$ value is equal to 1 (Fornell and Bookstein 1982). A value in the range of 0.4 to 0.6 is ‘satisfactory’, and 0.7 to 0.8 ‘exceptional’ (Apel and Wold 1982, p. 221). The results presented in Table 5.2 with respective omission distances of 10 and 50 produced consistent results. This means that every 10th case (or 50th case) is omitted from the analysis. All average $Q^2$ values are above 0.82 which is exceptional. A high $Q^2$ is similar in interpretation to a high $R^2$. This result is very important for BRQ as it is the dependent construct of interest in this model. Therefore, the high $Q^2$ further reinforces the predictive ability of this structural model.

5.2.2 Assessing the Goodness-of-Fit of the Structural Model

A previous criticism of PLS modelling is that it provides no goodness-of-fit statistics (Barclay et al. 1995; Smith and Barclay 1997). However, this has changed in recent times (Amato, Vinzi and Tenenhaus 2004). One PLS goodness-of-fit (GOF) formula is:

$$GOF = \sum \sqrt{Average\text{Communality}\times Average\text{MultipleRsq}}$$

Communality coefficients equal the squared correlations between variables and their associated constructs. This is similar to common factor analysis interpretations (Sellin 1990). That is, this GOF captures the variance that all items share with each other when averaged across all items and this is then multiplied by the predictive ability of the model ($R^2$). The square root of this product is subsequently taken. The average communality effectively measures the quality of the external model and the average $R^2$ measures the quality of the inner structural model (Stan and Saporta 2005). This produces a PLS GOF statistic.

$$GOF = \sum \sqrt{0.8575 \times 0.3610}$$
$$= 0.5564$$

The interpretation of this result reveals the model is able to account for approximately 56% of the achievable fit. An investigation of relationship linearity is now implemented.
5.2.3 Test of Linearity for BPS and BRQ Relationship

Figure 5.2 illustrates the relationship between BPS and BRQ in a graph. BRQ and BPS were plotted based on six data point estimates from the standardised factor scores to visually assess linearity. Fitting the line of best fit reveals that this relationship is linear. Naturally, a caution for this study is that linearity may be conditional to this particular data set. It is possible that linearity may not hold in another separate study with new data or for a longitudinal study with different sample parameters (Gustafsson and Johnson 2004). This is highlighted in the discussion in Section 6.7.

Figure 5.2: Plot of Six Data Points for BRQ and BPS Values

The next section presents analyses for the investigation of CIP as a potential moderating construct. The analysis approach undertaken is discussed next.

5.3 PLS Path Modelling Analysis Approach for Interaction Constructs

PLS is capable of explaining complex relationships (Chin and Newsted 1999; Fornell and Bookstein 1982) with interaction terms (Wilson 2005b; 2010). There are two main PLS approaches to investigate interactions (Henseler and Fassott 2010). The first approach deals
with utilising (pseudo-) continuous interaction terms (e.g., Numerical scales, Likert scales, etc.) (Chin et al. 2003). The items of the independent construct (X) are multiplied with each item of the moderating construct (Z) to create interaction terms (X.Z). Figure 5.3 illustrates a graphical model of how the analysis is operationalised in PLS software.

**Figure 5.3: Structural Model with Interaction Construct**

These product terms serve as indicators of the interaction term in the structural model. Many interactions variables can develop quickly. The model is then estimated. The main effects model is specified as the relationship between the independent (X) and dependent constructs (Y). The interaction model now introduces the moderator and interaction terms (Z and X.Z) into the model. For this thesis, 20 interaction variables are added.

All the variables should be mean centred or standardised before analysis to minimise collinearity (Chin et al. 1996; Low and Mohr 2001; Ping Jr. 1996b). For this study, cross-products were constructed from the latent variable scores derived from the higher-order measurement models. In these situations the latent variable scores are standardised (Wilson 2005b; 2010).
A second PLS approach to study moderation hypotheses, which involves setting up a multiple group PLS model, was also considered. This approach uses dichotomous variables (like occupation) or creates two or more groups artificially from continuous variables (Chin 2002; Grace and O’Cass 2005; Henseler and Fassott 2010). Often researchers choose to dichotomise a pseudo-continuous variable (e.g., mean, median splits). One consequence of bypassing continuous interaction analysis with artificial dichotomisation of a variable, is that there is a loss of information that results from equating all individuals on either side of a cut-off point (median, mean) (Cortina et al. 2001). Assuming a study has normally distributed variables, splitting one of the variables at the median (or mean) will result in an $R^2$ that is 64% of the value that would be obtained if both variables remain continuous (Cohen 1983). When the data has normality problems the loss of information is greater (Byrne and Campbell 1999).

Therefore, it was considered prudent to use the continuous interaction term approach with PLS before exploring any subsequent grouping classifications. The next section presents the results for the interaction analyses.

### 5.4 Results for the Main Effects and Interaction Structural Models

Two separate estimated models are compared in this section. The first model, termed the Main Effects Model (Model 1), includes BPS, CIP constructs influencing BRQ. The second model, named the Interaction Model (Model 2), includes the three previous constructs and a separate construct that is the interactions construct represented by cross-product indicators. The measurement model weights, loadings, bootstrapped standard deviations and t-values for both Model 1 and Model 2 are presented in Tables 5.3 and 5.4. The loadings of the cross-product terms are a function of the multiplication of the separate indicator loadings.

Model 2 cross-product statistics are not outlined as is standard reporting convention (Avolio et al. 1999; Chin et al. 1996; 2003; Denham, Blair et al. 2003; Kwong and Lee 2002; Limayem, Hirt and Chin 2001; Limayem and Hirt 2003; Venaik 1999). The interaction terms
themselves have no conceptual meaning (Cortina et al. 2001). The advice of Chin et al. (1996; 2003) is followed in creating individual separate product terms for each X and Z indicator representing an Interaction Construct⁴¹.

Table 5.3: Outer Model Results for Main Effects Structural Model

<table>
<thead>
<tr>
<th>Higher-order Construct</th>
<th>Construct</th>
<th>Weight</th>
<th>Loading</th>
<th>Bootstrapped Standard Dev</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Personality</td>
<td>SIN</td>
<td>0.2501</td>
<td>0.9183</td>
<td>0.2771</td>
<td>3.3135</td>
</tr>
<tr>
<td></td>
<td>SOP</td>
<td>0.2077</td>
<td>0.8991</td>
<td>0.3046</td>
<td>2.9518</td>
</tr>
<tr>
<td></td>
<td>EXC</td>
<td>0.2170</td>
<td>0.9194</td>
<td>0.2755</td>
<td>3.3372</td>
</tr>
<tr>
<td></td>
<td>COMP</td>
<td>0.2285</td>
<td>0.9231</td>
<td>0.2694</td>
<td>3.4267</td>
</tr>
<tr>
<td></td>
<td>RUG</td>
<td>0.1942</td>
<td>0.8892</td>
<td>0.3184</td>
<td>2.7929</td>
</tr>
<tr>
<td>Consumer Involvement Profile</td>
<td>PPI</td>
<td>0.2127</td>
<td>0.5017</td>
<td>0.5010</td>
<td>1.0013*</td>
</tr>
<tr>
<td></td>
<td>SYMV</td>
<td>0.1800</td>
<td>0.5073</td>
<td>0.5008</td>
<td>1.0128*</td>
</tr>
<tr>
<td></td>
<td>HEDV</td>
<td>0.3905</td>
<td>0.8476</td>
<td>0.3634</td>
<td>2.3324</td>
</tr>
<tr>
<td></td>
<td>INT</td>
<td>0.5246</td>
<td>0.9056</td>
<td>0.2953</td>
<td>3.0663</td>
</tr>
<tr>
<td>Brand Relationship Quality</td>
<td>PQUAL</td>
<td>0.1545</td>
<td>0.8886</td>
<td>0.3173</td>
<td>2.8003</td>
</tr>
<tr>
<td></td>
<td>LOV</td>
<td>0.1554</td>
<td>0.9579</td>
<td>0.2055</td>
<td>4.6619</td>
</tr>
<tr>
<td></td>
<td>INTM</td>
<td>0.1550</td>
<td>0.9201</td>
<td>0.2736</td>
<td>3.3629</td>
</tr>
<tr>
<td></td>
<td>NCON</td>
<td>0.1592</td>
<td>0.9443</td>
<td>0.2332</td>
<td>4.0487</td>
</tr>
<tr>
<td></td>
<td>INTD</td>
<td>0.1411</td>
<td>0.9409</td>
<td>0.2394</td>
<td>3.9299</td>
</tr>
<tr>
<td></td>
<td>COMM</td>
<td>0.1492</td>
<td>0.9580</td>
<td>0.2041</td>
<td>4.6928</td>
</tr>
<tr>
<td></td>
<td>SCON</td>
<td>0.1519</td>
<td>0.9496</td>
<td>0.2231</td>
<td>4.2565</td>
</tr>
</tbody>
</table>

* t-values greater than 1.96 are significant at .05 level. *= not significant.

Bootstrapped standard deviation calculated from 500 bootstrapped samples.

Model 1 results feature in Table 5.5. All loadings for the main constructs exceed conventional standards 0.707 except two of these indicants (PPI and SYMV). These were kept intact for future Model 2 analyses following Chin (1998b) who recommends leaving such terms within developmental models. Model 2 results satisfied conventional standards with significant loadings except for the PPI and SYMV variables. Again these were left within the

⁴¹ Because of lack of guidance in the literature when modelling PLS interactions, the structural analyses were run in tandem with two other modelling approaches. The first approach involves deleting any non-significant constructs and product indicators from all analyses before estimation. The second approach involves creating a summated scale or index for BPS and CIP thus creating one product term only for Model 2. “However, this summing approach, while reducing measurement error, is suboptimal relative to the PLS algorithm. PLS treats each indicator separately, allowing each item to differ in the amount of influence on the construct estimate” (Chin et al. 2003, p. 194). Substantively, all three approaches produced results that were near identical. Multiple method comparisons of results represent robust research practice (Gustafsson and Johnson 2004). Therefore, the approach adopted in this thesis is validated (Wilson 2005b; 2010).
analyses (Chin 1998b). The structural modelling for Model 1 and Model 2 could now continue. In the original measurement model validations of all of these loadings were significant (see Sections 4.3 and 4.4).

Table 5.4: Outer Model Results for Interaction Effects Structural Model

<table>
<thead>
<tr>
<th>Higher-order Construct</th>
<th>Construct</th>
<th>Weight</th>
<th>Loading</th>
<th>Bootstrapped Standard Dev</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Personality</td>
<td>SIN</td>
<td>0.2500</td>
<td>0.9183</td>
<td>0.2772</td>
<td>3.3130</td>
</tr>
<tr>
<td></td>
<td>SOP</td>
<td>0.2078</td>
<td>0.8991</td>
<td>0.3046</td>
<td>2.9522</td>
</tr>
<tr>
<td></td>
<td>EXC</td>
<td>0.2171</td>
<td>0.9194</td>
<td>0.2755</td>
<td>3.3376</td>
</tr>
<tr>
<td></td>
<td>COMP</td>
<td>0.2283</td>
<td>0.9230</td>
<td>0.2694</td>
<td>3.4261</td>
</tr>
<tr>
<td></td>
<td>RUG</td>
<td>0.1943</td>
<td>0.8892</td>
<td>0.3184</td>
<td>2.7930</td>
</tr>
<tr>
<td>Consumer Involvement</td>
<td>PPI</td>
<td>0.2128</td>
<td>0.5017</td>
<td>0.5010</td>
<td>1.0014*</td>
</tr>
<tr>
<td>Profile</td>
<td>SYMV</td>
<td>0.1802</td>
<td>0.5074</td>
<td>0.5008</td>
<td>1.0131*</td>
</tr>
<tr>
<td></td>
<td>HEDV</td>
<td>0.3903</td>
<td>0.8475</td>
<td>0.3635</td>
<td>2.3316</td>
</tr>
<tr>
<td></td>
<td>INT</td>
<td>0.5246</td>
<td>0.9056</td>
<td>0.2953</td>
<td>3.0662</td>
</tr>
</tbody>
</table>

Interaction Construct: (Not reported to conserve presentation space. Interpretation is meaningless.)

<table>
<thead>
<tr>
<th>Interaction Construct</th>
<th>(Not reported to conserve presentation space. Interpretation is meaningless.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Relationship</td>
<td>PQUAL</td>
</tr>
<tr>
<td>Quality</td>
<td>LOV</td>
</tr>
<tr>
<td></td>
<td>INTM</td>
</tr>
<tr>
<td></td>
<td>NCON</td>
</tr>
<tr>
<td></td>
<td>INTD</td>
</tr>
<tr>
<td></td>
<td>COMM</td>
</tr>
<tr>
<td></td>
<td>SCON</td>
</tr>
</tbody>
</table>

* t-values greater than 1.96 are significant at .05 level. *= not significant.

Bootstrapped standard deviation calculated from 500 bootstrapped samples.

The model coefficient results for Model 1 (Main Effects Model) and Model 2 (Interaction Model) are presented in Table 5.5. These coefficients are interpreted just like standardised regression coefficients (Fornell and Cha 1994). The results display the standardised beta coefficients ($\beta$) for brand personality and involvement (0.5571 and 0.1709) with an $R^2$ of 0.3875 for brand relationship quality. When the interaction construct is added, the CIP$\rightarrow$BRQ beta 0.1277 is reduced slightly, while similarly increasing the $R^2$ to 0.4027. Therefore, a one standard deviation increase in brand personality will impact brand relationship quality directly by 0.5571. The standardised beta ($\beta$) estimate of the main construct brand personality (X) on brand relationship quality (Y) is interpreted as the influence of X on Y when the
moderator construct Z (CIP) is equal to zero. Also, the beta \( \beta \) estimate from moderator construct Z to Y is interpreted as the direct influence of Z on Y when X is equal to zero.

### Table 5.5: Structural (Inner) Model Results for Main Effects and Interaction Structural Models

<table>
<thead>
<tr>
<th>Structural Relation</th>
<th>Model 1 (Main Effects)</th>
<th>Model 2 (Interaction Model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Path Coeff</td>
<td>Sig.</td>
</tr>
<tr>
<td>Brand Personality ( \rightarrow ) BRQ</td>
<td>0.5571</td>
<td>***</td>
</tr>
<tr>
<td>CIP ( \rightarrow ) BRQ</td>
<td>0.1709</td>
<td>***</td>
</tr>
<tr>
<td>Interaction construct/term</td>
<td>0.1277</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>0.3880</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.3875</td>
<td></td>
</tr>
<tr>
<td>Stone–Geisser Q² test (Omission =10)</td>
<td>BPS: 0.8225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIP: 0.5097</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BRQ: 0.8756</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BPS: 0.8260</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIP: 0.5093</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BRQ: 0.8763</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stone–Geisser Q² test (Omission =50)</td>
<td>BPS: 0.8263</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIP: 0.5093</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BRQ: 0.8763</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bootstrapping results (n=500) *** \( p<0.001 \) ** \( p<0.01 \) * \( p<0.05 \)

Path Coeff = Path coefficient (\( \beta \)). Cont R² = Contribution to R²

The standardised path estimate from the interaction construct tells us how a change in the CIP would change the influence of BPS on BRQ. Thus, if brand personality has an estimated beta effect of \( \beta: 0.5683 \) on BRQ, a beta \( \beta: 0.1277 \) from the interaction construct can be interpreted as a beta change of 0.6960 (e.g., 0.5683 + 0.1277) for the estimated path from brand personality to brand relationship quality when consumer involvement profile increases by one standard deviation from the starting point of zero. In other words, the results imply that a one standard deviation increase in the CIP will not only impact BRQ directly by 0.1658, but would also increase the impact of brand personality to brand relationship quality from 0.5683 to 0.6960.

### 5.5 Assessing the Type of Moderation within the Structural Models

It is important to classify the type of relationship between the three constructs. Relationships can be classified as one of four dominant types. These four classifications...
include: homologizer, quasi moderator, pure moderator, and either predictor, intervening, antecedent or suppressor variable.

Predictors (and variants - intervening, antecedent, suppressor variables) are directly related to the criterion variable and, therefore, do not interact with the predictor. This relationship type does not represent a moderator variable. A homologizer “influences the strength of the relationship, and is not significantly related to either the predictor or criterion variable” (Sharma et al. 1981, p. 292). Table 5.6 demonstrates that the relationship is not one of the previously mentioned types.

As shown by Sharma et al., pure modification and quasi moderation “basically modifies the form of the relationship between the criterion and predictor variables” (Sharma et al. 1981, p. 293). These two types of moderation include pure moderation and quasi moderation. A pure moderator acts by exhibiting a significant interaction with predictor variables without being a significant predictor variable, whilst also having a small correlation with the criterion variable (Cohen and Cohen 1975, as adapted from Sharma et al. 1981). Pure moderation is not the case in this research study, as CIP is also a significant predictor of the dependent variable BRQ (see Table 5.6).

A quasi moderator is different from a pure moderator in that it also changes the form of the relationship between the criterion and predictor variables, however, it also significantly interacts with the predictor variable but is also a significant predictor variable in its own right (Sharma et al. 1981). A potential homologizer variable is subjected to further testing to decide whether it could still be classified as a moderator. A homologizer works only by influencing the strength of the relationship, whereas pure and quasi moderation influence the form of the relationship (Sharma et al. 1981).

To ascertain the type of moderation, a testing process is followed that is similar to carrying out a moderated regression analysis. This was performed with PLS and involves
testing whether the regression coefficients for three following regression equations are significantly greater than zero (Zedeck 1971).

For this research the equations are featured next:

$$BRQ = a + b_1 BPS + e;$$

*Model 1: Main Effects; $BRQ = a + b_1 BPS + b_2 CIP + e;*$

*Model 2: Interaction Model; $BRQ = a + b_1 BPS + b_2 CIP + b_3 BPS.CIP + e.*

*Model 3: $BPS = a + b_4 CIP + e$*

where,

- $BRQ =$ Criterion or dependent variable (Y)
- $BPS =$ Predictor or independent variable (X)
- $CIP =$ Hypothesized moderator variable (Z)
- $e =$ error term

The respective classification types and the required statistical tests are outlined in Table 5.6.

**Table 5.6: Relationship Types and Statistical Testing Rules**

<table>
<thead>
<tr>
<th>Typology of Moderator Variables</th>
<th>$b_2$ does not equal 0</th>
<th>$b_3$ = 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor, intervening, antecedent or suppressor*</td>
<td>$b_2 = 0$</td>
<td>$b_3$ does not equal 0</td>
</tr>
<tr>
<td>Pure Moderator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quasi Moderator</td>
<td>$b_2$ does not equal 0</td>
<td>$b_3$ does not equal 0</td>
</tr>
<tr>
<td>Homologizer (additional tests needed to determine moderation)</td>
<td>$b_2 = 0$</td>
<td>$b_3 = 0$</td>
</tr>
</tbody>
</table>

* Not a moderator form.

As proposed by Sharma et al. (1981) the significance of $b_3$ in Model 2 is explored. If $b_3$ in Model 2 is not significant, Model 3 is estimated. In Model 3, if $b_4$ is significant, Z is an antecedent, exogenous, intervening, or suppressor variable to the relationship between X and Y. If $b_4$ is not significant in Model 3, a subgroup analysis needs to proceed. To determine moderation, the significance of $b_2$ in Model 2 is inspected. If $b_3$ is significant and $b_2$ is nonsignificant, Z is a pure moderator. If both $b_3$ and $b_2$ are significant, Z is a quasi moderator.

Within this research study the interactions model results reveal that the two effects for BPS
and CIP are significant and the product term (BPS.CIP) is also significant ($\beta = 0.1277$, p<0.01). This confirms that CIP is a quasi moderator (Sharma et al. 1981) of the relationship between BPS and CIP. To recap, a quasi moderator changes the form of the relationship between the criterion and predictor variables, however, it also significantly interacts with the predictor variable but is also a significant predictor variable in its own right (Sharma et al. 1981).

5.6 Assessing the Predictive Capacity of the Main Effects and Interaction Structural Models

The interactions model had a slightly higher $R^2$ than the Main Effects Model. The $R^2$ for Model 1 and Model 2 are both high suggesting the predictive ability of the models. The contribution to $R^2$ shows the importance of each construct and its relative contribution to overall $R^2$. These results satisfy the requirement of Falk and Miller (1992) in that the variance in the endogenous construct explained by any one individual path must exceed 1.5%.

The $Q^2$ are all greater than zero and point to the predictive relevance in both models. A value in the range of 0.4 to 0.6 is viewed as ‘satisfactory’, and 0.7 to 0.8 ‘exceptional’ (Apel and Wold 1982, p. 221). The results presented previously in Table 5.5 with omission distances of 10 and 50 produced rather consistent results. This shows the blindfolding procedure can reproduce the same parameter estimates even when different omission distances are specified. The average $Q^2$ values for BPS and BRQ are all above 0.80. This shows exceptional predictive relevance for BPS and BRQ. The high $Q^2$ is similar in interpretation to a high $R^2$.

The results for the CIP and the interaction construct are not as high. However, the high $Q^2$ values above zero reinforce the predictive relevance of both Model 1 and Model 2. The effect size is now calculated to ascertain the utility of adding the interaction term to the model.
5.7 Assessing the Utility of Including the Main Effects and Interaction Structural Models

The main effects and interaction model R² values, respectively, are substituted into a formula to calculate the effect size ($f^2$) to find out the utility of the interactions construct being introduced.

The Cohen effect size formula (Cohen 1988) is:

$$f^2 = \frac{[R\text{-}square(\text{interaction model}) - R\text{-}square(\text{main effects model})]}{[1 - R\text{-}square(\text{main effects model})]}$$

The overall effect size $f^2$ calculated shows the levels of effect where 0.02, 0.15, and 0.35 have been suggested as small, moderate, and large effects, respectively. The effect size is the most accepted test (Cohen 1988). It is important to comprehend that a small $f^2$ does not necessarily imply an unimportant effect (cf. Chin et al. 2003). Limayem et al. (2001, p. 281) state that, “if the resulting beta changes are meaningful, then it is important to take these situations into account”. The calculation using the Cohen (1988) effect size formula\(^{42}\) for this study is:

$$f^2 = \frac{[0.4027 - 0.3875]}{[1 - 0.3875]} = 0.0248$$

In this study the effect size has been judged to be small (0.0248), therefore, product class involvement has a positive moderating impact on the BPS $\rightarrow$ BRQ relationship. The interaction between brand personality and level of product involvement shows a significant

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\(^{42}\) It is important to note that when the supplementary analyses were completed (see previous footnote) the effect size/parameter estimates were similar to the second decimal place. This additional analysis approach has followed the advice of Chin (2007) in personal email communication. The significance patterns of parameters were all the same magnitude irrespective of approach implemented. “We look at the significance at the structural level primarily” (Chin 2007). The R’s for the models were also very similar. Also, the comparative effect size contribution for both analysis approaches was also between 0.02 and 0.03 ($f^2$ = 0.026 and $f^2$ = 0.029, respectively). This is indicative of a “small” effect size. Therefore, this multiple analysis approach provides strong support that the estimated results are not a function of any subjective modelling decisions.

\(^{43}\) There is only a small percentage of R² change estimated between the main effects model and interaction model using PLS. The overall R’s for the models are still relatively high. It must be noted that the R’s and R² changes are relative and as there are no other comparable BPS $\rightarrow$ BRQ studies to enable effect size comparisons, the result can only be compared against common rules-of-thumb. Cohen (1988) highlights that most published research deals with small to medium effect sizes.
5.8 Assessing Interaction Multicollinearity of Cross-product Terms

Multicollinearity is an artefact of creating cross-product terms (Ping Jr. 1996b). It can create problems with the estimates and, in the worst case, has been proposed to be a reason for negative effects when positive effects were expected (Yang-Wallentin, Schmidt, Davidov and Bamberg 2004). Parameter estimates were all in the intended direction. Multicollinearity was lessened through the recommendation of Chin et al. (1996; 2003) by using standardised variables (latent variable scores). However, it is possible within this study that there could be some multicollinearity and this is now inspected. The variance inflation factors (VIF) were all inspected and were all below 1.5 which illustrates that multicollinearity is within acceptable ranges (Field 2005). The correlation coefficients for the interaction construct (BPS*CIP) with BPS and CIP are -0.0813 and 0.0162, respectively, indicating a negligible influence that does not impact the substantive conclusions.

A second issue worth considering is the creation of cross-product terms which, by construction, result in low item reliabilities. For instance, when an individual item (X) with a loading or a reliability value of 0.70 and another item (Z) with a loading of 0.70 are multiplied to form a cross-product item (X.Z), the new reliability estimate will equal 0.49. This problem is exacerbated when some low loadings are involved in the multiplicative sums (Busemeyer and Jones 1983). However, the cross-product item reliabilities ranged from 0.3665 - 0.9944, which are suitable (Jaccard and Turrisi 2003).

Finally, to detect small effect sizes, large sample sizes with many reliable variables are desired. Often inadequate power leads to Type II errors (Runold 1982), that is, rejecting the null hypothesis when it is true. Chin et al. (1996; 2003) propose this as being one reason that IS research studies have been rather unsuccessful at proving moderating effects. For instance,
when using regression, with perfect data, a small effect ($f^2 = 0.02$) would be detected at a power of 0.80 in a sample of $n = 400$; this sample would need to increase in size to $n = 1056$ if the data were only 80% reliable (Aiken and West 1991). Given that a small effect size within this study was recognised, and the prospect that the power needed to detect such an effect might be dependent on larger sample sizes than the 1290, it is readily obvious that this effect exists$^{44}$. This concludes the analysis of the main hypotheses. In the next section some additional analyses are undertaken to explore the behaviour of the moderator.

