The Specification of Store Environments: the role of store design-architecture in the consumer perception of retail brands

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Declaration of Authenticity

This thesis is submitted for the fulfilment of the requirements of the Degree of Doctor of Philosophy at the University of Stirling.

I declare that this document is the product of my own work and its contents have not been included in other theses. Due acknowledgment is made of the work of others.

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Ad Maiorem Dei Gloriam

Abstract

The overall focus of this doctoral thesis is the examination of the role of store design-architecture in consumer perceptions of retail brand loyalty. More specifically, it examines how consumers' perceptions at the store design-architecture level promote brand loyalty and attachment at the overall retail-level. This research, therefore, aims to address the underdeveloped extant knowledge of the role of the store design-architecture in retail branding.

This thesis addresses two research questions: 1) is it possible to improve on the specification or measurement of the store environment beyond the novelty, complexity collative constructs proposed in traditional studies of the store environment?; and 2) what effect, if any, do these improved store environment constructs (from answering research question number one) have in explaining the role of store design-architecture in consumer perceptions of retail brand loyalty?

In its examination of the role of store-level design-architecture in overall retail-level branding, the theoretical significance of this thesis is based on two activities. First, this thesis proposes a conceptual framework that draws on multiple, diverse literatures from design-architecture, psychology and marketing. The critical review of pertinent literatures from these three sources then enables the second activity: the generation of novel empirical insights based on surveys of consumer perceptions of store-level design-architecture. A research instrument is developed that compares higher and lower levels of design in two stores of Penneys, a discount fashion retailer. The responses of 145 consumers are examined in an Exploratory Factor Analysis (EFA). A separate dataset of 403 consumer responses are analysed using Confirmatory Factor

Analysis (CFA) and Structural Equations Modelling (SEM). Multiple-group invariance testing is also completed on this dataset.

The primary theoretical contributions of this thesis to the extant literature are five-fold. First, the principal contribution of this thesis confirms that store aesthetic preference is positively associated with retail brand loyalty. Thus, the second research question is satisfactorily addressed; I explain that there is a mild association between store aesthetic preference and the emotionally valenced retail brand attachment construct in higher-level design contexts. Instead, a store aesthetic preference association is observed with the more behaviourally valenced retail brand loyalty construct in lower-level designs. Consequently, this principal contribution to the extant literature reveals the perceptive dynamic of how consumers processing of store-level design-architecture correspond with their perceptions of retail-level brand loyalty. A host of global-attribute, objective-subjective, and cognitive-emotional perceptive processing at the store and retail levels are observed in the proposed theoretical framework.

Second, to confirm the role of store design-architecture in retail brand loyalty, I develop: a new scale for retail brand product; modify scales for store prototype, store novelty, store aesthetic preference, store complexity and retail brand price; and introduce scales for brand attachment and brand loyalty from non-retail contexts into a retail context for the first time. This research, therefore, addresses research question number one by making a notable conceptual and measurement contribution to the specification of the store environment.

Third, as a progression from the previous contribution, I use these improved store environments constructs to better specify the store environment, and examine the associations between store prototype, store novelty and store aesthetic preference. I demonstrate that theory such as the preference-for-prototypes literature helps to improve the extant understanding of the associations between store prototype, store novelty and store aesthetic preference. The confirmation of the existence of these associations essentially means that the proposed model is robust, credible and able to account for consumers objective-subjective, global-attribute discriminations of the store-level aesthetic.

Fourth, in an effort to explain the relative visual and non-visual contributions to retail brand attachment and retail brand loyalty, I examine associations concerning retail brand product and retail brand price. Retail brand product is confirmed to have stronger associations with retail brand attachment than store aesthetic preference or store prototypicality. Thus, this research extends the extant knowledge of the relative contributions of visual and non-visual constructs to understanding retail brand loyalty.

Fifth, this research contributes to the extant understanding of how non-invariance analysis can be employed in Structural Equations Modelling (SEM) to confirm differences between groups. This research examines differences in parameter values to confirm differences in perception of the higher and lower levels of store design-architecture. This type of use of non-invariance analysis is not frequently employed in SEM and I propose that this research instrument can be generalised to other retail contexts also.

Finally, this thesis concludes by presenting the limitations of this research. It makes suggestions on potential future research that could be completed, and raises some pertinent implications for practitioners arising from this research.

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Glossary of Terms

AGFI	Adjusted Goodness of Fit Index
ASV	Average Shared Variance
AVE	Average Variance Extracted
Case 1	Penneys Store, Mary St.
Case 2	Penneys Store, O'Connell St.
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
χ^2	Chi-Square Test Statistic
CMin	Chi-Sq/DF
CR	Composite Reliability
C.R.	Critical Ratio
DF	Degrees of Freedom
EFA	Exploratory Factor Analysis
GFI	Goodness of Fit Index
GOF	Goodness-of-Fit
H	Hypothesis
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
NFI	Normalised Fit Index
ML	Maximum Likelihood
MSV	Maximum Shared Variance
P	Probability
R^2	Squared Multiple Correlations
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
S.E.	Standard Error
SEM	Structural Equation Model
SOR	Stimulus-Organism-Response Model
TLI	Tucker Lewis Index

Chapter One - Introduction

1.1. Introduction

Relatively few studies of aesthetics in the marketing literature are currently available. Although attempts have been made to acknowledge the increasing aestheticisation of products (Bloch 1995; Postrel 2003), few robust, empirically tested methods exist for the verification of store design concepts.

This chapter contextualises the two central research questions and explains the aim and primary focus of this thesis: namely, the examination of the role of store design-architecture in consumers' perceptions of retail brand loyalty. In outlining the research questions to be addressed, this chapter also previews the theoretical terrain to be covered and some of the theoretical lines of argumentation pursued in this thesis research.

1.2. The Two Research Questions Examined in this Thesis

The focus of this doctoral thesis explores the role of design-architecture at the store-level in consumer perceptions of retail-level brand loyalty. In other words, it asks is the role of store design in building overall retailer loyalty an extensive or minor role when viewed against non-visual influences such as product or price?

To address this focal association between consumer perceptions of design-architecture at the store level as it relates to perceptions of overall retail brand loyalty, this thesis employs two research questions:

1. Is it possible to improve on the specification or measurement of the store environment beyond the novelty, complexity collative constructs proposed in traditional studies of the store environment?
2. What effect, if any, do these improved store environment constructs (from answering research question number one) have in explaining the role of store design-architecture in consumer perceptions of retail brand loyalty?

The first of these two research questions, I suggest, requires a critical appraisal of the store environments literature and can be better understood with improved specification of the store environment using the following store-specific constructs: store prototype, store novelty, store complexity, and store aesthetic preference. Only with few exceptions, stemming largely from the environmental psychology inspired literature, have attempts to develop constructs that describe or measure consumer perceptions of the store environment been forthcoming. The second research question examines the associations between these improved constructs and enables conclusions to be drawn on the role that store design-architecture assumes in building retail-level brand loyalty.

1.3. The Aim of this Research

This thesis aims to contribute to the academic literature and consumers' processing of store design-architecture as it relates to perceptions of retail branding. This thesis, therefore, improves on the extant knowledge of store environment constructs (store prototype, novelty, complexity, and aesthetic preference), and how they are perceived at the retail-level (retail brand attachment and retail brand loyalty). Retail brand loyalty is better understood given this improved understanding of consumer responses to the presented store design.

Studies on the retail store environment currently do not entertain integrated considerations of the psychology, branding and design-architecture literatures and it is, therefore, unsurprising than operationalising studies of the store environment has proven difficult (McGoldrick 2002; Eroglu and Machleit 2008). Consequently, one observes measurement challenges with few or weakly developed scales available for studies of the retail store environment. This is despite calls for the development of such scales (Donovan and Rossiter 1982; McGoldrick 2002; Eroglu and Machleit 2008). The presence of few retail branding scales also increases the likelihood of reaching inaccurate conclusions concerning understandings of structural associations in SEM of retail branding when the store stimulus is improperly specified or defined to begin with.

The conceptual framework proposed in this thesis (Chapter Four), when subject to examination (Chapters Six to Nine), emphasises rigorous measurement of these constructs in exploratory and confirmatory factor analyses before examination of associations between these constructs using structural equations modelling (SEM). This is accomplished in the research instrument for this thesis where low and high levels of design in one retailer, Penneys, a discount fashion retailer, are investigated.

To understand the approach I have adopted in this thesis, it is first necessary to contextualise how aesthetics is influencing consumption today. I propose that there are increasing demands being placed upon some retailers, in certain contexts, to develop stores with higher levels of design. However, retailers do not understand, in many cases, how consumers relate to their design-architecture creations. An increased appreciation of the role of aesthetics, therefore, points to the theoretical terrain that I need to cover in this thesis. It more specifically points to the need to incorporate design, psychology and branding literatures in this thesis.

1.4. Context Setting: Appreciating the Influence of the Aesthetic on the Building of the Retail Brand

An increasing interest in aesthetics by consumers is noted in current consumption practices (Postrel 2003; Hirschman 1983; Holbrook 1980; Bloch, Brunel and Arnold 2003). The aesthetic is becoming more accessible to consumers and more of an obvious feature in product consumptions (Postrel 2003).

An increasing aestheticisation of consumption, consequently, presents challenges for academics to develop the appropriate theory and methods for explaining aesthetic judgment and brand interpretation (Bloch 1995; Venkatesh and Meamber 2008;

Hirschman 1983; Hirschman and Holbrook 1982; Holbrook 1980; Bloch, Brunel and Arnold 2003). The nature of these challenges facing retail academics is evident, for example, in the need to develop theoretical and applied methods to determine if consumers first engage with the store on the basis of its design and thereafter with its products. I propose that in a practical sense there is a need to develop tools to copyright store designs, as Apple has successfully achieved in Figure 1.1. (Bell 2013). Progress has proven slow in formulating reliable, valid approaches to investigating these kinds of design challenges in retail brand development.

Very little is also known about how consumers perceive architecture in the experience economy and whether marketers overwhelm consumers either with over-designed or under-designed stores. It is unclear how high and low levels of design-architecture, in a given instance, are appreciated and preferred as architecture. This means that there is little extant knowledge that confirms how communicative effects arise from the objective, formal properties of design-architecture in consumer evaluations of the store environment (Klingmann 2008).

Interpreting the aestheticisation of consumption in store environments demands approaches on the part of academics and practitioners to increasingly grapple with divergent strategies to build both standardised design and “spectacle” (Ranciere 2009) designed stores across the store network, I argue in this thesis. Standardised design promotes obvious brand awareness and familiarity gains for retailers. Standardised designs are perceptively easy to understand and explain why retailers such as IKEA commodify their “big blue box” design in the same consistent manner across the world (Figure 1.2.). At the other extreme, however, the spectacle, signature and icon-making statements of a Prada "epicentre" is likened to expensive packaging that attracts what are known as cultural creatives (Florida 2002). The spectacle evidences the extents that Prada, a luxury retailer, is prepared to go to build differentiation using architecture with strong and deliberate statements (see Figure 1.3.). The associations of "desire, controversy and brave" characterise both the design and the brand statements of Prada and are arguably present in their store architecture (Martin et al. 2001).

There is little understanding of how consumers tend to identify with these standardised or spectacle design-architecture structures. There are few methods or extant approaches to determine if consumers actually like many so-called spectacle or experiential denoted environments. This thesis is, ultimately, concerned with advancing the extant knowledge of how consumers perceive design-architecture as it relates to discernible gains in the form of loyalty benefits accruing to the retailer.

Figure 1.1. The Apple Store New York

Figure 1.2. The IKEA "Big Blue Box"

Figure 1.3. The Prada Store Tokyo

Figure 1.4. Planet Hollywood Las Vegas

Figure 1.5. Disneyland's Magic Kingdom California

Retailers vary in their approaches to incorporating either standardised or highly differentiated design-architecture in their stores. Retailers such as Planet Hollywood or Disneyland, according to Gottdiener (2001), are among those retailers who most obviously pursue the "spectacle" in their architectural creations with deliberate theming of their store environments (see Figures 1.4 and 1.5). An active communication idiom of relevant symbolism is on offer when consuming a little bit of Planet Hollywood stardom. The spectacle matters in Planet Hollywood and it is precisely this quality that may also prove unattractive to some consumers.

Failures to consider consumer interpretations of design-architecture also present problems when the emphasis in contemporary architecture on form and volume is in conflict with marketing attempts to advance multi-sensory branding (Malnar and Vodvarka 1992; Schmitt and Rogers 2009). The lack of methods to determine the communicative effect of design-architecture is a concern as many store communications are increasingly multi-sensory, personalised and intensive (Schmitt and Rogers 2009). Consequently, issues arise for academics and practitioners in defining the basis of design-architecture meaning, brand expressiveness and what is termed "the store experience" (Schmitt and Rogers 2009). Environments that emphasise form and volume in achieving the "spectacle", Malnar and Vodvarka (1992) argue, can also be detached from the tactile and immediate interactions that feature in more intimate, smaller volume spaces and that makes sensory branding more possible. This argument is forcefully advanced by Pallasmaa (2011) who proposes that many of today's modern architectural creations achieve an instantaneous architectural imagery that seems to create a world of autonomous architectural fictions that totally neglect the fundamental existential soil and objectives of the art of building (Pallasmaa 2011). Modern architecture, represented in the spectacle, can often be characterised as an alienated architectural world without gravity and materiality, hapticity and compassion (Pallasmaa 2011), and ultimately without the consumer or user concern in mind.

Having contextualised that there is little current understanding of the role of aesthetics or design-architecture in consumption, I now consider the theoretical terrain that needs to be covered to effectively examine the thesis research questions.

1.5. Mapping the Theoretical Terrain and Potential Contributions to the Literature Arising from this Thesis

The theoretical frame of inquiry in this research extends the scope of what has traditionally been considered in studies of the store environment to include additional literature from retail branding, prototypes and aesthetics. This kind of comprehensive conceptualisation of the store environment has not happened before and I propose that these diverse literatures, when employed together, could advance the extant knowledge of retail branding. A more evolved and informed theoretical perspective of what constitutes effective retail brand expression could materialise with this approach.

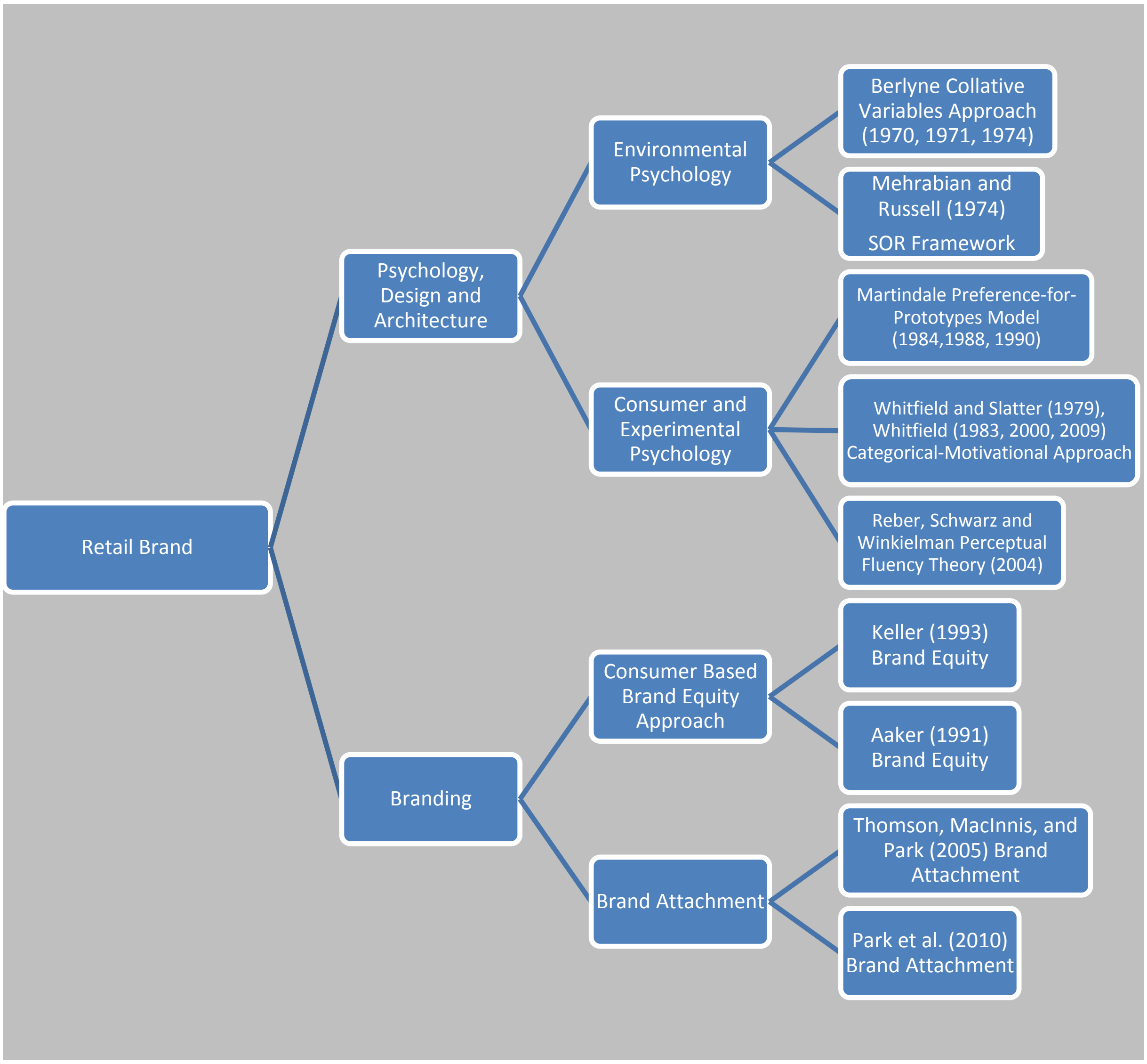
The predominant literature in the study of store environments, namely the environmental psychology literature, I argue, is restrictive in its conceptual breadth and focuses too-much on perceptions of the objective properties of the store stimulus (Whitfield 2009). The implication of too-much focus on the objective properties of the store environment, I argue, is a weakness in the ability of the environmental psychology literature to interpret consumers' subjective perceptions of the store environment.

This thesis addresses this concern by incorporating what Berlyne (1971) termed "ecological meaning" and includes additional subjective interpretations of store design-architecture in the proposed framework that is investigated. The conceptualisation of the store environment as proposed by Mehrabian and Russell (1974), Donovan and Rossiter (1982), I propose, is thus improved. Additional branding and prototypes theory is incorporated into the SOR model and thereby addresses the calls of Berlyne (1971) for a subjective or ecological meaning to be reflected in describing encounters involving aesthetics.

The approach proposed in this thesis, therefore, incorporates retail brand equity theory (Aaker 1991, 1996; Keller 1993, 2003; Jara and Cliquet 2012; Beristain and Zorrilla 2011) and prototypes theory (Ward, Bitner and Barnes 1992) into what essentially becomes a more comprehensive model of the store environment. The proposed model aims to explain both objective and subjective processing of the store environment and comprehensively reflects the multitude of cues and messages that consumers typically perceive in their responses to the store environment (Markin, Lillis and Narayana 1976). The incorporation of multiple, diverse literatures in the proposed conceptual model also addresses the calls by McGoldrick (2002); Eroglu and Machleit (2008) for studies of the store environment to be comprehensive and not focused on singular atmospheric constructs. The focus of store environments research, they argue, should be on researching a range of perceptive processing and not just on individual music, olfactory and similar atmospheric elements.

This thesis reflects the multi-disciplinary literature evident in Figure 1.6. of cognitive and environmental psychology (Mehrabian and Russell 1974; Donovan and Rossiter 1982); retail branding and image (Aaker 1991, 1996; Keller 1993; Park et al. 2010; Thomson, MacInnis and Park 2005; Jara and Cliquet 2012; Beristain and Zorrilla 2011); design, architecture and aesthetics (Berlyne 1970, 1971, 1974; Reber, Schwarz and Winkielman 2004; Pallasmaa 2011; Whitfield and Slatter 1979; Whitfield 1983, 2000, 2009; Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990) in consumer processing of the store environment[1].

Figure 1.6. Main Literature Areas Reviewed in Thesis



[1] In addition to the critical review of the literature in Chapters Two and Three, a summary of specific papers, their methods and findings is presented in Appendix I.

The comprehensive literature review, which informs the development of the conceptual framework for this thesis, reflects three significant evolutions in the design-architecture, marketing and psychology literatures. In addition to the Berlyne inspired aesthetics and environmental psychology literature, which informs earlier approaches to store environments research, the preference-for-prototypes theory (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990) and categorical-motivational theory (Whitfield and Slatter 1979; Whitfield 1983, 2000, 2009; Barsalou 1983) mark other significant additions in the aesthetics literature. These three broad evolutions in the aesthetics and prototypes literatures over the past forty years have limited literature parallels and direct comparisons in the marketing literature.

This thesis examines some of the potentially useful overlaps between these largely unrelated literatures. I propose how, for instance, the familiarity gains arising from the projection of the prototype could overcome the problems associated with the overly objective character of the Berlyne-inspired SOR literature. Similarly, the preference-for-prototypes literature from aesthetic psychology and general prototypes literature also share considerable conceptual overlap with the consumer-based brand equity literature, I propose. The basis for the development of brand association, awareness and loyalty emerge largely from repetition. The projection of standardised, repeated messages, associations and awareness all feature in the shared and unique attributes of the prototype, I argue in this thesis.

The research questions of this thesis thus demand an integration of multiple, disparate literatures to promote an improved understanding of how store design promotes overall retail brand loyalty, an infrequently explored area of retail research[2]. The findings examine how the store environment is better specified using the store prototype (Ward, Bitner and Barnes 1992); store novelty and complexity (Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Gilboa and Rafaeli 2003); and store aesthetic preference constructs (Hekkert 2006; Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990; Reber, Schwarz and Winkielman 2004). In so doing these store specification constructs account for significant levels of variance in the retail brand attachment and retail brand loyalty constructs (Park et al. 2010; Thomson, MacInnis and Park 2005; Aaker 1991, Aaker 1996; Yoo and Donthu 2001; Yoo, Donthu and Lee 2000). This research approach, I argue, could potentially improve the extant understanding of aesthetics in retailer brand building initiatives.

It is proposed that these quite different literatures are required to reflect the global, holistic and attribute interpretations of store environments by consumers (Keaveney and Hunt 1992). Figure 1.6. above visually depicts how some overlaps between the literatures underscores attribute-level and holistic, abstracted consumer processing of retail brands (Keller 1993, Aaker 1991, 1996). Reconciliations between these literatures in this research could also demonstrate consumers' objective-subjective interpretations as they relate to the formal properties of the design in retail contexts (Keaveney and Hunt 1992). In this respect, the measurement emphasis on the store environments constructs proposed in the thesis (store prototype, novelty, complexity, aesthetic preference), improves our understanding of how these constructs are defined and understood across the literatures.

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[2] The literature review chapters contained in this thesis (Chapters Two and Three) include relevant material published up until the year 2012.

Concepts such as “image” are used in both retail studies and in architecture. Similar references to “imagery”, “category”, “prototype”, “picture”, “imaginary”, “fantasy”, “metaphor”, “symbol”, “phenomenological perspective”, “personality”, “icon”, “archetype”, “gestalt”, “unity” are among the frequently employed concepts used to varying degrees in the aesthetics (Norberg-Schultz 1965; Pallasmaa 2011; Zumthor 2006; Holl, Pallasmaa and Perez-Gomez 2006), psychology (Mehrabian and Russell 1974; Donovan and Rossiter 1982; Barsalou 1983; Joiner 2007; Veryzer 1993, 1995) and marketing (Schmitt and Rogers 2009; Forceville 1996; Ward, Bitner and Barnes 1992; Joy and Sherry 2003; Borghini et al. 2009) literatures. There are often differences of approach on conceptual definition of these constructs between psychologists, marketers and architects and little agreement exists on how these concepts can be best explored.

This thesis acknowledges these differences in literature interpretation and specifically explores the role of the store specification constructs in promoting retail brand loyalty. By incorporating multiple literatures, in store and retail brand constructs, I propose measurements of comprehensive constructs that possess global-attribute properties and that are objectively-subjectively and cognitively-emotionally interpreted in store environments.

The reconciliation across multiple literatures to develop comprehensive, informed perspectives on the study of retail branding has in the past been approached from various symbolism, phenomenological, personality and consumer-based brand equity perspectives. The study of branding has been approached from the symbolism perspective where design-architecture literature from Broadbent, Bunt and Jencks

(1979), Preziosi (1979) are complemented by marketing papers by Esberg and Bech-Larsen (2009), Gottdiener (2001), McCracken (1986) and aesthetics by Van Rompay (2008). From the phenomenological perspective, the architectural literature of Pallasmaa (2011), Zumthor (2006), Holl, Pallasmaa and Perez-Gomez (2006) are also joined by marketing literature contributions by Joy and Sherry (2003), Arnold, Kozinets and Handelman (2001), Kozinets (2008) and Borghini et al. (2009). The general brand personality and retail brand personality literatures similarly pursue other theoretical tracks in the study of retail branding with literature from Aaker (1997), Helgeson and Supphellen (2004), Govers and Schoormans (2005), Brunel and Kumar (2007), D'Astous and Levesque (2003), Zentes, Morshett and Schramm-Klein (2008).

However, it has been decided to employ the retail brand equity literature, instead of these branding approaches, in this thesis. The retail brand equity perspective, unlike the phenomenological and symbolism approaches, features the consumer and not expert interpretation of brands (Aaker 1991; Keller 1993; Heding, Knudtzen and Bjerre 2009). The retail brand equity literature is described as the predominant literature in branding (Heding, Knudtzen and Bjerre 2009) and unlike, for instance, the retail brand personality literature, it proves more operationally convenient with more developed scales and measurement of its attendant constructs.

Examinations of the general consumer-based brand equity literature are evident in Yoo and Donthu (2001), Martinez and de Chernatony (2004), Christodoulides et al. (2006), Lassar, Mittal and Sharma (1995), Vázquez, Del Rio and Iglesias (2002), and in recent years have also been joined by a number of retail brand equity contributions

(Arnett, Laverie and Meiers 2003; Kim and Kim 2004; Pappu and Quester 2006; Jinfeng and Zhilong 2009; Beristain and Zorrilla 2011; Jara and Cliquet 2012).

In adding to the extant research on retail brand equity, this research also forms a necessary, first step in helping to operationalise the theoretically sophisticated categorical-motivational works of Whitfield (2009) or ad-hoc categorising works of Barsalou (1983). The categorical-motivational model of Whitfield (2000, 2009) and ad-hoc processing of Barsalou (1983) mark a third major evolution in the aesthetics literature. They propose dynamic, appraisal-like processing of the aesthetic stimulus and potentially improved specification of the store environment using constructs such as store prototype, store novelty, store complexity, and store aesthetic preference. The investigation of the two research questions in this thesis, consequently, develops the theoretical foundations for future research that may operationalise the Whitfield (2009) categorical-motivational and Barsalou (1983) ad-hoc categorising theories.

1.6. Additions to Practitioner Research

This research advances the specification of the store environment and the understanding of the role of the visual domain in building the retail brand. It employs the Anderson and Gerbing (1988) two-step measurement approach and proposes novel empirical insights based on rigorous confirmatory factor analysis and structural equations modelling.

The different understandings of aesthetics in architecture and marketing literatures, noted in the last section, is also frequently accompanied by architects and marketing practitioners being at cross-purposes (Klingmann 2008). The commercialisation objectives of marketers evident in designs that reflect freedom, beauty and pleasure frequently clash with architects desires to propose concepts with emphasised efficiency, rationality and truth (Postrel 2003). Architects may, furthermore, propose very different and more ideological approaches without consideration of consumer motivations, personal goals or desired experiences, according to Klingmann (2008).

This research, in addition to its theoretical contributions, aims to aid practitioners at the concept development stage of new design development. More specifically, this research could aid architects in making more informed choices by helping them to introduce new design elements that are more likely to be well-received by consumers. In other words, store novelty could be introduced in a manner that strengthens perceptions of the store prototype and could be aesthetically preferred. The verification of the approach proposed in this research could, therefore, confirm the likely effectiveness of store design-architecture in perceptions of retail brand loyalty.

1.7. Chapter-by-Chapter Overview to the Thesis

In order to address the two research questions proposed in this research, this thesis is presented in eight further chapters.

Chapters Two and Three review the relevant literature for this thesis. It is evident that there is a certain amount of reconciliation required in the literature review chapters to clarify how the design and branding literatures are considered in studies of the store environment. Each of the aesthetics and branding literatures possess certain possibilities and limitations and these are first considered in the literature review chapters.

In Chapter Two, I examine the extant literature of relevance to the specification of the store environment (research question one). In the review of the literature in Chapter Two, I discuss the limitations of the current SOR literature in explaining how consumer perceptions of the store environment are interpreted. The environmental psychology literature presents a credible framework for investigations of the multiple stimuli contained in the store environment, it is argued, but the info-theoretic inspired Berlyne (1971, 1974) works currently do not consider image, branding or other higher-order meaning contributions. It is argued that the existing SOR framework is, therefore, restrictive in its conceptualisation and unable to accommodate the range of subjective discriminations that consumers use in processing store environments.

It is, consequently, proposed in Chapter Three that a revised SOR that incorporates branding, prototypes and additional aesthetics theory offers an effective basis to interpret consumer interpretations of design-architecture. I propose that the incorporation of retail brand equity, and brand attachment theory in a revised SOR model will address a number of related issues that have traditionally posed difficulties in store environments research. Chapters Two and Three will suggest how objective-subjective, global-attribute and cognitive-emotional processing feature in comprehensive consumer processing of the store environment and assume a role in retail brand building.

In Chapter Four, I present the conceptual framework to be employed in the primary research of the thesis. It emphasises the importance of proper specification and measurement of the store environment and how collative constructs such as store novelty and store complexity are understood in the presence of a global-level construct such as the store prototype. Item pools originating from the multiple, diverse literatures employed in this thesis are presented. Conceptual definitions of the various constructs to be measured and examined are proposed in this chapter. The research questions to be examined in this thesis become clear in light of the hypotheses stated in Chapter Four.

The proposal of the conceptual framework in Chapter Four then leads to justification for the research instrument in Chapter Five. The positivist research philosophy underpinning this survey research is proposed and is followed by the steps I propose to compare the two levels of design in Penneys. The methodological implications that concern the conduct of the empirical research are considered in this chapter and also in subsequent chapters. This helps to validate the analyses methods employed in this research.

Chapters Six and Seven present the results from the empirical examination of the proposed conceptual framework. Chapter Six proposes the results from both an Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) in the first step of what Anderson and Gerbing (1988) recommend as the two-step procedure to employing Structural Equations Modelling (SEM). A significant extant literature exists across the design-architecture, marketing and psychology literatures; however, the level of scale development, I argue, is insufficient for the demands of this research. Improved scales are necessary to examine the constructs and their associations in the conceptual framework. It is, therefore, necessary to first perform an EFA before a CFA in this research. This approach accords with the advice of Gerbing and Andersen (1988), Harrington (2009) who suggest that in cases where there is theoretical justification, but a need for pre-specification of aspects of the model, then EFA is a necessary, preliminary step to construct measurement. The CFA rigorously modifies scales in specification of the store environment constructs and confirms the appropriateness of the brand attachment and loyalty constructs for the retail-level analyses of this research.

Having presented the measurement results for the individual constructs in Chapter Six, the associations between these constructs are then examined in the SEM proposed in Chapter Seven. The role of the design-architecture in specification of the store environment and the contribution of the visual domain to overall retail brand loyalty becomes clear in this chapter. I argue that multiple-group invariance testing, furthermore, demonstrates how higher-levels of design contribute to stronger brand loyalty and attachment gains for the retailer.

In Chapter Eight, the findings from both results chapters (Chapters Six and Seven) are critically discussed. The implications for the extant literature, in particular, are discussed. In this discussion, I justify – and critically reflect on - the construct measurement and associations examined in the CFA and SEM. This helps to propose the principal contributions of this research and confirms that the two research questions of the thesis are addressed.

This then brings us to the last chapter of this thesis, the Conclusions Chapter. The principal contributions of this research to the extant literature are presented in this chapter and are based on the work of the previous three chapters. Discussion of how these contributions also give rise to implications for managers and practitioners are presented. The limitations of this research and the possibilities for future research are also discussed in this final chapter.

Chapter Two – A Critical Review of Aesthetics Literature in Store Environments Research

2.1. Introduction

The purpose of this chapter is to critically review the aesthetics and environmental psychology literatures in store environments research. This is the first of two literature review chapters and critically reviews the literature related to research question number one and the extant specifications of the store environment. (Chapter Three critically reviews the literature on retail branding.)

This chapter examines extant conceptualisations of the store environment and proposes that an overly objective bias exists in Mehrabian and Russell (1974), Donovan and Rossiter (1982). Together with incorporation of multiple, diverse literatures drawn from psychology, marketing and design-architecture this chapter aims to address this bias. It justifies why the store environment should be specified with store prototype, novelty, and aesthetic preference constructs.

This chapter examines the conceptual and measurement difficulties in studies of aesthetics in store environments research. It proposes how certain aesthetics literatures drawn from the preference-for-prototypes theory (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990), perceptual fluency theory (Reber, Schwarz and Winkielman 2004), most-advanced-yet-acceptable theory (Hekkert, Snelders and van Wieringen 2003) could improve the understanding of consumer processing of store environments.

2.2. Holistic Meanings and Store Environment Perception

This section of this chapter reviews the few holistic models that exist in store environments research. The Berlyne-inspired SOR model is particularly important to the study of store environments and aids the specification and development of the store environments constructs to be examined in subsequent chapters. The nature of consumer cognitive-emotional, objective-subjective, global-attribute perceptive processing in the SOR improves, I argue, when the store environment is specified with inclusions of additional literatures. The store environments literature, it is argued in this chapter, tends to draw primarily from the aesthetics and not from the marketing literature. I aim to address this deficiency in the investigation of research question number one.

The emphasis in the literature on servicescapes has also for operational convenience reasons focused on singular atmospheric construct studies (Eroglu and Machleit 2008; Turley and Milliman 2000; McGoldrick 2002). This bias in favour of research of singular atmospheric construct studies observes, for instance, music and olfactory studied in isolation of the other cues and information. This presents a problem for store environments research. Store environments studies are largely based on causal relations where there is no gestalt view of the environment, one that emphasises patterns of associations between persons and their environments (Eroglu and Machleit 2008). Environments, it is argued by Eroglu and Machleit (2008), are far too complex to be explained by a single category of determinants and singular atmospheric approaches are therefore of limited use.

Given the complexities of developing single atmospheric constructs that can parsimoniously measure the complexity of store environments perception, the research questions of this thesis address this concern by critically reviewing literatures drawn from holistic representations of the store environment. In reviewing holistic model literatures of the store environment, it is first necessary to consider how aesthetics has been considered in the extant literature of store environments.

2.2.1. The Complexity of Store Environment Studies and the Limited Inclusion of Aesthetics

There are few developed approaches available for the study of aesthetics in store environments research. Any encounter with aesthetic stimuli typically reveals a complex, evaluative process with cognitive, emotional and physiological levels of interpretations (Bitner 1992; Baker, Levy and Grewal 1992; Baker et al. 2002; Holbrook 1980[3]). Questions arise, in this context, as to how aesthetics should be included in store environments models.

The study of aesthetics doesn't perhaps help itself in this respect. Aesthetics is typically marked by different understandings of what aesthetics actually is and how it should be studied (Charters 2006; Bloch 1995; Postrel 2003; Klingmann 2008, Holbrook 1980; Hirschman and Holbrook 1982; Venkatraman and MacInnis 1985; Veryzer 1995). The role and influence of aesthetic content in how the store

[3] Note the author uses the term "esthetics". Both the terms of "aesthetics" and "esthetics" can be used interchangeably.

environment is specified, to express the retail brand, is, therefore, poorly understood. Few empirical studies on design-related topics have been published in marketing journals, although design and form is presumed to play an increasingly important affective role in consumption decisions (Bloch 1995; Postrel 2003; Klingmann 2008). Extensive conceptual issues are encountered when one tries to appreciate just how aesthetics is pursued in design-architecture research.

The sparseness of credible aesthetics and design related literatures in marketing or retail journals presents problems for the advancement of the study of store environments. This is clear in the conceptual and measurement ambiguity surrounding how aesthetics assumes a role in everyday consumption decisions (Charters 2006). It is also not clear how theoretical distinctions are made between everyday consumption aesthetics and fine art appreciations. It is necessary to resolve these kinds of issues to appreciate differing sensory experiences and the construction of conceptual meaning (Venkatesh and Meamber 2008). Research within the marketing literature on design or the role of aesthetics doesn't tend to reflect these kinds of concerns.

This conceptual ambiguity extends to our understanding of what is considered aesthetic and capable of hedonic or emotional interpretation. Both aesthetic and hedonic decisions may not necessarily be the same thing according to Charters (2006). Charters (2006) takes issue with the synonymous use of the expression by Holbrook (1980), Hirshman and Holbrook (1982), Venkatraman and MacInnis (1985) and describes an aesthetic response as an appreciation of beauty. Hedonic consumption decisions, in contrast, involve pleasure and one type of aesthetic response that activates multi-sensory, fantasy and emotive aspects of experience (Ventakesh and Meamber 2008).