5.9 Results for BPS and BRQ at Different Consumer Involvement Profile Moderator Values

The key substantive focus in models with interaction effects is on understanding the way the noted relationship dynamics work (e.g., at different levels of the moderator) (Aiken and West 1991). The aggregate analysis using continuous variables revealed that the effect of the moderation is small but significant. Therefore, it is now acceptable to explore the effect of the moderator at different values of the moderator and independent variable. A graphic ANOVA-style of a two-way interaction between continuous variables was calculated. The traditional product term scores from PLS path modelling were used to generate predicted mean scores for BRQ for three levels of brand personality at three levels of CIP. This describes the effects in factorial terms. To split data into two or three groups for analysis is common (Bagozzi and

$^{44}$ Other data splits (e.g., sex, age, category, brand, use history and frequency or other constructs) or comparisons were not undertaken in this thesis because of this concern; they are outside the scope of this study. Apart from the power arguments listed above, there are two extra reasons this did not occur. First, Monte Carlo results for higher-order models (Wilson and Henseler 2007b) demonstrate that it is not prudent to run higher-order PLS analyses with fewer than around 300+ observations per condition. The sample size should be even greater than this when examining interaction models. Other comparisons of interest were not possible as sample sizes were too small. Second, testing PLS Multi-group models (Chin 2002) (analogous to the multiple group modelling approach in CBSEM) is rather new and may have some problems. This approach requires two groups to be compared using a pseudo t-test to test for significant path differences. Multigroup PLS requires two new separate models to be estimated. “PLS derives new factor loadings and weights separately for each model” (Carte and Russell 2003, p. 493). Current PLS software does not facilitate constraints on loadings and weights across groups. Recently, Hwang (2008) and Hwang and Takane (2004) have shown that fixing or imposing constraints for two group models may be possible with Generalised Structure Component Analysis (GSCA). However, this alternative is not yet operationalised within available software.
Yi 1994) and keeps the power fairly high to detect effects (Byrne 2001; Hancock 1997). Figure 5.4 shows the predicted BRQ mean for combinations of low, medium and high values of BPS and CIP, respectively. A low score is one standard deviation below the mean, an average score or medium score is at the mean, and a high score is one standard deviation above the mean. For BPS and CIP, the values were standardised so a low value corresponds to -1, a medium value to 0 and a high value to 1\textsuperscript{45}.

When CIP is low (-1) and BPS is low (-1), the BRQ mean is -0.6062. When CIP is low and BPS is medium, the BRQ mean is -0.1658. When CIP is low and BPS is high, the BRQ mean is 0.2746. When CIP is medium and BPS is low, the BRQ mean is -0.5683. When CIP is medium and BPS is medium, the BRQ mean is zero. When CIP is medium and BPS is high, the BRQ mean is 0.5683. When CIP is high and BPS is low, the BRQ mean is -0.5304. When CIP is high and BPS is medium, the BRQ mean is 0.1658. When CIP is high and BPS is high, the BRQ mean is 0.8620. A test of significance for the slopes revealed there was a significant difference between the slopes of BRQ on BPS at the three different values of CIP (-1, 0, 1) at p<.0001 level.

The global and three estimated regression equations are as follows:

\begin{align*}
\text{Global Model: BRQ} &= 0 + 0.568 \text{BPS} + 0.165 \text{CIP} + 0.128 \text{BPS} \times \text{CIP} \\
\text{When CIP = -1, BRQ} &= -.166 + .440 \text{BPS} \\
\text{When CIP = 0, BRQ} &= .000 + .568 \text{BPS} \\
\text{When CIP = 1, BRQ} &= .166 + .696 \text{BPS}
\end{align*}

These results show further the effect of the moderator and that when the moderator is tricotomised the moderating influence of involvement is more pronounced on the BPS $\rightarrow$ BRQ relationship at higher levels of involvement. These results were large and significant and further display quasi moderation (Sharma et al. 1981).

\textsuperscript{45}This approach is different to PLS Multiple-group modelling. It is not run within PLS and the parameters are assessed for differences. Also, the tricotomised split by product category involvement allows enough sample size per cell and enough power to allow for analysis implementation.
The previous analyses using continuous cross-products, tricotomised moderation and linear plots have assumed the moderator variable is linear. This assumption is now tested.

5.10 Testing Interaction Linearity

To test whether the moderating effect was linear (or nonlinear) an exploratory procedure was run within SPSS using Zumastat\(^{46}\). This analysis regresses the latent variable scores for BRQ onto BPS at each value of the CIP, and then produces output of the slopes of brand relationship quality on brand personality. These values are presented in Table 5.7. For linear product term analysis (not quadratic, cubic, etc.) to be considered acceptable, the slopes should be a linear function of CIP. These slope values are plotted in a scatterplot and are featured in Figure 5.5.

\(^{46}\) This is software developed by well-known psychology researcher, Professor Jaccard.
Table 5.7: Slope of Brand Relationship Quality on Brand Personality for Different Values of Consumer Involvement Profile

<table>
<thead>
<tr>
<th>Moderator Variable Value</th>
<th>Slope</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>0.40</td>
<td>74</td>
</tr>
<tr>
<td>-1</td>
<td>0.52</td>
<td>360</td>
</tr>
<tr>
<td>0</td>
<td>0.47</td>
<td>420</td>
</tr>
<tr>
<td>1</td>
<td>0.74</td>
<td>340</td>
</tr>
<tr>
<td>2</td>
<td>0.98</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>1.17</td>
<td>4</td>
</tr>
</tbody>
</table>

Degrees of Freedom = N – 2. (1290-2)
'Slope' column is the slope for Y = a + bX at each level of Consumer Involvement Profile.

The plotted coordinates primarily illustrate that the interaction for the six slope values represent a linear function. This confirms that the use of simple product terms rather than other non-linear functions (polynomials, quadratics, etc.) is appropriately applied in this study based on this visual procedure.

Figure 5.5: Plot of Slopes of Brand Relationship Quality on Brand Personality for Different Consumer Involvement Profile Values
5.11 Testing an Alternative Model

In order to test the directionality and further test the validity of the BPS→BRQ model, additional analyses were completed. These analyses test a model that assumes formative relationships for the BPS constructs. This section involves two added analyses. The confirmatory vanishing tetrad test is used in a nested fashion to test the likelihood of brand personality being a formative representation. The second analysis involved a comparison of PLS solutions for both the reflective and formative representations. These extra analyses are now discussed and undertaken.

5.12 Nested Vanishing TETRAD Analysis Approach

It is not uncommon to explore alternative models within PLS studies (Denham et al. 2003; Limayem and Hirt 2003; Venaik 1999) and structural modelling in general (Kline 1998; Rosa, Garbarino and Malter 2006). As has previously been outlined in the Stepwise Vanishing Tetrad analyses in Sections 4.10 and 4.11, the directionality issues for the BRQ measurement model appeared more clear-cut (as shown from the theory developed by Fournier and expert panel consensus). Fornell and Cha (1994) believe that path directionality choice depends mainly on the substantive theory behind the model. However, Spirtes, Glymour and Scheines (2000, pp. 97-98) elaborate:

“In the social sciences, there is a great deal of talk about the importance of ‘theory’ in constructing causal explanations of bodies of data…. In many of these cases the necessity of theory is badly exaggerated”.

Overall, there is no evidence to suggest that BRQ is not a reflective orientation. This is the orientation that was tested in \( H_1 \) (see Figure 5.6). However, there is some debate over the directionality of the trait descriptors for brand personality as being either reflective or formative (at the item-to-construct level and at the construct-to-construct level). This doubt has been raised in the human personality literature. Testing alternative models is becoming accepted practice within marketing and recognises the developmental nature of domains under
investment (Breivik and Thorbjørnsen 2008; DeWitt, Nguyen and Marshall 2008; Rosa et al. 2006; Valette-Florence, Guizani and Merunka 2011). Results at the item-to-construct level revealed measures to be a reflective orientation at the item level. The results in this research study have assumed brand personality is a Type I model (see Figure 5.6). The directionality at the construct-to-construct level for brand personality is now investigated. The two models in Figures 5.6 and 5.7 allow a nested CTA model comparison at the structural level.

**Figure 5.6: Structural Model for BPS (Reflective) and BRQ**

A nested vanishing tetrad test will assist in determining whether a Type II model representation may be applicable for brand personality. All model combinations are represented in Figure 5.7 (Type III and IV models are not applicable in this thesis). The alternative model representing a Type II model is illustrated in Figure 5.7.

These additional analyses exactly mirror the example featured within Bollen and Ting (2000, p. 17), that is, there are two structural models that are nested. Figure 5.8 represents the alternative model tested. These additional tests are now presented.

**5.12.1 Additional Analysis One: Nested Vanishing TETRAD Results**

Two separate vanishing tetrad analyses were necessary; one for each model. The Hipp et al. (2005) SAS tetrad macro was applied for the two models as it automates the comparison of
the nested and independent tetrads across the two models. The tetrad test for the model with
the reflective indicants (Figure 5.7) has a $\chi^2 = 255.73$ with $53 df$, $p<.05$, and the test statistic
for the model with formative indicants (Figure 5.8) is $\chi^2 = 208.88$ with $44 df$, $p<.05$.

These results show the fit for both models is poor. The nested tetrad test for the two
models tests the additional tetrads implied by the reflective model. The $\chi^2$ difference test is the
statistic of interest as the formative model is nested within the reflective model. The $\chi^2$
difference test reveals a statistic of 46.85 with $9 df$, $p<.05$. This significant chi-square suggests
the added vanishing tetrads implied by the reflective model reduce the fit of the model
noticeably. That is, using this nested CTA to test the formative Type II model may be
plausible. Confirming a Type II representation can be achieved after the formative structural
model estimates are examined.

**Figure 5.7: Alternative Second-order Construct Specifications**

This Figure has been Removed for Copyright Purposes.
Refer to Reference Jarvis et al. (2003) for Original Exposition.

Source: Adapted from Jarvis et al. (2003).

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At first Ting’s (1995) older SAS macro was implemented but this was incredibly complicated as this SAS
macro does not identify redundant and non-redundant tetrads, respectively. The analyst has to do this by
hand. “In general, there will be $n!/(n-1)!4!$ tetrads for a model with $n$ observed variables” (Bollen and Ting
2000, p. 7). Given this formula, the number of tetrads is incredibly large [12!/(11!4!)], and the analyst is
required to physically identify tetrads obtained from over 600 pages of SAS statistical output.
5.12.2 Additional Analysis Two: Alternative Formative Structural Modelling

Following current research practice studying reflective and formative specifications, both models are now estimated with PLS (Coltman et al. 2008). Such analyses provide a suitable comparison between the reflective and formative results (Diamantopoulos and Siguaw 2006). This involved estimating the formative and reflective model specification (Bollen and Ting 2000). The PLS results for this extra analysis are outlined in Tables 5.8 and 5.9. Parameter estimates were inspected as insignificance may signal problems with the model (Bollen and Ting 2000). PLS did not have identification problems. If the analysis was run with CBSEM another endogenous construct would need to be included (Kline 2006). This is one of the advantages of applying PLS and Nested Vanishing Tetrad Analyses as they overcome these issues. The PLS results previously illustrated suitable parameter estimates and t-values for the

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Extra CBSEM analyses were also explored with latent variable scores drawn from previous PLS measurement models. This approach has been performed recently in testing a formative customer brand equity model (Bruhn, Georgi and Hadwich 2008). The substantive conclusions are the same. Also, a GSCA analysis was performed and the goodness-of-fit statistics for the formative representation were poor - GFI: 0.686, SRMR 0.512, compared with the reflective representation, GFI: 0.999, SRMR: 0.042. Again, the substantive conclusions are the same as the main study. GSCA (Generalised Structural Component Analysis) is a newer form of PLS analysis (Hwang and Takane 2004). Software is in Beta test and results are shown here for demonstration purposes (Hwang 2007; 2008).
reflective model. Therefore, all analysis estimates\(^{49}\) are satisfactory when the reflective specification or Type I model (Jarvis et al. 2003) is the model being analysed.

**Table 5.8: PLS Outer Model Results for the Formative BPS→BRQ Structural Model**

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Manifest variable</th>
<th>Outer weight</th>
<th>Estimated standard deviation</th>
<th>Loadings</th>
<th>Estimated standard deviation</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPS</td>
<td>MODE B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIN</td>
<td>0.7495</td>
<td>0.1559</td>
<td>0.9861</td>
<td>0.1818</td>
<td>4.8064</td>
<td></td>
</tr>
<tr>
<td>SOP</td>
<td>0.1081</td>
<td>0.0783</td>
<td>0.8163</td>
<td>0.4020</td>
<td>2.1108</td>
<td></td>
</tr>
<tr>
<td>EXC</td>
<td>0.1557</td>
<td>0.0737</td>
<td>0.8548</td>
<td>0.3693</td>
<td>1.9616</td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>0.1487</td>
<td>0.0758</td>
<td>0.9002</td>
<td>0.3239</td>
<td>1.2041</td>
<td></td>
</tr>
<tr>
<td>RUG</td>
<td>-0.1235</td>
<td>0.0605</td>
<td>0.7626</td>
<td>0.4368</td>
<td>-0.0410</td>
<td></td>
</tr>
<tr>
<td>BRQ</td>
<td>MODE A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PQUAL</td>
<td>0.1654</td>
<td>0.0033</td>
<td>0.8909</td>
<td>0.3145</td>
<td>2.8328</td>
<td></td>
</tr>
<tr>
<td>LOV</td>
<td>0.1538</td>
<td>0.0023</td>
<td>0.9576</td>
<td>0.2062</td>
<td>4.6437</td>
<td></td>
</tr>
<tr>
<td>INTM</td>
<td>0.1505</td>
<td>0.0029</td>
<td>0.9203</td>
<td>0.2738</td>
<td>3.3607</td>
<td></td>
</tr>
<tr>
<td>NCON</td>
<td>0.1545</td>
<td>0.0025</td>
<td>0.9435</td>
<td>0.2350</td>
<td>4.0156</td>
<td></td>
</tr>
<tr>
<td>INTD</td>
<td>0.1459</td>
<td>0.0027</td>
<td>0.9409</td>
<td>0.2395</td>
<td>3.9280</td>
<td></td>
</tr>
<tr>
<td>COMM</td>
<td>0.1521</td>
<td>0.0023</td>
<td>0.9584</td>
<td>0.2039</td>
<td>4.7007</td>
<td></td>
</tr>
<tr>
<td>SCON</td>
<td>0.1455</td>
<td>0.0024</td>
<td>0.9485</td>
<td>0.2252</td>
<td>4.2113</td>
<td></td>
</tr>
</tbody>
</table>

\(^{500}\) bootstrap samples were run to ascertain significance. Weights (not loadings) are of interest with formative indicants (Chin 1998b).

\(^{\#}\) insignificant indicator. Mode B = Formative Representation ; Mode A = Reflective Representation

The matching estimates for the formative model revealed insignificant paths in the PLS analysis. The PLS formative model revealed one insignificant parameter value (SOP). The indicators for COMP (t = 1.96 exact) and RUG were just significant at the 0.05 level. It is notable, that the formative PLS specification has greater predictive relevance with a higher \(R^2\) (39.5% compared with 36.1%) for the reflective PLS specification.

**Table 5.9: PLS Inner Model Results for the Formative BPS→BRQ Structural Model**

<table>
<thead>
<tr>
<th>Dependent Construct</th>
<th>Independent Construct</th>
<th>R-square</th>
<th>Path Coefficient</th>
<th>Lower Confidence Bounds</th>
<th>Upper Confidence Bounds</th>
<th>Standard Deviation</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRQ</td>
<td>BPS</td>
<td>0.3954</td>
<td>0.6382</td>
<td>0.6012</td>
<td>0.6571</td>
<td>0.1124</td>
<td>5.6800</td>
</tr>
</tbody>
</table>

\(^{500}\) bootstrap samples were run to ascertain parameter significance.

\(^{49}\) The similarity in parameter estimates BPS→BRQ for the reflective model is remarkable (PLS: \(\beta = 0.601\); CBSEM, LISREL: \(\beta = 0.612\); GSCA: \(\beta = 0.595\)). For the first two estimates, this is a difference of 0.011 and is typical of PLS bias in slightly underestimating the structural parameter values due to the “consistency at large” bias (Fornell and Cha 1994). The latent variable scores derived from the PLS measurement models had continuous measurement properties. Therefore, the maximum-likelihood estimator was used in CBSEM analyses as the polychoric correlation matrix could not be derived from PRELIS with continuous data.

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This result is expected as “reflective models always explain less variance than formative models (which maximise prediction)” (Coltman et al. 2008, p. 8). The BPS→BRQ path coefficient is 0.6382 for the formative model\textsuperscript{50}. Therefore, the alternative analysis results demonstrate that the reflective orientation is the preferred specification. It is not possible to state this definitively with a single data set being analysed, but these additional PLS analyses suggest that brand personality and its indicants are best represented as reflective, as initially specified by Aaker (1995; 1997). The results of these additional analyses are notable when taking into consideration the contradictory results obtained with the Nested Confirmatory Tetrad analyses. Previous stepwise tetrad tests undertaken in the preceding chapter also support the reflective Type I Model (Jarvis et al. 2003) as the preferred specification (Wilson et al. 2007), which was also the conclusion reached here.

Therefore, based on these additional analyses, the correct specification has been adequately tested and appropriately implemented providing confidence in the results obtained.

## 5.13 Results Summary

This chapter has outlined the results of the analysis undertaken to address the hypotheses of this study. The results for the measurement models and also the structural hypotheses are summarised in Table 5.10. These analyses involved examining separate model relations between brand personality and brand relationship quality. Another analysis was undertaken to determine the moderating effect of product category involvement. As part of this analysis, results for the outer (loadings) and inner (structural estimates) models were presented.

Additional analyses involved exploring involvement’s moderating effect at different values, and the directionality of brand personality indicants at the item and construct-to-construct level.

\textsuperscript{50} The CBSEM formative model could not be estimated due to constraints required for model identification (Diamantopoulos 2006). I.e., the model needs 2+ paths to emanate from the formative BPS construct for satisfactory identification. The GSCA path estimates for BPS→BRQ reveal a value of 0.626 which complements the PLS result.
construct level. In the main, the effect sizes, signs, and significance of the estimates were consistent with the results of the measurement model analyses.

The measurement model analyses provided support for the structure of BPS and BRQ being comprised of their respective subconstructs. These measurement models demonstrated strong and significant loadings in all outer model relations. The CIP was measurement model partially supported. The probability of mispurchase construct was deleted and, subsequently, the CIP displayed sound reliability, unidimensionality, construct, convergent and discriminant validity. Brand personality was revealed to have a positive and significant relationship with brand relationship quality ($H_1$). The introduction of an interaction construct demonstrated adequate utility for inclusion ($H_2$). Although the interaction effect size was judged small, it is still worthy of inclusion in the model. The moderator influences the BPS$\rightarrow$BRQ relationship at different levels of the moderator, respectively ($H_3$) and the effect of the moderator is linear ($H_4$). The moderator was established to be a quasi moderator (Sharma et al. 1981). Finally, the directionality at the item and construct-to-construct level for brand personality revealed that it should be modelled in a reflective orientation ($H_5$).
Table 5.10: Results Summary Table

<table>
<thead>
<tr>
<th>Level of Model</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Models</td>
<td></td>
</tr>
<tr>
<td><em>Brand personality can be explained by five lower order constructs (Sincerity, Excitement, Competence, Sophistication and Ruggedness) and one second-order construct (Brand Personality).</em></td>
<td>Supported by PLS measurement model analyses.</td>
</tr>
<tr>
<td><em>The strength of a brand-person relationship can be explained by seven lower order constructs (Partner Quality, Love/passion, Intimacy, Self-Concept Connection, Nostalgic Connection, Commitment and Interdependence) and one second-order construct (Brand Relationship Quality).</em></td>
<td>Supported by PLS measurement model analyses.</td>
</tr>
<tr>
<td><em>The consumer involvement profile can be explained by five lower order constructs (Product risk/importance, Symbolic value, Hedonic value, Probability of mispurchase and Interest) and one second-order construct (Consumer Involvement Profile).</em></td>
<td>Partially supported. The Probability of Mispurchase construct was removed during measurement model confirmation.</td>
</tr>
<tr>
<td>Structural Model Hypotheses</td>
<td></td>
</tr>
<tr>
<td><em>H1: A significant positive relationship exists between brand personality (BPS) and brand relationship quality (BRQ).</em></td>
<td>There is rather strong support for this with all outer and inner model estimates being appropriate. There is a strong standardised path coefficient. This is positive and in the expected direction. The predictive ability of the model is medium to strong.</td>
</tr>
<tr>
<td><em>H2: Product class involvement (CIP) will moderate the impact of brand personality on the brand relationship quality. This moderating relationship will be greater when product class involvement is higher.</em></td>
<td>There is support for this with all outside and inner model estimates being apt. There is a strong standardised path coefficient. This is in the expected direction. The moderator (CIP) has a small effect size contribution. The predictive ability of the model is slightly improved with the introduction of the interaction term. This was judged to be a Quasi Moderator.</td>
</tr>
</tbody>
</table>
**Additional Analyses Hypotheses**

**H3.** The relationship between brand personality (BPS) and brand relationship quality (BRQ) will display significant differences when the involvement moderator is classified as low, medium or high. Higher levels of product category involvement will moderate the $\text{BPS} \rightarrow \text{BRQ}$ relationship in a more positive manner and have a greater impact compared with medium and low levels of involvement.

Supported: by tricotomised analyses. There are relationships showing different straight line equations at low, medium and high levels of classification for the moderator involvement. Significant differences were found between slope estimates for these three classes.

**H4.** The effect of the moderator (CIP) on the $\text{BPS} \rightarrow \text{BRQ}$ relationship occurs in a linear (not quadratic, cubic, etc.) manner.

Supported: by exploratory analyses that reveal the estimated slope values for the $\text{BPS} \rightarrow \text{BRQ}$ equation at different moderator values are shown as linear when plotted graphically.

**H5.** Brand personality (BPS) is represented by a reflective path orientation at the item and construct-to-construct level.

Supported: by stepwise Confirmatory Vanishing TETRAD analyses at item and construct level (see Section 4.11)
Not supported: by Nested Confirmatory Vanishing TETRAD analyses (see Section 5.12.1).
Supported: by additional PLS reflective and formative model analyses (see Chapter 5).
Insignificant outside estimates are prevalent in the formative PLS model, showing it is a poor representation for the data.
Overall Assessment: Supported.

This chapter has presented the analysis undertaken to address the hypotheses established for this study. These findings raise many issues that will be discussed in the final chapter. In addition, theoretical, managerial and methodological contributions of the thesis are outlined and limitations and future research avenues are also presented.
“At a more detailed level, an appreciation of the dream world of the brand, of its character and personification, of the relational mode with which it prefers to act and of its world beliefs, all contribute to a profound and deep understanding of the brand as a person. This makes it easier to nurture, and will also help to remove the mystique and suspicion that often surround branded entities especially among non-marketing senior managers”.

(Callingham and Baker 2001, p. 318).

6.1 Introduction

This thesis began by introducing three main theoretical domains, brand personality, brand relationship quality and product class involvement, and identified a need for research to assimilate and understand the relationship dynamics involved. Chapter 1 outlined the rationale for the research and, in particular, noted that those theories (especially brand personality and brand relationship quality) have been primarily researched in isolation and were developed in countries outside of Australia. The literature revealed multiple calls for research into those domains to expand available theory (see Sections 1.1 and 1.4). Chapter 1 also provided an overview of the current research study and its delimitations. The following key research questions were then outlined and discussed:

RQ1: What is the impact of Brand Personality on BRQ? Does Brand Personality have a significant positive effect on BRQ? Is Brand Personality a relatively strong or a weak contributor to overall BRQ?

RQ2: Is product class involvement (CIP) a moderating influence on the relationship between Brand Personality and BRQ? Does this impact change the relative impact for the Brand Personality and BRQ at different levels (high, medium and low) of product class involvement? What form does this relationship take (linear, nonlinear, etc.)?

Chapter 2 reviewed all germane theoretical domains and established a model to be tested, as shown in Figure 6.1. The relevant literature in areas such as brand personality, brand
relationship quality and product class involvement was examined. Various parent disciplines were considered including: consumer brand equity, brand loyalty and the psychological literature concerning personal relationships and, specifically, relationship quality. Chapter 2 highlighted the evolution of knowledge for each of the three main theoretical domains. An argument was presented for the need to undertake research to test these theories. Also, the second section of Chapter 2 focused on constructing a case for a posited causal order between the focal constructs. The outcome of this investigation establishes the primary contribution of this thesis. As a result, separate measurement models were highlighted, structural model hypotheses ($H_1 – H_2$) and additional hypotheses ($H_3 – H_5$) were subsequently proposed. These include:

1. **Brand personality can be explained by five lower order constructs (Sincerity, Excitement, Competence, Sophistication and Ruggedness), and one second-order construct (Brand Personality).**

2. **The strength of a brand-person relationship can be explained by seven lower order constructs (Partner Quality, Love/passion, Intimacy, Self-connection, Nostalgic Connection, Commitment and Interdependence), and one second-order construct (Brand Relationship Quality).**

3. **The consumer involvement profile can be explained by five lower order constructs (Product risk/importance, Symbolic value, Hedonic value, Probability of mispurchase and Interest), and one second-order construct (Consumer Involvement Profile).**

4. **$H_1$: A significant positive relationship exists between Brand Personality (BPS) and Brand Relationship Quality (BRQ).**

5. **$H_2$: Product class involvement (CIP) will have a positive and significant moderating influence on the impact of Brand Personality on the Brand Relationship Quality. This moderating relationship will be greater when product class involvement is higher.**

6. **$H_3$: The relationship between Brand Personality (BPS) and Brand Relationship Quality (BRQ) will display significant differences when the involvement moderator is classified as low, medium or high. Higher levels of product category involvement will moderate...**
the $BPS \rightarrow BRQ$ relationship in a more positive manner and have a greater impact compared with medium and low levels of involvement.

$H_4$: The effect of the moderator (CIP) on the $BPS \rightarrow BRQ$ relationship occurs in a linear (not quadratic, cubic, etc.) manner.

$H_5$: Brand Personality (BPS) is represented by a reflective path orientation at the item and construct to construct level.

**Figure 6.1: Conceptual Model for the Impact of Brand Personality on Brand Relationship Quality**

Source: Developed for this research.

Chapter 3 outlined the underlying research/analytical philosophy and explained the various methods considered. This discussion included a comparison of structural modelling methods. Within this chapter the sample frame, sampling method and sample size were outlined. The measurement instruments utilised, as well as specific results from a series of preliminary studies to select brands to be studied, were reported. The rationale for selecting a self-administered mail questionnaire and details pertaining to administration were explained. Attention was given to minimising nonresponse and response biases. The computer software utilised to test the proposed model developed in Chapter 2 was identified with an explanation of pertinent PLS statistics to aid results interpretation.