The confusion surrounding how the aesthetic encounter can best be examined to predict consumer responses is underlined by the differences of opinion of what an emotion actually consists of within the psychology literature. The dimensions of cognition, emotion, and sensation outline an aesthetics experience that is considered cognitive (Gestaltists such as Arnheim (1974, 1977)), or emotional and sensation/arousal (Berlyne 1970, 1971, 1974). Recently, phenomenological articles in the study of retail environments (Joy and Sherry, 2003; Arnold, Kozinets and Handelman, 2001; Kozinets 2008; Borghini et al. 2009) disavow the cognitive emphasis in favour of the concept of embodiment – the total apprehension of experience using the body, without divorcing sensory, cognitive or emotional functions from each other (Charters 2006).

It is instructive to note Charters (2006: 239) own lengthy definition of aesthetics:

> ‘aesthetics deals with the experience of objects, which provide a consumer with an element of beauty, which are emotionally and/or spiritually moving. The experience has both experiential and symbolic dimensions. Appreciation of such consumption has a strong cognitive component will probably also sensory and affective aspects. It can engage a number of products, including which are traditionally seen as ' high art', but perhaps also others whichever substantial dimension of the' beautiful.’

Although the author acknowledges that others would disagree with this definition, the references to emotions and also to higher cognitive processing with references to content and symbolism are shared with Cupchik (2003). The sensitivity for marketers in this definition, particularly when it comes to empirical inquiry, is the extent to which emotions assume central roles in consumption. How can they be measured in their intensity and then compared to cognitively inspired response behaviours given exposure to the aesthetically charged stimulus?

There appears to be few studies of how store design when deliberately programmed, and offered by architects', influences consumer judgments about retailers. In an investigation of the processes of whether product design and brand strength interact to determine initial affect and quality judgments, Page and Herr (2002) in one of the only such studies of aesthetics in marketing, found that design directly leads to liking for a product without any mediating role of brand influence. However, a more elaborate cognitive process is believed to exist when the quality-brand strength association is examined. The understanding of the direct and mediated affective and cognitive influence of store aesthetics is undoubtedly complex as the Page and Herr's (2002) work indicates.

The distinction between what is considered the aesthetic or hedonic response is important as is evident in the conceptual framework chapter (Chapter Four). Previous considerations of pleasure in the study of store environments interpret aesthetics through a hedonic valenced lens (Donovan and Rossiter 1982; Donovan et al. 1994; Gilboa and Rafaeli 2003; Tai and Fung 1997). The conceptualisation of aesthetic preference in this thesis is closer to Charters (2006) conceptualisation. There are separate considerations of: a) a store aesthetic preference construct that considers the cognitive beauty of the aesthetic; and b) a retail brand attachment construct (reviewed in Chapter Three) that interprets consumers' hedonic identifications with the retailer.

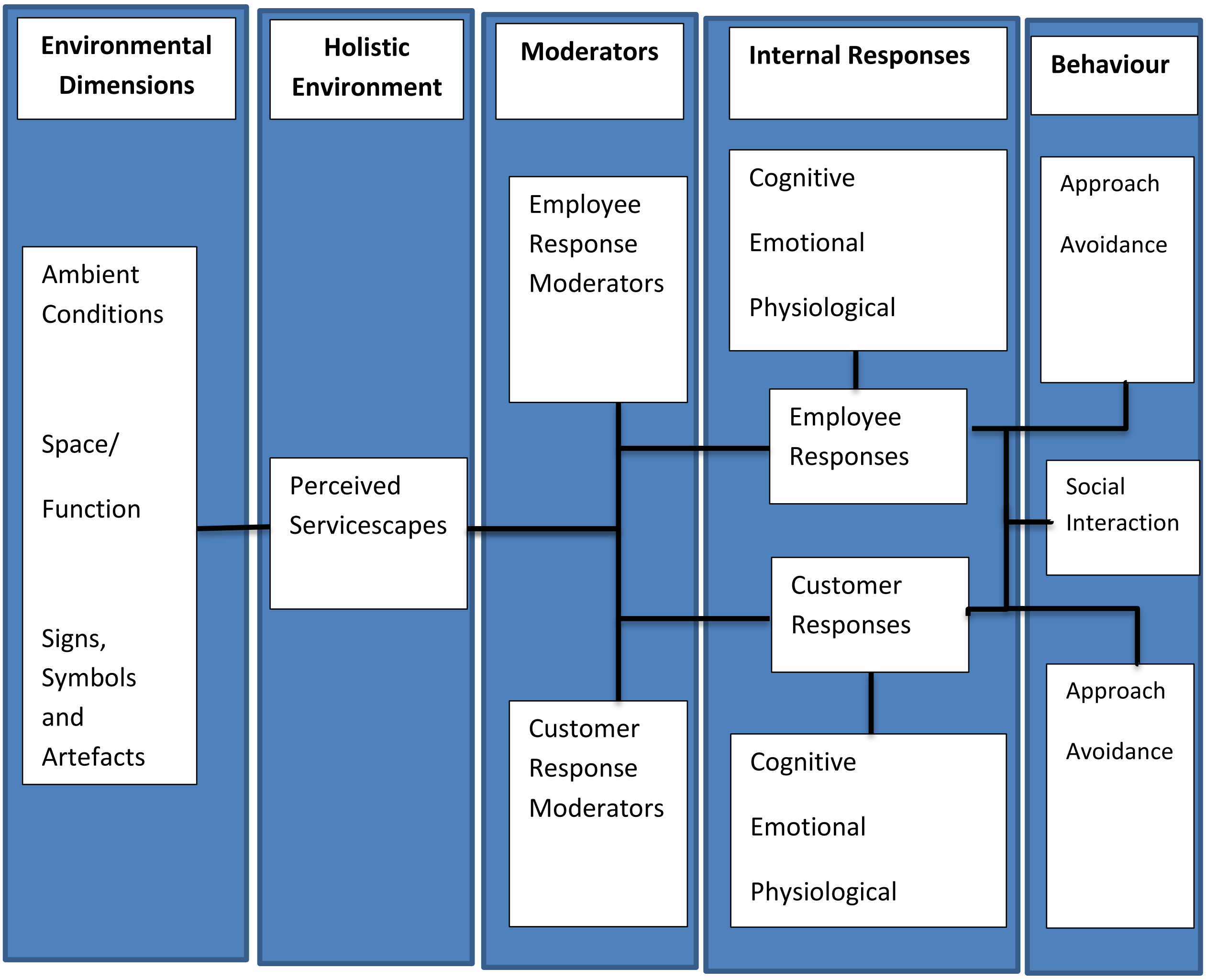
2.2.2. Aesthetics and the Servicescapes Literature

The need for holistic and comprehensive model investigations of the store environment has been raised as an issue by McGoldrick (2002), Eroglu and Machleit (2008). Among the most notable holistic, comprehensive examinations of the store environment with relevant consideration of aesthetics are Bitner (1992), Baker, Levy and Grewal (1992), Baker et al. (2002) and in an aesthetics, environmental psychology context, Berlyne (1970, 1971, 1974), Mehrabian and Russell (1974).

Bitner (1992) is one of the first to develop a comprehensive framework to describe what she termed the "servicescape" and its effects on both consumers and employees. The comprehensive nature of the model emphasises cognitive, emotional and physiological responses and behaviour toward the environment. Three composite dimensions are employed to specify and describe the servicescape, in Figure 2.1: ambient conditions; spatial layout and functionality; and signs, symbols and artefacts. Quality of materials, for instance, in specification of the store environment, can conceivably cue symbolic meanings in consumer creation of an overall aesthetic impression.

A higher-level meaning construal is, therefore, possible where signs, symbols and artefacts replicate environmental specification and host design-architecture or branding elements. However, the Bitner (1992) framework, presented in Figure 2.1,. is primarily conceptual and is not process or methods suggestive. Few empirical examinations of this framework have taken place and consequently few constructs that specify and measure the store environment emerge from this literature.

Figure 2.1.: Bitner (1992) Model of Servicescapes of Environment-User Associations



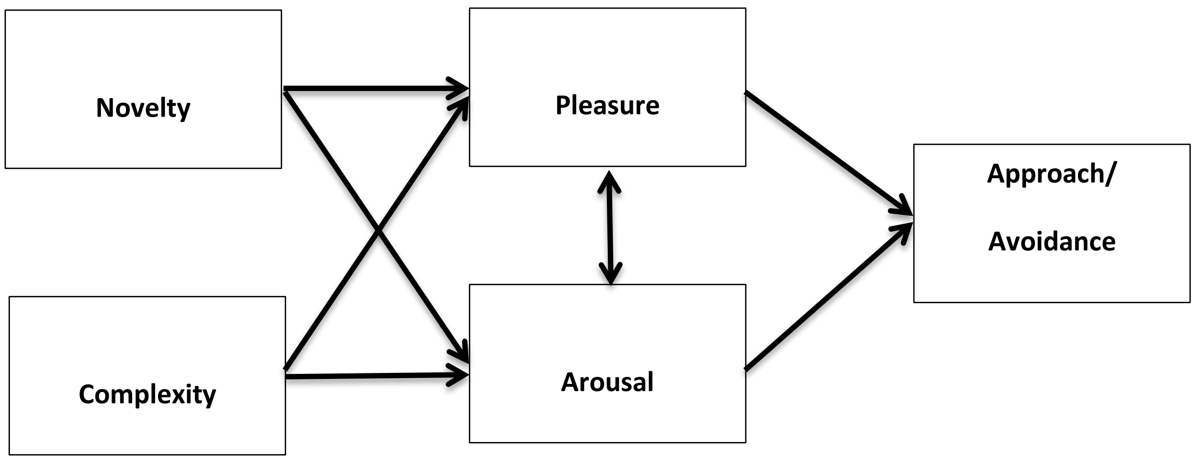
Design as a measured and examined construct in specification of the store environment appears for the first time in the work of Baker (1986), Baker, Berry and Parasuraman (1988), Baker, Levy and Grewal (1992), Baker et al. (2002). These works employ a "design" construct to examine the physical, objective domain and its presence in the store environment. The various Baker articles denote some of the few verifications of how ambient more than design can reflect a retailers' positioning. More elaborate design is found by Baker, Berry and Parasuraman (1988), Baker et al. (2002) to induce higher price points or image when mediated by merchandise quality and service quality perceptions.

2.2.3. Experimental Aesthetics and the Stimulus-Organism-Response (SOR) Model

Although Baker (1986), Baker, Berry and Parasuraman (1988), Baker, Levy and Grewal (1992), Baker et al. (2002), and Bitner (1992), are impressive in their conceptual breadth, and do in certain cases reflect the dynamics of human-environment exchange, the most referenced perspective on the study of store environments originates from studies of experimental aesthetics within environmental psychology frameworks. The fundamental physiological processes of arousal, overload, affect, adaption and personal control are typically examined in environmental psychology where stimulation thresholds and adaption explain dynamic human responses to information and arousal properties in the environment (Mehrabian and Russell 1974; Kopec 2006; Saegert and Winkel 1990).

Environmental psychology models such as the Donovan & Rossiter (1982) model, presented in Figure 2.2., emphasises holistic Stimulus-Organism-Responses (SOR). The pre-requisites of stimulus taxonomies, sets of intervening or mediating constructs, and taxonomies of responses are all evident in the SOR model (Donovan and Rossiter 1982). The SOR model offers a very useful basis to interpret aesthetic content in marketing contexts. Building initially on the work of Berlyne (1970, 1971, 1974) and his work in experimental aesthetics, Mehrabian and Russell (1974), Donovan & Rossiter (1982) for the first time study how aesthetics can be perceived in the built and store environment.

Figure 2.2.: Donovan and Rossiter (1982) SOR Framework



The stimulus construct, frequently measured as novelty or complexity, characterises design-architecture or external factors associated with the specification of the store environment as evident in Figure 2.2. The organism tends to refer to internal processes and structures (which include emotions such as pleasure or arousal) mediating external stimuli and responses to the stimulus. Responses such as approach/avoidance measure whether the perceived stimulus induces positive behaviours upon its exposure.

The concentration by Berlyne (1970, 1971) on an info-theoretic interpretation of the environment implies that the environmental information loading is conceptualised in terms of syntactic information. This means that redundancy or complexity, as environmental constructs, can be used as proxy constructs for stimulation and arousal. The Berlyne (1970, 1971, 1974) hypothesis also assumes how four determinants of arousal: psycho-physical, ecological, collative and arousal potential offers substantial grounds for discovering the meaning of the stimulus.

Although comprehensive in its framing, most studies of the Berlyne model tend to be restrictive in their development and only employ the Berlyne collative constructs. The information-rate measures presented in Table 2.1. form the basis of the Donovan and Rossiter (1982) novelty and complexity constructs. These measures, I argue, reflect an overt objective-bias that is present in their examination of the Berlyne hypothesis. The articles of Mehrabian and Russell (1974), Donovan and Rossiter (1982), Donovan et al. (1994), Tai and Fung (1997), Gilboa and Rafaeli (2003) instead tend to concentrate more of their research focus on the arousal inducing properties of the stimulus. Less examination of consumers' subjective interpretations of the presented store environment thus features in the extant research of the store environment, I argue.

Table 2.1. Donovan and Rossiter (1982) Information-Rate Measures	
Usual – Surprising	Redundant – Varied
Common – Rare	Similar – Contrasting
Familiar – Novel	Symmetrical – Asymmetrical
Homogeneous – Heterogeneous	Patterned – Random
Sparse – Dense	Distant – Immediate
Continuous – Intermittent	Uncrowded – Crowded
Small Scale – Large Scale	Simple – Complex

This is a general weakness of the environmental psychology literature where less of an emphasis is placed on what Berlyne (1970) termed the ecological or contextual meaning of the stimulus. This is also counter to the requests of Donovan and Rossiter (1982) – in the first application of the Berlyne hypothesis in a retail context – to derive new stimulus constructs for retail environments. Meaning in Berlyne's (1970) eyes derives both from perceptions of the objective properties of the stimulus and the ecological meaning it subjectively holds for the perceiver.

Applications of the Berlyne SOR model generally conclude that pleasure and arousal emotions are found to induce approach and avoidance behaviour (Mehrabian and Russell 1974; Donovan and Rossiter 1982; Donovan et al 1994; Sherman, Mathur and Smith 1997; Van Kenhove and Desrumaux 1997; Baker, Levy and Grewal 1992; Tai and Fung 1997; Gilboa and Rafaeli 2003). Pleasant store environments evidence increases in arousal and approach behaviour; unpleasant environments evidence increases in arousal and avoidance behaviour. They verify an arousal-affiliation association between pleasure and arousal that also underscores biological responses to presentation of the stimulus. However, although the Berlyne interpretation of the SOR environmental psychology framework has been upheld in the study of retail environments (Donovan and Rossiter 1982; Tai and Fung 1997; Van Kenhove and Desrumaux 1997; Gilboa and Rafaeli 2003) and somewhat upheld (Sherman, Mathur and Smith 1997), a number of other limitations have been found to exist in using the Berlyne model.

The inverted u-shaped association between pleasure and arousal in response to presentation of the stimulus, that Berlyne advances, receives qualified support. Novelty, for instance, (as well as density and size) may increase arousal and variety may decrease arousal (Donovan and Rossiter 1982). This position is qualified in a later study by Donovan et al. (1994) where arousal is not found to clearly mediate approach behaviour in pleasant environments. Similarly, information-rate measures may be positively related to the level of pleasure experienced in the store, but it is not a significant association (Tai and Fung 1997). It can be generally difficult to find shoppers who suggest that their visit to the store is unpleasant and, therefore, the proposed inverted u-shape association is difficult to establish (Tai and Fung 1997).

The conflicting findings between the two early Donovan and Rossiter (1982) and Donovan et al. (1994) studies are possibly to be expected as constructs are developed to capture discriminations between environments, emotions and responses. The contrary conclusions in both studies are supported in a critical examination of the pleasure and arousal constructs by Van Kenhove and Desrumaux (1997). Serious confounding problems concerning the uni-dimensional nature of the constructs are identified. Van Kenhove and Desrumaux's (1997) findings do not support the bi-directional association between pleasure and arousal, as advanced by Berlyne. Although the Berlyne hypothesis is generally upheld, arousal is not always obviously predictable of approach behaviours, thus undermining the presence of an inverted u-shaped association (Van Kenhove and Desrumaux 1997).

It is therefore proposed, in this thesis, to address these problems by employing a cognitively-valenced store aesthetic preference construct (critically reviewed later in this chapter), instead of the pleasure and arousal constructs traditionally employed in the environmental psychology literature. By employing store aesthetic preference as a cognitive organism construct, it is intended to avoid the pleasure-arousal confounding problems identified by Donovan & Rossiter (1982); Donovan et al. (1994); and Van Kenhove and Desrumaux (1997).

2.3. Store-Level Interpretation of Design Novelty

The previous section of this chapter explored the various holistic models that research the store environment. The sections that follow in this chapter explore the conceptual and operationalisation issues that typically present when aesthetics is considered in store environments research. Store level novelty, complexity and prototypicality are constructs that specify the store environment and explain the kinds of objective-subjective, global-attribute consumer discriminations that take place. Each construct is considered in the remaining sections of this chapter.

Novelty is considered within the environmental psychology SOR literature through an aesthetics lens; it is not generally considered either conceptually or empirically through a marketing lens. Novelty is considered by Berlyne (1970) as a relative newness. New store environment stimuli can be perceived against comparisons to previous visits to the store. These previous encounters with the store environment inform this evolving interpretation of the aesthetic (Hekkert 2006; Berlyne 1971; Kaplan 1987; Gibson 1979).

The degree of novelty or uniqueness is advanced in the marketing literature typically in terms such as “unique selling point”, “differentiation” and “positioning” and as a means to indicate competitive advantage (Kotler et al. 2012; Hirschman 1980; Veryzer & Hutchinson 1998). Novelty when it affirms the attainment of uniqueness can be rooted in one single attribute or a certain combination of attributes that together makes the brand unique (Anselmsson, Johansson and Persson 2007). Novelty seeking, innovativeness and consumer creativity are important in understanding consumers attraction to new, unusual and innovative products that offer the basis for differentiation (Hirschman 1980; Veryzer and Hutchinson 1998).

Novel information gives rise to more pleasure (Biederman and Vessel 2006; Reber, Schwarz & Winkielman 2004). Although this seems to contradict what is described in a preference for familiarity in the mere exposure hypothesis of Zajonc (1968), this finding is very much in accordance with everyday experience. However, visual pleasure, as proposed by Biederman and Vessel (2006), only emerges when one identifies and successfully processes what one sees. In other words, visual pleasure arises when the new object is not too incongruous to previous experience. It suggests that receptiveness to new ideas, the preparedness to make independent decisions, the desire to seek out novel information and stimulus variation is sometimes present among consumers to even overcome boredom and fatigue (Hirschman 1980).