Chapter 4 presented data descriptives and summarised results assessing the properties of the measurement models. During this stage of the analysis poorly performed items were deleted. Measures were subjected to conventional tests to ensure validity, reliability and unidimensionality. A confirmatory vanishing tetrad analysis was undertaken in a step-wise
fashion to test path directionality for the brand personality construct domain. After developing appropriate measurement models, latent variable scores were derived and saved for use in PLS structural modelling.

Chapter 5 presented the results for the PLS structural modelling and additional analyses using nested confirmatory tetrad tests. The study hypotheses could not be rejected, with the results demonstrating that brand personality has a strong effect on BRQ. Product category involvement was also shown to be a moderator of this main effects relationship. This effect was deemed to be small, albeit statistically significant, and meaningful.

In conclusion, Chapter 6 focused on a discussion of the results. The findings were examined in the context of previous literature and supplemented recent debate emerging from the latest research. The numerous theoretical and methodological contributions of the study were highlighted. As a result, a unique contribution was made by bringing together the higher-order representations and, further, by applying PLS interactions analysis to a higher level of abstraction. The managerial utility of the findings were demonstrated by presenting a Multiple Correspondence Map. Subsequently, a future theoretical agenda was identified and relevant study limitations were considered.

6.2 Introduction to the Main Findings

Overall, all three theoretical domains (BPS, BRQ, CIP) were found to be adaptable to the Australian context, thus supporting the original derivations of Aaker (1995), Fournier (1994) and Laurent and Kapferer (1985). In Chapter 1 it was stated that the main objective of this study was to evaluate the influence of brand personality on BRQ, and, in fact, the findings have established that brand personality has a strong impact on BRQ, and also that product class involvement is an important positive moderator of this relationship, acting in a linear fashion. Such findings are an indication that this model has significant predictive capacity for future researchers. In addition, the higher involvement groups have revealed stronger brand
personality and BRQ transfers compared with lower involvement cohorts, indicating that an understanding of involvement is important in understanding the brand personality and BRQ relationship dynamic. Finally, it has been established that brand personality is best operationalised in a Type I (reflective-reflective) orientation which, again, is consistent with the original Aaker (1995) conceptualisation, and reflects the perspective adopted in recent studies (Papania, Campbell, Opoku, Styven and Berthon 2008; Pitt, Opoku, Hultman, Abratt and Spyropoulou 2007; Smith, Graetz and Westerbeek 2006).

The next section discusses the pertinent results for each of the three measurement models, separately, and the findings for the structural modelling are highlighted within Section 6.3. During the measurement model confirmation stage, all three domains were found to have satisfied the conventional psychometric requirements (Chin, 1998b). Within some construct domains, selected item deletions were made, however, most remain relatively intact and, therefore, retain their original diagnostic utility. The following section discusses the measurement model findings.

6.2.1 Brand Personality Findings

The findings in this study demonstrate that the original Aaker (1995) brand personality scale is appropriate for the Australian culture. This finding is, however, in contrast to past studies that have experienced difficulty in reproducing the Aaker (1995) brand personality structure (Aaker et al. 2001; Austin et al. 2003; Ferrandi et al. 2000; Supphellen and Grønhaug 2003; Sung and Tinkham 2005). Before an extensive discussion of the study findings is undertaken, and to allow pertinent comparisons to prior investigations, this section only focuses on other studies which implemented brand personality in similar contexts. The Aaker (1997) brand personality scale has been adapted and modified to satisfy different applications. Brand personality has been adapted to measure corporate personality/character (Bromley 2000; Davies et al. 2001; Davies and Chun 2002; Chun and Davies 2006), retail
personalities (Clark, Buckingham and Fortin 2004; Merrilees and Miller 2001), brand extension and brand personality (Diamantopoulos et al. 2005), brand personality and advertising effectiveness (Ang and Lim 2006; Danaher 2004), brand personality and sponsorship (Deane et al. 2003), online personalities (Okazaki 2006) and charitable personalities (Venables et al. 2003). As these studies had been undertaken for other applications in a different context, they are not elaborated on further in this discussion.

Despite some brand personality cross-cultural implementations showing deviations to the Aaker (1995) conceptualisation, the findings in this study mirror the original derivation as there were only minor amendments and deletions after the conceptual and validation phases for this study were finalised. Once again, there have been numerous more extensive cross-cultural scale modifications in many countries including: France (Ferrandi et al. 2000), Japan (Aaker et al. 2001), Korea (Sung and Tinkham 2005), Russia (Supphellen and Grønhaug 2003), Spain (Aaker et al. 2001), and Chile (Rojas-Mendez at al. 2004). It is not surprising, however, that the brand personality scale has not always shown such stable behaviour across cultures (Aaker et al. 2001; Caprara et al. 2001; Ferrandi et al. 2000) with new constructs being added and/or existing ones being deleted. Over time, these studies have modified the original conceptualisation of Aaker (1995), with many adding new items and constructs to reflect unique market and cultural circumstances. However, the findings in this thesis identify the need for only minor item deletion.

Overall, a variety of reasons support Aaker’s (1995) derivations as suitable within Australia. Investment in a comprehensive pretesting process with a student sample and expert panel may have helped Aaker with the addition of the new trait descriptors (Outback and Sophisticated) to the Ruggedness and Sophistication constructs. The descriptor, Small Town (Sincerity), was deemed to be inappropriate for the Australian context as it is not commonly understood and was deleted from the analysis. It was believed that the descriptor Western
(Like a cowboy) from the Ruggedness construct might also be misinterpreted by respondents, but it has remained after the validation analyses. After these minor item changes and deletions, the battery was deemed a suitable fit for the Australian culture.

This finding can be further justified based on three possible reasons which include: the similarity of the Australian culture to that of the US, the sensitivity of data analysis methods implemented by other studies and, lastly, the selected brands that were represented and included within this investigation. On the first point, Kashima, Yamaguchi at al. (1995) and Kashima, Kashima et al. (2005) found high degrees of cultural similarity between Australia and the USA, no doubt resulting from a strong, shared British heritage. The questionnaire pretest confirmed the finding and the panel of experts agreed with the proposition. Hence, the strongest rationale for the similarity of results obtained in this study was provided\(^{51}\). Further comparisons showed that other studies that had exhibited poor replication of Aaker’s (1995) exposition, had experienced difficulties due to the selected analysis approach, as the use of CBSEM would require confirmation of large complex models that are prone to misfit (especially at the item level)\(^{52}\). This approach would, typically, lead the analyst to reduce model complexity and construct separate one-factor congeneric models (Jöreskog 1971) prior to undertaking structural analyses in CBSEM. When applying CBSEM to brand personality, McQuitty (2004, pp. 180-181) emphasises:

“It can be difficult to achieve acceptable fit due to excessive power. This means that it is improbable that the measurement model would be accepted, because it will likely produce poor fit statistics ... Aaker's (1997) model is very large with 819 df, and, with N=180, the power of a test approaches unity. It would require a sample size of just 38 to achieve the power of 0.80 for the test of her model, but it is obvious that with large models, the sample size required to achieve a sufficient level of power can become unrealistically small”.

\(^{51}\) This rationale equally applies to BPS, BRQ and CIP scales and will not be highlighted in other sections of this chapter.

\(^{52}\) This rationale could also apply to BRQ and CIP scales. Future large sample research scale replications should be encouraged. The above caveats need to be followed.
There is a growing body of evidence that indicates that academics may be prematurely applying CBSEM within new cultural settings. To adopt such an approach assumes strong theory (Falk and Miller 1992). This is one possible explanation for others obtaining mixed results, and additional work may need to proceed in a more exploratory manner with prior substantial scale development and validation being undertaken. PLS was implemented in this study due to the reasons previously outlined in Sections 3.14, 4.3 and Appendix C. Aaker et al. (2001) and Austin et al. (2003) experienced difficulties replicating the original US brand personality structure and highlighted that it may have been the result of brand samples being too small with correspondingly low sample sizes. This study exemplifies that researchers should only investigate such structures when their brand set is large, and spans numerous categories with large samples (1000+). This study met such requirements. Some of the most recent literature has also followed the same approach as what has been adopted within this thesis by operationalising brand personality as a higher-order global construct prior to modelling. (cf., Brakus, Schmitt and Zarantonello 2009; Valette-Florence et al. 2011). See Section 6.3.1 for further elaborated discussion. This provides some certainty in the approach adopted in this thesis and previously documented in Wilson (2005b; 2010).

In the course of this research, a small departure from the Aaker (1995) model was revealed in the Ruggedness construct. The Ruggedness construct is, in fact, one of the constructs that undergoes alteration and previous literature suggests that it has been the most difficult construct to reproduce (Aaker et al. 2001) because not all cultures associate brand personalities with masculinity. In this thesis such issues were not prevalent, as brand personality remained relatively true to the original derivation for the Australian brands studied. Respondents rated brands as exhibiting suitable ruggedness characteristics.

53 Perhaps masculine brands do not form part of the brand sample in these studies. The Aaker (1995) study brand set represented a more extensive sample of brands.
Therefore, the Ruggedness construct was appropriate for this data and for Australian purposes.

Another notable finding in this study was that sophistication and ruggedness have the least influence on brand personality. Sincerity, excitement and competence all had similar loadings, thus illustrating their equal contribution to brand personality which is consistent with the prior findings of Aaker (1997). Finally, respondents were comfortable in accepting brands as being anthropomorphic and willingly respond to trait-based vernacular which is consistent with the previous literature of Aaker (1997); Fournier (1998) and Levy (1985). The BRQ findings are discussed next.

6.2.2 Brand Relationship Quality Findings

This thesis found that BRQ is best represented as a higher-order domain reflected by seven constructs. This finding complemented past research presenting higher-order representations for relationship quality (not BRQ) (Johnson 1999). Algesheimer, Dholakia and Herrmann (2005) and Wong and Sohal (2002) prefer global expositions for relationship quality. The thesis findings further reinforced the finding that BRQ is best represented as a high order global construct. In this discussion of BRQ findings, emphasis is directed towards the small number of studies that have utilised the BRQ battery. The BRQ literature is dominated by qualitative studies, as represented by Fournier’s (1998) seminal qualitative work which has received broader acclaim and application (Ji 2002; Kates 2000) compared to her BRQ scale development work (Fournier 1994; 2000; 2009). Overall, this battery continues to receive scant application mainly due to a lack of awareness in the literature, despite it offering significant utility. Those studies that have utilised BRQ have chosen to implement reduced and abridged BRQ scale versions, and do not include brand personality as key foci (Breivik and Thorbjørnsen 2008; Ekinci et al. 2004; Park et al. 2002; Smit, Bronner et al. 2007; Yoon et al. 2004). As a result, those studies only offer limited opportunity to compare
the BRQ measurement model findings obtained in this thesis. Selected expositions, such as Aaker, Fournier and Brasel (2004) and Thorbjørnsen et al. (2002), have studied brand personality and BRQ within a transgression context. These studies are discussed further in Section 6.3, Structural Findings 6.3.1.

Initially, this thesis implemented the full BRQ within Australia, however, during validation, the BRQ battery was refined, with two items being removed from the Intimacy construct. The items were: “I am very knowledgeable about the brand” and “I know something about this brand’s history and background”. However, the findings indicate that all other BRQ items and constructs remained intact. For this particular data set loadings were all high, with commitment, love and self-concept connection having the greatest influence on BRQ. This is not surprising and mirrors the loading ordering of construct contributions originally presented by Fournier (1994). Interdependence was found to have higher loadings in the Fournier (1994) exposition compared with the findings in this study where constructs such as nostalgic connection and partner quality received higher ratings. This may be explained by the different profiles of respondents in each study and the way the brand sets were administered. Fournier’s (1994) validation study included younger student respondents who may not consider those constructs as important in their brand relations. Concepts such as nostalgic connection are surmised to be more prevalent for older consumers who have had a longer consumption history. In addition, this thesis featured brands that exhibited strong brand histories and, as a result, the longer-term brand relationships possibly brought concepts such as nostalgic connection and partner quality to the fore. Another contributing reason may have been a reflection of increasing the sensitivity by utilising a seven-point scale rather than a five-point scale, as recommended by Fournier (1994). Overall, the results demonstrated clearly that the Brand as Relationship Partner notion, proposed by Fournier (1994), is valid within Australia. Another outcome was that respondents were accepting and comfortable with
the relational terminology used within the study, which has further contributed to the body of knowledge surrounding the relationship basis model of brand equity enhancement (D. Aaker 1996).

Recently, Breivik and Thorbjørnsen (2008) tested a selection of alternative BRQ models. Their work examined a higher-order representation of BRQ which is complementary to the model presented in Wilson (2005b). In their study, Breivik and Thorbjørnsen (2008) selected an abridged BRQ 20-item scale which was adapted from prior work (Thorbjørnsen et al. 2002). However, it must be noted that their structural models did not contain brand personality dimensions. When analysing differing model types for BRQ [e.g., reflective, formative, regression (no higher-order BRQ) etc.] using CBSEM, they failed to establish that one BRQ model type was superior to another. However, in their discussion, the authors favoured the single construct (regression) model which does not channel the BRQ constructs through the BRQ second-order construct. In other words, they believed the higher-order representation of BRQ was not appropriate and selected the first-order construct model as the superior representation. This model selection was supported because it provided greater managerial utility at the BRQ dimension level, that is, there were more constructs as opposed to just one higher-order BRQ representation. Their goodness-of-fit statistics did not clearly support any one of their models as being superior and, in many respects, could be considered circumspect. Notably, and in conflict with their conclusion, Breivik and Thorbjørnsen (2008) obtained high BRQ construct intercorrelations, which provided a preliminary indication that the data and BRQ was best reflected as a higher-order conceptualisation, in line with the previous conceptual work by Fournier (1994). Also, their work referenced Wilson et al. (2007) in supporting such high intercorrelations, yet they neglected to choose this higher-order BRQ exposition as their preferred model. The findings within this thesis clearly contrast
with Breivik and Thorbjørnsen’s (2008) conclusions, as the BRQ model in this thesis is a higher-order representation satisfying conventional psychometric requirements.

The loadings within this research study are not as high as those revealed in the Breivik and Thorbjørnsen (2008) results, which could be a reflection of the brands analysed or the fact that the data were collected via online means. Breivik and Thorbjørnsen (2008, p. 460) concluded that “the BRQ model does not completely live up to its promise”. In the context of the results obtained in this thesis, these conclusions are in conflict. In the future, it is envisaged that BRQ will offer significant utility for researchers, as has been demonstrated. Breivik and Thorbjørnsen (2008) highlighted that BRQ represents a better selection than more basic attitudinal models and, on this point, the findings in this work concur with their conclusion. Thorbjørnsen et al. (2002) tracked BRQ over time in an airfare booking scenario, and with a range of positive and negative events occurring. Their study involved structural equation modelling and the use of MANOVA using an abridged BRQ scale. Therefore, the scope of their study was substantially different and is not elaborated on further herein.

In other studies, Yoon et al. (2004) and Ekinci et al. (2004) also used a reduced BRQ scale when investigating restaurant brands within the UK. Analysing only three items for each of the seven constructs, their results revealed just four significant BRQ constructs (partner quality, nostalgic connection, self-concept connection and intimacy). It should be noted that their small sample study selected only one product class. Subsequent CBSEM modelling, with two items reflecting each of the four remaining constructs, established the effects of each of the four constructs on the global evaluation of the overall relationship with the restaurant and choice behaviour. Overall, the Yoon et al. (2004) and Ekinci et al. (2004) studies were substantively different from the model tested in this thesis, in scope and context, as they utilised BRQ as the independent variable within the analyses, and brand personality and involvement were not included within their studies.
Park et al. (2002) have demonstrated the important part that BRQ plays when introducing brand extensions. Their study involved one grocery brand in South Korea where they established that respondents with higher BRQ scores were more likely to accept brand extension proposals compared to respondents with lower BRQ scores. Although the measurement result findings were not highlighted and reported in full in Park et al. (2002), it is apparent that their scale validation used similar analytical procedures for measurement model validation, which mirrors the approach adopted herein. Overall, the application satisfied a different research purpose compared to that undertaken in this thesis, and did not allow further direct comparisons of findings.

The current study findings are, in the majority, consistent with the results reported in more contemporary literature. Fournier (2009) recently profiled extended results that had previously only been summarised in an earlier conference abstract (Fournier 2000). Fournier (2009) presented a table illustrating item level loadings for a reduced form and validated BRQ scale. Her work exhibited greater item deletion and the merging of some key constructs which were the major differences when compared with the work in this current research study. The merging of construct domains occurred for love/passion and commitment, nostalgic attachment, and also the intimacy construct was split into two separate constructs (consumer-brand and brand-consumer intimacy contracts). Fournier (2009), thus, presented the new merged constructs of love/commitment, nostalgic attachment, intimacy (brand-consumer) and intimacy (consumer-brand). The loadings for intimacy (consumer-brand) construct were not significant in her work and it could be debated that only six constructs should have been interpreted. Overall, the interdependence, partner quality and self-connection constructs complemented the findings obtained in this thesis and remain as standalone constructs in the Fournier (2009) exposition. These differences in findings cannot altogether be explained, but they do reflect the under-developed nature of the domain and the necessity for further scale
Fournier (2009, p. 9) acknowledges some of the disadvantages of the original BRQ when she states that:

“We remain myopically fixated on the one type of relationship thought most capable of delivering firm value: the highly-committed and affectively-laden ‘marital’ relationship ideal. This bias crept into the BRQ measure where facets such as passion, commitment, intimacy, and overlapping selves dominated”.

On reflection, it has to be acknowledged that a similar bias could also exist within this current study. Fournier (2009) places some emphasis on the importance of understanding the relationship form when attempting to measure relationship strength. This point is further elaborated on within the implications for future research (see Section 6.7). Although a rationale for the construct changes was not fully outlined within Fournier (2009), the necessity for the changes may be a reflection of the brand sample (12 brands) and respondent characteristics. However, such conclusions cannot be comfortably inferred as full results were not presented and, although some constructs have merged, which can occur with SEM analyses, the overall flavour of BRQ has remained relatively intact, with BRQ represented as a hierarchical higher-order model with seven first-order constructs. Thus, the findings obtained within this current study support the continued use of the BRQ scale into the future, but it is clear that BRQ theory requires further exploration, development and validation.

Notably, none of the a priori mentioned literature in this section has included both brand personality and involvement within their study designs. These structural model findings pertaining to $H_1 – H_5$ are discussed in Sections 6.4.1 and 6.4.2. In conclusion, the body of literature exploring BRQ is still relatively small and provides limited opportunity for comparison. However, the findings in this study firmly demonstrate the utility of the full BRQ scale for application in the Australian culture and, in addition, complement the literature in maintaining BRQ as a higher-order representation. The CIP findings are discussed next.
6.2.3 Consumer Involvement Profile Findings

For the purposes of this study, there were more extensive item deletions for the CIP constructs than for the BPS and BRQ batteries. One CIP construct, the probability of mispurchase, was deleted in its entirety prior to undertaking the structural modelling. This construct was removed after demonstrating poor discriminant validity and mixed loading patterns that did not meet conventional cut-off requirements (Chin 1998b). This was not considered a concern as this construct represents the subjective probability of making a mispurchase (Kapferer and Laurent 1985) and may not have been particularly relevant, as the brands included within the study are very well known and familiar (refer to Section 3.8 for the rationale). Consumers would have had the requisite level of knowledge and, in most instances, the experience, thus making this construct redundant. Other studies have experienced similar problems when including this construct in replications (Laurent and Kapferer 1985; Schneider and Rodgers 1996). Despite this one divergent finding, the remaining constructs were deemed appropriate measures for the CIP construct. The CIP results illustrated that two constructs performed better with higher loadings (Hedonic Value and Interest). Hedonic value is the emotional appeal of the category and this construct may have had higher loadings due to the emotional realm being coveted, which may, again, be a reflection of the brands investigated in this sample. Interest refers to the enduring relationship with the product class (Lastovicka and Gardner 1978) and, again, it was expected that this construct would be a relatively strong contributor to CIP as these brands are well-known and familiar. Respondents would be expected to feel a strong ongoing interest as a result.

The perceived importance/risk and symbolic/sign value constructs had borderline loadings but were retained, following Chin’s (1998b) guidelines. The reason for this result is unclear given that the perceived importance/risk construct may be considered central to the level of perceived relevance, which is a key component of most involvement definitions (Laaksonen
1994) and encompasses the “potential for negative consequences of choice” as “Symbol/sign items reflect a concern for product choices that represent the person's self” (Browne and Kaldenberg 1997, p. 36). Perhaps the question ordering had something to do with this as the involvement questions featured earlier in the questionnaire, hence not allowing sufficient reflection time to consider risk and sign value. Martin (1998, p. 9) states that the product “must convey a symbolic statement about the consumer that is congruent with the consumer's self-identity”. This important issue may have received rather cursory attention as respondents quickly made their way through to the main body of the questionnaire. The work undertaken in Chapters 3 and 4 during the pre-testing, response analysis and examining of missing data patterns, did not indicate such problems. In the end, these lower loadings could not be fully explained by the extant literature. A possible explanation posited is that the categories studied, being a mixture of product classes, may have been balancing each other out when they were combined prior to analysis. Overall, the CIP performed admirably in the Australian culture as a multi-dimensional involvement construct and captured the full nuance of the domain area, thus further reinforcing the work of Schneider and Rodgers (1996).

Another issue worthy of discussion concerns how involvement was demonstrated as distinct from the other domains under investigation. Earlier conceptualisations of product class involvement outlined that commitment was a core component of product class involvement (Lastovicka and Gardner 1978). However, commitment was not seen to be a component of involvement as was demonstrated in the discriminant validity findings (commitment is a construct underlying BRQ). The results confirmed that involvement is sufficiently different from commitment to warrant its own construct. One final point worth noting is that involvement, theoretically, cannot be entirely separated from “the characteristics of the products/brands themselves or their usage contexts” (Martin 1998, p. 9). Perhaps this
may have been a contributing factor to the lower loading findings. In the next section, the main structural findings are presented.

6.3 Review of the Structural Model Findings

This study addresses the need for research in relationship marketing and branding, as previously identified by a plethora of papers on relationship marketing (Ambler 1994; Iacobucci and Ostrom 1996; Martin 1998), and branding (D. Aaker and Biel 1993; Aaker and Drolet 1996; Aaker and Fournier 1995; Biel 1991; Ekinci et al. 2004; Yoon et al. 2004), and thus satisfying the main objectives of this thesis. This thesis has now successfully explored the influence of brand personality on brand loyalty (Korchia 1999; Phillips 1996a; Neal 1985), confirming the notion that BRQ is a refined notion of brand loyalty (Fournier, 1994). The main finding for this study reiterates Blackston’s (1993) original relationship premise, and emphasises that brand personality is deemed an important variable in the successful development of consumer-brand relationships. The findings for the BPS→BRQ model and the interaction model are now discussed, in turn.

6.3.1 Review of the Structural Model Findings: BPS→BRQ

The effect of brand personality on BRQ in this study was found to be strong. The path coefficient relationship BPS→BRQ is large, indicating a strong effect. The predictive utility of the model, as indicated by the R-square (0.3610), is deemed “moderate” by Chin (1998b) and “large” by Cohen and Cohen (1983). Fournier (1994, p. 260) believes that her original notion of brand-as-relationship partner (BARP) “advances a new theory of brand personality, providing a behavior-based structure in which personality impressions are created, managed, and evolved through time”. This study clearly demonstrates the uniqueness of each domain whilst highlighting relations in a nomological network. It can, therefore, be concluded that brand personality has a strong impact on BRQ.
The structural model established the validity of the relationship basis model that was first highlighted by D. Aaker (1996) as one of three key avenues in building brand equity (others being self-expression and functional basis models). The relationship basis model is concerned with the brand-consumer relationship nexus, whereby having a relationship with a brand can occur in the same way as people have relationships with each other. This simply views consumers and brands as having the capacity to form relationships (Blackston 1993). The research undertaken by Aaker (1995) and Fournier (1994) subsequently refined the philosophical perspective originally posited by Blackston. The findings in this thesis also complement the previous assertions in the relationship basis mould. The use of the BPS in this study also confirms the value of following the self-expression basis model (D. Aaker 1996) to enhance brand equity, as brand personality is a key element for consumer self-expression. The findings have added to the body of understanding for these perspectives.

These thesis findings complement and extend the existing body of knowledge on the influence of brand personality on loyalty in general (Kim et al. 2001). Even though Kim et al. (2001) did not use the BRQ operationalisation, preferring to incorporate another loyalty construct, Kim et al. (2001) consider the attractiveness of brand personality, the distinctiveness of brand personality, and the self-expressiveness of brand personality as central components impacting brand identification, positive word-of-mouth reports and brand loyalty. Although the Kim et al. (2001) structural model findings could be questioned for not satisfying conventional fit statistics thresholds (Holmes-Smith 2001), their results offer utility in that they demonstrate “the higher the self-expressive value of the brand personality and the higher the distinctiveness of the brand personality, the more attractive will be the brand personality” (Kim et al. 2001, p. 200). This complements broadly the conclusion adopted within this thesis that brand personality impacts BRQ. Furthermore, Kim et al. (2001) established that the attractiveness of the brand personality directly impacts positive word-of-
mouth propensity and indirectly affects brand loyalty. Although attractiveness of the brand personality influenced positive word-of-mouth reports, it did not significantly affect brand loyalty. The work undertaken within this thesis is contrary to the above finding, as a strong direct significant effect for brand personality on BRQ is directly demonstrated. Although Kim et al. (2001) used a small sample of Korean students for studying mobile phones, their approach showed considerable merit for reconceptualising brand personality within an identification framework. Supporting the identificational framework, brand personality has recently been shown to influence prestige and distinctiveness subsequently impacting the level of cognitive identification in a sport context (Carlson, Donavan and Cumiskey 2009) and it has featured as an antecedent to brand love demonstrating mostly significant relations for the brands studied (Bergkvist and Bech-Larsen 2010).