The differences in appreciation of novelty are again an issue for designers and marketers. The success of artistic endeavours normally lies in the creation of new, different and original artworks where novelty is prized. Artistic expression thrives on the basis of novelty and newness where the success of an artwork lies in its novelty and difference from the typicality of preceding artworks (Martindale, Moore and Borkum 1990). An ordered disorder, or unity, is central to understanding the success of artworks where variety and incongruity enable differentiation (Martindale, Moore and Borkum 1990). Thus, novelty is essentially a relative newness (Berlyne 1971), and is considered relative to existing typicality, based on prior encounters with the stimulus.

Figure 2.3. Prada Store, Tokyo

Figure 2.4. Supervalu, Cork

The design constraint of unity is interpreted differently for branding managers. Artistic endeavours tend to emphasise originality, but ease of identification and recognition are of paramount importance in marketing. The emphasis in the traditional Berlyne-inspired SOR model of overly objective examinations do not necessarily improve our understanding of how the stimulus is perceived. Novelty in marketing contexts is considered against both existing aesthetic and marketing referenced knowledge – something that is not considered in current operationalisations of the Berlyne model. Consumer identification with the aesthetic, it is argued in this thesis, is therefore based on whether novel information is reconcilable to store prototypicality and design unity perception.

There are differences as have been noted in the conceptualisation and measurement of store novelty. It is interesting, therefore, to appreciate if store novelty or other collative constructs need to be redefined to reflect meaning both at the attribute and global level, a concern identified also in retail image research by Keaveney & Hunt (1992), as will become evident in Chapter Three. Store novelty is argued to reflect both global and attribute level meaning with objective and subjective interpretations. This thesis interprets store novelty with both an aesthetic-marketing conceptualisation and measurement.

2.4. Store-Level Interpretation of Design Complexity

The conceptualisation of store complexity, another store specification construct in the proposed conceptual model, involves the consideration of objective, attribute information and design variation (Berlyne 1970). In the few studies that have subjected design principles as proxies for complexity to empirical testing, an association, albeit an unclear one, between complexity and aesthetic preference is supported (Veryzer 1993; Eckman and Wagner 1994; Jansson, Bointon and Marlow 2003; Frith and Nias 1974; Heath, Smith and Lim 2000). Natural preferences for order and how various gestalt principles of symmetry, good continuation, pragnanz emphasise the laws of perceptual organisation and encourage preference for one design over another is acknowledged by Hekkert and Leder (2008). Order, balance and harmony are among the principles that designers desire to communicate to make the stimulus pleasant (Lauer 1985; Salingaros 2007; Alexander 1979). The unity in variety principle similarly holds that the greatest pleasure or beauty preference is experienced when as much variety or complexity is accommodated with a maximum amount of order (Wohlwill 1980; Hekkert and Leder 2008).

These design-architecture principles with few exceptions (Jansson, Bointon and Marlow 2003; Veryzer 1993; Eckman and Wagner 1994) do not figure in marketing professionals' appreciation of the communicative effect of the created environment. In the few studies where these design principles are subjected to empirical testing in consumer contexts, consumers prefer product designs that follow gestalt laws of proportion and unity over designs that violate these laws (Veryzer 1993). The attractiveness of product design is also found to depend on the dimensions of silhouette (Eckman and Wagner 1994). In a retail study of aesthetic responses to point-of-purchase materials, the principles of proportion, focal point and unity had important, yet varying effects, upon people's perceptions of stimulus attraction (Jansson, Bointon and Marlow 2003). Heath, Smith and Lim (2000) in a study of silhouette complexity and façade articulation on tall buildings found that monotonic arousal associations are confirmed: greater silhouette complexity is associated with higher preference, higher arousal, and greater pleasure. However, some of the studies of complexity have involved disembodied stimuli (abstract shapes not related to real-life forms) and efforts to impose experimental controls such as in Heath, Smith and Lim's (2000) study tend to produce findings that are still unproven in real-life contexts.

Complexity, it is argued in this thesis, should be studied as context specific and subjective or relational to a global construct such as the store prototype for its explanatory effects to be best understood. Complexity in design and branding perception reflects how the number and variety of elements are reconciled to produce global meaning. Only real-life examples and conveyors of meaning, such as brands, enable subjective judgments of complexity to be made. This is why Nasar's (1994) demand for aesthetic preference to reflect symbolic and schema meaning, in addition to formal content, is important. Both the symbolic and schema are identified both at attribute and global levels in architecture (Nasar 1994). Complexity (and novelty) perceived at the attribute-level in the design-architecture of a store can be familiar to the consumer and learned or reproduced in symbolism or schemas.

This further confirms a need for both store novelty and store complexity constructs to reflect both aesthetic and marketing perception in their conceptualisation. This would help to thus overcome the limitations of an overly objective-bias in the Mehrabian & Russell (1974) conceptualisation of Berlyne's work.

2.5. Store-Level Interpretation of the Design of the Prototype

The previous sections of this chapter outlined the limitations of the overly objective, formal definition of the novelty and complexity collative constructs. Little ecological meaning is currently derived from the measurement of these constructs (Mehrabian and Russell 1974; Donovan and Rossiter 1982; Donovan et al. 1994; Gilboa and Rafaeli 2003; Tai and Fung 1997) and thus presents obvious problems in interpreting consumer subjective interpretations of the environment. This section proposes that a global store prototype construct with objective, formal attributes, but capable of subjective, abstracted judgment at a global level addresses this deficiency in the SOR model.

The inclusion of a store prototype construct together with revised measurements of store novelty and store complexity capture the formal, schematic and ecological meaning of the store environment. A better specified store environment contributes more effectively to our understanding of the role of design in perceptions of retailer brand loyalty.

An examination of the respective architecture and marketing literatures reveals conceptual disagreements surrounding what an architectural code or prototype consists of. Unlike in the marketing literature, there is no substantial literature that assesses the consumer appreciation of architectural statements. A shared language of architectural form that people immediately understand would offer possibilities for the development retail branding. Such shared language is limited in architecture. Few works explain how behind a plurality of forms typically lie a simple set of archetypes that can be termed the grammar of architecture (Thiis-Evensen 1987).

The (store) prototype, it is argued, offers a credible basis to explain how intended archetype expression is achieved by architects (Broadbent, Bunt and Jencks 1979; Preziozi 1979) and marketers (Joiner et al. 2007; Ward, Bitner and Barnes 1992). The (store) prototype is conceptually flexible and capable of characterising the awareness, favourability and unique communicative associations deemed important in building strong brands (Keller 1993). It, therefore, credibly bridges the marketing, design-architecture and psychology literatures and proposes global, attribute and subjective interpretations.

Given the complexities involved, it is perhaps unsurprising that few developed approaches to interpret how formal, objective architecture communicates to consumers have emerged from the architecture literature. Architectural works can frequently reflect a pleural domain where multiple codes with changing referents and signs continually change yet still come together at any one moment to make the work recognisable and coherent (Broadbent, Bunt and Jencks 1979). Any given environment reflects complex ordering where attribute and global level structuring of the environment co-exist in a particular way at a given moment. This ordering is far from predictable and is poorly understood in architecture (Broadbent, Bunt and Jencks 1979; Preziosi 1979). Any exploration of the intent or expressiveness of architecture reflects how structural and interpretive features of the physical environment, such as signs, symbols and categorisation, communicate experiences with the consumer. This communicative effect is predicated on the fundamental importance of proposing the most suitable objects or dimensions that reconcile these experiences (Norberg-Schultz, 1965). Architects have proven themselves to be unwilling or possibly unable to enter this debate.

2.5.1. Architectural Archetypes, Formalism and Global-Attribute Meaning Determination

The academic study of architecture evidences a formal approach that advances the study of archetypes and in-turn prompts a questioning of how specific architectural affects can be programmed to achieve the intended expression (Thiis-Evensen, 1987). This overt formalism has proven to be largely unsuccessful in replicating how componential or attribute structures can be described and tested.

Verification of how the environment can be described, of isolating objects, of comparing and bringing them into functional relations in the study of the environment have not proven easy (Norberg-Schultz 1965; Broadbent, Bunt and Jencks 1979; Preziosi 1979). It is precisely this processing through the store prototype that marries simultaneous architectural and marketing meaning in store environments perception. It is proposed also in the next chapter that significant difficulties are present in the retail image literature where the global to attribute perception is similarly difficult to measure (Keaveney and Hunt 1992). There is a need to approach the study of store environments, I argue, by moving beyond the formal, objective perception of environments to also include subjective interpretations of global-attribute architecture and marketing information.

The issue of communicative effect and the understanding of how architectural statements are processed and received by consumers are reflected in how similar and typical the relations between the architectural elements tend to be. The elements should be parsimonious, as few as possible and chosen in such a way as to make the formal organisation understandable (Norberg-Schultz 1965). The basis of the architectonic code reflects such orderings and associations that imply similarity and difference, the basis of communication (Thiis-Evenson 1987; Norberg-Schultz 1965). As a system of associations, the architectonic code signifies conceptual associations through similarities and differences where distinctions, novelty and differences emphasise meaningfulness due to levels of variations from the expected. Separable and integral attribute combinations reflect the similarity judgments upon which much of categorisation theory is based (Tversky 1977). The abstraction of similarities is fundamentally important to higher types of structure and is the very basis of the unifying order that lends coherence to architecture (Norberg-Schultz 1965).

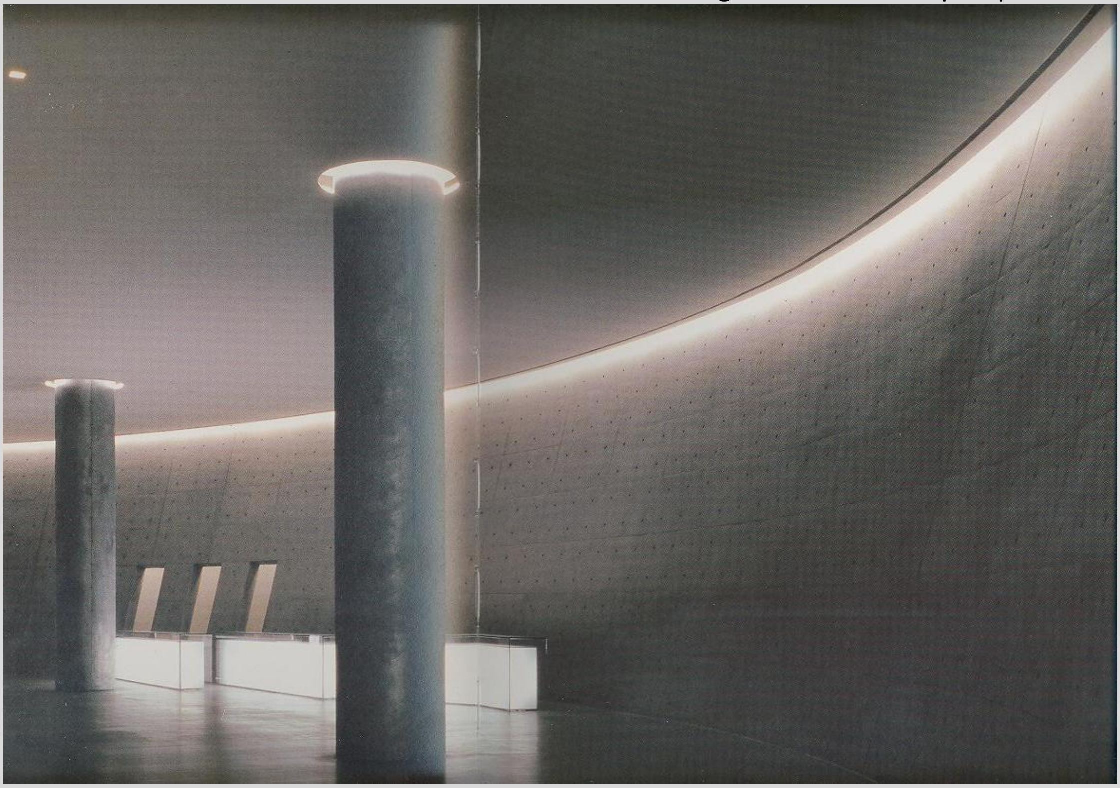
The interpretation of the stimulus is evident, for instance, in the global precedence hypothesis, or recognition-by-components theory, from the psychology discipline, and could be considered as a modern re-interpretation of gestalt claims of the primacy of wholes (Kimchi 1992; Biederman 1987). Of central concern to the study of archetypes and holistic category representations is how perceptual grouping, global-attribute processing, object superior effects, configural superiority effects and textural discrimination propose how the stimulus is interpreted. From the architectural perspective, Arnheim (1977) argues that the building's principle meaning must be obvious to the viewer if they are to understand the design as a whole (see Figure 2.5. for an illustration of the consumer processing dynamic between attribute and global levels of the stimulus in a modern concept). Understandings of how dimensional interactions reflect distinctions between integral and separable dimensions (Garner 1974), also helps to explain how weight, motion and substance assume configurable roles. Thus, the configurable nature of the stimulus presents patterns of attribute associations that promote redundancy to the point that few archetypes from all the potential stimulus combinations are believed to exist. The global precedence hypothesis advances that the processing of a scene moves from global to attribute where global properties are processed first and then followed by attribute processing (Kimchi 1992; Biederman 1987; Hoffman 1980; Kemler-Nelson 1993). Larger scale patterns are similarly processed before proceeding to smaller scales.

Figure 2.5. Processing of a Modern Concept

An illustration of the processing dynamic of attribute and global meaning is evident in the articulation of concepts such as modernism. Modern concepts with fewer elements and intermediary scales demand less processing and allow more rapid processing on this basis. The determination of meaning to identify the concept, the symbol, the personality or the prototype as "modern" implies knowledge of pre-existing knowledge structures of these attributes to facilitate this fluency and ease of processing. The communicative effect depends on how consumers respond to these marketing and architectural-laden messages.

In the case of the Armani store illustrated below, at the attribute level the store is identified by: its use of grey colour; its monumental, volumetric spaces with little traditional scaling coherence; and contrastive effects obvious in the use of light framing. The lighting of the ceiling both frames the space in a manner a traditional cornice would do and simultaneously softens the otherwise spartan, austere space with an element of lightness and comfort. The materials and textural pattern with minimal information on the walls suggest an overt unity imposed by the trademark modern grey and define this space as quintessentially modern.

The Armani store also fails in its basic communicative effect, I argue. There is an obvious tension between the effective attainment of the architectural definition of the modern, and the marketing use of the spectacle, in communicating uniqueness and awareness. Consumers may be aware of and deem the environment unique, but they may not be favourably disposed toward its austere, modern conceptual definition. Therefore, it is proposed that identification with the prototype or global representation of meaning of the branded architecture should consider more fully the nature of the consumer engagement with the environment across psychology, aesthetics and marketing perspectives.



Armani Teatro Store, Milan

This kind of understanding of the processing of architectural, design and aesthetic properties and how it reconciles to marketing statements is important in understanding consumer interpretation of the retail brand. The next section of this chapter reviews the marketing perspective on the prototype with more specific reviews of aesthetics in consumer interpretations of the store prototype environment.

2.5.2. Marketing and Aesthetic Prototype Theory and Meaning Determination

Significant advances have been made to the development of general categorisation theory (Rosch and Mervis 1975; Joiner 2007; Alba and Hutchinson 1987; and Cohen and Basu 1987; Barsalou 1983). However, it is the Martindale (1984), Martindale and Moore (1988), Martindale, Moore and Borkum (1990) preference-for-prototypes literature that demonstrates how the prototype is explicitly determined by the presence of a desirable aesthetic.

In a challenge to the Berlyne collative-motivational approach, Martindale (1984), Martindale and Moore (1988), Martindale, Moore and Borkum (1990) propose a networked memory model of aesthetic response in which the pleasure experienced is considered as an outcome of the cognitive processing elicited. Prototypical stimuli are more likely to be cognitively processed and, therefore, preferred. The pleasure emotion experienced in encounters with aesthetic stimuli is mild, according to Martindale (1984). This interpretation of the limited emotional role of aesthetics reflects other recent additions to the conceptualisation of aesthetics emotion from

Hekkert, Snelders and van Wieringen (2003), and Reber, Schwarz and Winkielman (2004). Pleasure is understood to be essentially intrinsic in nature and traditional cognitive/emotional distinctions are even unhelpful (Martindale 1984; Charters 2006).

The preference-for-prototypes model has been criticised, however, by Boselie (1991). Boselie (1991) suggests that Martindale, Moore, and Borkum (1990) only accounts for 15.9% of variation with the prototype construct. It is also argued that there is no separate distinction between typicality and preference. Circularity effects are observed and prototypicality cannot be observed to cause preference, Boselie (1991) argues. However, a weakness in the argument of Boselie (1991) lies in the failure to take into account the salient features of ecological knowledge that confer awareness and vividness prospects. This means that Boselie's (1991) contrarian position also understates the projective effects of the prototype. Boselie (1991) in focusing on category membership does not focus on which salient attributes help explain most meaning. When stimulus perception is approached purely at the attribute level, it is possible to lose sight of the more important issue of the intensity of stimulus expression and ecological meaning in global projection of the prototype.

2.5.3. Empirical Investigations of the Prototype Construct

In contrast to previous sections that investigated the theoretical definition of the prototype from architectural and marketing perspectives, this section instead investigates empirical studies of how the prototype is tested.

In the first such study to examine the use of the prototype construct, Whitfield and Slatter (1979) demonstrate in a furniture selection task that successful classification depends upon the matching of a stimulus with a prototype representing the appropriate category. In a critique of the preference-for-prototypes model, Whitfield (2009) reviews the robust and widespread verification of categorisation theory. Categorical interpretation studies are found for music (North and Hargreaves 1997), polygons (Martindale, Moore, and Borkum 1990), colour (Martindale and Moore 1988), building exteriors and interiors (Nasar 2002; Pedersen 1986), and cubist and surrealist paintings (Hekkert and van Wieringen 1990).

Real-world designs apply prototypes theory notably in consumer contexts involving retail (Ward, Bitner, and Barnes 1992), brands (Nedungadi and Hutchinson 1985) and other consumer consumption contexts (Snelders and Hekkert 1999; Hekkert, Snelders, and van Wieringen 2003; Loken and Ward 1992). In a comprehensive review of published articles on prototype-related studies, Loken, Barsalou and Joiner (2008) conclude that most studies report positive prototypicality-affect associations.

In the only deployment of the prototype construct in a retail context, Ward, Bitner and Barnes (1992) propose a method for measuring the prototypicality of retail environments and explore the association between environmental prototypicality, affect and market share. Consumers' perceptions of the prototypicality of fast-food restaurants and their attitudes toward such restaurants are confirmed to be strongly influenced by environmental cues and external cues in particular. This confirms the role that external architectural statements, in particular, make towards awareness and projection of the retail prototype. Similarly, Ward and Loken (1985) in a confirmation of how the prototype construct observes environmental typicality confirm the prototype exerts: strong direct effects on feelings of dominance, pleasure, and arousal; indirect effects on mood; and direct and indirect effects on attitude. Where managed deviations from the prototype are considered, subtle differences in store name, location and appearance of salespeople are found to invoke differences in typicality readings (Babin and Babin 2001).

The applicability of family resemblance and prototypicality measures, developed by Rosch and Mervis (1975), are assessed by Ward and Loken (1985) for snackfood categories and Loken and Ward (1987) for shampoo products. Members of the category having more family resemblance to other members in the category are more likely to be present in consumers' awareness and evoked sets. Consumers are, therefore, persuaded to purchase products when they perceive shared, beneficial characteristics and are prepared to make inferences when these attributes co-exist (Ward and Loken 1985; Loken and Ward 1987). This is confirmation of the preference-for-prototypes approach of Martindale (1984), Martindale and Moore (1988) where the most easily recognised products, with maximally shared attributes, also project awareness possibilities and are preferred by consumers.

Prototypicality of brand perception significantly relates to preference and different memory based measures are also important to familiarity, awareness and outcomes (Nedungadi and Hutchinson 1985). In an examination of brand typicality and preference with cola drinks, new automobiles, and clothing stores as stimuli, Ward and Loken (1988) argue that through a process of natural selection that brands with preferred characteristics become more typical. New entrants to the category that may be identified as atypical to begin with need to adopt the individual member characteristics of the typical brand to gain market share. The tendency to use more prototypical attributes as reference points presents important brand management implications for retailers who need to understand which visual attributes are preferred if they wish to be identified as prototypical of the category with more shared attributes.

2.6. Measuring Responses to the Specified Environment: The Elicitation of Aesthetic Preference

The previous sections of this chapter concentrated on the specification of the environment using store novelty, store complexity and store prototype constructs. This section makes the conceptual and empirical connections between prototypicality, novelty, complexity and aesthetic preference.

The challenge of incongruous or complex design is, for example, reflected in the joint effects of (proto)typicality and novelty on aesthetic preference (Hekkert, Snelders and van Wieringen 2003) and marketing preference (Ward and Loken 1988; Meyers-Levy and Tybout 1989). It has been proposed by Ward and Loken (1988), Meyers-Levy and Tybout (1989) that the joint association between (proto)typicality and preference is positive where prestige brands are successful because they succeed in securing an atypical presence in the category space. Strong atypicality is often secured by high novelty and differentiation against competitors. However, in research where only aesthetics are examined (where brand content is excluded from consideration) higher levels of novelty correspond with weaker prototypicality as the identifiable properties of the prototype are not observed (Hekkert 2006; Hekkert, Snelders and van Wieringen 2003).

No research has thus far examined how brand and design-architecture together correspond with novelty and complexity perception. In the perceptual fluency model, the more easily an object is perceived, the more positive the aesthetic response is believed to result (Reber, Schwarz and Winkielman 2004). This implies if the stimulus or store environment is easy to comprehend it can also confer affective benefits on the retailer. Design principles such as stimulus repetition, figure ground contrast, figural goodness, prototypicality, and symmetry, Reber, Schwarz and Winkielman (2004) argue do influence aesthetic appreciation. These constructs enable the dynamics of easy stimulus processing to occur and the resulting perceptual fluency in itself encourages intrinsic, immediate pleasure. Exposure to these gestalt-like perceptual features encourages recognition speed and evaluations are influenced by constructs such as exposure duration, exposure frequency, and perceptual priming (Bornstein 1989; Winkielman et al. 2006). Fluency increases liking, not because it is an actual property of the stimulus (contrary to the Berlyne hypothesis), but because it is a property of the processing dynamic of the perceiver (Hekkert and Leder 2008). It is the perceiver as well as the object that together determines aesthetic preference. This is more obvious when repeated exposures are perceived to lead to overexposure, saturation and consequently boredom (Hekkert and Leder 2008). Thus, unlike Berlyne's collative constructs, instead of assigning aesthetic pleasure to objective stimulus features per se, they suggest that aesthetic pleasure is based on the background of the perceiver and their aesthetic knowledge and motivations.

2.7. End-of-Chapter Two Summary

This literature review chapter examined how the store environment can be specified and studied. The environmental psychology literature is, I argue, the most significant literature used in the study of holistic perceptions of the store environment based on its conceptual comprehensiveness and perceptual process measurement. The frameworks advanced by Mehrabian & Russell (1974), Donovan & Rossiter (1982), which constitute the basic approach pursued by others who also employ the Berlyne info-theoretic approach, enable comprehensive examinations of consumer perception of store environment responses.

However, the critical examination of the literature in this chapter also revealed limitations in the Berlyne collative-motivational approach. I argue that the Berlyne approach is limited in its consideration of cognitive-emotional, objective-subjective, global-attribute and store-retail perception. Additional literatures, drawn from aesthetics and psychology, and presented in this chapter, were presented to help explain how these limitations could be addressed.

This chapter revealed problems in proving the bi-directional association between pleasure and arousal (van Kenhove & Desrumaux 1997). Modern conceptualisations of emotional responses to the aesthetic encounter are considered as mild (Martindale

1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990; Hekkert 2003) and it is often in the effort of perceiving itself that pleasure is experienced (Reber, Schwartz and Winkielman 2004). Other more cognitive interpretations of the aesthetic encounter were also reviewed, including the work of Charters (2006) and Cupchik (2003), and shift our conceptualisation of how aesthetic content can be considered. It is proposed to include store aesthetic preference and not pleasure in the conceptual framework to be tested in this thesis. Accordingly, this thesis assumes a more cognitive interpretation of the aesthetic response to the store environment.

The collative constructs of novelty and complexity in the extant literature also feature overt objective, formal bias in their measurement by Mehrabian and Russell (1974), Donovan and Rossiter (1982). Insufficient ecological or subjective meaning, which implies a consideration of schematic or typicality representation, remains a feature of the extant research into novelty and complexity measurement. The incorporation of the store prototype construct and measurement of store novelty, store complexity, to include broader conceptualisations, aims to address this issue. It is evidenced in this chapter, for instance, that the aesthetics literature views increased novelty with weaker prototype associations (Snelders and Hekkert 1999). The reverse is believed to be the case in marketing consideration of the novelty-prototype association (Meyers-Levy and Tybout 1989; Ward and Loken 1988).

Related to the current objective-bias in the extant SOR is the issue of how the global-attribute perception of the stimulus occurs. The review of the archetypes literature evidenced the difficulty in understanding how changes at the attribute-level also change global interpretations of the design. The global-attribute archetypes conundrum has a literature parallel in the retail image literature as will become evident in the next chapter. The expanded conceptualisation of the novelty, complexity constructs to be employed in the conceptual framework to include objective-subjective and global-attribute processing aims to address this concern.

In summary, this chapter proposed the various theories that can further elaborate on the definition of the store novelty, store complexity, and store aesthetic preference constructs. Together with inclusion of the store prototype construct, it is proposed that a more properly specified store environment can be investigated. The next chapter will, instead, concentrate on developments in retail image and branding theory. A more effectively specified environment proposes the role of design-architecture in consumer perceptions of retail brand loyalty.

Chapter Three – A Critical Review of Literature on the Branding of Store Environments

3.1. Introduction

The previous chapter examined the literature on how the store environment is aesthetically specified and perceived. This chapter, in contrast, concerns how the specified and perceived store environment promotes the prospects for retail brand loyalty.

This chapter in its consideration of the store environment proposes how retail brand equity theory (Arnett, Laverie and Meiers 2003; Kim and Kim 2004; Pappu and Quester 2006; Jinfeng and Zhilong 2009; Beristain and Zorrilla 2011; Jara and Cliquet 2012) offers the basis for building retail brand loyalty. However, as the store environments literature features few construct measurements of design-architecture, it is similarly evident that design-architecture studies in the retail branding literature is also limited.

The first section of this chapter contextualises the study of representation and meaning before more specifically examining the emergence of retail image research. Retail image has been more frequently researched since the 1950s than retail branding. Although it shares conceptual similarities to retail brand equity theory, retail image literature succumbs to measurement problems (Burt, Johansson and Thelander 2007; Keaveney and Hunt 1992). Retail brand equity literature, in contrast, it is explained, proposes more developed scales and measurements of subjectively-held meanings and how consumers respond to retailers' communications.

3.2. Representation and Meaning in Retail Image Research

Central to the study of brands and design-architecture is the determination of how design-architecture is understood and the meaning it represents for both its creators and consumers (Klingmann 2008). What is communicated and understood in the minds of consumers perhaps comes more naturally to marketing professionals, unlike the creative disciplines, which have traditionally tended to be more producer-led in their communications (Hirschman 1983). It is not until the 1980s that marketing and aesthetics literatures begin to overlap and initial inroads are made in advancing knowledge on the roles and accountabilities of both domains (Bloch 1995; Hirschman 1983). Marketers tend, for instance, to be more accountable to consumers (Hirschman 1983), whereas artists are frequently observed to produce new and original works that may not necessarily be commercial (Martindale 1990).

How brands act foremost as repositories of meanings for customers to use challenges marketers and creators to understand more deeply the multiple sources and dynamic nature of that meaning and what it offers consumers (McCracken 1986; Fournier 1997). A co-created meaning is observed between brand managers and consumers derived from the experiences of complex interactions between cultures, consumers and corporations as active meaning makers (van Osselaer and Alba 2000). A full understanding of the meaning of brands, similarly, demands an examination of the range of symbolic and emotional episodes encountered during the process of meaning creation. The influential effect of symbolically charged consumer experiences, where consumers are re-conceptualised as active meaning makers, rather than passive recipients of information, evidences also the challenge facing marketers in developing effective communications strategies (Hirschman and Holbrook, 1982).

The nature of how the physical stimulus communicates giving rise to interpretation, comprehension and maybe even brand desire is central to the complex manner in which the consumer can effectively relate to the symbolic and emotional content of design-architecture. Essential to the examination of this understanding of brand representation and meaning is the understanding of how consumers actively engage with or feel underwhelmed by the environment presented to them. Various questions are posed by van Osselaer and Alba (2000), in this respect, and point to the basis of how meaning and the communicative effect is interpreted by consumers. Can design centric retail brands, such as Apple, overwhelm at the emotional level and simultaneously distract from effortful consumer assessments of the brand? Do physical static cues in the absence of other messages act as affect (emotional) generators or meaning makers that prompt inferences about the brand?

3.2.1. The Emergence of Retail Image Research

In what is considered the first effort to develop a representation of meaning in a retail context, Martineau (1958) acknowledges the distinction between what he terms functional and emotional-psychological elements and their role in the creation of retail image. This spawned the emergence of an image-centric literature (that outnumbers retail brand-equity related studies) to explain consumer identification with and preference for retailers in this characterisation of meaning. Martineau's (1958) article is notable as it highlights the importance of congruity between consumer and retail image. Meanings and associations materialise in the minds of consumers when they oversimplify and abstract salient meanings through personalisation, aesthetic symbols, archetypes and myths (Martineau 1958). These meaning generators offer tangible evidence of whether the fit does or does not materialise in the imaging process. An example of how consumers extract meanings is evident in Figure 3.1. which briefly outlines how Starbucks in a retail context pursues store concepts that communicate intended meanings? There are direct design parallels in selections of material, lighting, colour and other design elements and how these physical, objective design elements successfully translate and communicate these subjectively-held meanings.

Figure 3.1. Starbucks Store Concepts and Intended Meaning

Starbucks propose that they are deeply committed to sustainable design in their store builds. They suggest that they are inspired by European style coffee houses. Coffee houses should act as the "third place" for people to spend time and find connections outside of home and work. Their stores, they propose, are rooted in their coffee heritage, their shared planet community involvement and environmental stewardship goals. Each store emphasises one of four design concepts (heritage, artisan, regional modern and concept) that characterise and express these emotional elements of image. Their modular design seamlessly overlaps material, lighting, colour, and experiential elements with deliberate branded statements.

Starbucks Store Pike Street, Seattle.

In studies of store image there is some agreement at least over the conceptualised retail image as a global overall impression. Oxenfeldt (1974) refers to the "gestalt" of store image. Dichter (1985) describes a "total impression" and how certain elements can serve as "signals" to the total personality or gestalt. This implies how salience and the priming of central cues assume a role in the development and magnification of image. In this context, the store plays host to a bundle of cues, messages, and suggestions that communicate to shoppers (Markin, Lillis and Narayana 1976). The store environment, furthermore, evidences the "silent language" that induce "specific emotional effects in the buyer" as identified by Kotler (1974: 1,3) in his global term "atmospherics", another gestalt representation of the store environment.

3.2.2. Operationalisation and Measurement Problems with Retail Image

The discussion on the determination of meaning in a retail image context is, however, informed by a dated, largely attribute-centric – as opposed to global construct centric – literature (Turley and Milliman 2000; Lindquist 1974; Keaveney and Hunt 1992). Many of the retail image articles date from the 1970s where retail image is frequently studied at the attribute level on the basis of forced-choice comparisons of store choice decisions (Doyle and Fenwick, 1974; Schiffman, Dash and Dillon, 1977; Hansen and Deutscher, 1977). Relatively few theoretical frameworks or empirical examinations have been forthcoming in recent years to add to the base knowledge of how the dynamic in image formation arises. There is, for instance, little extant theory available on the processes of image perception similar to the environmental psychology literature. There are very few parallel approaches in the image literature that comprehensively examine a range of stimulus-organism-response interpretations of the store environment.

The fact that there is little research into the dynamic and process of image formation poses an obvious problem for store designers and retailers. With the exception of Meyers-Levy and Zhu's (2007) examination of ceiling height priming effects, no examinations of image or brand expressiveness and how design-architecture assume important affective mediating influences in store environments perception have thus far taken place. It is not possible, for example, to easily determine how specific store design elements e.g. colour and light are perceived by consumers and how these contribute to retailer image identification. Neither is it possible to easily identify which attributes are core attributes in the overall image consumers have of the retailer. Only with some difficulty in operationalising this measurement is it currently possible through the publications of Mazursky and Jacoby (1986), Zimmer and Golden (1988), and Roedder et al. (2006) to understand the attribute to holistic representation in retail image research.

The attribute-based approach to the study of store image is evidenced in Lindquist (1974), Thang & Tan (2003) where meaning is interpreted as a series of image attribute meanings. It is notable in both Lindquist (1974) and Thang & Tan (2003) that functional attributes pre-dominate in consumer image formation. The relative absence of the visual domain and its role in image is also clear where atmosphere as an emotional meaning bearer is only seventh on the list of most prominent image attributes.

There are, therefore, few methodological approaches available to explain the perceptive processes at work in how image related studies examine how the physical object domain assumes active properties and communicates the intended meaning of the retailer. There may be agreement on the presence of a global "impression" or "image" in the minds of consumers, but it is unclear as to how retailers create stronger images and how the global meaning of the image is reconciled into abstract wholes from its various attributes.

Image-related studies consequently present measurement, operationalisation and conceptualisation problems (Burt, Johansson and Thelander 2007; Keaveney and Hunt 1992). Both Burt, Johansson and Thelander (2007), and Keaveney and Hunt (1992) reference a number of studies that point, for instance, to capturing subjective perceptions and considering the role of situational issues in operationalisations of store image. The difficulty of image measurement is similarly identified by Doyle and Fenwick (1974) where the difficulty of isolating unambiguously and parsimoniously the dimensions that shoppers use is highlighted. The clear distinction, for instance, between functional and psychological-emotive dimensions of image is challenged by Burt, Johansson and Thelander (2007), where owing to their interpretive nature such Martineau (1958), Lindquist (1974) distinctions between functional and emotive properties are deemed both artificial and misleading.

Although the list of attributes typically used in image studies has expanded over the years (Hansen and Deutscher 1977; Zimmer and Golden 1988; McGoldrick and Thompson 1992; McGoldrick 2002), it is still difficult to reflect the multi-dimensionality of image. Most image studies still do not reconcile global to attribute perception to reflect meaning. Most image-related studies typically propose questionable examinations of forced choice comparisons of attributes that may not have any particular functional or emotional relevance for respondents (Burt, Johansson and Thelander 2007).

In this thesis, I use the store aesthetic preference, retail brand attachment and retail brand loyalty constructs to address the challenge of functional-emotional and global-attribute conceptualisation and how the store environment is perceived by consumers.

3.3. The Emergence of the Retail Brand Equity Literature from the General Consumer-Based Brand Equity Literature

There are some similarities between the retail image and branding literatures. Retail brands typically have a multiple physical store presence and it is necessary that the global brand image reflects associations with the store image (Burt, Johansson and Thelander 2000; Burt and Sparks 2002; Ailawadi and Keller 2004). In noting the limitations of the image literature, it is proposed that the retail brand equity literature, which has emerged since the 1990s, offers a more effective basis to interpret the meaning of store environments for consumers.

The consumer-based branding perspective advanced by Aaker (1991, 1996) and Keller (1993) is identified by Heding, Knudtzen and Bjerre (2009) as the pre-dominant approach to the study of branding. Although more consumer-based brand equity literature has taken place in non-retail contexts (e.g. Aaker 1991, 1996; Keller 1993; Yoo and Donthu 2001; Yoo, Donthu and Lee 2000; Washburn and Plank 2002; Martinez and de Chernatony 2004; Christodoulides et al. 2006; Lassar, Mittal and Sharma 1995; Atilgan, Aksov and Akinci 2005; Vázquez, Del Rio and Iglesias 2002), empirical studies of retail brand equity are also emerging (Arnett, Laverie and Meiers 2003; Kim and Kim 2004; Pappu and Quester 2006; Jinfeng and Zhilong 2009; Beristain and Zorrilla 2011; Jara and Cliquet 2012). These retail brand equity studies largely concentrate on establishing whether the consumer-based brand equity model is applicable in retail contexts and little thus far by way of modified retail specific constructs have been forthcoming.

The consumer-based brand equity perspective offers an improvement on the retail image literature. Its assumptions on overt information-processing and cognitive psychology interaction allow brand managers to develop communication strategies based on consumers' semantic memory manipulations of associations, activation, automaticity, cueing and priming identifications with the brand. In this respect, the consumer-based brand equity perspective addresses a number of the attribute level processing deficiencies of the retail image literature. The Keller model proves itself useful in outlining the influence of the active properties of design-architecture in these strategies. However, it is still difficult to measure the development of holistic representations and the influence of the visual domain in store and retail brand communications is not explicitly acknowledged.

Keller's (1993) conceptualisation of the brand-equity model is very suited to retail branding research for its differentiation prospects. It perhaps more than most branding frameworks defines brand equity as the differential effect of brand knowledge (consisting of awareness and image) on consumer responses to the marketing of the brand (Keller 1993). It uses brand awareness and brand image as central memory representations to suggest: the likelihood that a brand name will come to mind and the ease with which it should do so. It, therefore, aims to explain the perceptive processes that reflect the extent and depth of brand associations in the creation of brand image as they are actively stored and retrieved from consumer memory.