A small sample exposition on Internet Service Providers by Magin, Algesheimer, Huber and Herrmann (2003) also attempted to demonstrate a link between self-congruity and customer loyalty. Although no direct comparisons can be made with the available thesis findings, their approach offers promise in that self-congruity was calculated, representing a difference score between the calculated brand personality and human personality mean scores for all five Aaker constructs. In fact, some recent literature is also operationalising personality congruence measures in much the same way often obtaining very mixed results (Kuenzel and Halliday 2010; Maehle and Shneor 2010; Parker 2009). It is clear that this approach is in

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54 Readers are reminded that the below narrative is different from self-concept congruence which is a field that is comparatively better developed. Brand and human personality studies suffer from the same conceptual and methodological problems when attempting to match brand and human personality constructs together to create a difference score index indicating level of congruence. Current studies either use abridged or construct reduced brand personality scales so that the difference score construction process is subsequently simplified. E.g., Kuenzel and Halliday (2010) only create image congruity indexes for two constructs, whilst Parker (2009, p. 178) measures “brand personality and respondent self-image with the same set of (15) personality descriptors”. To match question items of full scales for both brand personality and human personality becomes much more complex as the number of constructs and items increases in both domains. Maehle and Shneor (2010) use the Diversity Icebreaker scale (Ekelund and Langvik 2008) which is a proxy for various human personality styles and relate with different brands exhibiting differences from the average for each brand personality construct by category. This approach is unique. It is not that I am against such approaches per se, however, it must be
formative stages of development and may offer future promise to other researchers. This thesis did not attempt to implement such an approach (see Section 2.9) as it assumes that human personality can be dimensionalised on the same Aaker brand personality scale, which is a questionable proposition given available theory. Magin et al. (2003) reported a non-significant effect between self-congruity and customer loyalty, however, an indirect effect was found through socio-psychological change barriers (trust, identification and personal contact with internet service providers) and customer satisfaction. Their work does not reveal a significant relationship between self-congruity and brand loyalty. This could be due to inherent difficulties involved in reconciling brand and human personality via difference scores. In contrast, Kuenzel and Halliday (2010) when testing a rival model establish that brand personality congruence has a moderate impact (0.31) on brand loyalty. In Parker (2009), brand personality congruence was simply analysed to assess overall brand attitude impact. Brand personality congruity generally exhibited small effects (0.20 approx) on overall brand attitude for the brands investigated. Direct comparison of these study findings is problematic as differing operationalisations of brand personality and congruence have been implemented. Overall, this thesis has remained consistent with the original Aaker (1995) conceptualisation (see Sections 2.6.2 and 3.11.1) whilst recognising the inherent disadvantages of implementing self-congruity measures. This is highlighted further in the paragraphs below within this section. Overall, a strong significant relationship between BPS→BRQ was established in this study.

Netemeyer et al. (2004) found that the brand personality trait of sincerity was significantly correlated with the Keller (1993) uniqueness facet from consumer brand equity. This is broadly complementary to the findings herein. Notably, in the Netemeyer et al. (2004) study, all CBE constructs were more highly associated with brand response variables (intent and past
purchase behaviour), with brand personality dimensions representing lower correlations. However, a direct comparison of findings was not made as this study has adopted a more advanced analysis method compared with the basic correlational analyses implemented in Netemeyer et al. (2004).

Merrilees and Miller (2001) select two brand personality constructs (sincerity and competence) and run OLS regression analyses to demonstrate that these constructs significantly influence store loyalty. Sincerity was shown to have a stronger impact. This study, from a different context, limits further direct comparisons but their work also highlights that brand personality constructs impact retail store loyalty. It is obvious that the thesis findings complement this broader body of knowledge.

The findings in this thesis complement and extend themes currently being adopted within contemporary published literature. Valette-Florence et al. (2011) using a small volunteer sample of 150 respondents studied the effect of global brand personality and sales promotion intensity on global brand equity using PLS. Using a French brand personality scale adaptation and also treating brand personality and brand equity as higher-order constructs, their findings reveal the impact of brand personality on brand equity to be 0.49. Although, their work utilised the Yoo and Donthu (2001) brand equity scale (instead of BRQ) as the dependent construct, this particular positive finding is possibly the closest in following a similar methodological approach and reveals a path coefficient almost as high in magnitude as established in the thesis findings. This further validates the approach and decisions undertaken herein and outlined in Wilson (2005b; 2010). A minor criticism of their work could be directed towards the small sample (150) and not maintaining the analyses at a similar level of abstraction (although brand personality and brand equity were second-order orientations, sales promotion intensity was not a second-order construct). Valette-Florence et al. (2011) admirably extend their results using an advanced segmentation technique (PLS – FIMIX)
which revealed three groups: nonsymbolic non-deal-prone consumers, deal-prone consumers and symbolic non-deal-prone consumers. This interesting analytical contrast establishes significant path coefficients for both the deal-prone and symbolic non-deal-prone consumer groups. These coefficients were both high at 0.567 and 0.565, respectively. Although their study results cannot be directly compared with the results obtained in this thesis; as involvement was not included as a moderator; they do highlight the importance of recognising groups and constructs that may introduce heterogeneity in the main effect relationship/s. In conclusion, their work demonstrates the importance of “The impact of brand personality on brand equity is positive at the aggregate level however, one segment seems insensitive to it. Although the impact of consumer promotions on brand equity is negative in general, for one important segment, consumer promotions together with brand personality judgments positively influence brand equity” (Valette-Florence et al. 2011, p. 27).

Another contemporary study by Brakus at al. (2009) using an abridged brand personality scale also operationalises brand personality as higher-order construct prior to completing structural modelling. Their work which primarily focuses on establishing and validating a brand experience construct includes brand personality, satisfaction and loyalty constructs within a broader nomological validation model. Using a student sample of 209 and paying a $5 incentive their analyses with CBSEM establish that “the direct effect of brand personality on loyalty (.13) is lower than the direct effect of brand personality on satisfaction (.67)” (Brakus et al. 2009, p. 65). Their study, which does not include BRQ, demonstrates a relatively low impact of brand personality on loyalty. Again, although direct study comparisons are difficult with the results obtained in this thesis, Brakus et al. (2009) establish that brand personality has a stronger influence on satisfaction compared with loyalty. They

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55 PLS - FIMIX was not utilised within this thesis as the central focus was on the germane constructs of interest. This may represent a fruitful avenue for future publication keeping in mind the caveats mentioned by Carte and Russell (2003). See Section 5.8 and associated footnote for more information.
conclude that “brand experience seems to be a stronger predictor of actual buying behavior than brand personality, which in turn is a better predictor of satisfaction” (Brakus et al. 2009, p. 65)\textsuperscript{56}.

Finally, one study has incorporated brand personality and BRQ constructs, albeit in a different context, to investigate the effects of brand transgressions. Aaker et al. (2004) investigated the effects of transgression-related events on selected BRQ constructs (commitment, intimacy, and self-concept connection) and satisfaction for an online digital photo and storage site, in a longitudinal experiment with two websites engendered with distinct brand personalities (sincerity and excitement). Their study was unique in the way they operationalised BRQ, in that it was slightly different from its original exposition as a higher-order representation (Fournier 1994). The rationale for utilising the respective first-order constructs outside of the original BRQ higher-order representation was not altogether clear. This implementation may further reflect the necessary continued exploratory process of BRQ theory development. The literature currently does exhibit a general trend towards selectively choosing brand personality or BRQ constructs for study inclusion. The effect of three brand personality traits (excitement, ruggedness and sincerity) on partner quality have also been established recently (Hayes et al. 2006). This may be in recognition in advance of the large samples, incentives and increased questionnaire length that are required if the full item batteries are studied. Aaker et al. (2004) applied partner quality as a mediator following the Baron and Kenny (1986) mediation testing procedure. Their work revealed that of the four regressions on the strength dimensions, three out of the four were significant (intimacy n.s). This use of partner quality as a mediator contrasts with the approach taken in this thesis and is not consistent with the approach of Breivik and Thorbjørnsen (2008). As aluded to in Section

\textsuperscript{56} Constructs such as brand experience, satisfaction and loyalty were not included in the nomological model within this thesis as the central focus was on the germane constructs of interest. Construct inclusion may represent a fruitful avenue for future researchers to explore (see also Section 6.7 for other research extensions). Brakus et al. (2009) chose not to analyse constructs emanating from a similar higher level of abstraction within their structural model.
6.2.2, Fournier (2009) supports BRQ as hierarchical. Due to this and the different research contexts, the author of this thesis is confident that the BRQ exposition represented best available knowledge at the time of implementation.

When undertaking additional analyses, the thesis findings also indicated that the Type I (reflective–reflective) brand personality specification (Jarvis et al. 2003) was preferred, as indicated by expert opinion and a range of quantitative analyses (Wilson et al. 2006; 2007). This complements Aaker’s (1995; 1997) original operationalisation and the approach that prevails within the available literature. The Interaction Model findings are now discussed.

6.3.2 Review of the Structural Model Findings: Interaction Model

This research study confirms the need to include product class involvement as a moderator when modelling BPS → BRQ even though the effect size is small (Cohen 1988). The positive interaction effect reveals that higher levels of involvement will enhance the effect of BPS on BRQ. Establishing involvement as a moderator reinforces its continued use in other research studies (Homburg and Giering 2001; Low and Mohr 2001; McIntyre et al. 1999), and addresses the call for research on the effect of product class involvement on brand personality and consumer choice (Hayes 1999). The findings in this thesis contribute to the contemporary body of knowledge, and highlight the importance of involvement as a moderator (Dens and de Pelsmacker 2010a,b,c). The work of Dens and de Pelsmacker within the branding and communication context continues to reinforce involvement’s use as a moderator in contemporary practice. In contrast, Choi, Yang and Chang (2010, p.57) despite acknowledging in previous research that “the concept of involvement has been vaguely conceptualized”; go on to utilise involvement as a mediator in their work. Consensus is not yet reached on this point.

Specifically, this thesis extends Fournier’s (1994) earlier work by introducing involvement as a moderator in the brand personality → BRQ relation. Fournier (1994)
investigated the role of involvement for BRQ facets in a two-group t-test and found no significant differences. The findings in this thesis establish that the effect of involvement is linear, thus ruling out other nonlinear relationship types (Aiken and West 1991; Jaccard and Turrisi 2003). Based on the analysis approach, the findings demonstrate that the moderator effect is linear across different involvement values. This research study investigated the full array of possible relationship dynamics and, as such, represents a stronger form of hypothesis testing not currently found in the brand personality, BRQ and CIP literature, despite the identified need as a key component of sound research procedure (Mitchell and James 2001; Pitariu and Polyhart 2010).

Further, a tricotimised analysis which grouped involvement into low, medium and high groupings revealed that those with higher involvement experienced a more pronounced increase in the effect delivered by the BPS→BRQ relationship. Brand personality effects on BRQ are greater for those that are in more highly-involved segments. This extends the proposition of Dick and Basu (1994, p. 110) stating that the “higher the involvement in a consumption category, the greater the likelihood of loyalty toward specific offerings”.

The contributions originating out of this thesis are summarised in the next section.
6.4 Summary of Contributions of the Research

The contributions of this thesis are now outlined. These are summarised below in Table 6.1.

Table 6.1: Summary Contributions

<table>
<thead>
<tr>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Demonstration of the positive effect of brand personality on BRQ. This relationship is one of moderate impact and prediction strength utilising extended full scales. See Section 5.4.</td>
</tr>
<tr>
<td>2) Product class involvement is established as having a small influence moderating relations in the above relationship in 1). See Sections 5.6 and 5.7.</td>
</tr>
<tr>
<td>3) An implementation and analysis for the full BRQ scale within Australia.</td>
</tr>
<tr>
<td>4) Adaptation and application of PLS to the modelling of higher-order constructs. See Section 5.3, specifically, and Chapter 5.</td>
</tr>
<tr>
<td>5) Refinement and application of PLS modelling technique to the modelling of higher-order constructs that include interactions (product class involvement as a moderator). See Section 5.3. Also includes identification of type of moderation (quasi-moderation) as specified in Sharma et al. (1981). See Section 5.5.</td>
</tr>
<tr>
<td>6) This contribution is unique in testing possibility of non-linear relations of main effects relationships and also the possibility of non-linear moderation effects. See Section 5.10.</td>
</tr>
<tr>
<td>7) The application of exploratory compositional mapping techniques for metric data to highlight the managerial utility of Brand Personality constructs (see Section 6.5).</td>
</tr>
<tr>
<td>8) The application of stepwise and nested confirmatory vanishing tetrad tests to investigate directionality of brand personality as a higher-order structure. An original application of Tetrad to any higher-order structural model. See Sections 4.10, 4.11 and 5.12.</td>
</tr>
<tr>
<td>9) Outlines a program necessary for future longitudinal studies. Discusses the necessity to explore implementation of advanced dyadic analytic methods in a longitudinal framework in future research. See Sections 6.6 and 6.7.</td>
</tr>
</tbody>
</table>
6.4.1 Demonstration of the Effect of Brand Personality on Brand Relationship Quality

This research represents a unique exploratory attempt with full scales. Supplementing and extending the work of Aaker (1995; 1997) and Fournier (1994), this study explored a complex model. The relationship is relatively strong with moderate predictive relevance.

6.4.2 Demonstration of the Effect of Brand Personality on Brand Relationship Quality with Consumer Involvement Profile as a Moderator

This research is unique in merging all three areas together and the results have substantial practitioner relevance. The findings have furthered understanding in selected areas for the Brand Relationship System (Fournier 1998) (see Figure 2.7). The CIP moderator operates in a linear fashion. To test for linearity in either a main effects structural relationship or moderator, analysis is often neglected but for this study the moderation type is established to be quasi-moderation (Sharma et al. 1981).

6.4.3 Evidence to Support Brand Personality is a Reflective Type I Structure

Although brand personality has been previously supported as a Type I structure (Aaker 1995; 1997), this premise was rigorously questioned and investigated using multiple methods and confirmed to support a priori operationalisations. This premise has not been explored previously and was deemed necessary as some speculation was raised within the human personality literature (Ozer and Reise 1994).

6.4.4 The Brand as Person and Brand as Relationship Partner Notion within Australia

This study illustrates the acceptability of consumers’ tendency to anthropomorphise inanimate objects with Australian respondents appearing comfortable with brand personality language. This adds to the growing body of cross-cultural brand personality literature. Also, brand relationships appear to be relevant for Australians. Fournier (1994, p. 265) emphasised that respondents take “a paramorphic stance ….people behave “as if” they had relationships with their brands.” Respondents also find this a tenable notion, with brand relationships seen
as being acceptable. Respondents accept the premise of BARP originally developed by Fournier (1994) within the US. This study also contributes to the ongoing debate that brand value may be more effectively co-created through tenable relationships (Merz, He and Vargo 2009).

6.4.5 Application of PLS Structural Modelling to Higher-Order Relations

This thesis extends the original PLS interaction work of Chin et al. (1996; 2003) to higher-order representations. The original higher-order regression work of Taylor (1997) has been extended to PLS. Taylor originally acknowledged that as the number of independent and moderator variables increases so does the level of complexity, thus, becoming unwieldy for regression. The implementation of PLS in this thesis clearly demonstrates a flexible solution to such problems. This thesis also extends the body of knowledge by outlining various analytical approaches that can be implemented when completing such analyses. That is, the way to do the analysis is clearly profiled (i.e., the steps to follow when completing such analyses). This complements contemporary literature and adds to the debate when applying PLS for higher-order complex modelling purposes. Wetzels, Odekerken-Schroder and van Oppen (2009) recently applied PLS to a fourth-order conceptual model example. Their work presents a latent variable measurement model demonstrating the online experiential value in the context of online book and CD retailing, and outlines procedural steps consistent with the approach followed within this thesis and implemented in previous studies (Wilson 2005b; 2010). Other notable work includes Pavlou and Fygenson (2006) who extended PLS higher-order methods for formative indicants for a very complex model of the theory of planned behaviour explaining electronic commerce adoption. In addition, Venaik, Midgley and Devinney (2005) have also applied PLS to formative higher-order constructs for a complex model in the context of International Business. This new stream of literature clearly demonstrates that other researchers are also increasingly looking to investigate complex
models with PLS. Therefore, this thesis makes a valuable contribution to these emerging PLS themes in methods extensions and applications. This thesis also adopts a multiple analysis approach which extends previous followed procedures (Wilson 2005b; 2010).

Another subsidiary contribution is centred on the required sample size to obtain robust results for higher-order PLS models. Despite following expert opinion\(^{57}\), there was no prior literature that established which analysis strategy was robust. Following the recommendations of Wilson and Henseler (2007a), information was obtained on the required sample size, the accuracy to reproduce the true relationship parameter estimates, create reliable latent variable scores and predict accurately the endogenous variable. Overall, the repeated indicators approach is sound and produces accurate latent variable scores. Also, it is recommended that sample sizes should be at least 200+ for models with one higher-order construct, and conservative recommendations are for sample sizes of 400+ and 600+ for PLS models with two higher-order constructs that include interactions, respectively. Although these Monte Carlo results are not given precedence in thesis reporting, a methodological guide now exists for future researchers with complementary study aims. Overall, this thesis advances PLS methods and procedural understanding and represents a major contribution to the application of PLS structural modelling.

### 6.4.6 Use of Alternative Models or Confirmatory TETRAD Tests with Higher-Order Constructs

The analysis application of confirmatory vanishing tetrad analysis using a combination of stepwise and nested tests at the item and construct-to-construct level for structural models with higher-order constructs follows the guidance of Wilson et al. (2006; 2007)\(^{58}\). The rationale and approach for testing this alternative model is featured in Sections 4.10, 5.11 and

\(^{57}\)I thank Professors Chin and Esposito Vinzi for their kind opinions and discussion in personal email correspondence regarding specific modelling approaches.

\(^{58}\)I thank the original Vanishing Confirmatory Tetrad developers (Professors Bollen, Hipp and Ting) for kindly providing advice regarding the technique.
5.12. This CTA application enabled brand personality path directionality to be tested in a data driven way to provide another decision aid, given the currently conflicting theoretical knowledge. The tetrad and alternative model testing approach for directionality assessment is gaining popularity (Coltman et al. 2008) and should be implemented while also being mindful of the state of theoretical development. Fundamentally, this is an issue of the modelling philosophy of the researcher and this body of work contributes to the ongoing emerging debate of exploratory and alternative model testing. Ultimately, theory should primarily guide decision-making. Also, this thesis reflects other contemporary presentations investigating alternative higher-order models with PLS. Recently, O’Cass and Ngo (2010) [who do not use tetrad tests] utilise PLS to test differing model types indicated by Jarvis et al. (2003) (see Figure 5.7). Their work on a firm’s value creation process, utilises PLS to contrast two higher-order operationalisations. This thesis and the approaches, procedures and applications reflect and extend key themes that are prevalent within contemporary literature especially with alternative model assessments. Overall, this study represents a unique and successful implementation of stepwise and nested confirmatory vanishing tetrad tests for higher-order complex models.

6.4.7 Use of Compositional Mapping Techniques

This thesis utilised compositional mapping techniques to highlight managerial utility of BRQ and BPS for metric data. Franzen and Moriarty (2009, p. 230) state “In most literature, the emphasis lies with the tactical effects of brand personality. Its strategic effects are hardly ever discussed, and a relationship with other basic concept like brand concept, brand positioning, or brand function is almost never established”. This thesis (see section 6.5.1) addresses this criticism and supplements some of the work completed using non-metric data via content analysis in the domain of establishing communicated brand personality by various media. Multiple Correspondence Analysis (M/CA) has recently been used when investigating
brand personalities via content analysis of various media (Opoku, Abratt and Pitt 2006; Opoku, Pitt and Abratt 2007; Papania, Campbell et al. 2008; Pitt, Opoku, Hultman, Abratt and Spyropoulou 2007). MCA is particularly useful for positioning decisions has also been used to visually represent human personality traits and brands (Whelan and Davies 2006). This thesis contributes to the common theme of research in brand personality and also BRQ\textsuperscript{59} by applying MCA, thus providing valuable managerial insights into the most discriminating constructs in relation to brands. See Section 6.5.1 for presentation of a MCA map and other pertinent managerial implications.

6.4.8 Conclusion

There are numerous contributions within this thesis when merging theoretical domains together and applying new methodological and analytical approaches for higher-order constructs (Roos, Yip and Johansson 1997) but it must be emphasised that they have proceeded within the broader spirit of discovery and exploration. Analysis approaches have been cross-checked using multiple software packages, and the modelling decisions undertaken have been compared with various analytical approaches (PLS, CBSEM and GSCA), in concert, to ensure that the results are not in error or biased by the subjective modelling decisions undertaken. This study did not incorporate extensive Monte Carlo reporting as a primary concentration as reporting had to be vigilant. Reporting the key findings of the posited measurement and structural models remained the primary focus\textsuperscript{60}. The following section outlines some implications for practitioners.

6.5 Managerial Implications

The managerial implications of the findings in this study are significant. Primarily, the effect of brand personality on BRQ is shown to be strong, and this impact is further

\textsuperscript{59} Extensive BRQ MCA results are available in Wilson, Callaghan and Westberg (2008b); Wilson, Westberg and Callaghan (2009a).

\textsuperscript{60} Monte Carlo studies are often completed as a dissertation topic in their own right (cf., Boomsma 1983).
emphasised for higher involvement cohorts. Therefore, activities to build brand personality and heighten involvement should be an important managerial consideration. The research undertaken in this study has primarily encompassed an aggregated analysis which was necessary to cover the range of brand personality constructs outlined by Aaker (1995). This was also the case with BRQ, where the aggregated macro analysis approach, as outlined in Sections 3.19 and 4.2, is very common in other branding studies (Aaker 1995; Yoo et al. 2000). The advice of Wilson and Henseler (2007b) was followed and, therefore, analyses were not undertaken at the category/brand level or via other data splits. The managerial contributions for the main effects model have been discussed within Section 6.5, with the main implication being that core activities that enhance or strengthen brand personality should be leveraged by managers. The analysis and previous discussion does offer insights into the role of involvement at various levels, by type and linearity (see Sections 5.5, 5.9 and 5.10). In short, it has been demonstrated that brand personality impacts on BRQ are more pronounced for those with higher levels of involvement. At the tactical decision-making level, this may impact the necessity for greater investments in tools to cajole lower involvement groups. Understanding how prospects are segmented, and their membership, can guide creative and media strategies. To further illustrate the managerial usefulness of the constructs for the twelve brands investigated and to explore them in a disaggregated manner, the results are shown visually, as recommended by Venables et al. (2005). This next section presents results of a MCA for brand personality.

6.5.1 Strategic Mapping for Brand and Construct Visualisation

Researchers have used many techniques to visually represent constructs and brands. Three main methods of visual representation were considered. They included: (multiple) correspondence analysis ((M)CA), multidimensional scaling (MDS) (Hair et al. 1995), and

61 The estimation of two-group models is highlighted as problematic in currently available PLS software (Carte and Russell 2003) and is also a pertinent reason not to implement other grouping analyses.
associated principal components or partial least squares methods (Vandenbosch 1996). MCA was chosen due to its ability to convert complicated data into a simple perceptual map representation and separate distinct concepts (Greenacre 1984; Lebart, Morineau and Warwick 1984; West, Kover and Caruana 2008). For a complete rationale regarding the selection of MCA, the interested reader is referred to the recent literature outlining the managerial contributions for BRQ (Wilson, Callaghan et al. 2008b; Wilson, Westberg et al. 2009a), and for brand personality (Wilson, Callaghan et al. 2008a; Wilson, Westberg et al. 2009b).

The analysis was undertaken with the program STRATMAP 10 (Callaghan 1984; 2007). The maps are presented as two-dimensional solutions (Bendixen 1995) and are obtained based on the Euclidean distances between constructs and brand (Hsieh 2004). The MCA plot in Figure 6.2 represents brand personality. The maps for BRQ are not presented in order to preserve space [cf. Wilson, Callaghan et al. (2008b); Wilson, Westberg et al. (2009a)]. The first two dimensions account for 81 percent of the variation in the data for the BPS map which suggests that the majority of the variation is explained by two dimensions.

In the first measure, the further the distance from the origin, the more distinct the brand image is relative to other brands. As can be observed with the brands from Figure 6.2 (Brand Personality Map), Coca-Cola, Pepsi, Nike, Adidas, Holden, Ford and Visa exhibit the most distinctive profiles and are the greatest distance from the origin. In regard to a construct, the further it is from the origin, the more it discriminates between brands. The most discriminating constructs in the brand personality map include: Excitement, Ruggedness and Competence. Sincerity has been shown to be the most stable trait, and it is also replicated in cross-cultural studies, so this lack of discrimination complements other work (Aaker et al. 2001; Aaker and Drolet 1996; Ferrandi et al. 2000; Merrilees and Miller 2001). Keller (1993), in his consumer brand knowledge model, believes that the importance of brand personality
and user imagery is influenced by the type of product category you are investigating, as revealed in Figure 6.2.

**Figure 6.2: Multiple Correspondence Map for Brand Personality**

Categories that are more visual and hedonic may reflect different profiles (e.g., cars, beer, liquor, cigarettes and cosmetics) and it would appear that, in regard to distinctive personalities, these types of brands are supporting this premise. The smaller the angle between a construct and a brand the more the construct applies or is correlated with the brand term; and the smaller the angle between constructs, the more similar or correlated are the constructs. Constructs that are opposite (180°) to a brand, apply to it in a negative sense, that is, the opposite of the construct meaning applies to the brand. As can be seen in Figure 6.2, this would mean Visa is not exciting. This representation is what somebody might expect,
however, the finding would also suggest that perceptions of the airline brands are suffering on the competence dimension.

There are numerous managerial implications demonstrated via MCA analysis. MCA enhances decisions about advertising, particularly creative strategy and message development, to ensure greater advertising effectiveness. By understanding the dimensions which lead to more active consumers/viewers, it may help to more effectively build brand personality, image and salient memory associations as well as strengthen brand relationships. These are some of the expressed goals of effective communication (Hall 1994; Phillips and McQuarrie 2009) and CRM programs (Valos and Bednall 2010).

It is apparent that MCA maps are useful for marketing managers in tracking the progress of their brand. Managers can focus on their tactics to further improve important dimensions. The presented results allow managers to understand and improve discrimination and brand differentiation. The other findings, as previously illustrated in this current study, highlight the importance of involvement in segmentation decisions. The findings clearly have strategic creative and media placement implications. The use of benchmarking in PLS should also offer utility (Arnett, Laverie and Meiers 2003; Da Rosa, Saraiva and Diz 2003; Fornell and Johnson 1993; Sohn and Moon 2003). Lower involvement groups may require more effective creative communication to impart brand personality traits and also, correspondingly, may need to receive higher media weight (frequency) within a campaign compared to higher involvement cohorts. This is especially true if the low involvement groups are engaging with varied media sources, with ‘message take out’ possibly being cumulatively lower than for groups with more focused media consumption. Although not a part of this study, it is apparent that celebrities may have a key role to play in personality image transfers in communication and brand building to enable more effective message processing (Dowling 1994), and to

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62 This is reserved for future publication.
capitalise on the increasingly effective role of emotion in modern communications (Restall and Gordon 1993). This section has illustrated selected managerial contributions of this body of work. The limitations of the study are now outlined in the next section before opportunities for future research are presented.

### 6.6 Study Limitations

In the tradition of Popper (1962), currently available theory was assimilated and data was collected to test the posited theory. However, it is surmised that, “no theory can ever be proved true from data; it can only be corroborated” (Marcoulides and Saunders 2006, p. vii). The findings from this study have corroborated the hypotheses (see Table 5.10) encompassed within the stated scope of this thesis (see Section 1.6), but the study was unable to test a model that included all possible constructs featured within Fourniers’ Brand Relationship System as it was not feasible (antecedents, moderators, and outcome variables etc.) See Figure 2.763.

First, it is apparent that involvement could be further delineated within and between product classes if a larger sample were obtained. However, as involvement may vary by product class type, relationship marketing tactics have been demonstrated as being more effective for services than for goods (Gordon and van der Sprong 1998, p. 10). Some scholars are developing this emerging theme by implementing relational segmentation within a services marketing context (Danaher, Conroy and McColl-Kennedy 2008) and in the personal relationship context the type of marriage (traditional, independent, and separate) has been shown to influence commitment and satisfaction to the marriage in a variable manner (Givertz, Segrin and Hanzal 2009). This thesis did not incorporate situational determinants of consumption which can activate consumers into a higher involvement state (Martin 1998)

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63 The practicality of questionnaire length, response rates and budgetary constraints were prohibitive. The complex modelling and methodological extensions to ensure robust results dictated that it was not prudent to add to overall model complexity.
which is, again, a limitation. Another issue that may be reflective of level of involvement is whether a consumer is a current or lapsed user. Arguably, current users could be more involved and this would reflect a level of “brand” as opposed to “product category” involvement. Such a generalization may not always hold, but Yoon et al. (2004) and Ekinic et al. (2004) have presented results for BRQ on current and lapsed users demonstrating some interesting distinctions. This thesis did not analyse such splits\textsuperscript{64} (see Sections 3.14, 3.19, 4.2 6.4.5 and 6.5 for a rationale). An understanding of whether a brand/product class is primarily functional or symbolic (Lau and Phau 2007) may impact involvement as symbolic brands usually satisfy self-expressive goals. Ramaseshan and Tsao (2007) using brand concept (e.g., functional, symbolic or experiential) as a moderator found that perceptions of quality were moderated when the brand was symbolic or experiential. These findings are marked and it could be a viable contrast, but this influence has been somewhat mitigated via the procedures used to select brands for this study (see Sections 3.6, 3.7, 3.8 and Tables 3.1 and 3.2). Such analyses were considered, however, the sample splits are too small to allow interrogation and such work is outside the reporting scope. Finally, Fournier (2009) has recently highlighted the importance of investigating consumer-sensitive constructs to understand brand relationships. Consumer-centric characteristics including: age of consumer (Raimondo, Miceli and Costabile 2008), interpersonal orientation (Swap and Rubin 1983; Wilson, Callaghan and Stainforth 2003), and personal attachment styles (Paulssen and Fournier 2005; 2007)\textsuperscript{65} may offer complementary insights in addition to the dynamics of category involvement. It is apparent that not all contemporary literature is moving towards such advancements and product class involvement is still extensively implemented as a moderator (see Section 6.2.3 and 6.4.2).

\textsuperscript{64} Recent developments in Generalised Structured Component Analysis (GSCA) (Hwang and Takane 2004) using VisualGSCA (Hwang 2007; 2008) software versions are showing some promise in facilitating equivalence constraints for two-group model testing. This is beta test software and researchers should initially implement GSCA with caution. However, GSCA may provide many future research opportunities.

\textsuperscript{65} Many of these ideas were suggested by Professor Fournier.
Second, this thesis collected data from one country for 12 brands, and in only 6 product classes. This follows the approaches taken by Fournier (1994; 2000), which contrasts with Aaker (1995) who had substantially larger brand sets allowing for greater generalisability. Although a relatively large sample has been randomly collected, there are obvious shortcomings. There was no validation sample collected and, as such, this work should be deemed more exploratory (rather than strictly confirmatory) but alternative model forms were tested. Split half methods could not be entertained as a large sample size is needed to ensure result robustness. The current study represents an initial test in this context only (Morgan and Hunt 1994). Notably, this is consistent with how most structural modellers utilise PLS techniques (Falk and Miller 1992) and others investigating antecedents of brand love have also recently followed suit (Bergkvist and Bech-Larsen 2009). More product classes and brands need to be included. A larger brand sample is desirable as “consumer-brand relationships make the most sense when considered at the aggregate level of the personal brandscape” (Fournier 1998, p. 366). A sample including both large and also niche brands across cultures will allow greater representation facilitating finer grade (not aggregate) analyses. Replication in a cross-cultural context is beneficial as “cultural differences may moderate the effect of marketing efforts on brand equity” (Yoo et al. 2000, p. 208). Brand personality structures are constantly being refined to be more culturally sensitive [e.g., China; Chu and Sung (2010); Germany; Bosnjak, Bochmann and Hufschmidt (2007) Kuenzel and Halliday (2010)] and researchers need to be mindful of this. In regard to the brands selected in this research, it was not possible to separate the many levels of the brand [product variant level, brand level, family brand level and corporate brand level] (Keller 2001). This is a point that Bengtsson (2002) highlights when making the distinction between corporate identities, reputation and brand image. It is believed that by selecting large well-known brands in this
thesis, this limitation may have been controlled, as the brand variant may be prototypical of the parent company (Bromley 2000; Winchester and Fletcher 2000).

Third, this research study is cross-sectional providing only a static “snapshot”, thus, other extraneous factors could explain the relationship between the tested constructs (Bagozzi 1981; Selnes 1993). Ambler (1994, p. 393) states that “the period of measurement needs to be continuous, not occasional” for brand equity measurement; Williams points out that questions can always be raised about causal ordering (Williams 1995); and Wright explains that experimental designs have well-known advantages (Wright 1921) but realism is preferred over controlled scenarios and fictional brand construction. Fictional brands would not have revealed the requisite personality and consumer relationship impressions. Netemeyer et al. (2004) speculate that consumer brand equity (CBE) may be influenced via two routes [brand personality → CBE; CBE → brand personality], and acknowledge that the relationship could be reciprocal. PLS path modelling, however, cannot explore such possibilities. Overall, the model explored within this thesis reflects the best available theory (Aaker 1995; 1997; D. Aaker 1996; Fournier 1994; 1998). Brand relationships are, typically, seen as a natural progression and extension of a brand’s personality (de Chernatony and Dall’Olmo Riley 1997).

Fourth, although the findings indicate that, collectively, respondents reacted favourably to the use of metaphor (e.g., brands having personalities and being anthropomorphic; tenable brand relationships) it must be emphasised that this is based solely on a quantitative study. Given that the data was analysed in a more exploratory fashion, it may have been beneficial to commence with a priori qualitative work. Although, in this thesis, support was found for the active consumer perspective, many, like Bengtsson’s (2003) qualitative work, debate this premise as being suitable for all consumers. Other reservations have been outlined (O'Malley and Tynan 2000; O'Malley, Patterson and Kelly-Holmes 2008; Uncles 1997), and more
recently, Fournier (2009) has highlighted the importance of understanding the inherent relationship form. A mixed method design was not implemented in this thesis as the previous literature was presumed to provide adequate evidence, however, such a presumption may have been premature, as Hanson and Grimmer (2007) have recently criticised the majority of marketing studies for being based on research that has used, or predominantly adopted, a positivist ontology.

Finally, the dyadic nature of the true consumer brand relationship is not assessed. This research assesses the individual consumers’ perspective only. The ideal of collecting longitudinal data across multiple stakeholders to explore dyadic development was not completed. Understanding the other partner to the relationship (managers, brand actions) is a challenge left for others. The dyad is important to understand as it is this reciprocal flow of complex meaning that facilitates relationship ebb and flow over time (Park et al., 2002).

Each of these study limitations indicates an exciting avenue for future research, and they are now outlined.

6.7 Implications for Future Research

There are many fruitful areas from this research which could be utilised for future exploration, both theoretically and methodologically. First, researchers are urged to consider other antecedents of both BPS and BRQ (e.g., personal characteristics, situational characteristics). Further understanding of the antecedents of brand personality, such as the various creative stimuli used in advertising (Ang and Lim 2006; Pringle and Thompson 1999), for example, the use of cartoon characters, spokespeople, celebrities etc. and how they are subsequently “engineered into the brand” (Martin 1998, p. 9), is necessary. The use of characters (real or fictional) in bolstering brand personalities and relationships is another valuable research vein to be explored. Dowling (1994, p. 14) stated that about “one in three US advertisements used either a celebrity (including company CEOs), a human or animated
character, people representing a particular lifestyle or the target audience, or a 'voice-over'”.

This research is, therefore, long overdue. This is by no means an exhaustive antecedent list and provides only a hint of the many opportunities for future research. Recent literature is forging ahead to further investigate the influence of brand actions (marketing mix actions: indirect and direct) and goal driven behaviours for various relationship types (Aggarwal 2009; Ahuvia, Batra and Bagozzi 2009; Fournier 2009; Reimann and Aron 2009; Veloutsou 2007).

It is the total of the constructed meaning (Escalas and Bettman 2009) that allows competitive differentiation (MacInnis, Park and Priester 2009; O'Guinn and Muniz Jr. 2009) and this complex meaning creation process should be investigated within a multiple stakeholder platform.

Second, it must be acknowledged that some people will perceive brands as having the same brand personality profile. This is not altogether surprising, nor problematic, but it does not always guarantee a similar behavioural response towards the brand. Managers are ultimately interested in tools that can predict future consumption and herein lies one of the disadvantages of using brand personality measures in isolation from other measures (Hayes 1999). Other marketing mix variables need to be included in future models and the brand personality approach (attractiveness, distinctiveness, self-expressiveness), developed by Kim, Han and Park (2001), has merit as it includes another layer of dimensionality for brand personality. Hayes et al. (2006) also utilise a brand attractiveness construct. Further research to improve self-congruity measurement is also encouraged. It is important to develop relevant scales to reconcile human and brand personality along the lines of Magin et al. (2003). In the future, self-congruity measures may become more advanced and enable finer distinctions between the elements of the actual, ideal and ideal social self in congruity assessments (Kuester, Hess, Young and Hinkel 2008). Batra, Lenk and Wedel (2010) have recently established that there is a separate role of product category in contributing common trait
characteristics and that these must be separated for each brand personality respectively. The effects of brand personality stability (Tan 2004) and branding consistency (Randall 1997) could also be worthy of inclusion in other structural models. Such suggestions are not devoid of risk, as consistency in positioning via repeat communication, can sometimes lead to viewer boredom. It is imperative to value the distinction “between a worn-out position and a worn-out execution” (Aaker 1995, p. 257).

Third, the completion of further crises and transgressions work to extend the contributions of Aaker et al. (2004) and Thorbjørnsen et al. (2002) is desired. Transgressions could have a corresponding reciprocal effect on brand image and brand personality (White, Goddard and Wilbur 2009). Many are exploring these issues further, for instance, Paulssen and Bagozzi (2009) highlight the impact of transgressions given differing consumer attachment levels that then impact overall coping behaviours (voice, loyalty, neglect and exit). Complementing this theme is the recent investigation of brand misconduct on BRQ by Huber, Vollhardt, Matthes and Vogel (2010). Adding another layer of richness via various crisis stages (prodromal, acute, chronic and resolution) (Fink 1986) and forgiveness (Kelln and Ellard 1999) could be beneficial in future study designs. Methodologically, the ability to investigate crisis models that incorporate second-order constructs longitudinally (Smith, Karwan and Marklan 2009) is now possible and researchers need to be cognisant of differing nonlinear crisis trajectories (Paraskevas 2006).

Fourth, it is important to look at the developments occurring within the human personality and psychology realm to keep at the leading edge of brand personality and relationship understanding. Human personality research has discussed the possibility of human personality perhaps being nonlinear [as opposed to linear and additive] (Ozer and Reise 1994). Future research should recognise that some trait characteristics may emanate from product category characteristics creating like a “halo effect” and imbue similar meaning for all brands competing within the category.

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66 This represents a limitation in all existing brand personality studies. Future researchers should recognise that some trait characteristics may emanate from product category characteristics creating like a “halo effect” and imbue similar meaning for all brands competing within the category.
theoretical extensions should extend the current work by more rigorously testing linear assumptions (Henseler et al. 2007).

Fifth, and in agreement with Fournier (2009), the full range of relationship types is recommended for further researcher attention. However, the application of BRQ may not be appropriate for all situations, and the reasons why consumers choose not to form relationships is of primary interest (Veloutsou 2007). How various relationship types alter over time is also a domain that has not received sufficient attention (Finne and Gronroos 2009). Ideally, lifetime brand relationships (Macrae 1996) and relationship stages (Dwyer, Schurr and Oh 1987; Fournier 1998) need to be integrated with a mix of real time and self-report data (Gruen, Summers and Acito 2000). Recent structural changes in communication and marketing tactics facilitated by advancements in technology (e.g., online communication, blogs, online communities, etc.) enable greater reciprocity and brand attachment (Blattberg and Deighton 1991; Blattberg, Glazer and Little 1994; Keller 2009; O’Malley and Mitussis 2002). As a result of the changes in technology, further research is necessary within these emerging areas to determine effective strategies in longer term relationship building.

Finally, understanding the relationship dyad (or more complex forms with multiple partners) is integral. The individual level (dyad) may not reflect the fact that the “brand experience” could be a collective-group (e.g., family, friends) phenomenon. In fact, experiencing something in a group consumption situation may actually strengthen the overall relationship. The latest thinking regarding brand communities can extend the dyad perspective (Fournier and Lee 2009; Muniz et al. 2001). This will necessitate coupling relationship types within a broader networked perspective (Jevons, Gabbott and de Chernatony 2005) recognising that branding is a value co-creation device actioned by all stakeholders (Merz et al. 2009; Sawhney and Prandelli 2000). Researchers are starting to distinguish between direct brand and other consumer relationships embedded in the overall nexus of all relations (Keller
Understanding how and why constructs enhance or inhibit different categories of co-creative practice could represent a core extension (Nattavuthsit 2010).

This body of work can be furthered methodologically with the application of new mapping techniques to demonstrate the relative importance of images/features encapsulated by the brand (van Rekom et al. 2006), and potentially offering further enlightenment in determining whether functional versus personality attributes dominate brand choice. With this knowledge practitioners can utilise appropriate product and communication appeals by segment/media. The developments demonstrated within social network analysis show potential to understand the dissemination and generation of image profiles and illuminate complex brand relationship structures (de Nooy, Mrvar and Batagelj 2005). Finally, modern segmentation grouping algorithms taking into account data heterogeneity may improve segmentation and forecasting on key dimensions of interest (Fruhwirth-Schnatter 2006; Herrmann, Hahn, Johnson and Huber 2002; Jedidi, Jagpal and DeSarbo 1997). In addition, the application of analytical methods common in other disciplines such as multilevel modelling, latent curve modelling (Bollen and Curran 2006) and dyadic analysis methods (Kenny et al. 2006) could offer further revealing insights into the study of consumer-brand relationships.

6.8 Final Words

“In competing for the future, models of brand leadership will be far more diverse than twentieth-century branders have been accustomed to” (Macrae 1996, p. 212). There has been no more exciting time than today in marketing, branding and communication. Disciplines outside of marketing will increasingly be consulted to adapt and reconceptualise theories as Aaker (1995) and Fournier (1994) intended. Such developments with improved customer relationship management analytics will drive predictive systems to further enhance consumer relationship understanding. This may represent an overly ambitious task but, “…there lies the guarantee that the work is worthy of the effort it demands. No attempt to understand
consumer behavior, in the individual case or in the collective, will be wholly successful until we understand the close relationships that form the foundation and theme of the human condition” (Kelley 1983, p. 19).

In conclusion, D. Aaker (1996) affirms that brand personality offers a sustainable source of competitive advantage, and Allen, Schumann and Leingpigul (2009) maintain that having a strong brand is critical for brand equity maintenance and enhancement. This current research study has contributed one more piece of the puzzle. Such advancements in understanding can, it is hoped, provide the inspiration for other researchers to explore and for practitioners to develop and maintain stronger brands in the future for the benefit of consumers and businesses alike. Ultimately, this is an admirable goal.
APPENDIX A: Questionnaire

ABOUT YOUR DRINK CONSUMPTION

1. Who in your household helps you decide/ influences which soft drink brands you purchase? ("X" ALL THAT APPLY)

<table>
<thead>
<tr>
<th>Category</th>
<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 12 or under</td>
<td>1</td>
</tr>
<tr>
<td>Children 13-18</td>
<td>2</td>
</tr>
<tr>
<td>Adult children living at home</td>
<td>3</td>
</tr>
<tr>
<td>Spouse</td>
<td>4</td>
</tr>
<tr>
<td>Parent</td>
<td>5</td>
</tr>
<tr>
<td>Some other person</td>
<td>6</td>
</tr>
<tr>
<td>Just Yourself</td>
<td>7</td>
</tr>
</tbody>
</table>

2. On average, how often do you consume soft drink? ("X" ONE BOX ONLY)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a daily basis</td>
<td>1</td>
</tr>
<tr>
<td>Two to three times a week</td>
<td>2</td>
</tr>
<tr>
<td>Once a week</td>
<td>3</td>
</tr>
<tr>
<td>Two to three times a month</td>
<td>4</td>
</tr>
<tr>
<td>Once a month</td>
<td>5</td>
</tr>
<tr>
<td>Less often than once a month</td>
<td>6</td>
</tr>
</tbody>
</table>

3. What types of soft drinks have you consumed in the past 6 months? ("X" ALL THAT APPLY)

<table>
<thead>
<tr>
<th>Drink</th>
<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cola</td>
<td>1</td>
</tr>
<tr>
<td>Lemonade</td>
<td>2</td>
</tr>
<tr>
<td>Lemon Squash</td>
<td>3</td>
</tr>
<tr>
<td>Raspberry</td>
<td>4</td>
</tr>
<tr>
<td>Creamy Soda</td>
<td>5</td>
</tr>
<tr>
<td>Lime</td>
<td>6</td>
</tr>
<tr>
<td>Flavoured Mineral Water</td>
<td>7</td>
</tr>
<tr>
<td>Sports Drinks</td>
<td>8</td>
</tr>
<tr>
<td>Flavoured Ice Tea</td>
<td>9</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
</tr>
</tbody>
</table>

4. If given the choice, which type of soft drink do you prefer? ("X" ONE BOX ONLY)

<table>
<thead>
<tr>
<th>Drink</th>
<th>Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cola</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
</tr>
</tbody>
</table>
YOUR VIEWS ON DRINKS

5. Following is a list of statements about soft drinks. We would like to know how involved or interested you are in soft drink products in general. Please indicate how much you agree or disagree by using a "1" to "7" scale where "1" means you "Disagree Completely" and "7" means to "Agree Completely". You may use any number between 1 and 7. ("X" ONE BOX ONLY FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th></th>
<th>Disagree Completely</th>
<th>Agree Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>When it comes to soft drinks, as long as it is fizzy and cold, it is good</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>b.</td>
<td>I am always looking for the most inexpensive soft drink</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>c.</td>
<td>I don’t give soft drinks much thought</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>d.</td>
<td>Soft drinks are all the same</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>e.</td>
<td>I always buy the same brand of soft drink</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>f.</td>
<td>I like to try new and different types of soft drinks</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>g.</td>
<td>It’s not really important which brand I buy, they are all the same</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>h.</td>
<td>I like to drink soft drink</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>i.</td>
<td>I worry whether soft drinks will harm my health</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>j.</td>
<td>Different soft drinks are suited to different occasions</td>
<td>☐ ☐ ☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>

6. Following is a list of statements about soft drinks. We would like to know how involved or interested you are in soft drink products in general. Please indicate how much you agree or disagree by using a "1" to "5" scale where "1" means you "Totally Disagree" and "5" means to "Totally Agree". You may use any number between 1 and 5. ("X" ONE BOX ONLY FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th></th>
<th>Totally Disagree</th>
<th>Totally Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>When you choose soft drink, it is not a big deal if you make a mistake.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>2.</td>
<td>It is really annoying to purchase soft drinks that are not suitable</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>3.</td>
<td>If, after I bought a soft drink, my choice(s) prove to be poor, I would be really upset.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>4.</td>
<td>Whenever one buys soft drink, one never really knows whether they are the ones that should have been bought.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>5.</td>
<td>When I face a shelf of soft drinks, I always feel a bit at a loss to make my choice.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>6.</td>
<td>Choosing soft drinks is rather complicated.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>7.</td>
<td>When one purchases soft drinks, one is never certain of one’s choice.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>8.</td>
<td>I can tell a lot about a person by the soft drinks he or she chooses.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>9.</td>
<td>The soft drink I buy gives a glimpse of the type of man/woman I am.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>10.</td>
<td>The soft drink you buy tells a little bit about you.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>11.</td>
<td>It gives me pleasure to purchase soft drinks.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>12.</td>
<td>Buying soft drinks is like buying a gift for myself.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>13.</td>
<td>Soft drink is somewhat of a pleasure to me.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>15.</td>
<td>One can say soft drink interests me a lot.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>16.</td>
<td>Soft drink is a topic that leaves me totally indifferent.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
</tr>
</tbody>
</table>
ABOUT YOUR DRINK CONSUMPTION
7. The last time you purchased soft drinks, what brand/ type did you buy? ("X" ONE BRAND UNDER COLUMN QU. 7 BELOW)

8. Which of these soft drinks do you buy MOST OFTEN? ("X" ONE BRAND ONLY UNDER QU.8 BELOW)

9. If the brand you buy most often were not available, what one soft drink would you buy? ("X" ONE BRAND UNDER COLUMN QU.9 BELOW)

10. Which of these soft drinks have you PURCHASED IN THE PAST YEAR? ("X" ALL THAT APPLY UNDER COLUMN QU.10 BELOW)

11. Which of these soft drinks have you EVER BOUGHT? ("X" ALL THAT APPLY UNDER COLUMN QU.11 BELOW)

12. Which soft drinks would you NEVER consider buying under any circumstances? ("X" ALL BRANDS THAT APPLY UNDER COLUMN QU.12 BELOW)

<table>
<thead>
<tr>
<th>Brands</th>
<th>QU.7 Last Purchase</th>
<th>QU.8 Most Often</th>
<th>QU.9 Substitute</th>
<th>QU.10 Purchase Past Year</th>
<th>QU.11 Over Bought</th>
<th>QU.12 Never Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca-Cola</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pepsi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schweppes Cola</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC Cola</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jolt Cola</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet Coke</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet Pepsi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pepsi Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generic (No Label) Cola</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Drinks (including Ice Teas, Other softdrinks, Fruit juices, Sports Drinks)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Where do you believe the following brands are placed in the drinks market?

Coca-Cola First  Second  Third  Fourth  Fifth
Pepsi               
Schweppes Cola      

YOUR VIEWS ON COCA-COLA AND PEPSI
14. Please estimate how many years in total you have been a user of the Coke or Pepsi brands.
(WRITE IN ONE NUMBER FOR EACH BRAND BELOW. IF YOU HAVE NEVER USED THE BRAND, WRITE IN A ZERO)

Coca-Cola (# years used Coca-Cola)
Pepsi (# years used Pepsi)

15. How frequently do you purchase each of these brands? ("X" ONE BOX ONLY UNDER EACH OF THE BRANDS BELOW)

<table>
<thead>
<tr>
<th>COCA-COLA</th>
<th>PEPSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>1</td>
</tr>
<tr>
<td>Every few days</td>
<td>2</td>
</tr>
<tr>
<td>Once a week</td>
<td>3</td>
</tr>
<tr>
<td>Once every two weeks</td>
<td>4</td>
</tr>
<tr>
<td>Once a month</td>
<td>5</td>
</tr>
<tr>
<td>Once every 3-3 months</td>
<td>6</td>
</tr>
<tr>
<td>Once every 6 months</td>
<td>7</td>
</tr>
<tr>
<td>Once a year</td>
<td>8</td>
</tr>
<tr>
<td>More than one year</td>
<td>9</td>
</tr>
<tr>
<td>Never purchased</td>
<td>10</td>
</tr>
</tbody>
</table>

Sodasdrinks Version A
16. Out of your last 10 purchases of soft drinks, how many have been for Coca-Cola, Pepsi or some other brand? (WRITE IN ONE NUMBER FOR EACH BRAND BELOW. PLEASE BE SURE THE TOTAL ADDS TO 10.)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca-Cola</td>
<td></td>
</tr>
<tr>
<td>Pepsi</td>
<td></td>
</tr>
<tr>
<td>All other</td>
<td></td>
</tr>
</tbody>
</table>

(Total = 10)

17. (PLEASE "X" THE "YES" OR "NO" BOX UNDER EACH BRAND. PLEASE BE SURE TO PROVIDE ANSWERS FOR ALL THREE BRANDS LISTED.)