Brand strength is, therefore, an outcome that can be achieved through strong, unique and favourable association building: key outcomes for any brand strategy. This implies the presence of a model marked by comprehensive depth of processing and congruity of associations and where any brand leverage requires a holistic perspective to synthesise the multi-dimensionality of brand knowledge (Keller 2003). The comprehensiveness of the attribute information is evident in Keller's (2003) identification of awareness, attributes, benefits, images, thoughts, feelings, attitudes and experiences in the multiple dimensions of brand knowledge (see example of the range of design-architecture and brand associations present that take place in Avoca in Figure 3.2.).

Figure 3.2. How Avoca (Rathcoole) Communicate Associations Through Store Environment Design-Architecture Elements

Company Background

Avoca is a family-run retail business that was first established in 1723 in Wicklow, Ireland. It employs 600 persons across 10 retail stores. It is most widely known for its very popular garlanded cafés.

Brand Statements Avoca Wishes to Communicate

Avoca suggests that their stores embody the company philosophy and values very directly. They communicate in terms of "adventures". Avoca deliberately seek out the unusual and beautiful in both product offering and merchandising activities. The company mission is to "create joy and have fun". This central mobilising aspiration unifies its approach.

A commitment to "adventures" is by its nature an emotive psychological outcome that is likely upon successful execution to result in enhanced loyalty prospects. Avoca purposely tries to avoid the average or ordinary. Avoca deliberately seeks out the unusual and beautiful in both its product offering and merchandising activities. Colour as a design element is very central to its brand associations of life and happiness. The prototypical definition of the Avoca store as a lifestyle store is purposefully shifted beyond a store based on product expression alone. There is managed novelty and atypicality within the Avoca brand expression that lends very strong prospects for strong positioning and differentiation. Indeed, it is difficult to compare the Avoca format to other Irish retailers given their obvious competitive strength. In many respects, Avoca effectively defines the category and format for this kind of retail offering in Ireland.

Source: Murray (2012)

3.3.1. Empirical Studies of the Keller (1993) Consumer-Based Branding Perspective and its Possible Limitations

This section introduces the empirical studies of the Aaker and Keller consumer-based brand equity theory and its application to both general branding and specific retail branding studies.

A fine-grained approach is present in Aaker's (1991) consumer-based brand equity conceptualisation of the four equity constructs of awareness, loyalty, associations and perceived quality. Keller (1993), instead, in more summative form assumes the importance of awareness and image in explaining brand knowledge. Although Aaker (1991) and Keller (1993) conceptualise and generate consumer-based brand equity theory, both authors never developed scales to measure brand equity. The consequence of these nuance differences in the conceptualisation and investigation of consumer-based brand equity is the inevitable differences in measurement of the constructs by others that follow. Judging from the level of empirical research on consumer-based brand equity from the mid-1990s to the mid-2000s, it appears that the Aaker rather than the Keller conceptualisation dominates the empirical examination of the theory. This is perhaps because the Aaker framework is more practically useful and more easily operationalised (Anselmsson, Johansson and Persson 2007). However, Yoo and Donthu (2001), Pappu and Quester (2006), Washburn and Plank (2002) and Atilgan, Aksov and Akinci (2005) all depart from Aaker's (1991, 1996) original framework.

Yoo and Donthu (2001), for instance, measure simple brand recognition rather than brand recall. Similarly, the decision by the same authors to collapse the two constructs of brand awareness and brand associations, into one dimension, adds to further confusion when interpreting results across multiple studies on the same subject matter. When different assumptions are made as to the definition of constructs it also implies different assumptions on how consumers process the stimulus and engage with the environment. These kinds of inconsistencies are unwelcome.

Keller's understanding of brand associations is wider than that of Aaker. The former includes all perceptions of a brand hosted in consumer memory. This reflects the kind of difficulty surfaced in Yoo and Donthu's (2001) study in its measurement of brand equity and its multi-dimensional character in an "overall brand equity" measure of brand equity.

Perceived quality is indirectly assumed within the Keller approach at an abstract level through the terms - attributes and benefits. Brand associations are important as a means to directly attain a higher-order meaning representation in the form of awareness or image in the Keller approach. Both assume the importance of image and awareness as a prerequisite for brand projection in the building of strong brands, but perhaps Keller is more obvious in this aspiration. In studies performed in retail contexts, Jara and Cliquet (2012) and separately Kim and Kim (2004) measure and demonstrate the association of brand awareness with brand equity and performance.

There are also differences surrounding brand loyalty where Keller (1993) considers loyalty as a consequence of a strong brand, whereas Aaker (1991) considers loyalty to be a determinant of brand equity. Acknowledging this difference, Beristain and Zorrilla (2011) in a retail context choose the Aaker model for reasons of its inclusion of loyalty as a component of brand equity, thus more easily enabling the examination of the association between store image and loyalty to store brands. This examination of brand loyalty at a store level can be replicated at both store and retail-levels and is largely absent from other studies. The versatility of the consumer-based brand equity framework is further underscored by Pappu and Quester (2006) who found that retail awareness, retail associations and retail perceived quality, varied according to customer satisfaction levels with the retailer.

The processes of development of multi-dimensional brand knowledge are implied in the scales developed for these empirical investigations of the consumer-based brand equity literature. This thesis employs the consumer-based brand equity and aesthetics, environmental psychology literatures to examine how consumers identify the role of design-architecture in building retail brand loyalty.

3.4. Brand Attachment and Brand Loyalty as Response Constructs

Whereas the previous sections examined the development of image and brand-equity research, this section specifically examines brand attachment and loyalty literatures.

Retail brand attachment and loyalty are proposed as two retail-level constructs in the conceptual framework to be tested in Chapters Six and Seven.

Attitudes, attachment, involvement, satisfaction, and perceived quality are among the mediating constructs other than pleasure or aesthetic preference that help explain consumers' perceptions of and responses to the retail brand. Many of these constructs are conceptually similar and it will be proposed in this section that the retail brand loyalty (Aaker 1991, 1996) and retail brand attachment constructs (Thomson, MacInnis and Park 2005; Park, MacInnis and Priester 2008; Park et al. 2010) offer a more effective means of determining brand perceptions than constructs such as attitude (Fishbein and Azjen 1974; Krugman 1965), satisfaction (Anderson, Fornell, and Lehmann 1994; Parasuraman, Zeithaml, and Berry 1994; Zeithaml, Berry and Parasuraman 1996) and perceived quality (Zeithaml 1988; Yoo and Donthu 2001; Aaker 1991).

3.4.1. The Limitations of Perceived Quality, Satisfaction and Attitude as Mediator or Response Constructs

Perceived quality, satisfaction or attitude would appear to offer themselves as effective mediator constructs of the store environment. Perceived quality resembles attitude in its global definition and higher level abstraction of affective response (Olshavsky 1985). Perceived quality implies a perceived superiority or excellence based on consumers' global judgment and subjective evaluations (Zeithaml 1988; Yoo and Donthu 2001). It characterises a global assessment rather than assessments of individual attributes and judgments made within the consumers evoked set (Zeithaml 1988). In this sense, it also implies multi-dimensionality and constitutes a primary definition of brand equity. It is similar to the attitude concept in that it differs from objective quality by having a higher degree of abstraction (Aaker 1996; Keller 1993; Zeithaml 1988).

However, it is also the centrality of attitude identification in the perceived quality construct that makes it unsuitable for use in this thesis. Store aesthetic preference can instead, I argue, capture the immediacy of the experience by individuals upon their current visits to the store. Concepts such as involvement, commitment and satisfaction try to capture in essence what the store aesthetic preference construct aims to explain, but also go further and explain the basis for longer-term affiliation. It is in this effort of explaining how a person returns to the store and builds an enduring, predicable association that attitude, satisfaction and perceived quality prove less valuable. It is necessary to instead discern the role of the aesthetic as presented at the time of the visit to the store and how this immediate encounter associates with retail brand loyalty. The store aesthetic preference construct, therefore, captures the immediacy of the mild emotions experienced toward the store concept (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990). The retail attachment construct, instead, I propose, better (than constructs such as perceived quality, satisfaction and attitude) explains the basis for enduring relationships.

Although satisfaction and attitude theory have dominated consumer research (Anderson, Fornell, and Lehmann 1994; Parasuraman, Zeithaml, and Berry 1994; Zeithaml, Berry and Parasuraman 1996), the recent emergence of brand attachment theory addresses certain limitations in satisfaction and attitudes research. Satisfaction theory is typically assumed to possess attitudinal content reflected in overall evaluations of the total consumption experience (Anderson, Fornell, and Lehmann 1994; Randall, Gravier and Prybutok 2011). However, attitudinal models such as the reasoned action model (Fishbein and Azjen 1974), where behaviour derives primarily from intention, and from a weighted combination of subjective attitudes, has been challenged (Kahle and Beatty 1987; Beatty and Kahle 1988). Krugman (1965) challenges reasoned action theory and suggests that under conditions of low involvement or low concern, perceptual impact leads directly to behaviour, which subsequently influences attitude.

3.4.2. The Emerging Influence of Brand Attachment Theory

The usefulness of the attitude construct has been more recently challenged by Park, MacInnis and Priester (2008). Using brand attachment theory, Park MacInnis and Priester (2008) argue that while consumers may undoubtedly have strong and positive attitudes toward the brand, not all strong and positive brand attitudes are indicative of strong customer-brand relationships. Park et al. (2010) go further and speculate that the attachment construct may offer a new theoretical perspective toward consumer behaviour and better accounts for higher order consumer behaviours than attitude theory.

Although research has not verified the association of the brand attachment construct to other constructs, Park et al. (2010) propose that brand attachment theory offers value over brand attitude strength in predicting: 1) consumers' intentions to perform difficult behaviours (those they regard as requiring consumer resources); 2) actual purchase behaviours; 3) brand purchase share (the share of a brand among directly competing brands); and 4) need share (the extent that consumers rely on a brand to address relevant needs, including those brands in substitutable product categories).

Attachment is defined as an emotion-laden, target-specific bond between a person and a specific object. The bond varies in strength where some individuals exhibit a weak bond with a given object and others exhibit a strong bond (Park, MacInnis and Priester 2008). Attachment is defined in global, affectively valenced terms as the strength of the cognitive and affective links the consumer has with their brand (Park, MacInnis and Priester 2008). Therefore, in a more parsimonious manner, the brand attachment construct captures the intensity of a relationship and its development over time. The bond, therefore, includes consumer-based brand equity concepts (Keller 1993; Aaker 1991, 1996) and exemplifies rich and accessible memory networks that involve thoughts and feelings about the brand and the brand's relationship to the self.

The brand attachment construct is conceptually broad and examines symbolic connections between consumers and their brands. Critically, brand attachments form when brands satisfy key aspects of the self: 1) pleasing and comforting to the self; 2) enriching of the self; and 3) enabling of the self. A brand will be personally significant to the person and a connection will be made when the brand pleases and comforts the self by providing sensory, hedonic or aesthetic pleasure (Park, MacInnis and Priester 2008).

Explicit acknowledgement is, therefore, made of the role of perceptual-sensory aesthetics and its role in environmental branding in what the authors term as self-gratification (Park, MacInnis and Priester 2006). The comprehensive, global nature of brand attachment theory is thus underscored also by the enrichment prospects that materialise in symbolic relating of the self to others.

3.4.3. The Development of Brand Loyalty Theory

Given that store aesthetic preference and brand attachment constructs are employed as mediator (organism) constructs in the conceptual framework for this thesis, it is also proposed to use retail brand loyalty – one of the dimensions of consumer-based brand equity – as an outcome response construct.

Retail brand loyalty is similar in its conceptualisation to the approach-avoidance construct, traditionally favoured in environmental psychology frameworks (Donovan and Rossiter 1982; Donovan et al. 1994). The conceptualisation of approach-avoidance is based on a consumer willingness or unwillingness to: frequent the store, return to the store, to affiliate with other consumers and salespersons (Donovan and Rossiter 1982). Brand loyalty, in contrast, measures loyalty, first choice preference and visits to the company (Yoo and Donthu 2001). Although both share similar measurement characteristics, it is explained in the next chapter, however, that the retail brand loyalty construct evidences better measurement reliability and validity (Yoo and Donthu 2001).

It should be noted, also, that the retail brand loyalty scale by Yoo and Donthu (2001) is introduced to a retail context for the first time in this research. A key distinction is proposed in this research between the behaviourally valenced retail brand loyalty and emotionally valenced retail brand attachment constructs. Loyalty, it is noted, is measured both behaviourally (Bloemer and Odekerken-Schroder 2002; Oliver 1997; Tranberg and Hansen 1986) and attitudinally (Chaudhuri and Holbrook 2001; Yang and Peterson 2004; Yoo and Donthu 2001) and emphasis on one or other approach attracts criticism. Some researchers argue that loyalty should be measured as a combination of both behavioural and attitudinal measures (Dick and Basu 1994). Indeed, retail brand loyalty has recently been examined more on the basis of overall attitudinal loyalty to specific brands rather than as a direct measurement of actual brand-loyal behaviour (Pappu and Quester 2006).

Both the brand attachment and loyalty constructs share a number of conceptual and measurement similarities. Brand loyalty as considered by Yoo and Donthu (2001), Yoo, Donthu and Lee (2000) is more behaviourally valenced and brand attachment more emotionally valenced (Park et al. 2010). This distinction between the measurement of a behaviourally denoted retail brand loyalty (Yoo & Donthu 2000, 2001) and emotionally, valenced retail brand attachment is presented in the next chapter. This distinction is also central to the investigation of research question number two in this research: namely, how design-architecture assumes a role in consumer perceptions of retail brand loyalty.

3.5. End-of-Chapter Three Summary

This chapter examined retail image and branding literatures. The role of the aesthetic in the development of image and branding theory is found to be underdeveloped. There is little extant research to suggest how architectural statements parallel brand statements and point to how consumers identify with the environment in terms of awareness, favourability and uniqueness (Keller 1993). There are, therefore, few literature reference points to determine the effectiveness of visual brand expression in the image and branding literatures.

As in the critical review of the aesthetics, environmental psychology literature in Chapter Two, this chapter also identifies the challenges of identifying methods that explain global-attribute, objective-subjective, store-retail and cognitive-emotional perception (Aaker 1991, 1996; Keller 1993, 2003; Park et al. 2010; Keaveney and Hunt 1992; Martineau 1958). Difficulties in developing methods to explain how architectural archetypes, retail image or branding consider formal, objective-subjective interpretations persist (Keaveney and Hunt 1992; McGoldrick 2002; Burt, Johansson and Thelander 2007; Roedder et al. 2006; Mazursky and Jacoby 1986; Zimmer and Golden 1988; Norberg-Schultz 1965; Broadbent, Bunt and Jencks 1979; Preziosi 1979; Kimchi 1992; Biederman 1987; Hoffman 1980; Kemler-Nelson 1993). This chapter, in this respect, highlighted the problems in the operationalisation and measurement of retail image.

It is also argued in this chapter that the retail brand equity (Aaker 1991; Keller 1993), brand attachment (Park et al. 2010) literatures, in contrast, offers a better basis to understand consumer perceptions of the role of design-architecture in building retail brand loyalty. This understanding will materialise, it is argued, when the retail brand equity literature is examined in conjunction with the aesthetics, environmental psychology literature as proposed in the conceptual framework.

The conceptual framework presented in the next chapter proposes how the specified store environment, represented in store-level prototype, store novelty, store complexity, store aesthetic preference work effectively with retail-level brand attachment and retail brand loyalty constructs. Examination of both these store-level and retailer-level constructs can, I propose, reflect the efficacy of design-architecture in developing retail brand loyalty.

Chapter Four - Proposed Conceptual Framework

4.1. Introduction

The purpose of this chapter is to propose and provide rationale for the conceptual framework that will be empirically examined in Chapters Six and Seven. Constructs are conceptually defined and hypotheses stated given the literature reviewed in Chapters Two and Three. The integration of the theory and methodological enquiry from the design-architecture, branding and psychology literatures together characterise the proposed conceptual framework and its empirical examination addresses the two research questions proposed in this thesis[4]. This chapter, consequently, focuses on the conceptual measurement of the constructs in the proposed framework[5].

This chapter incorporates multiple, diverse literatures into the conceptual framework. The Berlyne Collative-Motivational model is still de-facto the most frequently employed SOR store environments model, but it is not employed in retail branding research. The proposed conceptual framework is essentially a modification of the traditional SOR model and involves: 1) measurement of modified constructs, namely store prototypicality, store novelty, store aesthetic preference, retail attachment and retail loyalty; and 2) the examination of hypothesised associations between these

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[4] Research question number one: Is it possible to improve on the specification or measurement of the store environment beyond the novelty, complexity collative constructs proposed in traditional studies of the store environment?

Research question number two: what effect, if any, do these improved store environment constructs (from answering research question number one) have in explaining the role of store design-architecture in consumer perceptions of retail brand loyalty?

[5] The scales operationalised in this research are provided in the questionnaires in Appendix II.

constructs. The constructs proposed in this chapter reflect consumer global-attribute, cognitive-emotional and objective-subjective interpretations of the store environment. This comprehensive conceptualisation of these constructs thus improves the specification of the store environment and addresses the objective bias, I argue, that is present in the Berlyne model.

This chapter addresses the measurement concerns of this thesis by integrating multiple, diverse theory from the consumer-based brand equity theory (Keller 1993; Aaker 1991), brand attachment theory (Park et al. 2010), preference-for-prototypes theory (Martindale 1984; Martindale and Moore 1988) and environmental psychology literature (Mehrabian and Russell 1974; Donovan and Rossiter 1982) in development of the conceptual framework.

This chapter, therefore, proposes comprehensive construct conceptualisations that are empirically examined in Chapters Six and Seven. The conceptual framework proposes how each construct and association is comprehensively examined by developing item pools drawn from the various literatures. I argue that any weaknesses in one literature may be addressed by the presentation of scales or items from other literatures. Similarly, overlaps exist in certain cases across the literatures and reinforce conceptualisations and measurements of constructs. In this way, I argue, the limitations in the Berlyne model are addressed.

This research approach in this thesis potentially makes a significant contribution to the study of store environments by proposing: one new scale; modifying five extant scales; and incorporates two scales from the marketing literature into store environments research for the first time. The improved specification of the store environment with comprehensively conceptualised and measured constructs thus addresses the first two steps in scale development as recommended by Churchill (1979): namely, to specify the domain of the constructs and develop the item pools relevant to the constructs. It is evident in Chapter Six how the scales for these constructs are purified using factor analyses based on the approaches to scale development proposed by Churchill (1979), DeVellis (2003), and Netemeyer, Bearden and Sharma (2003).

4.2. Main Elements of the Proposed Conceptual Framework

It is proposed that a conceptual framework that investigates consumer perceptions of design-architecture, and its role in building the retail brand, must be capable of discerning consumer interpretations of the multiplicity of cues and messages contained in the store environment (Eroglu and Machleit 2008; Turley and Milliman 2000; McGoldrick 2002).