<table>
<thead>
<tr>
<th>COCA-COLA</th>
<th>PEPSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

18. Please rate your OVERALL SATISFACTION with each brand listed below. (*X" ONE BOX ONLY UNDER EACH OF THE BRANDS BELOW*)

<table>
<thead>
<tr>
<th>Completely Dissatisfied</th>
<th>Completely Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Coca-Cola</td>
<td></td>
</tr>
<tr>
<td>b. Pepsi</td>
<td></td>
</tr>
</tbody>
</table>

19. Please tell us how much you agree or disagree with each statement for both of the brands mentioned below. (*X" ONE BOX FOR EACH STATEMENT UNDER EACH OF THE BRANDS BELOW*)

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCA-COLA</td>
<td>PEPSI</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
COCA-COLA

20. These next several questions deal with your attitudes about Coca-Cola soft drinks. For each of the statements listed below, please indicate how much you agree or disagree with the statement by checking the box that best describes your feelings about the statement. Please use the 1 to 7 scale shown below, where a "1" means "Disagree Completely" and a "7" means "Agree Completely". You may use any number between 1 and 7. When you choose your rating, please consider all your experiences and what you know about the brand. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>Coca-Cola Soft drink</th>
<th>Agree Completely</th>
<th>Disagree Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is a good brand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Is a high quality brand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Is worth the money you pay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Is extremely effective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is convenient to buy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Exceeds original expectations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. We would like to know your intentions about using Coca-Cola in the future. Please use the 1 to 7 scale shown below where a "1" means "Not At All Likely", and a "7" means "Extremely Likely". You may use any of the numbers between 1 and 7. For each statement, check the box that best describes your feelings about that statement. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>How likely are you to</th>
<th>Not At All Likely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Buy Coca-Cola the next time you buy soft drinks?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Use Coca-Cola one year from now?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Use Coca-Cola five years from now?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Shift some of your Coca-Cola purchases to another brand that offers a better price?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Continue to buy Coca-Cola if its price increases 5%?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Continue to buy Coca-Cola if its price increases 10%?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Try a revolutionary soft drink that came out under the Coca-Cola brand range?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Pay 5% more for Coca-Cola than what is charged now?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Pay 10% more for Coca-Cola than what is charged now?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Pay 20% more for Coca-Cola than what is charged now?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. For each statement, "X" the box that best describes your feelings about that statement. Use the same scale as the previous question. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>How likely are you to</th>
<th>Not At All Likely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Say positive things about Coca-Cola to other people?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Recommend Coca-Cola to someone who seeks your advice on soft drinks?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Encourage others to buy Coca-Cola themselves?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. For the purpose of this survey only, let’s assume the following hypothetical situation. For the following situation please indicate whether you would consider it “not a big deal at all” or “a very big deal”. Also indicate whether you would “entirely blame some other party” or “entirely blame the company” for the situation. ("X" ONE BOX FOR EACH SCALE FOR EACH SCENARIO)

<table>
<thead>
<tr>
<th></th>
<th>Not a Big Deal at All</th>
<th>Is a Very Big Deal</th>
<th>Entirely blame some Other Party</th>
<th>Entirely blame the Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>You see a report calling for product recall due to a number of poisonings in a result of criminal product tampering and extortion directed at the company.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Sodas/Drinks Version A
24. The following questions give us an indication of how you might react if you were to experience a problem with Coca-Cola. For the purpose of this survey only, let’s assume the following hypothetical situation. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>If you see a report stating a Coca-Cola product recall due to a number of pollutants as a result of criminal product tampering and destruction directed at the company, I would...</th>
<th>Definitely Will</th>
<th>Definitely Will Not</th>
<th>Might or Might Not</th>
<th>Definitely Will Not</th>
<th>Definitely Will</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Switch to another brand immediately</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Lower my overall opinion of the brand forever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Write a letter to the company and express my negative feelings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Stick with the brand and remain a loyal customer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Chalk it up as a mistake and forget about it</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Forgive Coca-Cola completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Give Coca-Cola a second chance to reverse its decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Give Coca-Cola the benefit of the doubt and assume they are doing it for a good reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Complain to other Coca-Cola users</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Complain to some external agency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PEPSI COLA

25. These next several questions deal with your attitudes about Pepsi soft drinks. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>Pepsi Cola...</th>
<th>Disagree Completely</th>
<th>Agree Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is a good brand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Is a high quality brand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Is worth the money you pay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Is extremely refreshing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is convenient to use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Exceeds original expectations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. We would like to know your intentions about using Pepsi in the future. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>How likely are you to...</th>
<th>Not At All Likely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Buy Pepsi the next time you buy a soft drink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Use Pepsi one year from now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Use Pepsi five years from now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Shift some of your Pepsi purchases to another brand that offers a better price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Continue to buy Pepsi if it’s price increases 5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Continue to buy Pepsi if its price increases 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Try an unfamiliar soft drink that came out under the Pepsi brand range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Pay 5% more for Pepsi than what is charged now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Pay 10% more for Pepsi than what is charged now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Pay 20% more for Pepsi than what is charged now</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

27. ("X" ONE BOX FOR EACH STATEMENT)

<table>
<thead>
<tr>
<th>How likely are you to...</th>
<th>Not At All Likely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Say positive things about Pepsi to other people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Recommend Pepsi to someone who seeks your advice on soft drinks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Encourage others to buy Pepsi themselves</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
28. The following questions give an indication of how you might react if you were to experience a problem with Pepsi. For the purpose of this survey only, let’s assume the following hypothetical situation. ("X" ONE BOX FOR EACH STATEMENT)

If, you see a report calling for a Pepsi product recall due to a number of poisonings as a result of criminal product tampering and extortion directed at the company, I would...


a. Swish to another brand immediately

b. Lower my overall opinion of the brand forever

c. Write a letter to the company and express my negative feelings

d. Swish with the brand and remain a loyal user

e. chalk it up as a mistake and forget about it

f. Forgive Pepsi completely

g. Give Pepsi a second chance to reverse its decision

h. Give Pepsi the benefit of the doubt and assume they are doing it for a good reason

i. Complain to other Pepsi users

j. Complain to some external agency

YOUR INDEPTH FEELINGS AND OPINIONS OF COCA-COLA AND PEPSI.

29. For the next part of the survey, we are going to ask you to read a list of statements. These statements may or may not describe your feelings and opinions of the brand of soft drink. Many of these statements contain words and phrases that we commonly use to describe types of relationships we have with other people. We can feel dedicated, for example or “in love”. We can feel that someone is “perfect for us”. We want you to use these relationship terms to describe your feelings toward the brand so that we can get a better understanding of the type of relationship you have with that brand. To do this, you will have to think of the brand as a partner in the relationship - a partner with its own character and personality and actions. When you think of the brand in this way, would you say the brand “takes good care of you”? Does the brand know what you want in a customer? Does the brand make good decisions? These are the types of questions that follow. Just play along with the game, think of the brand as a person, and describe for us the type of relationship you and the brand share.

Please tell us how much you agree or disagree with each statement for each brand using the scale provided below. Simply "X" the box on the scale for each brand and statement that best captures your opinion toward the brand for that attribute.

Does Not Describe My
Feelings Toward The
Brand At All

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>


describes My
Feelings Toward The
Brand Very Well

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

COCA-COLA

a. I am dedicated to this brand
b. I have become dependent on this brand
c. No other brand could take the place of this brand in my mind
d. This brand says a lot about the kind of person I would like to be
e. I have sentimental feelings towards this brand
f. I know things about the company that makes this brand
g. This brand/company makes me feel like a valuable customer
h. I really need this brand and rely on the benefits it provides

i. This may sound silly, but this brand and I are “perfect for each other”
j. The brand fits well with my life goals and objectives
k. I am very loyal to this brand
l. I associate this brand with certain people or things that are important to me
m. I know something about this brand’s history and background
n. I know I can always count on this brand
o. You might say that I am addicted to this brand in some ways
p. I like this brand so much I want other interested people I know to experience it too

PEPSI

So, drinks Version A
<table>
<thead>
<tr>
<th>Section 2: Please take the time to consider your responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COCA-COLA</strong></td>
</tr>
<tr>
<td>q. This brand makes a statement about what is important</td>
</tr>
<tr>
<td>r. My thoughts of this brand contain memories of things I've</td>
</tr>
<tr>
<td>s. At some level, I would feel badly if I switched to</td>
</tr>
<tr>
<td>t. I know things about this brand or the company that</td>
</tr>
<tr>
<td>u. I really love this brand</td>
</tr>
<tr>
<td>v. This brand/company takes good care of me as a</td>
</tr>
<tr>
<td>w. The times that I use this brand add order and</td>
</tr>
<tr>
<td>x. I would like to see my relationship with this brand</td>
</tr>
<tr>
<td>y. This brand adds some stability to my life</td>
</tr>
<tr>
<td>z. I would like to use this brand more frequently</td>
</tr>
</tbody>
</table>

**SECTION 2. PLEASE TAKE THE TIME TO CONSIDER YOUR RESPONSES**

| aa. I know this brand so well I could probably predict how it |           |
| bb. I know that this brand/company has my best interests in mind |           |
| cc. You could consider the way I use this brand as a ritual |           |
| dd. There is something about this brand that makes it unlike |           |
| ee. This brand is a part of me                                |           |
| ff. Using this brand makes me feel safe and secure at some level |           |
| gg. I would be willing to make small sacrifices in order to keep using this brand |           |
| hh. I would feel comfortable describing this brand to someone who was not familiar with it |           |
| ii. If this brand/company makes a mistake, I know it will try its best to make up for it |           |
| jj. The thought of not being able to use this brand anymore disturbs me at some level |           |
| kk. I have feelings for this brand that I do not have for many brands |           |
| ll. This brand helps me get done what I need to get done |           |
| mm. This brand reminds me of a particular phase of my life |           |
| nn. I would probably stick with this brand even if it let me down a time or two |           |
| oo. I pay close attention to information I hear about this brand |           |
| pp. I know I can hold this brand/company accountable for its actions |           |
| qq. There are times when I can’t wait to use this brand again |           |
| rr. I want to see this brand succeed in the marketplace |           |
| ss. This brand fits well with my current stage of life |           |
| tt. I really feel comfortable with this brand |           |
| uu. I am so happy with this brand that I no longer feel the need to keep my eyes out for other possible alternatives |           |
| vv. I am familiar with other products that have this brand name on them |           |
| ww. This brand/company is a good listener of customer concerns |           |
| xx. I feel like something is missing when I haven’t used this brand in a while |           |
| yy. I feel compelled to stick with this brand because of what I have invested in over time |           |
| zz. I would feel free to talk with the company that makes this brand if there were something bothering me about the product |           |
| A. This brand/company has always been honest in its dealings |           |

Sofunda Version A
<table>
<thead>
<tr>
<th>Brand</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coca-Cola</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Pepsi</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

30. The questions may seem lengthy, but they go very quickly – just write down your first response that you think of your gut reaction.

There are no right or wrong answers – we are just interested in your first reactions to each of the brands.

Based on what you know about the brands below and their characteristics, please use the scale below to rate the extent to which you feel this brand could be described. (Please circle a response for each brand under each descriptive item)

There are no right or wrong answers – we are just interested in your first reactions to each of the brands.

<table>
<thead>
<tr>
<th>Number</th>
<th>Descriptive</th>
<th>Coca-Cola</th>
<th>Pepsi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>rugged</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q2</td>
<td>independent</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q3</td>
<td>cool</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q4</td>
<td>young</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q5</td>
<td>exciting</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q6</td>
<td>successful</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q7</td>
<td>down to earth</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q8</td>
<td>honest</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q9</td>
<td>outdoorsy</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q10</td>
<td>sincere</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q11</td>
<td>wholesome</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q12</td>
<td>original</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q13</td>
<td>cheerful</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q14</td>
<td>reliable</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q15</td>
<td>masculine</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q16</td>
<td>hard working</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q17</td>
<td>family</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q18</td>
<td>friendly</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Q19</td>
<td>daring</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

Softdrinks Version A
NOW FINALLY SOME SHORT QUICK QUESTIONS ABOUT YOURSELF

31. Below is a list of eight values or personal states of being that you may seek in the course of your life. Please rank order the values in terms of how important they are to you, personally. Place a “1” in the blank beside the one value you consider most important, a “2” next to the second most important value, and so on, with an “8” beside the value you consider as least important in your life. (USE ALL EIGHT NUMBERS AND USE EACH NUMBER ONLY ONCE)

   a. Self-respect ________________________________
   b. Security ________________________________
   c. Rewarding relationships with others ________
   d. Sense of accomplishment and lasting contribution ______
   e. Self-fulfillment __________________________
   f. Sense of belonging ________________________
   g. Being well-respected ______________________
   h. Fun, enjoyment and excitement in life ________

SelfExnde Version A
32. Below is a list of statements reflecting how you might feel toward interacting with other people. Please tell us how much you agree or disagree with each statement using the scale provided below. Simply "X" the box that best captures your opinion in the space provided after each item.

<table>
<thead>
<tr>
<th>Does Not Describe Me At All</th>
<th>Describes Me Extremely Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I am very motivated to maintain relationships with the people I come to know.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>b. Each year, I try to make as many new friends as I can.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>c. I feel compelled to keep in contact with the people I meet over the years.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>d. There is a fairly small circle of people among the many I have come in contact with that I would consider my &quot;close friends&quot;.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>e. I can't see how my core group of friends will ever change over the course of my life.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>f. I spend a lot of my free time meeting new people and getting to know what they'd be like as friends.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>g. I have more friends than most of the people I know.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>h. I generally view myself as a person who is very interested in establishing relationships with others.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>i. Other people are the source of my greatest pleasure and pain.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>j. It seems that I move through my life &quot;collecting&quot; friendships along the way.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>k. I would say my friends work harder at maintaining the relationships with me than I do with them.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>l. I deliberately try to keep my friendships at a relatively superficial level.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>m. I wouldn't be surprised if my group of friends completely changed each time I moved or got a new job.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>n. I am not really a people person.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>o. I prefer spending time by myself doing individual hobbies than being with other people.</td>
<td>1  2  3  4  5  6  7</td>
</tr>
</tbody>
</table>

33. Please estimate how many close friends you currently have. (WRITE THE NUMBER ON THE LINE PROVIDED BELOW)

34. For how many years have you known your closest friend? (WRITE THE NUMBER ON THE LINE PROVIDED BELOW)

35. Please estimate how many casual friends you currently have? (WRITE THE NUMBER ON THE LINE PROVIDED BELOW)

These last few questions are about your overall feelings toward brands in general.

36. Of all the brands you use - not just soft drink brands, but all brands - what percent would you say you feel really committed to? (WRITE THE PERCENTAGE ON THE LINE PROVIDED BELOW)

37. Of all the brands you use, what percent would you say you have really a strong and close relationship with? (WRITE THE PERCENTAGE ON THE LINE PROVIDED BELOW)

38. Approximately how many brands would you identify as close relationship partners? (WRITE THE NUMBER ON THE LINE PROVIDED BELOW)
39. Managers talk a lot about developing relationships with their customers these days. Overall, how interested are you in developing relationships with the following? (PLACE AN “X” IN THE BOX THAT BEST DESCRIBES YOUR INTEREST)

<table>
<thead>
<tr>
<th>Not At All Interested</th>
<th>Extremely Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The companies you do business with?</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>b. The brands you use regularly?</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>c. The brands you truly care about?</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

40. Your age:
- 15-19 years | 1
- 20-24 years | 2
- 25-29 years | 3
- 30-34 years | 4
- 35-39 years | 5
- 40-44 years | 6
- 45-49 years | 7
- 50-54 years | 8
- 55-59 years | 9
- 60-64 years | 10
- 65-69 years | 11
- 70+ years | 12

41. Your gender:
- Female | 1
- Male | 2

42. Education level attained:
- Primary level | 1
- Tertiary- undergraduate level | 3
- Secondary Level | 2
- Tertiary- postgraduate level | 4

43. Status:
- Married | 1
- De facto Relationship (living together) | 2
- Widowed | 5
- Single | 2
- Divorced/ Separated | 4
- Stable Relationship (not living together) | 6

YOU HAVE COMPLETED THE QUESTIONNAIRE
THANK YOU FOR YOUR TIME AND EFFORT
PLEASE RETURN IN REPLY PAID ENVELOPE.
APPENDIX B: Extended Findings for Brand Selection Study Four

The results of Brand Selection Study Four (see Table B.1) indicated that the following product classes received the highest equity scores out of ten: photographic film (7.91 out of 10), airlines (7.15), biscuits (7.15), breakfast cereals (7.99), department stores (7.11), and electronic goods (7.19). It is not surprising that banks (4.75) as a category fare badly, given their poorly perceived service levels and widespread criticism.

It is perhaps more interesting that equity measures for telecommunications suppliers (6.05), insurance companies (5.43), fast food (5.88), and soft drinks (6.32), have levels below what might be expected. The relatively better performance of categories, such as photographic film, electronic equipment, airlines and computers, suggests that consumers are likely to have relationships with these categories and classes.

Another important factor, given the sampling frame implemented within this thesis, is that the mean awareness levels for the product classes revealed by Callaghan and Wilson (1998) need to be adequate. Also, Sung and Kim (2010) in a recent study investigating the effects of brand personality on brand trust and brand affect have also purposively selected brands that are self-expressive and familiar to enhance respondent participation. For Brand Selection Study Four, if respondents did not consider they knew enough about a brand, they were not required to rate it and that is the basis of the awareness definition used. The mean awareness levels (see Table B.2) illustrate that even with the focus on mainstream brands in this study, there is a high proportion of respondents who do not consider they know enough to give an opinion about the brand. In the banking sector where only the major banks were considered, for example, some 47% on average were not prepared to state an opinion. This was very similar across all bank brands and not related to market share. The choice of product class for the final study is also based on this awareness or “ability/willingness to respond” factor. A general decision rule was established whereby product classes were to be chosen in
which there are higher mean awareness levels so as to enhance the likelihood of considered
questionnaire responses and, thus, limit non-response or yea-saying (Kirk-Smith 1995;
Sudman et al. 1996).

**Table B.1: Mean Equity Scores and Mean Awareness Scores for Twenty Product
Classes**

<table>
<thead>
<tr>
<th>PRODUCT CLASS</th>
<th>MEAN EQUITY</th>
<th>MEAN AWARENESS (sample proportion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BANKS</td>
<td>4.75</td>
<td>0.53</td>
</tr>
<tr>
<td>CARS</td>
<td>6.23</td>
<td>0.58</td>
</tr>
<tr>
<td>PHOTOGRAPHIC FILM</td>
<td>7.91</td>
<td>0.75</td>
</tr>
<tr>
<td>INSURANCE</td>
<td>5.43</td>
<td>0.41</td>
</tr>
<tr>
<td>TELECOMMUNICATIONS PROVIDERS</td>
<td>6.05</td>
<td>0.62</td>
</tr>
<tr>
<td>ELECTRONICS</td>
<td>7.19</td>
<td>0.63</td>
</tr>
<tr>
<td>PETROL</td>
<td>7.10</td>
<td>0.74</td>
</tr>
<tr>
<td>SOFT DRINKS</td>
<td>6.32</td>
<td>0.80</td>
</tr>
<tr>
<td>FAST FOOD COMPANIES</td>
<td>5.88</td>
<td>0.80</td>
</tr>
<tr>
<td>AIRLINES</td>
<td>7.15</td>
<td>0.52</td>
</tr>
<tr>
<td>BEER</td>
<td>6.22</td>
<td>0.52</td>
</tr>
<tr>
<td>NEWSPAPERS</td>
<td>6.22</td>
<td>0.39</td>
</tr>
<tr>
<td>BISCUITS</td>
<td>7.15</td>
<td>0.73</td>
</tr>
<tr>
<td>HARDWARE STORES</td>
<td>6.86</td>
<td>0.55</td>
</tr>
<tr>
<td>COMPUTERS</td>
<td>6.54</td>
<td>0.38</td>
</tr>
<tr>
<td>BREAKFAST CEREALS</td>
<td>7.99</td>
<td>0.84</td>
</tr>
<tr>
<td>RETAIL STORES</td>
<td>7.11</td>
<td>0.77</td>
</tr>
<tr>
<td>CREDIT CARDS</td>
<td>5.97</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Note: Mean Equity scores are out of 10. Mean Awareness indicates the proportion within the sample that thought they knew enough about the category to respond.

The results become more pronounced at the brand level. As expected, the two leading brands in each category normally have the highest awareness and equity scores. This is one of the underlying rationales behind choosing the top two leading brands in the chosen product classes for the main data collection phase.
<table>
<thead>
<tr>
<th>BRAND</th>
<th>EQUITY</th>
<th>AWARE</th>
<th>NOT AWARE</th>
<th>BRAND</th>
<th>EQUITY</th>
<th>AWARE</th>
<th>NOT AWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANZ BANK</td>
<td>4.81</td>
<td>52.7%</td>
<td>47.3%</td>
<td>HUNGRY JACKS</td>
<td>5.76</td>
<td>72.6%</td>
<td>27.4%</td>
</tr>
<tr>
<td>CBA BANK</td>
<td>4.92</td>
<td>55.5%</td>
<td>44.5%</td>
<td>KFC</td>
<td>5.71</td>
<td>81.0%</td>
<td>19.0%</td>
</tr>
<tr>
<td>NATIONAL AUST BANK</td>
<td>4.74</td>
<td>47.6%</td>
<td>52.4%</td>
<td>MCDONALDS</td>
<td>6.15</td>
<td>85.7%</td>
<td>14.3%</td>
</tr>
<tr>
<td>WESTPAC BANK</td>
<td>4.54</td>
<td>54.6%</td>
<td>45.4%</td>
<td>PIZZA HUT</td>
<td>5.91</td>
<td>80.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>FORD</td>
<td>6.96</td>
<td>72.4%</td>
<td>27.6%</td>
<td>ANSETT AIRLINES</td>
<td>7.66</td>
<td>68.5%</td>
<td>31.5%</td>
</tr>
<tr>
<td>HOLDEN</td>
<td>7.28</td>
<td>72.8%</td>
<td>27.2%</td>
<td>BRITISH AIRWAYS</td>
<td>6.69</td>
<td>43.2%</td>
<td>56.8%</td>
</tr>
<tr>
<td>MITSUBISHI</td>
<td>6.27</td>
<td>58.0%</td>
<td>42.0%</td>
<td>CATHAY PACIFIC</td>
<td>6.33</td>
<td>36.8%</td>
<td>63.2%</td>
</tr>
<tr>
<td>TOYOTA</td>
<td>7.09</td>
<td>62.8%</td>
<td>37.2%</td>
<td>QANTAS</td>
<td>8.27</td>
<td>72.0%</td>
<td>28.0%</td>
</tr>
<tr>
<td>DAEWOO</td>
<td>4.70</td>
<td>38.3%</td>
<td>61.7%</td>
<td>SINGAPORE AIRLINES</td>
<td>6.80</td>
<td>41.3%</td>
<td>58.7%</td>
</tr>
<tr>
<td>HYUNDAI</td>
<td>5.09</td>
<td>40.8%</td>
<td>59.2%</td>
<td>FOSTERS</td>
<td>6.13</td>
<td>53.5%</td>
<td>46.5%</td>
</tr>
<tr>
<td>FUJI FILM</td>
<td>7.42</td>
<td>67.0%</td>
<td>33.0%</td>
<td>TOOEYS</td>
<td>5.79</td>
<td>49.0%</td>
<td>51.0%</td>
</tr>
<tr>
<td>KODAK FILM</td>
<td>8.39</td>
<td>83.9%</td>
<td>16.1%</td>
<td>VICTORIA BITTER</td>
<td>6.73</td>
<td>54.9%</td>
<td>45.1%</td>
</tr>
<tr>
<td>AMP</td>
<td>5.90</td>
<td>50.1%</td>
<td>49.9%</td>
<td>SYDNEY MORNING</td>
<td>6.53</td>
<td>35.2%</td>
<td>64.8%</td>
</tr>
<tr>
<td>ESANDA FINANCE</td>
<td>4.14</td>
<td>29.8%</td>
<td>70.2%</td>
<td>THE AGE</td>
<td>6.40</td>
<td>38.4%</td>
<td>61.6%</td>
</tr>
<tr>
<td>GIO INSURANCE</td>
<td>5.55</td>
<td>40.8%</td>
<td>59.2%</td>
<td>THE AUSTRALIAN</td>
<td>6.51</td>
<td>44.9%</td>
<td>55.1%</td>
</tr>
<tr>
<td>NRMA INSURANCE</td>
<td>6.37</td>
<td>46.1%</td>
<td>53.9%</td>
<td>THE FINANCIAL REVIEW</td>
<td>5.97</td>
<td>33.2%</td>
<td>66.8%</td>
</tr>
<tr>
<td>AAMI</td>
<td>5.40</td>
<td>39.6%</td>
<td>60.4%</td>
<td>THE GOOD WEEKEND</td>
<td>5.98</td>
<td>34.6%</td>
<td>65.4%</td>
</tr>
<tr>
<td>NATIONAL MUTUAL</td>
<td>5.20</td>
<td>39.3%</td>
<td>60.7%</td>
<td>THE SUN HERALD</td>
<td>6.35</td>
<td>45.9%</td>
<td>54.1%</td>
</tr>
<tr>
<td>OPTUS</td>
<td>6.27</td>
<td>65.9%</td>
<td>34.1%</td>
<td>THE DAILY TELEGRAPH</td>
<td>5.81</td>
<td>36.4%</td>
<td>63.6%</td>
</tr>
<tr>
<td>TELSTRA</td>
<td>7.30</td>
<td>96.5%</td>
<td>3.5%</td>
<td>HERALD SUN</td>
<td>6.18</td>
<td>42.1%</td>
<td>57.9%</td>
</tr>
<tr>
<td>VODAFONE</td>
<td>4.59</td>
<td>23.8%</td>
<td>76.2%</td>
<td>ARNOTTS BISCUITS</td>
<td>8.35</td>
<td>91.6%</td>
<td>8.4%</td>
</tr>
<tr>
<td>PANASONIC</td>
<td>7.67</td>
<td>71.6%</td>
<td>28.4%</td>
<td>WESTONS BISCUITS</td>
<td>6.81</td>
<td>72.4%</td>
<td>27.6%</td>
</tr>
<tr>
<td>SAMSUNG</td>
<td>6.13</td>
<td>48.5%</td>
<td>51.5%</td>
<td>LANES BISCUITS</td>
<td>6.31</td>
<td>54.6%</td>
<td>45.4%</td>
</tr>
<tr>
<td>SONY</td>
<td>7.77</td>
<td>68.0%</td>
<td>32.0%</td>
<td>BBC HARDWARE</td>
<td>7.04</td>
<td>61.6%</td>
<td>38.4%</td>
</tr>
<tr>
<td>AMPOL</td>
<td>7.08</td>
<td>72.7%</td>
<td>27.3%</td>
<td>MITRE 10 HARDWARE</td>
<td>7.63</td>
<td>81.9%</td>
<td>18.1%</td>
</tr>
<tr>
<td>BP</td>
<td>7.32</td>
<td>77.9%</td>
<td>22.1%</td>
<td>HOME HARDWARE</td>
<td>6.52</td>
<td>42.5%</td>
<td>57.5%</td>
</tr>
<tr>
<td>CALTEX</td>
<td>6.98</td>
<td>71.3%</td>
<td>28.7%</td>
<td>MCEWANS HARDWARE</td>
<td>6.25</td>
<td>34.7%</td>
<td>65.3%</td>
</tr>
<tr>
<td>MOBIL</td>
<td>7.16</td>
<td>74.4%</td>
<td>25.6%</td>
<td>APPLE COMPUTERS</td>
<td>6.68</td>
<td>44.4%</td>
<td>55.6%</td>
</tr>
<tr>
<td>SHELL</td>
<td>6.98</td>
<td>75.2%</td>
<td>24.8%</td>
<td>HEWLETT PACKARD</td>
<td>6.64</td>
<td>38.8%</td>
<td>61.2%</td>
</tr>
</tbody>
</table>
Insurance and finance companies rated very poorly on both dimensions, making these categories inappropriate for further study. The majority of respondents in these industries are believed to have dealings with only one company. Dealing with one brand of credit card is possibly not as exclusive; most people generally hold more than one card. For telecommunications brands, respondents are believed to have limited dealings with multiple companies and, thus, are not capable of assessing the brand’s personality and their relationship with the multiple brands. The alcohol, hardware, retail store and newspaper categories were considered inappropriate for the main study due to some brands having stronger regional influences than others. Most brands operating within these categories have selective national distribution and, therefore, were inappropriate for the nationally distributed mail study.
For instance, Victoria Bitter is very successful in the State of Victoria and, although successful in Queensland, XXXX has more of an influence here. Airlines and softdrinks were selected for the final study based on the fact that the brands operating within those categories hold the major marketshare. The brands chosen are well-known and are nationally distributed.

Petroleum, breakfast food brands, biscuits, electronic goods, and computer brands were not selected for final study as they have a proliferation of brand variants usually under the same family brand name. Thus, the brands were not chosen for fear of respondent confusion between the family brand and individual brand variants. For instance, are consumers responding with their opinions to Kellogg’s the family brand, or Kellogg’s Cornflakes? If these predominant family brands are eliminated from the final study, no such separation in measurement is necessary. This would help moderate the likelihood of respondent confusion between the family brand level and the brand variant level.

Although not part of Study Four, athletics shoes were included in the main study due to substantial numbers of comments and mentions in brand selection studies one, two and three. The high level of spontaneous mentions reinforced the necessity to include this product class in the final study.
APPENDIX C: Descriptive and Normality Statistics
Table C.1 Descriptive Statistics with Item Level Normality Tests
KolmoSmirnov

ShapiroWilk

Min

Max

Mean

Std.
Dev.

SIN1

1.00

5.00

3.0790

1.2471

Statistic
.179

df
1290

Sig.
.000

Statistic
.908

df
1290

Sig.
.000

SIN2

1.00

5.00

3.2100

1.2433

.183

1290

.000

.901

1290

.000

SIN3

1.00

5.00

3.0334

1.2112

.200

1290

.000

.907

1290

.000

SIN4

1.00

5.00

2.8177

1.2347

.154

1290

.000

.908

1290

.000

SIN5

1.00

5.00

3.2406

1.3522

.161

1290

.000

.893

1290

.000

SIN6

1.00

5.00

3.1480

1.2851

.170

1290

.000

.904

1290

.000

SIN7

1.00

5.00

3.3760

1.3371

.187

1290

.000

.881

1290

.000

SIN8

1.00

5.00

3.4467

1.2889

.168

1290

.000

.885

1290

.000

SIN9

1.00

5.00

3.3681

1.2441

.176

1290

.000

.896

1290

.000

SIN10

1.00

5.00

3.4369

1.2567

.167

1290

.000

.891

1290

.000

SIN11

1.00

5.00

2.3137

1.2183

.194

1290

.000

.870

1290

.000

SIN12

1.00

5.00

2.7217

1.3219

.158

1290

.000

.897

1290

.000

EXC1

1.00

5.00

3.1739

1.2742

.171

1290

.000

.904

1290

.000

EXC2

1.00

5.00

3.0598

1.3164

.156

1290

.000

.903

1290

.000

EXC3

1.00

5.00

2.9672

1.3591

.143

1290

.000

.896

1290

.000

EXC4

1.00

5.00

3.0689

1.3065

.161

1290

.000

.904

1290

.000

EXC5

1.00

5.00

2.7279

1.2788

.144

1290

.000

.903

1290

.000

EXC6

1.00

5.00

3.3239

1.2880

.180

1290

.000

.897

1290

.000

EXC7

1.00

5.00

3.0590

1.2346

.187

1290

.000

.907

1290

.000

EXC8

1.00

5.00

2.5201

1.2478

.167

1290

.000

.892

1290

.000

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236
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| SCON2 | 1.00 | 7.00 | 2.6281 | 1.9133 | .256 | 1290 | .000 | .806 | 1290 | .000 |
| SCON3 | 1.00 | 7.00 | 2.3756 | 1.7451 | .279 | 1290 | .000 | .780 | 1290 | .000 |
| SCON4 | 1.00 | 7.00 | 2.1800 | 1.7068 | .324 | 1290 | .000 | .724 | 1290 | .000 |
| SCON5 | 1.00 | 7.00 | 2.2302 | 1.7773 | .316 | 1290 | .000 | .724 | 1290 | .000 |
| SCON6 | 1.00 | 7.00 | 2.0289 | 2.0475 | .242 | 1290 | .000 | .834 | 1290 | .000 |
| SCON7 | 1.00 | 7.00 | 3.1097 | 2.1080 | .225 | 1290 | .000 | .847 | 1290 | .000 |
| NCON1 | 1.00 | 7.00 | 2.5845 | 1.9321 | .282 | 1290 | .000 | .790 | 1290 | .000 |
| NCON2 | 1.00 | 7.00 | 2.6204 | 1.9139 | .274 | 1290 | .000 | .802 | 1290 | .000 |
| NCON3 | 1.00 | 7.00 | 3.1383 | 2.1650 | .231 | 1290 | .000 | .838 | 1290 | .000 |
| NCON4 | 1.00 | 7.00 | 2.1715 | 1.7211 | .325 | 1290 | .000 | .718 | 1290 | .000 |
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| INT2 | 1.00 | 5.00 | 2.3558 | 1.3185 | .219 | 1290 | .000 | .853 | 1290 | .000 |
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| PPI2 | 1.00 | 5.00 | 3.8487 | 1.2944 | .250 | 1290 | .000 | .810 | 1290 | .000 |
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| COMP | -2.50 | 1.70 | .0000 | 1.0003 |  |  |  |  |  |  |
| SOP | -1.86 | 2.15 | .0000 | 1.0003 |  |  |  |  |  |  |
| RUG | -2.09 | 2.17 | .0000 | 1.0003 |  |  |  |  |  |  |
| COMM | -1.17 | 2.68 | .0000 | 1.0003 |  |  |  |  |  |  |
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| INT | -1.35 | 2.20 | .0000 | 1.0004 |  |  |  |  |  |  |
| PPI | -2.56 | 1.35 | .0000 | 1.0004 |  |  |  |  |  |  |
| SYMV | -1.11 | 2.55 | .0000 | 1.0003 |  |  |  |  |  |  |
| HEDV | -1.41 | 1.91 | .0000 | 1.0004 |  |  |  |  |  |  |
| SIN<em>PII | -3.62 | 5.67 | .0967 | 1.0255 |  |  |  |  |  |  |
| SIN</em>SYMV | -5.65 | 4.75 | .0607 | .9946 |  |  |  |  |  |  |
| SIN<em>HEDV | -3.63 | 3.32 | .2335 | 1.0080 |  |  |  |  |  |  |
| SIN</em>INT | -3.24 | 4.09 | .2388 | 1.0072 |  |  |  |  |  |  |
| EXC<em>PII | -4.82 | 5.45 | .0447 | 1.0385 |  |  |  |  |  |  |
| EXC</em>SYMV | -5.43 | 5.22 | .0537 | 1.0114 |  |  |  |  |  |  |</p>
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Table C.2: Test of Univariate Normality for Constructs

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**INTERACTION TERMS**

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APPENDIX D: Measurement Model Results

Within this appendix a review of the necessary statistics and considerations when utilising correlation analysis, EFA and reliability analysis is outlined. Subsequently, the expanded results for the 17 measurement model results are presented\(^{67}\).

It is important to consider whether the data set is suitable for analysis with EFA (Gorsuch 1983). Common statistics like the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s Test of Sphericity (BT) (Hair et al. 1995) are presented. An assessment of unidimensionality and internal consistency was also undertaken. EFA was implemented using principal components factor analysis using varimax rotation (Bontis 1998; Pavlou and Chai 2002). This decision was made after considering the need to establish adequate factor undimensionality\(^{68}\). An eigenvalue greater than 1 was identified as the factor extraction criterion, and variables that showed evidence of cross-loading greater than .4 were deleted (O’Cass 2002a,b).

D1 Results for the Measurement Constructs

The ensuing measurement model analysis follows the procedure described in Chapter 4 and should meet the conventional standards outlined in Table D.1.

D1.1 Measurement Model Analysis – Sincerity

The sincerity construct was measured using 12 items or trait descriptors. These items are subjected to a data analysis process to ensure that each measurement model is unitary prior to further modelling. The results are presented in Table D.2. The KMO and Bartlett’s Test resulted in a high KMO statistic (.925) and a significant probability level (p< .001) for the Bartlett’s test. These results indicate that there are sufficient correlations for factor analysis to proceed.

\(^{67}\) Conventional PLS reporting dictum for measurement model presentation was adopted. Many academics (eg., Chin, Grace, Ringle) within the PLS expert community were generous with advice. This section draws from measurement reporting (cf. Grace, Griffin, O’Cass) and this assisted with the complex reporting task.

\(^{68}\) It was also considered important to have an orthogonal rotation for interaction analyses to limit multicollinearity.
## Table D.1: Key EFA Statistics and Interpretation

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Explanation</th>
<th>Interpretation</th>
<th>Cut-off</th>
</tr>
</thead>
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<tr>
<td>Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.</td>
<td>Assesses the degree of association variables share with a common factor. The KMO statistic illustrates the degree of common variance the variables are measuring with values closer to one indicating that the variables are measuring a common factor.</td>
<td>Values between 0 and 1. 90's marvelous; .80's meritorious; .70's middling; .60's mediocre; .50's miserable and below .50 is unacceptable (Kim and Mueller 1978).</td>
<td>Closer to 1 indicates data is suitable for EFA.</td>
</tr>
<tr>
<td>Bartlett’s Test of Sphericity (BT)</td>
<td>Assesses whether factor analysis is appropriate. Ascends the appropriateness of the data for factor analysis. Tests the hypothesis that the correlation matrix came from a population of variables that is independent.</td>
<td>This test works on a null hypothesis that the intercorrelation matrix comes from a population in which the variables are noncollinear or in other words is an identity matrix. A chi-square statistic and relevant significance level is reported. Failure to accept the hypothesis is an indication that the data are appropriate for factor analysis (Stewart 1981).</td>
<td>p&lt; .01 to proceed with EFA.</td>
</tr>
<tr>
<td>Correlations</td>
<td>To determine bivariate variable strength of association.</td>
<td>Correlations that are not substantial enough (&lt;.30) should be considered for item deletion. We also inspect the higher correlations (&gt; .90) as a significant number of correlations greater than this can cause problems during estimation (Hair et al. 1995).</td>
<td>Generally between .30 and .90. Note: This task was approached with caution as constructs were posited to represent higher-order constructs and there should naturally be higher than average correlations to support this structure (Wilson et al. 2007).</td>
</tr>
<tr>
<td>Loadings</td>
<td>Loadings are inspected as these represent the strength of the item in representing the latent construct. A key determinant of construct validity and often referred to as item reliability. A value of 0.707 implies that more than 50 per cent (0.707^2) of the variance in the observed variable is shared with the construct (Barclay et al. 1995). Falk and Miller (1992) suggest that loadings need to be greater than 0.55. Most look for item loadings of at least 0.707 (Hair et al. 1995; Hulland et al. 1996). Chin (1998b, p. 325) believes, “loadings of .5 and .6 may still be acceptable if there exists other indicators in the block for comparison”.</td>
<td>Nunnally (1978) provides a widely accepted rule of thumb that reliability (alpha) should be at least .70 for a scale to demonstrate internal consistency. Values of .60 may be appropriate depending on the number of items in the scale or if exploratory research (Hair et al. 1995; Hattie 1985).</td>
<td>Satisfactory if &gt;.70. The Chin (1998b) recommendation of 0.6 is adhered to as each construct has multiple measures.</td>
</tr>
<tr>
<td>Reliability</td>
<td>To determine whether the measurement model provided consistent results (Nunnally 1978). “Reliability is that part of a measure that is free of purely random error” (Bollen 1989, p. 207). Cronbach’s Alpha is reported as a matter of convention and should be not be given as much credence as it is the lower bound estimate of reliability (Raykov 1997; 2001).</td>
<td>Nunnally (1978) provides a widely accepted rule of thumb that reliability (alpha) should be at least .70 for a scale to demonstrate internal consistency. Values of .60 may be appropriate depending on the number of items in the scale or if exploratory research (Hair et al. 1995; Hattie 1985).</td>
<td>Satisfactory if &gt;.70. Construct reliability statistic is considered to be a better indicator of unidimensionality (Chin 1998b).</td>
</tr>
<tr>
<td>1) Cronbach’s Alpha (Cronbach 1951)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2) Construct Reliability [often referred to as Internal Consistency (IC) statistic, Composite Reliability or Dillon-Goldstein statistics] (Werts et al. 1974).</td>
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Table D.2: Measurement Model Results for Sincerity

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<th>Item Wording</th>
<th>EFA Loadings</th>
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<td>SI N2</td>
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<td>SI N3</td>
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<td>SI N4</td>
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<td>SI N5</td>
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<td>SI N7</td>
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<td>SI N8</td>
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<td>SI N9</td>
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<td>SI N11*</td>
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<td>SI N12</td>
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<table>
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<tr>
<th>Item Wording</th>
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<th>KMO 0.925</th>
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* Denotes that this item was deleted.

The correlations were then inspected and all coefficients fell within the acceptable range for factor analysis of .30 to .90 except for SI N11. The small town descriptor had low intercorrelations with other variables. A Cronbach’s Alpha of .93 was computed with the removal of this item. It is clear that this descriptor does not transfer well to Australian culture. The EFA reproduced a unitary factor structure. The loadings were all acceptable after SI N11 item deletion with strong item loadings. The variance explained was 56.3%. As a result, the variables were considered to provide reliable and valid measures for the sincerity construct.
D1.2 Measurement Model Analysis – Excitement

The excitement construct was also measured using 12 items or trait descriptors. The results are presented in Table D.3. Bartlett’s Test of Sphericity (BT) revealed a significant probability level ($p< .001$) for The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) which was .944. The data were deemed suitable for EFA. The bivariate correlations were within the acceptable range for factor analysis of .30 to .90, and Cronbach’s Alpha was suitably high (.93). The results illustrate a unitary construct. The loadings were all acceptable and the variance explained was 55.40%. As a result, these variables were considered to provide reliable and valid measures for the excitement construct.

Table D.3: Measurement Model Results for Excitement

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</table>
D1.3 Measurement Model Analysis – Competence

The results are presented in Table D.4. The BT revealed the Chi-square is significant (p< .001). There was also a high KMO statistic (.919) and a significant probability level (p< .001) for the Bartlett’s Test. Alpha of .90 was computed, and there is sound reliability for the variables measuring the competence construct. The results reproduced a unitary factor structure. The loadings were all acceptable and the variance explained was 55.65%. As a result, these variables were considered to provide reliable and valid measures for the competence construct.

Table D.4: Measurement Model Results for Competence

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Item Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP1</td>
<td>Successful</td>
<td>.71</td>
</tr>
<tr>
<td>COMP2</td>
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<td>.71</td>
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<tr>
<td>COMP3</td>
<td>Hard working</td>
<td>.76</td>
</tr>
<tr>
<td>COMP4</td>
<td>Intelligent</td>
<td>.79</td>
</tr>
<tr>
<td>COMP5</td>
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<td>.65</td>
</tr>
<tr>
<td>COMP6</td>
<td>Leader</td>
<td>.80</td>
</tr>
<tr>
<td>COMP7</td>
<td>Confident</td>
<td>.84</td>
</tr>
<tr>
<td>COMP8</td>
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<td>.78</td>
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<tr>
<td>COMP9</td>
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<td>.65</td>
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<thead>
<tr>
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<th>KMO</th>
<th>Bartlett’s</th>
</tr>
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<tbody>
<tr>
<td>Variance Explained</td>
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<td>.919</td>
<td>.000</td>
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<th>COMP3</th>
<th>COMP4</th>
<th>COMP5</th>
<th>COMP6</th>
<th>COMP7</th>
<th>COMP8</th>
<th>COMP9</th>
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<td>.50</td>
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<td>.45</td>
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<td>.50</td>
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</tbody>
</table>
D1.4 Measurement Model Analysis – Sophistication

The sophistication construct uses seven trait descriptors. The results are presented in Table D.5. The BT revealed the Chi-square is significant (p< .001). There was also a high KMO statistic (.912) and a significant probability level (p< .001) for the Bartlett’s Test. Further analysis could proceed. Alpha of .90 was computed, and there is sound reliability for the variables measuring the competence construct. The EFA reproduced a unitary factor structure. The loadings were all high and the variance explained was 62.08%. These measures provide reliable and valid measures for the sophistication construct.

Table D.5: Measurement Model Results for Sophistication

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Item Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP1</td>
<td>Upper class</td>
<td>.71</td>
</tr>
<tr>
<td>SOP2</td>
<td>Feminine</td>
<td>.71</td>
</tr>
<tr>
<td>SOP3</td>
<td>Smooth</td>
<td>.76</td>
</tr>
<tr>
<td>SOP4</td>
<td>Glamourous</td>
<td>.79</td>
</tr>
<tr>
<td>SOP5</td>
<td>Good looking</td>
<td>.65</td>
</tr>
<tr>
<td>SOP6</td>
<td>Charming</td>
<td>.80</td>
</tr>
<tr>
<td>SOP7</td>
<td>Sophisticated</td>
<td>.84</td>
</tr>
</tbody>
</table>

Reliability: 0.90  
Variance Explained: 62.08  
KMO: 0.912  
Bartlett’s Test: 0.000

<table>
<thead>
<tr>
<th>SOP1</th>
<th>SOP2</th>
<th>SOP3</th>
<th>SOP4</th>
<th>SOP5</th>
<th>SOP6</th>
<th>SOP7</th>
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<td>1.0</td>
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</tr>
<tr>
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<td></td>
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<td>.53</td>
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</tr>
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<td>.66</td>
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<td>.55</td>
<td>.64</td>
<td>.54</td>
<td>.62</td>
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</tr>
</tbody>
</table>

D1.5 Measurement Model Analysis – Ruggedness

The ruggedness construct has seven trait descriptors. The results are presented in Table D.6. The Bartlett’s Test (p< .001) and KMO statistic (.864) results indicate that sufficient correlations were found within the correlation matrix for EFA to proceed.
Table D.6: Measurement Model Results for Ruggedness

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Item wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUG1</td>
<td>Rugged</td>
<td>.67</td>
</tr>
<tr>
<td>RUG2</td>
<td>Masculine</td>
<td>.75</td>
</tr>
<tr>
<td>RUG3</td>
<td>Strong</td>
<td>.77</td>
</tr>
<tr>
<td>RUG4</td>
<td>Tough</td>
<td>.82</td>
</tr>
<tr>
<td>RUG5</td>
<td>Western</td>
<td>.60</td>
</tr>
<tr>
<td>RUG6</td>
<td>Outback</td>
<td>.73</td>
</tr>
<tr>
<td>RUG7</td>
<td>Outdoorsy</td>
<td>.71</td>
</tr>
</tbody>
</table>

The intercorrelations for RUG5 were around the .30 mark and were deemed appropriate to be included in the analysis. Alpha of .85 was computed and there is sound reliability for the variables measuring the ruggedness construct. Ruggedness is a unitary factor construct. The loadings were all high and the variance explained was 62.08%.
D2 Brand Relationship Quality Constructs

The BRQ measurement model’s results are now presented.

D2.1 Measurement Model Analysis – Commitment

Results for the measurement model for the Brand Relationship Quality constructs are now presented. The commitment construct was measured using nine question items. The results are presented in Table D.7. The BT revealed the Chi-square is significant ($p<.001$). There was also a high KMO statistic (.930), and these results indicate that sufficient correlations were found within the correlation matrix for factor analysis to proceed. Alpha of .93 was computed. There is sound reliability for the variables measuring the commitment construct. The EFA reproduced a unitary factor structure. The loadings were all acceptable. The variance explained was 64.75%. As a result, these variables were considered to provide reliable and valid measures for the commitment construct.

Table D.7: Measurement Model Results for Commitment

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Question Wordiing</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM1</td>
<td>I am dedicated to this brand.</td>
<td>.80</td>
</tr>
<tr>
<td>COMM2</td>
<td>I am very loyal to this brand.</td>
<td>.85</td>
</tr>
<tr>
<td>COMM3</td>
<td>At some level, I would feel badly if I switched to another brand in this category.</td>
<td>.83</td>
</tr>
<tr>
<td>COMM4</td>
<td>I would like to see my relationship with this brand get stronger over time.</td>
<td>.79</td>
</tr>
<tr>
<td>COMM5</td>
<td>I would be willing to make small sacrifices in order to keep using this brand.</td>
<td>.85</td>
</tr>
<tr>
<td>COMM6</td>
<td>I would probably stick with this brand even it let me down a time or two.</td>
<td>.79</td>
</tr>
<tr>
<td>COMM7</td>
<td>I am so happy with this brand that I no longer feel the need to keep my eyes out for other possible alternative.</td>
<td>.82</td>
</tr>
<tr>
<td>COMM8</td>
<td>I feel compelled to stick with this brand because of what I have invested in over time.</td>
<td>.81</td>
</tr>
<tr>
<td>COMM9</td>
<td>I would be willing to travel to another store or postpone my purchase if this brand were not available when I went looking for it.</td>
<td>.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability Variance Explained</th>
<th>0.93</th>
<th>64.75</th>
<th>KMO Bartlett’s</th>
<th>.930</th>
<th>.000</th>
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<tbody>
<tr>
<td>COMM1</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM2</td>
<td>.80</td>
<td>1.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>COMM3</td>
<td>.59</td>
<td>.66</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM4</td>
<td>.52</td>
<td>.61</td>
<td>.68</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>COMM5</td>
<td>.57</td>
<td>.62</td>
<td>.68</td>
<td>.68</td>
<td>1.0</td>
</tr>
<tr>
<td>COMM6</td>
<td>.57</td>
<td>.62</td>
<td>.56</td>
<td>.55</td>
<td>.65</td>
</tr>
<tr>
<td>COMM7</td>
<td>.60</td>
<td>.65</td>
<td>.63</td>
<td>.54</td>
<td>.67</td>
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<tr>
<td>COMM8</td>
<td>.56</td>
<td>.58</td>
<td>.66</td>
<td>.63</td>
<td>.70</td>
</tr>
<tr>
<td>COMM9</td>
<td>.55</td>
<td>.57</td>
<td>.48</td>
<td>.46</td>
<td>.54</td>
</tr>
</tbody>
</table>
D2.1 Measurement Model Analysis – Interdependence

The interdependence construct was measured using eight question items. The results are presented in Table D.8. BT was significant (p < .001) and the KMO statistic (.933) was high. These results indicate that sufficient correlations were found within the correlation matrix for further analysis to proceed. Cronbach’s Alpha of .93 was computed, and there is sound reliability for the variables measuring the commitment construct. The EFA reproduced a unitary factor structure. The loadings were all acceptable and the variance explained was 64.75%. As a result, these variables were considered to represent reliable and valid measures for the interdependence construct.

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTD1</td>
<td>I have become dependent on this brand.</td>
<td>.82</td>
</tr>
<tr>
<td>INTD2</td>
<td>I really need this brand and rely on the benefits it provides.</td>
<td>.84</td>
</tr>
<tr>
<td>INTD3</td>
<td>You might say I am addicted to this brand in some ways.</td>
<td>.84</td>
</tr>
<tr>
<td>INTD4</td>
<td>The times that I use this brand add order and structure into my life.</td>
<td>.83</td>
</tr>
<tr>
<td>INTD5</td>
<td>You could consider the way I use this brand as a ritual</td>
<td>.85</td>
</tr>
<tr>
<td>INTD6</td>
<td>I feel like something is missing when I haven’t used this brand in a while.</td>
<td>.79</td>
</tr>
<tr>
<td>INTD7</td>
<td>When I have a need for a product of this type, I think first of this brand.</td>
<td>.66</td>
</tr>
<tr>
<td>INTD8</td>
<td>This brand is an integral part of my life.</td>
<td>.85</td>
</tr>
</tbody>
</table>

Table D.8: Measurement Model Results for Interdependence
D2.3 Measurement Model Analysis – Partner Quality

The partner quality construct was measured using eleven question items. The results are presented in Table D.9. BT was significant (p< .001) and the KMO statistic (.914) was indicative that EFA could be applied to the data. Bivariate correlations were in suitable ranges. Alpha of .93 was computed.