More specifically, it is proposed that a conceptual framework that examines the role of aesthetics to the building of retail brands needs to comprehensively incorporate multiple, diverse literatures. These literatures include the aesthetics, design and architecture literatures (Norberg-Schultz 1965; Pallasmaa 2011; Malnar and Vodvarka 1992; Berlyne 1970, 1971, 1974). It includes the consumer and environmental psychology literature (Mehrabian and Russell 1974; Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Van Kenhove and Desrumaux 1997; Gilboa and Rafaeli 2003). This thesis also incorporates retail branding literature (Jara and Cliquet 2012; Beristain and Zorrilla 2011; Arnett, Laverie and Meiers 2003; Kim and Kim 2004) and the preference-for-protoypes literature (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990).

When considered in one conceptual framework, these literatures provide firm conceptual foundations to understand: consumer processing of global-attribute processing (Keaveney and Hunt 1992; Kimchi 1992); and cognitive-emotional involvement (Hekkert 2006; Park et al. 2010; Martineau 1958; Charters 2006; Reber, Schwartz and Winkielman 2004). I argue that the examination of these literatures, in the proposed conceptual framework, expand on overly objective perceptions of the store environment. This approach thus enables a better understanding to take place of consumers' perceptions at both store and retail levels.

Store prototypicality, I propose, is useful in explaining global-attribute and objective-subjective discriminations, in particular. Store novelty, store complexity, and store aesthetic preference improve on objective-subjective discriminations. The store aesthetic preference, retail brand attachment and retail brand loyalty constructs reflect global-attribute, objective-subjective and cognitive-emotional environmental discriminations.

Sections 4.2.1-4.2.3. propose the main theoretical elements of the conceptual framework, including: multiple literature drawn from different design, psychology and marketing; objective-subjective, global-attribute interpretation of the store environment; and store versus retailer cognitive and emotional responses to the presented store environment. These elements, I argue, need to be considered in examining the role of design-architecture in consumer perceptions of retail brand loyalty.

4.2.1. Multi-Literature and Global-Attribute Perception at the Store and Retail-level

This thesis in its articulation and examination of its proposed conceptual framework reconciles a number of literatures from disparate aesthetics, psychology and marketing domains. In bridging these three literatures, the search for retail as opposed to general brand loyalty faces a number of literature reconciliation demands.

The aesthetic psychology literatures stress a need for improved ecological meaning (Berlyne 1970) and communication of aesthetic, symbolic, functional, attention drawing, and categorisation (Creusen and Schoormans 2005). These literatures stress the need to develop approaches to reflect what Janlert (1997) calls the character of things or what Rafaeli and Vilnai-Yavetz (2004) describes as the instrumentality, aesthetic and symbolism of physical artefacts as triggers of emotion. The overly restrictive concentration on objective beauty (Mehrabian and Russell 1974; Donovan and Rossiter 1982) points to a need, in this respect, to improve our determinations of how appearance and behaviour merge different functions, situations and value systems to support anticipation, interpretation and interaction (Rafaeli and Vilnai-Yavetz 2004). These are concerns of marketers also where the basis of the message needs to be better understood (Martineau 1958).

The brand equity literature has, in this respect, to-date failed to reflect how global and attribute level information are reconciled, at both the store and overall retailer level. There is a notable absence of any reference to the visual domain in existing environmental psychology SOR models and how ecological meaning is specified or described. Consequently, there is little credible basis to explain how the overly objective character of existing SOR models reliably propose response constructs such as approach-avoidance or brand loyalty. I argue, in this thesis, that the inclusion of a store prototype construct in the conceptual framework addresses this problem by reflecting global-attribute and objective-subjective discriminations.

A conceptualisation and understanding of global-attribute processing of the store environment can be improved with greater reconciliation of these diverse literatures. There is little extant literature available to suggest how store-level perceptions take place and how store-level perceptions are reconciled to overall retailer perceptions in the building of strong retail brands. The measurement models that follow in Chapters Six and Seven reflect comprehensive empirical examinations of item pools presented in this chapter for each construct and reflect global-attribute processing of store environments.

4.2.2. Objective Versus Subjective Interpretation in Store and Retail Branding: the role of collative constructs and the store prototype

This thesis in its measurement of store-level constructs such as prototypicality, novelty, aesthetic preference and complexity reflects consumers' comprehensive, objective-subjective processing of the store environment.

The whole and its attributes in the study of artefacts, Rafaeli and Vilnai-Yavetz (2004) argue, are not advanced by proposals of yet more classification systems e.g. the Bitner servicescape model, and this thesis is careful to not propose this approach. Implicit in categorisation schemas is less emphasis on construct measurement. Few of the classification artefact analyses reveal multi-dimensionality and a coherent theory of how artefacts operate (Rafaeli and Vilnai-Yavetz, 2004) with objective and subjective processing.

The emergence of new theories on aesthetic preference (Hekkert 2006; Reber, Schwarz and Winkielman, 2004; Winkielman et al. 2006; Jacobsen 2006; Whitfield 2000, 2009; Hekkert and Leder 2008; Leder et al. 2004; Belke et al. 2010; Martindale 1984; Martindale and Moore 1988; Martindale, Moore, and Borkum 1990), the development of branding theory (Keller 1993, 2003; Heding, Knudtzen and Bjerre 2009) and prototypes theory (Rosch and Mervis 1975; Joiner 2007) offer an increasingly credible basis to reflect how consumer perceptions of objective-subjective store design assume a role in retail branding.

The proposed conceptual framework presented in this thesis presents the first attempt to deploy store prototypicality with store novelty and store complexity in the

SOR model. This use of the store prototype construct mirrors changes in the aesthetics literature and helps to integrate traditional approaches to the use of the prototype in marketing studies (Loken and Ward 1987; Loken, Joiner and Peck 2002; Nedungadi and Hutchinson 1985; Ward and Loken 1988). Increased knowledge of consumers' perceptive processes can potentially emerge from this research as consumers identify with store prototypes (or exemplars). Store prototypes when studied in conjunction with interpreting consumers' goal-directed navigation of the store may also reveal more complex, dynamic, subjective interpretations of the store environment (Joiner 2007; Park, MacInnis and Priester 2008; Barsalou 1983; Whitfield 2009).

4.2.3. Store Level and Retail-Level Cognitive and Emotional Responses

As the proposed conceptual model reflects a multiple literature, objective-subjective stimulus interpretation at store and retailer levels, the conceptual framework also addresses how consumers evidence aesthetic preference towards the store environment (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990). In others words, the conceptual framework, upon its examination, aims to produce findings that add to our extant knowledge of whether consumers' identify cognitively and emotionally with the aesthetic content of the store as they relate themselves to their retail brands. This would confirm how the various aesthetic denoted cues and messages elicit largely cognitively-valenced aesthetic preference

(Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990) at a store-level and emotionally-valenced attachment responses at the retail-level (Park et al. 2010).

This thesis incorporates preference-for-prototypes theory (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990), retail brand attachment theory (Park et al. 2010) and more recent aesthetics theories such as the most-advanced-yet-acceptable theory (Hekkert 2006) and perceptual fluency theory (Reber, Schwartz and Winkielman 2004) to improve the extant understandings of cognitive-emotional interpretation.

The inclusion of these additional literatures expands the conceptual breadth of the study of store environments and potentially improves our understanding of the kinds of cognitive and emotional construct associations that suggest retail brand loyalty.

4.3. Illustration of the Proposed Conceptual Framework

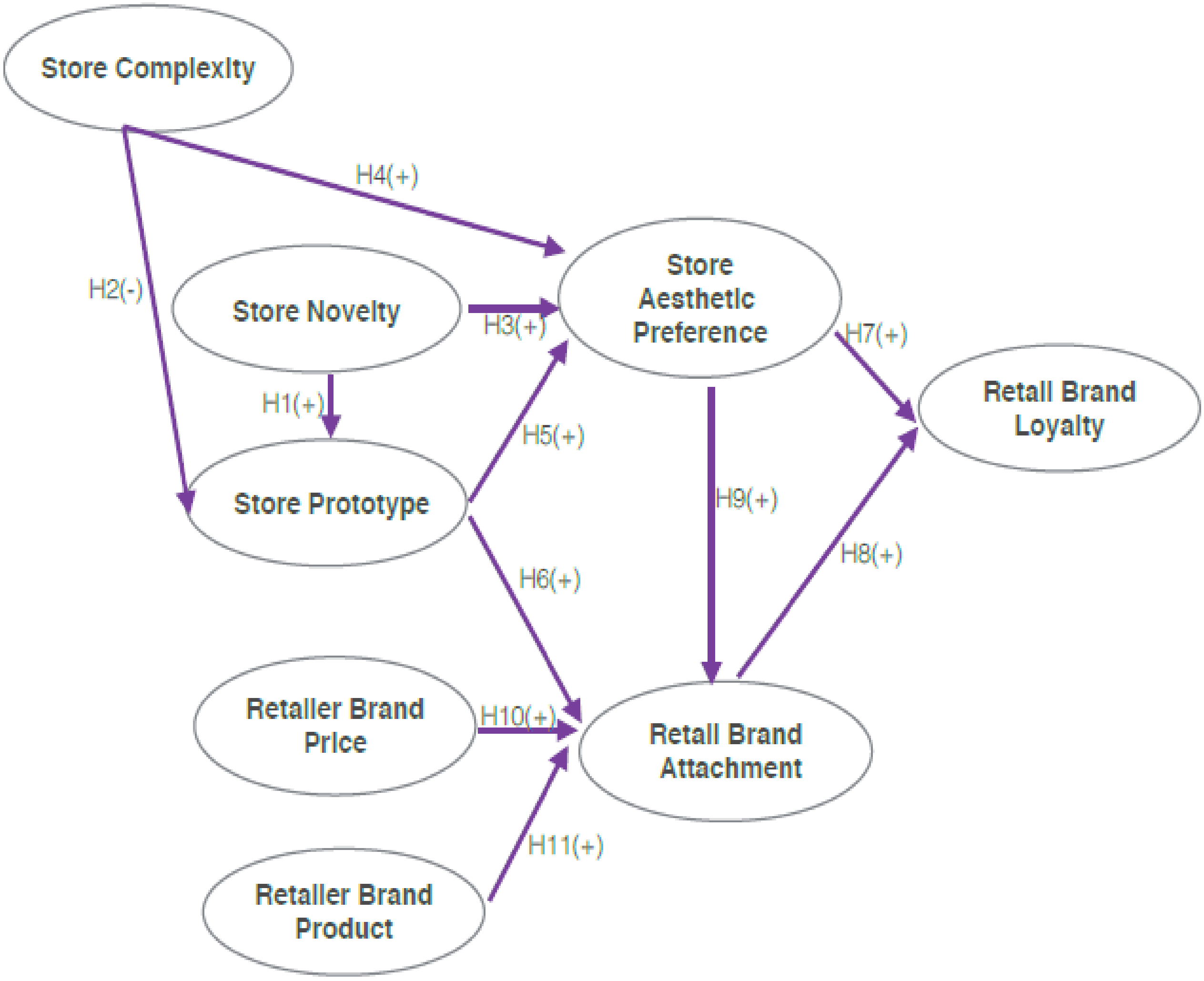
Figure 4.1. presents the proposed conceptual framework and illustrates the various construct associations that are examined. It also reflects the processing dynamic that takes place involving: store and retail-level; global-attribute; objective-subjective; and cognitive-emotional processing. The conceptual framework, therefore, reflects the various kinds of consumer processing of store environments that also assume a role in developing retail brand loyalty. I argue that these kinds of processing improve the

conceptual basis for better measuring these constructs. It also enables improved examination of the associations between these constructs. I thus argue that this approach to constructs measurement improves the specification of the store environment and ultimately an understanding of the perceptions of retail brand loyalty.

In practical terms, the hypotheses I state in the rest of this chapter involve the examination of associations that indicate the presence of an improved, specified store environment. The improved store environment is reflected in the proposed conceptual framework in Figure 4.1., and proposes that designs seeking moderate store aesthetic preference encourage perceptions of order with moderate novelty, complexity and elements of popular style. Designs seeking excitement and high store aesthetic preference should encourage perceptions of high novelty, complexity, atypicality and low order. Additionally, designs seeking calm should, I propose, encourage perceptions of high order and naturalness (these kinds of association are similar to what is outlined in Nasar's 1994 model of architectural discrimination).

These exchanges reflect Nasar's (1994) demands for architecture to emphasise the exchanges between the formal objective domain, the schema and the symbolic. The proposed model, therefore, goes further than Berlyne's collative-motivational model. It characterises the type of processing implied in the associations between perceivers and the store environment. I argue that the approach, I advance, first improves the specification of the store environment (research question one) before the role of the visual in perceptions of retail brand loyalty is better understood (research question two).

Figure 4.1. Proposed Conceptual Framework for this Thesis



4.4. An Examination of the Thesis Research Questions and Hypotheses

In this section, the various constructs and associations in the conceptual framework and why they should be studied are theoretically justified. It will become obvious that there are only a few scales currently developed in the literature to measure these constructs. Owing to the poorly developed nature of some of these constructs, significant emphasis in the remainder of this chapter is placed on the presentation of item pools drawn from the multiple, diverse literature employed in this thesis to measure these constructs. This is a necessary first step (Churchill 1979) before the empirical measurement of these constructs is performed in Chapter Six.

4.4.1. Store Novelty and Store Complexity Associations with the Store Prototype

Significantly more research, originating primarily from the brand extension and general marketing literatures, is forthcoming for examinations of the store novelty and prototypicality association than for the complexity and prototypicality association. The store prototype and store novelty constructs have not previously been investigated in store environments research at the same time and I argue that this is a weakness in the extant research. These associations propose how the conceptualisation of store novelty and store complexity indicate awareness and preference prospects for the store prototype.

Consumers with high awareness and positive attitudes towards a brand tend to have strong, unique and favourable associations towards the same brand (Keller 1993). This preference or liking for typicality is partly explained due to typical stores or brands having more valued attributes, and because they are more familiar to consumers (Loken and Ward 1990). Prototypicality is significantly related to preference and different memory based measures are also important to familiarity, awareness and usage outcomes (Nedungadi and Hutchinson 1985; Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990). Prototypicality characterises these associations in summative form and the typicality, frequency of instantiation, attitude examinations by Ward, Bitner and Barnes (1992) confirm identification with the exteriors of retail stores. This thesis, it should be noted, examines store interiors to determine if prototypicality evidences associations with novelty and complexity, an association unconfirmed by Ward, Bitner & Barnes (1992).

This thesis examines the associations between these constructs. Store prototypicality, I argue, associates strongly with store novelty in consumer discriminations of design-architecture. Few, if any, attempts have been made to operationalise this process of perception and the process of how separate and integral attribute combinations promote prospects for high fluency and high aesthetic appreciation. Thus, few methods for determining how architectural elements or integral componential configurations achieve awareness and typicality outcomes are currently available. This thesis in employing the store prototype construct and in investigating its associations with the store novelty and store complexity constructs will aim to improve on the extant knowledge of this process of perception.

Store prototypicality has been conceptualised based on an extensive literature review along the lines proposed in Table 4.1. The item pool generated from reviews of the: design-architecture; consumer and environmental psychology; branding and retail branding literatures reveal only one scale, the Ward, Bitner and Barnes (1992) scale for retail prototypicality. Ward, Bitner and Barnes (1992) employed items to examine best example, typicality and representativeness and this scale generated an impressive Cronbach Alpha reliability of 0.94. This research employs the Ward, Bitner and Barnes (1992) scale and goes further to examine if recognition, awareness and similarity items can also expand conceptualisation of store prototypicality.

Inclusion of these additional items may expand the extant Ward, Bitner and Barnes (1992) conceptualisation and measurement of prototypicality. I aim to examine if the modified construct better reflects consumers global, subjective assessments of objective, attribute properties in the store environment. It could thus assess the recognition and awareness prospects of the store design-architecture. These additional items, presented in Table 4.1., are drawn from branding research (Beristain and Zorrilla 2011; Washburn and Plank 2002; Yoo and Donthu 2001; Aaker 1991; Keller 1993; Lassar, Mittal and Sharma 1995), aesthetics and categorisation literatures (Hekkert, Snelders and Van Wieringen 2003; Meyers-Levy and Tybout 1989).

Table 4.1. Store Prototype Item Domain				
Item Examination[6]	**Authors Who Employ Items in Measurement of Construct**	**Scale and Reliability**	**Literature Domain**	**Item Chosen (Y/N)**[7]
Best Example	Loken and Ward (1990); Rosch and Mervis (1975); Ward and Loken (1988); Barsalou (1985); Hekkert (2003); Ward, Bitner and Barnes (1992)	Ward, Bitner and Barnes (1992) Cronbach Alpha 0.94; Cox and Cox (2002) Cronbach Alpha 0.865	Categorisation	Y
Typicality	Loken and Ward (1990); Rosch and Mervis (1975); Cox and Cox (2002)			Y
Representativeness	Loken and Ward (1990); Rosch and Mervis (1975); Hampton and Gardiner (1983)			Y
Fit	Han (1998)	*	Brand Extensions	N
Recognition	Beristain and Zorrilla (2011); Washburn and Plank (2002); Yoo and Donthu (2001)	*	Branding	Y
Awareness	Aaker (1991); Keller (1993); Lassar, Mittal and Sharma (1995); Yoo and Donthu (2001); Washburn and Plank (2002);	*	Branding	Y
Similarity	Hekkert, Snelders and van Wieringen (2003); Meyers-Levy and Tybout (1989)	*	Aesthetics Categorisation	Y
*No Store Prototype Scale Measurement				

[6] The actual item wording and questions are available in Appendix II.

[7] Unless it is explained in the text, there is no particular reason for why any of these items (denoted N) were not employed in development of the questionnaire. For brevity and avoidance of consumer fatigue reasons, these items were dropped from inclusion in the questionnaire.

Prototypicality is studied from the structural (Rosch and Mervis 1975; Barsalou 1983, 1985), design (Hekkert and van Wieringen 1990; Hekkert, Snelders and van Wieringen 2003), consumer (Nedungadi and Hutchinson 1985; Loken and Ward 1987; Loken and Ward 1990; Loken, Joiner and Peck 2002; Sujan and Dekleva 1987; Ward and Loken 1985) and retail perspectives (Babin and Babin 2001; Ward, Bitner and Barnes 1992). Generally, irrespective of the origins of the studies, the prototype construct has an established association with both store novelty and store complexity. It is argued that the store prototype construct also offers a robust basis to examine design-architecture in specific store environment contexts.

Important in respect of any consideration of store prototypicality is how extensive the introduction of store novelty and store complexity is and how easily the new concept is perceived. Consumers will seek both store novelty and store prototypicality in their aesthetic appreciation of the stimulus. The aesthetics literature advances that moderate incongruity to the existing prototype is preferred (Leder and Carbon 2005). The marketing literature concurs and considers a product novelty deemed moderately incongruent with their associated category schemas is likely to stimulate processing that leads to more favourable evaluations relative to products that are either congruent or extremely incongruent (Meyers-Levy and Tybout 1989). Individuals, in this respect, can be observed to engage in cognitive elaboration directed at resolving incongruity: a conclusion similarly reflected by aesthetic perceptual fluency theorists such as Reber, Schwarz and Winkielman (2004). Resolving incongruity proves satisfying, in itself, thus presenting the basis for pleasure and aesthetic preference.