Table D.9: Measurement Model Results for Partner Quality

<table>
<thead>
<tr>
<th>Item</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQUAL1</td>
<td>This company/brand makes me feel like a valued customer.</td>
<td>.70</td>
</tr>
<tr>
<td>PQUAL2</td>
<td>I know I can always count on this brand</td>
<td>.74</td>
</tr>
<tr>
<td>PQUAL3</td>
<td>This brand/company takes good care of me as a customer.</td>
<td>.82</td>
</tr>
<tr>
<td>PQUAL4</td>
<td>I know that this brand/company has my best interests in mind whenever it makes decisions.</td>
<td>.75</td>
</tr>
<tr>
<td>PQUAL5</td>
<td>If this brand/company makes a mistake, I know it will try its best to make up for it.</td>
<td>.80</td>
</tr>
<tr>
<td>PQUAL6</td>
<td>I know I can hold this brand/company accountable for its actions.</td>
<td>.78</td>
</tr>
<tr>
<td>PQUAL7</td>
<td>This brand/company is a good listener of customer concerns.</td>
<td>.83</td>
</tr>
<tr>
<td>PQUAL8</td>
<td>This brand/company has always been honest in its dealings with me.</td>
<td>.80</td>
</tr>
<tr>
<td>PQUAL9</td>
<td>This brand is reliable and predictable.</td>
<td>.70</td>
</tr>
<tr>
<td>PQUAL10</td>
<td>This brand/company cares about keeping me as a customer.</td>
<td>.78</td>
</tr>
<tr>
<td>PQUAL11</td>
<td>This brand/company is very responsive to customer feedback.</td>
<td>.79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Variance Explained</th>
<th>0.93</th>
<th>KMO</th>
<th>Bartlett’s</th>
<th>.909</th>
<th>.000</th>
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<tbody>
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<td></td>
</tr>
<tr>
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<td>1.0</td>
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<td>.59</td>
<td>.67</td>
<td>1.0</td>
</tr>
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<td>.62</td>
<td>.62</td>
</tr>
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<td>PQUAL8</td>
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<td>.52</td>
<td>.64</td>
<td>.51</td>
<td>.59</td>
<td>.57</td>
</tr>
<tr>
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<td>.61</td>
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<td>.55</td>
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<td>.50</td>
<td>.55</td>
<td>.53</td>
</tr>
<tr>
<td>PQUAL11</td>
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<td>.48</td>
<td>.55</td>
<td>.53</td>
<td>.60</td>
<td>.58</td>
</tr>
</tbody>
</table>

The loadings were all above .60, and the variance explained was 59.67%. There is sound reliability for the variables measuring the partner quality construct.
D2.4 Measurement Model Analysis – Love/Passion SUB

This construct was measured using nine question items. The results are presented in Table D.10. The preliminary factor analysis test results indicated that analysis could proceed. The Cronbach’s Alpha (.93) illustrated sound reliability. This demonstrates that the love/passion construct items are reliable. The loadings were all suitably high, and the variance explained was 64.35%. These variables were considered to provide satisfactory measures for the love/passion construct.

Table D.10: Measurement Model Results for Love/Passion

<table>
<thead>
<tr>
<th>Item</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOV1</td>
<td>No other brand could take the place of this brand in my mind.</td>
<td>.77</td>
</tr>
<tr>
<td>LOV2</td>
<td>This may sound silly, but this brand and I are “perfect for each other.”</td>
<td>.81</td>
</tr>
<tr>
<td>LOV3</td>
<td>I like this brand so much I want other interested people I know to experience too.</td>
<td>.82</td>
</tr>
<tr>
<td>LOV4</td>
<td>I really love this brand.</td>
<td>.86</td>
</tr>
<tr>
<td>LOV5</td>
<td>There is something about this brand that makes it unlike other brand.</td>
<td>.79</td>
</tr>
<tr>
<td>LOV6</td>
<td>The thought of not being able to use this brand anymore disturbs me at some level.</td>
<td>.85</td>
</tr>
<tr>
<td>LOV7</td>
<td>I have feeling for this brand that I do not have for many brands.</td>
<td>.84</td>
</tr>
<tr>
<td>LOV8</td>
<td>There are times when I can’t wait to use this brand again.</td>
<td>.80</td>
</tr>
<tr>
<td>LOV9</td>
<td>I want to see this brand succeed in the marketplace.</td>
<td>.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Explained Variance</th>
<th>KMO</th>
<th>Bartlett’s Test</th>
</tr>
</thead>
<tbody>
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<td>LOV1</td>
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<td></td>
</tr>
<tr>
<td>LOV2</td>
<td>.65</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>LOV3</td>
<td>.61</td>
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<td>1.0</td>
</tr>
<tr>
<td>LOV4</td>
<td>.64</td>
<td>.67</td>
<td>.69</td>
</tr>
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<td>LOV5</td>
<td>.57</td>
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<tr>
<td>LOV6</td>
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<td>.61</td>
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</tr>
<tr>
<td>LOV7</td>
<td>.57</td>
<td>.58</td>
<td>.60</td>
</tr>
<tr>
<td>LOV8</td>
<td>.56</td>
<td>.60</td>
<td>.65</td>
</tr>
<tr>
<td>LOV9</td>
<td>.41</td>
<td>.45</td>
<td>.50</td>
</tr>
</tbody>
</table>

Reliability | Explained Variance | KMO | Bartlett’s Test |
-------------|---------------------|-----|-----------------|
LOV1         | 1.0                 |     |                 |
LOV2         | .65                 | 1.0 |                 |
LOV3         | .61                 | .71 | 1.0             |
LOV4         | .64                 | .67 | .69             |
LOV5         | .57                 | .58 | .55             |
LOV6         | .56                 | .61 | .69             |
LOV7         | .57                 | .58 | .60             |
LOV8         | .56                 | .60 | .65             |
LOV9         | .41                 | .45 | .50             |

Reliability | Explained Variance | KMO | Bartlett’s Test |
-------------|---------------------|-----|-----------------|
LOV1         | 1.0                 |     |                 |
LOV2         | .65                 | 1.0 |                 |
LOV3         | .61                 | .71 | 1.0             |
LOV4         | .64                 | .67 | .69             |
LOV5         | .57                 | .58 | .55             |
LOV6         | .56                 | .61 | .69             |
LOV7         | .57                 | .58 | .60             |
LOV8         | .56                 | .60 | .65             |
LOV9         | .41                 | .45 | .50             |
D2.5 Measurement Model Analysis – Intimacy

The intimacy construct was measured using 11 question items. The results are presented in Table D.11. BT was significant (p< .001) and the KMO statistic (.914) was high. These results indicate that sufficient correlations were found within the correlation matrix for EFA to proceed. A Cronbach’s Alpha of .93 was computed.

There is sound reliability for the variables measuring the intimacy construct. Cross-loadings for all items were investigated and the problematic items were deleted. The results reveal a unitary factor structure after the deletion of INTM1 and INTM2. The loadings were all above .60, and the variance explained was 53.34%. As a result, these variables were considered to provide reliable and valid measures for the intimacy construct.

<table>
<thead>
<tr>
<th>Item</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTM1*</td>
<td>I am very knowledgeable about this brand.</td>
<td>n/a</td>
</tr>
<tr>
<td>INTM2*</td>
<td>I know something about this brand’s history and background.</td>
<td>n/a</td>
</tr>
<tr>
<td>INTM3</td>
<td>I know things about this brand or the company that makes it that the average consumer probably does not know.</td>
<td>.60</td>
</tr>
<tr>
<td>INTM4</td>
<td>I know this brand so I could probably predict how it would react in certain situations.</td>
<td>.74</td>
</tr>
<tr>
<td>INTM5</td>
<td>I would feel comfortable describing this brand to someone who is not familiar with it.</td>
<td>.78</td>
</tr>
<tr>
<td>INTM6</td>
<td>I pay close attention to information I hear about this brand.</td>
<td>.76</td>
</tr>
<tr>
<td>INTM7</td>
<td>I am familiar with other products that have this brand name on them.</td>
<td>.61</td>
</tr>
<tr>
<td>INTM8</td>
<td>I would feel free to talk with the company that makes this brand if there was something bothering me about the product.</td>
<td>.66</td>
</tr>
<tr>
<td>INTM9</td>
<td>This company/brand knows a lot about me and my needs as a customer.</td>
<td>.79</td>
</tr>
<tr>
<td>INTM10</td>
<td>This company/brand really understands my needs in this product category.</td>
<td>.82</td>
</tr>
<tr>
<td>INTM11</td>
<td>This company could probably design a product especially for me because it knows my needs so well.</td>
<td>.78</td>
</tr>
</tbody>
</table>

There is sound reliability for the variables measuring the intimacy construct. Cross-loadings for all items were investigated and the problematic items were deleted. The results reveal a unitary factor structure after the deletion of INTM1 and INTM2. The loadings were all above .60, and the variance explained was 53.34%. As a result, these variables were considered to provide reliable and valid measures for the intimacy construct.
D2.6 Measurement Model Analysis – Self-Concept Connection

Table D.12: Measurement Model Results for Self-Concept Connection

<table>
<thead>
<tr>
<th>Item</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCON1</td>
<td>This brand says a lot about the type of person I would like to be.</td>
<td>.79</td>
</tr>
<tr>
<td>SCON2</td>
<td>This brand fits well with my life objectives and goals.</td>
<td>.85</td>
</tr>
<tr>
<td>SCON3</td>
<td>This brand makes a statement about what is important to me in life.</td>
<td>.85</td>
</tr>
<tr>
<td>SCON4</td>
<td>This brand connects with the part of me that really makes me tick.</td>
<td>.87</td>
</tr>
<tr>
<td>SCON5</td>
<td>This brand is a part of me.</td>
<td>.84</td>
</tr>
<tr>
<td>SCON6</td>
<td>This brand helps me get done what I need to get done.</td>
<td>.78</td>
</tr>
<tr>
<td>SCON7</td>
<td>This brand fits well with my current stage of life.</td>
<td>.83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Variance Explained</th>
<th>KMO</th>
<th>Bartlett’s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68.92</td>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

The Self-Concept Connection construct was measured using seven question items. The results are presented in Table D.12. The item measures of this construct are reliable (Alpha of .92). The loadings were all above .60. The variance explained was 68.92%. These variables were considered reliable and valid measures.
D2.7 Measurement Model Analysis – Nostalgic Connection

Nostalgic connection was measured using seven question items. The results are featured in Table D.13. The item measures of this construct are reliable (Alpha of .89). The loadings were all above the threshold of acceptability, and the variance explained was 64.35%. These variables were considered reliable and valid measures.

Table D.13: Measurement Model Results for Nostalgic Connection

<table>
<thead>
<tr>
<th>Item Descriptor</th>
<th>Question Wording</th>
<th>EFA Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCON1</td>
<td>I have sentimental feelings towards this brand.</td>
<td>.81</td>
</tr>
<tr>
<td>NCON2</td>
<td>I associate this brand with certain people who I know use(d) it.</td>
<td>.64</td>
</tr>
<tr>
<td>NCON3</td>
<td>My thought of this brand contain memories of things I’ve done or places I’ve been.</td>
<td>.82</td>
</tr>
<tr>
<td>NCON4</td>
<td>This brand adds some stability to my life.</td>
<td>.77</td>
</tr>
<tr>
<td>NCON5</td>
<td>Using this brand makes me feel safe and secure at some level.</td>
<td>.83</td>
</tr>
<tr>
<td>NCON6</td>
<td>This brand reminds me of a particular phase of my life.</td>
<td>.81</td>
</tr>
<tr>
<td>NCON7</td>
<td>I really feel comfortable with this brand.</td>
<td>.77</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Variance Explained</th>
<th>0.89</th>
<th>KMO</th>
<th>Bartlett’s</th>
<th>.901</th>
<th>.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCON1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCON2</td>
<td>.50</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCON3</td>
<td>.60</td>
<td>.45</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCON4</td>
<td>.61</td>
<td>.44</td>
<td>.52</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCON5</td>
<td>.58</td>
<td>.41</td>
<td>.60</td>
<td>.63</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>NCON6</td>
<td>.59</td>
<td>.44</td>
<td>.70</td>
<td>.52</td>
<td>.60</td>
<td>1.0</td>
</tr>
<tr>
<td>NCON7</td>
<td>.52</td>
<td>.37</td>
<td>.59</td>
<td>.50</td>
<td>.66</td>
<td>.57</td>
</tr>
</tbody>
</table>

Overall, the BRQ constructs were deemed appropriate for use in the next phase of validity testing.

The next section reports measurement model analyses for the constructs that comprise the consumer involvement profile (CIP).
D3 Consumer Involvement Profile Constructs

D3.1 Measurement Model Analysis – Interest

The interest construct was measured using three question items. The results are outlined in Table D.14. The preliminary factor analysis test results indicate that analysis could proceed even though the KMO is a little lower at .589. A Cronbach’s Alpha was a little lower at .74, but sufficiently above the .70 value. This construct is unitary.

**Table D.14: Measurement Model Results for Interest**

<table>
<thead>
<tr>
<th>Item Wording</th>
<th>EFA Loadings</th>
<th>INT1</th>
<th>INT2</th>
<th>INT3</th>
</tr>
</thead>
<tbody>
<tr>
<td>I attach great importance to (category).</td>
<td>.88</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One can say (category) interests me a lot.</td>
<td>.91</td>
<td>.76</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>(Category) is a topic which leaves me totally indifferent**</td>
<td>.64</td>
<td>.33</td>
<td>.39</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Variance Explained</strong></td>
<td>66.96</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>KMO</strong></td>
<td>.589</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bartlett's</strong></td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Denotes that this item was reverse scored.

The loadings were all very high, except for INT3 which was lower (.64), but still above the requisite .60 value. The items explained 66.96% of the variance in the construct. These variables were considered to provide reliable and valid measures for this construct.

D3.2 Measurement Model Analysis – Perceived Product Importance/Risk

This construct was measured using three question items. The results are presented in Table D.15. The preliminary factor analysis test results indicate that analysis could proceed. The KMO statistic was not overly impressive (.610). Two correlations are around the .30 level and were considered for item deletion; but one is .31 and the other, at .28, is on the threshold and has been left intact. The loadings were all very high. Priority was given to the high loadings in deciding to include these items in future analyses. Chin (1998b) encourages items to be left in the analysis when the work is more exploratory, as is the case with this research study. An Alpha of .63 shows weaker yet appropriate reliability. This construct is unitary; the variance explained was 58.10%. These variables were considered reliable and valid measures for this construct.
D3.3 Measurement Model Analysis – Symbolic/sign value

This construct was measured using three question items. The results are outlined in Table D.16. The preliminary factor analysis test results were satisfactory. The KMO statistic was not overly impressive (.706). Again, two correlations were low and considered for item deletion but a decision was made to leave them intact. Again, the loadings were all high and this necessitated inclusion in future analyses. A Cronbach’s Alpha of .85 demonstrates sound reliability. This construct is unitary. The loadings were all very high. The variance explained was 77.44% for this construct. This measurement model is, therefore, reliable and valid.

Table D.16: Measurement Model Results for Symbolic/Sign Value

<table>
<thead>
<tr>
<th>Item Wording</th>
<th>EFA Loadings</th>
<th>SYMV1</th>
<th>SYMV2</th>
<th>SYMV3</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can tell a lot about a person by the (category) he or she chooses.</td>
<td>.88</td>
<td>SYMV1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>The (category) I buy give a glimpse of the type of man/woman I am.</td>
<td>.91</td>
<td>SYMV2</td>
<td>.28</td>
<td>1.0</td>
</tr>
<tr>
<td>The (category) you buy tells a little bit about you.</td>
<td>.85</td>
<td>SYMV3</td>
<td>.31</td>
<td>.51</td>
</tr>
</tbody>
</table>

Reliability 0.85  
Variance Explained 77.44

** Denotes that this item was reverse scored.

D3.4 Measurement Model Analysis – Hedonic Value

This construct was measured using three question items and the results are presented in Table D.17. The preliminary factor analysis test results indicate that analysis could proceed, and the Alpha of .88 illustrated quite high reliability. This construct is unitary. The loadings were all very high. The variance explained was 81.21%. These variables were considered reliable and valid for this construct.
Table D.17: Measurement Model Results for Hedonic Value

<table>
<thead>
<tr>
<th>Item Wording</th>
<th>EFA Loadings</th>
<th>HEDV1</th>
<th>HEDV2</th>
<th>HEDV3</th>
</tr>
</thead>
<tbody>
<tr>
<td>It gives me pleasure to purchase (category).</td>
<td>.90</td>
<td>.70</td>
<td>.73</td>
<td>.90</td>
</tr>
<tr>
<td>Buying (category) is like buying a gift for myself.</td>
<td>.91</td>
<td></td>
<td>.73</td>
<td>1.0</td>
</tr>
<tr>
<td>(Category) is somewhat of a pleasure to me.</td>
<td>.90</td>
<td></td>
<td>.70</td>
<td>.73</td>
</tr>
</tbody>
</table>

| Reliability                                                                 | 0.88         |       |       |       |
| Variance Explained                                                          | 81.21        |       |       |       |

D3.5 Measurement Model Analysis – Probability of Mispurchase

This construct was measured using four question items, and the results are presented in Table D.18. The preliminary factor analysis test results indicate that analysis could proceed. The Alpha of .81 illustrated quite high reliability. This construct is also unitary. The loadings were all very high. The variance explained was 64.35%.

Table D.18: Measurement Model Results for Probability of Mispurchase

<table>
<thead>
<tr>
<th>Item Wording</th>
<th>EFA Loadings</th>
<th>PMIS1</th>
<th>PMIS2</th>
<th>PMIS3</th>
<th>PMIS4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whenever one buys (category), one never really knows whether they should have been bought.</td>
<td>.72</td>
<td>.56</td>
<td>.46</td>
<td>.50</td>
<td>.57</td>
</tr>
<tr>
<td>When I face a shelf of (category), I always feel a bit at a loss to make my choice.</td>
<td>.83</td>
<td>.37</td>
<td>.61</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Choose (category) is rather complicated.</td>
<td>.81</td>
<td>.37</td>
<td>.61</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>When one purchases (category), one is never certain of one’s choice.</td>
<td>.84</td>
<td>.53</td>
<td>.57</td>
<td>.59</td>
<td>1.0</td>
</tr>
</tbody>
</table>

| Reliability                                                                 | 0.81         |       |       |       |
| Variance Explained                                                          | 64.35        |       |       |       |

* Denotes that this item was deleted.

These variables were considered to provide reliable and valid measures for this construct. The measurement models for the constructs for the consumer involvement profile have now been developed.
### Table E.1: Correlation Matrix from SPAD Output

|     | PPI   | SYMV  | HEDV  | INT   | SIN   | SOP   | EXC   | COMP  | RUG   | PQUAL | LOV   | INTM  | NCON  | INTD  | COMM  | SCON  |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| PPI | 1     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| SYMV| 0.2037| 1     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| HEDV| 0.2332| 0.3138| 1     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| INT | 0.3070| 0.3044| 0.6704| 1     |       |       |       |       |       |       |       |       |       |       |       |       |       |
| SIN | 0.0967| 0.0607| 0.2335| 0.2388| 1     |       |       |       |       |       |       |       |       |       |       |       |       |
| SOP | 0.1482| 0.1114| 0.2493| 0.2214| 0.7453| 1     |       |       |       |       |       |       |       |       |       |       |       |
| EXC | 0.0447| 0.0537| 0.1685| 0.1430| 0.7872| 0.8271| 1     |       |       |       |       |       |       |       |       |       |       |
| COMP| 0.1399| 0.0659| 0.2228| 0.2353| 0.8538| 0.7737| 0.7881| 1     |       |       |       |       |       |       |       |       |       |
| RUG | 0.1225| 0.1241| 0.2095| 0.1965| 0.7564| 0.7625| 0.7866| 0.7668| 1     |       |       |       |       |       |       |       |       |
| PQUAL| 0.1061| 0.0592| 0.2303| 0.2885| 0.6308| 0.4742| 0.5188| 0.5930| 0.4489| 1     |       |       |       |       |       |       |       |
| LOV | 0.1147| 0.0929| 0.2336| 0.3144| 0.5829| 0.4965| 0.5363| 0.5180| 0.4721| 0.8065| 1     |       |       |       |       |       |       |
| INTM| 0.1372| 0.1401| 0.2286| 0.3181| 0.5732| 0.4706| 0.4947| 0.5313| 0.4550| 0.8558| 0.8447| 1     |       |       |       |       |       |
| NCON| 0.1392| 0.1051| 0.2638| 0.3305| 0.5894| 0.4890| 0.4906| 0.5426| 0.4555| 0.8056| 0.8964| 0.8362| 1     |       |       |       |       |
| INTD| 0.1002| 0.0927| 0.1841| 0.2730| 0.5529| 0.4672| 0.4992| 0.4898| 0.4284| 0.7588| 0.9152| 0.8099| 0.8693| 1     |       |       |       |
| COMM| 0.1189| 0.0981| 0.2123| 0.2907| 0.5776| 0.4841| 0.5016| 0.5245| 0.4446| 0.8117| 0.9211| 0.8497| 0.8844| 0.9207| 1     |       |
| SCON| 0.1415| 0.1255| 0.2276| 0.3204| 0.5512| 0.4830| 0.4800| 0.5033| 0.4376| 0.7835| 0.9012| 0.8362| 0.8978| 0.9105| 0.9035| 1     |
APPENDIX F: Graphical Output for Alternative SEM BPS (Reflective) with BRQ

The estimated results below illustrate LISREL analyses using the derived PLS latent variable scores as input similar to the approach undertaken by Bruhn et al. (2008). Their study utilises both PLS and then LISREL to estimate a MIMIC model. ML estimation was chosen as most data had more than 15 categories and a polychoric correlation matrix could not be derived in PRELIS software. Figure F.1 below represents the loading and structural results obtained for the model when BPS is modelled assuming a reflective orientation. Parameter t-values are shown in Figure F.2 below. It should be noted that the formative orientation of the model could not be modelled with LISREL as it was not identified with only one endogenous construct (Bollen and Lennox 1991; Diamantopoulos 2006; Diamantopoulos, Riefler and Roth 2008; Diamantopoulos and Siguaw 2006; Diamantopoulos and Winklhofer 2001; Kline 2006). It would have needed another construct to be added for identification. The second diagram (see Figure F.2 below) represents the estimated t-values for those estimates with values greater than 1.96 considered significant at the 95% level. For the reflective orientation all estimates are significant. Some goodness-of-fit statistics are within acceptable ranges (NNFI = 0.968, CFI = 0.974, RMR = 0.038 and AGFI = 0.868), whilst other goodness-of-fit statistics are not within acceptable ranges (Chi-Square = 1075.128; 53df., RMSEA = 0.128 and AGFI = 0.806) (Bollen 1989; Byrne 1998; Jöreskog and Sörbom 1993; Kline 1998). Although it could be debated that the original Fournier (cf. 1994, p. 144) BRQ model was more complex with more estimated parameters (488df), Fournier accepted the single higher-order representation of BRQ with poorer goodness-of-fit statistics than is reported here.

69 The use of latent variable scores resulted in a continuous scale.
70 I would like to thank Professor Hipp for an especially useful email dialogue on the identification topic and his suggestion to use Confirmatory Vanishing Tetrad Nested Analysis tests (Bollen and Ting 2000) as an additional analysis. This technique circumvents the necessity for identification. This is also one of the reasons why PLS was chosen to present model results for additional analyses with the Brand Personality formative representation (Wilson et al. 2006; 2007). See additional analyses in Chapter 5.
Also, Aaker (cf. 1995, p. 94) yielded low CBSEM fit statistics in validating her BPS model. The Aaker model was less complex (80 df). Human personality research often finds difficulty in confirming these complex models (Finch and West 1997). Other work has also been published using complex models with diverging fit statistics (Ping Jr. 1993). Therefore, based on those previous studies, the model results here are deemed table for interpretation. A notable result is the closeness of the structural parameter estimates to the results obtained with the previous PLS structural model analyses. There is a slight illustration of the “consistency at large” bias effect with the PLS estimates, with there being an over-estimation of outside loadings and an under-estimation of structural estimates (Falk and Miller 1992).

**Figure F.1: BPS (Reflective) and BPS Structural Model Estimates**
Overall, when the model is estimated with LISREL using the latent variable scores, the brand personality construct is best treated as reflective in nature. This multiple method analysis approach is often undertaken for comparison purposes (Fornell and Bookstein 1982; Tenenhaus et al. 2005). The similarity of results for both PLS and CBSEM supports the reflective model orientation for brand personality.
APPENDIX G: Invited Academic Presentations

Based on the investigations presented in this thesis, the invited presentations listed below were given. The invited presentations disseminated the theoretical and methodological contributions emanating from this thesis to a broader audience. Notably, many of the presentations were to groups within premier institutions.

1) Invited Speaker at *Wirtschafts Universität Wien Vienna University of Economics and Business, Austria* (30 June 2009). Invitation by Professor Dr Josef Mazanec and Dr Thomas Salzberger. Talk to Faculty and Graduate Students in the Institute for Tourism and Leisure Studies/ Marketing titled, “Modern PLS Path Modelling Developments: Robustness, Implementation Approaches and Examples”.

2) Invited Speaker at *Ludwig-Maximilians-Universität München Institute for Market-based Management (IMM), Munich School of Management*, Munich, Germany (22 June 2009). Invitation from Professor Dr Manfred Schwaiger and Professor Dr Marko Sarstedt. Talk to Faculty and Graduate Students (Dipl-Kfm) titled, “How to Apply the Latest Methodological Advances in Structural Equation Modelling to Your Work: Some Examples from Branding and Communication”.

3) Invited Speaker at *Institute of Industrial Management at the Faculty of Business, Economics and Social Sciences of the University of Hamburg, Germany* (16 June 2009). Invitation from Professor Dr Christian Ringle. Talk to Students and Faculty titled, “The Importance of Personal Relationship Characteristics in Brand-Person Bonding”.

4) Invited Speaker at *George-August Universität Gottingen, Marketing and Management Department, Germany* (8 June 2009). Invitation by Professor Dr Gunter Silberer. Talk to Faculty and Students titled, “The Use of Structural Equation Methods in Communication and Branding: Some Applications and Recent Developments”.

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5) Invited Speaker at School of Business, Economics and Social Sciences, Institute of Industrial Management at University of Hamburg, Germany (10 July 2008). Invitation by Professor Dr K.W. Hansmann and Dr Christian Ringle. Talk to Research Group titled, “Statistical Methods to Measure Brand Personality, Brand Relationship Quality and Brand Image”.

6) Invited Presentation at School of Applied Communication, RMIT University, Postgraduate Training Presentations (15 August 2006), Talk to Faculty and Graduate students titled, “Investigating whether involvement moderates relations between Brand Personality, OR, do a brand’s softer attributes influence consumer loyalty?”


Antecedents of Brand Love’, *Brand Management*, 17(7), 504-518.


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