The conceptualisation and measurement of store novelty in Table 4.2. draws principally from the Cox and Cox (2002), Donovan and Rossiter (1982) scales from the aesthetics and environmental psychology literatures. The item pool generated and selected for this research emphasises objective-subjective perceptions and how the store environment proposes differentiation, newness/novelty, originality, and the unexpected. This conceptualisation of store novelty draws from various aesthetics, branding, and environmental psychology literatures. The "difference" item is treated as an item measure of store novelty. It should be noted, however, that it is treated by Cox and Cox (2002) as a measure of typicality.

Table 4.2. Store Novelty Item Domain

Item Examination	Authors Who Employ Items in Measurement of Construct	Scale Reliability	Literature Domain	Item Chosen (Y/N)
Similarity	Martinez and de Chernatony (2004); Han (1998); Bousch and Loken (1991)	No Novelty Scale Measured	Branding, Prototypes	Y
Difference	Cox and Cox (2002)	No Novelty Scale Measured	Prototypes	Y
Newness	Cox and Cox (2002); Herzenstein, Posavac and Brakus (2007); Greenland and McGoldrick (2004)	Cox and Cox (2002) Cronbach Alpha 0.81; Donovan and Rossiter (1982) Cronbach Alpha 0.85; Tai and Fung (1997) Cronbach Alpha 0.898; Greenland and	Aesthetics	Y
Originality,	Cox and Cox (2002); Hekkert, Snelders and van Wieringen (2003)		Aesthetics, Environmental Psychology	Y
Commonness	Cox and Cox (2002); Tai and Fung (1997)		Aesthetics, Environmental Psychology	N
Familiarity-Novelty	Cox and Cox (2002); Tai and Fung (1997);		Aesthetics, Environmental	Y

	Mehrabian and Russell (1974)	McGoldrick (2004) No Reliability Scale Reported	Psychology	
Interest	Hekkert and van Wieringen (1990); Tai and Fung (1997)		Aesthetics, Environmental Psychology	N
Unexpected	Tai and Fung (1997); Donovan and Rossiter (1982)		Environmental Psychology	Y

The item pool generated to measure store complexity and the association between store complexity and store prototypicality also draws on the Cox and Cox (2002) complexity scale (Table 4.3.). Store complexity, in particular, has proven more difficult to measure in extant retail research (Mehrabian and Russell 1974; Donovan and Rossiter 1982). This current research incorporates complexity items in the survey instrument that consider objective-subjective complexity, order, crowding, clutter, contrast, and deliberateness. Although Cox and Cox (2002), Donovan and Rossiter (1982) report reliability coefficients for the measurement of complexity, it should be noted that Gilboa and Rafaeli (2003), Donovan and Rossiter (1994), Nasar (2002) do not report any reliability coefficient for store complexity.

<table>
<tr><th colspan="5">Table 4.3. Store Complexity Item Domain</th></tr>
<tr><th>Item Examination</th><th>Authors Who Employ Items in Measurement of Construct</th><th>Scale Reliability</th><th>Literature Domain</th><th>Item Chosen (Y/N)</th></tr>
<tr><td>Complexity</td><td>Cox and Cox (2002); Hekkert and van Wieringen (1990); Nasar (2002); Mehrabian and Russell (1974); Gilboa and Rafaeli (2003)</td><td rowspan="7">Cox and Cox (2002) Cronbach Alpha 0.85; Donovan and Rossiter (1982) Variety Cronbach Alpha 0.78, Irregularity Cronbach Alpha 0.84, Density Cronbach Alpha 0.40; Tai and Fung (1997) Cronbach Alpha 0.8684; Gilboa and Rafaeli (2003) No Reliability Coefficient Reported; Donovan and Rossiter (1994) No Reliability Coefficient Reported; Nasar (2002) No Reliability Coefficient Reported</td><td>Aesthetics, Architecture, Environmental Psychology</td><td>Y</td></tr>
<tr><td>Order</td><td>Hekkert and van Wieringen (1990); Gilboa and Rafaeli (2003)</td><td>Aesthetics, Environmental Psychology</td><td>Y</td></tr>
<tr><td>Crowding</td><td>Mehrabian and Russell (1974)</td><td>Environmental Psychology</td><td>Y</td></tr>
<tr><td>Clutter</td><td>Sherman, Mathur and Smith (1997)</td><td>Retail Image</td><td>Y</td></tr>
<tr><td>Contrast</td><td>Mehrabian and Russell (1974); Donovan and Rossiter (1982); Donovan et al. (1994)</td><td>Environmental Psychology</td><td>Y</td></tr>
<tr><td>Deliberateness</td><td>Mehrabian and Russell (1974); Donovan and Rossiter (1982); Donovan et al. (1994)</td><td>Environmental Psychology</td><td>Y</td></tr>
<tr><td>Redundancy</td><td>Mehrabian and Russell (1974); Donovan and Rossiter (1982); Donovan et al. (1994)</td><td>Environmental Psychology</td><td>N</td></tr>
</table>

A notable conceptual difference emerges concerning the association between store novelty and store prototypicality when the design and branding literatures are compared. Designers typically perceive negative correlations between novelty and typicality (Snelders and Hekkert 1999), but the marketing perspective instead determines that novelty under certain circumstances reinforces perceptions of a strong prototype (Meyers-Levy and Tybout 1989; Ward and Loken 1988).

The existence of these different findings in design and marketing literatures concerning the store novelty and store prototypicality association presents a research issue that demands further investigation and is examined in hypotheses one and two. Hypothesis number one is proposed, based on the marketing literature, and the Meyers-Levy and Tybout (1989), Ward and Loken (1988) interpretations of the prototype and novelty association. This leads to the statement of the first two hypotheses to be investigated in this thesis:

H1: Store novelty is positively associated with store prototype perceptions in higher-level store design-architecture environments

H2: Store complexity is negatively associated with store prototype perceptions in higher-level store design-architecture environments

4.4.2. Store Novelty and Store Complexity Associations with Store Aesthetic Preference

If a stimulus is mis-specified in its measurement in the first place then it is more difficult to suggest that associations exist between store aesthetic preference and retail brand loyalty. This thesis argues that the store environment in the extant literature is improperly measured (in literature such as Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Gilboa and Rafaeli 2003). In other words, the constructs traditionally employed in specification of the store environment, namely store novelty and store complexity, as they are currently conceptualised and measured, are of limited use and their measurement needs to be improved.

With the exception of Greenland and McGoldrick (1994, 2004), most examinations of the Berlyne framework (Tai and Fung 1997; Van Kenhove and Desrumaux 1997) are narrow in their adoption of the novelty, complexity collative constructs and no attempts to subjectively relate the ecological meaning of the design-architecture to the stimulus context are presented. The Berlyne framework is stable and durable (Van Kenhove and Desrumaux 1997; Tai and Fung 1997; Donovan and Rossiter 1982; Donovan et al. 1994), but needs access to modified (store prototype, store novelty and store complexity) constructs to more effectively explore consumer perceptions of the store environment.

The issues of complexity correlating with identifiability, meaning, typicality and general legibility of the environment further explain how complexity is unlikely on its own to indicate aesthetic preference. Store complexity and the store novelty when evaluated together have strong associations with store aesthetic preference; it is proposed in this thesis. The store novelty and store complexity associations can, for instance, be evident in striking forms of architecture being substantially more appreciated when they are identifiable and subjectively perceived (Herzog, Kaplan and Kaplan 1982). High complexity must also be integrated into urban environments that are also highly coherent to retain a satisfactory visual quality (Herzog, Kaplan and Kaplan 1982; Kaplan and Kaplan 1989; Nasar 2002). The observation by Norberg-Schultz (1965) and Whitfield (2009) that categories are relational in nature, suggests that complex meaningful stimuli evidence a presence of architecture's formal dimension even as the category becomes relativised. Thus, store complexity and store novelty, in the conceptualisations employed in this thesis, evidence both objective and subjective interpretations of the environment and not just the objective interpretation reflected in the traditional Berlyne model.

The item pool for measuring store aesthetic preference is presented in Table 4.4. Utilising the aesthetics preference scale of Cox and Cox (2002), the items conceptually capture liking, attractiveness, and stylishness as assessments of the visual appeal of the aesthetic. It is proposed to employ this conceptualisation in an examination of store aesthetic preference, but to complement this definition with additional items drawn from retail marketing, architecture and aesthetics for impressiveness (Nasar 2002; Sherman, Mathur and Smith 1997), pleasantness (Kalcheva and Weitz 2006; Sherman, Mathur and Smith 1997; Jain and Srinivasan 1990). Although a number of studies have considered excitement, fun, joy and happiness in the conceptualisation of a store aesthetic preference or pleasure response to the environment (Hekkert, Snelders and van Wieringen 2003; Hekkert and van Wierengen 1990; Veryzer and Hutchinson 1998; Kalcheva and Weitz 2006; Mehrabian and Russell 1974; Sherman, Mathur and Smith 1997; Gilboa and Rafaeli 2003), it is not proposed to consider these more obviously affective items in the definition of store aesthetic preference.

The proposed conceptualisation of store aesthetic preference is, I argue, similar to recent consideration of the aesthetic stimulus where any affective response is judged mild or almost cognitive (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990; Hekkert 2006; Hekkert, Snelders and van Wieringen 2003; Reber, Schwarz and Winkielman 2004). The decision to employ pleasantness, as opposed to pleasure in this thesis, is aimed at reflecting this mild affective response to the environment (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990).

Table 4.4. Store Aesthetic Preference Item Domain

Item Examination	Authors Who Employ Items in Measurement of Construct	Scale Reliability	Literature Domain	Item Chosen (Y/N)
Liking	Veryzer (1993); Reber, Winkielman and Schwarz (1998); Belke et al (2010); Spies, Hesse and Loesch (1997); Cox and Cox (2002)	Cox and Cox (2002) Cronbach Alpha of 0.93;	Aesthetics, Retail Marketing	Y
Attractiveness	Cox and Cox (2002); Nasar (2002); Leder and Carbon (2005); Veryzer and Hutchinson (1998); Sherman, Mathur and Smith (1997); Chebat and Michon (2003)		Aesthetics, Architecture, Retail Marketing	Y
Stylish	Cox and Cox (2002)		Aesthetics	Y
Impressiveness	Nasar (2002); Sherman, Mathur and Smith (1997)	No Aesthetic Preference Scale Measured	Architecture, Retail Marketing	Y
Beauty	Hekkert, Snelders and van Wieringen (2003); Hekkert and van Wierengen (1990);	No Aesthetic Preference Scale Measured	Aesthetics, Retail Marketing	N

	Veryzer and Hutchinson (1998)			
Excitement	Jain and Srinivasan (1990)	No Aesthetic Preference Scale Measured	Branding	N
Fun	Jain and Srinivasan (1990)	No Aesthetic Preference Scale Measured	Branding	N
Pleasantness	Kalcheva and Weitz (2006); Sherman, Mathur and Smith (1997); Cox and Cox (2002); Jain and Srinivasan (1990)	Sherman, Mathur and Smith (1997) Image Cronbach Alpha 0.67	Retail Marketing, Aesthetics	Y
Happiness	Kalcheva and Weitz (2006); Mehrabian and Russell (1974); Sherman, Mathur and Smith (1997)		Environmental Psychology, Retail Marketing	N
Enjoyable	Gilboa and Rafaeli (2003)	No Aesthetic Preference Scale Measured	Environmental Psychology	N

The leads to statements for hypotheses numbers three and four. Hypothesis three assumes that higher store novelty will positively associate with higher store aesthetic preference and is therefore desired. However, higher store complexity may lead to perceptions of disorientation or confusion and make the variability of design elements also less likely to induce a visually appealing store design.

H3: Store novelty is positively associated with store aesthetic preference in higher-level store design-architecture environments

H4: Store complexity is negatively associated with store aesthetic preference in higher-level store design-architecture environments

4.4.3. Store Prototype Associations with Store Aesthetic Preference and Retail Brand Attachment

A number of studies on aesthetic preference suggest that design principles such as proportion, unity, and focal point influence perceptions of store prototypicality (Jansson, Bointon and Marlow 2003; Veryzer 1993; Barr and Neta 2006; Frith and Nias 1974; Hekkert and van Wieringen 1990). There is generally a preference for design that does not violate the Gestalt laws of proportion and the effect of unity is found to be "superadditive" (Veryzer 1993). In other words, the correct application of these principles helps to create the store prototype and increases the prospects for store aesthetic preference. Both store design unity and prototypicality are analogous and confirm joint, synergistic roles in their association with store aesthetic preference.

In much the same way, the brand attachment construct reflects how brand self-connection (Park et al. 2010; Park, MacInnis and Priester 2006, 2008), and brand prominence (Park et al. 2010, Park, MacInnis and Priester 2006, 2008; Thomson, MacInnis and Park 2005) reveal a host of different perceptions. Different aesthetic, sensory, hedonic gratification and schema referenced thoughts or feelings feature in brand attachment perception. The inclusion of brand attachment theory in the SOR model, therefore, includes these various subjective perceptions, in addition to perceptions of objective aesthetic designs. The inclusion of the brand attachment theory in the conceptual model, in other words, proposes objective-subjective, global-attribute and cognitive-emotional processing and could help to improve the extant understanding of retail branding.

This thesis proposes to employ the Park et al. (2010) brand attachment scale (Table 4.5). This four-item scale examines self-connection and automaticity affects and it is proposed to employ this scale in measurement of brand attachment in a retail context for the first time. It is argued that the store prototype, which principally reflects recognition, awareness and similarity perception at the store-level, could induce affective connection and automaticity outcomes for brand attachment at the retail-level if consumers like the design(s) presented to them. The store prototype could also have strong associations with both store aesthetic preference and retail brand attachment.

Table 4.5. Retail Brand Attachment Item Domain

Item Examination	Authors Who Employ Items in Measurement of Construct	Scale Reliability	Literature Domain	Item Chosen (Y/N)
Attachment	Thomson, MacInnis and Park (2005)	Park et al. (2010) Cronbach Alpha of 0.90-0.95; Malar et al. (2011) Affection Cronbach Alpha 0.71-0.73, Connection Cronbach Alpha 0.82-	Branding	Y
Concern to Me	Thomson, MacInnis and Park (2005); Park et al. (2010)		Branding	Y
Relevance	Zaichkowsky (1994), Thomson, MacInnis and Park (2005)		Branding	Y
Means a Lot to Me	Zaichkowsky (1994); Thomson, MacInnis and Park (2005)		Branding	Y
Significance to Me	Cox and Cox (2002); Thomson, MacInnis and		Aesthetics, Branding	Y

	Park (2005)	0.83.		
Connection	Thomson, MacInnis and Park (2005); Malär, Krohmer, Hoyer, and Nyffenegger (2011); Park et al. (2010)		Branding	Y
Bond Intensity	Park et al. (2010)		Branding	Y
Automaticity	Park et al. (2010)		Branding	Y
Feelings	Lassar, Mittal and Sharma (1995)	No Brand Attachment Scale Measurement	Branding	N

It is, therefore, proposed to test the following hypotheses in examination of store prototype associations with store aesthetic preference and retail brand attachment:

H5: Store prototype perception is positively associated with store aesthetic preference in higher-level store design-architecture environments

H6: Store prototype perception is positively associated with retail brand attachment in higher-level store design-architecture environments

4.4.4. Retail Brand Loyalty Associations with Store Aesthetic Preference and Retail Brand Attachment

This proposed conceptual framework examines consumer perceptions at the store and retail-levels. Perception at the store-level takes place involving the store prototype, store novelty, store complexity and store aesthetic preference constructs. Perception of retail brand attachment and retail brand loyalty, I argue, takes place instead at the retail-level. This treatment of constructs as either store or retailer in their perception is infrequently used in the extant literature. The examination of how the specified store environment evidences associations with retail brand attachment and retail loyalty is ultimately the examination of research question number two.

Examining store aesthetic preference or retail brand attachment associations with retail brand loyalty has yet to feature in the literature. In the few applications of the consumer-based brand equity model in a retail context, behavioural and attitudinal items are employed in the definition of retail brand loyalty (Beristain and Zorrilla 2011). Most of the early innovations in retail brand equity research have tended to understandably examine the suitability of the theory for retail research specifically.

Examinations of the associations between awareness, associations, perceived quality and loyalty have tended to emphasise direct stimulus-response perception with confirmation of the influence of retail brand awareness on equity and performance (Jara and Cliquet; Kim and Kim 2004). Given the importance of information-processing theory to the consumer-based equity perspective on branding (Heding, Knudtzen and Bjerre 2009), relatively few non-information processing theory literature have emerged. Some non-information processing exceptions in retail contexts include the exploration of personality (Jara and Cliquet 2012), and customer satisfaction (Pappu and Quester 2006) to explain emotional responses. These recent contributions by Jara and Cliquet (2012) and Pappu and Quester (2006) to retail brand equity theory have explored how retail brand image are understood given developments in retail brand equity theory, but further research is necessary.

The recent contributions of Park et al. (2010), Park, MacInnis and Priester (2006, 2008), Thomson, MacInnis and Park (2005) to brand attachment are conceptually similar to the info-theoretic Mehrabian and Russell (1974) model and Keller (1993), Aaker (1991) consumer equity theory. This thesis builds on this largely info-theoretic literature in its examination of the associations between these constructs.

It is proposed to examine retail brand loyalty using the Yoo and Donthu (2001), Yoo, Donthu and Lee (2000) scale (Table 4.6.). This three-item scale examines loyalty, frequency of shopping and first choice to measure retail loyalty. Arguably, two of the three items on this scale (frequency of shopping and first choice selection) are behavioural and not attitudinal responses to the given stimulus. In common with items that measure approach-avoidance behaviour, it is notable that this measurement of retail brand loyalty is different to a more emotionally valenced retail brand attachment construct. There is considerable agreement, evident in Table 4.6., on the items proposed in measurement of brand loyalty across numerous studies (Thomson, MacInnis & Park 2005; Sirgy et al. 1991; Beristain and Zorrilla 2011; Yoo and Donthu 2001; Yoo, Donthu and Lee 2000; Beatty and Kahle 1988; Washburn and Plank 2002; Kim and Kim 2004) if only minimal agreement on what is the best way of examining loyalty in a retail specific context.

Table 4.6. Retail Brand Loyalty Item Domain

Item Examination	Authors Who Employ Items in Measurement of Construct	Scale Reliability	Literature Domain	Item Chosen (Y/N)
Loyalty	Thomson, MacInnis & Park (2005); Sirgy, Johar, Samli, and Clairborne (1991); Beristain and Zorrilla (2011); Beatty and Kahle (1988); Yoo and Donthu (2001); Washburn and Plank (2002)	Yoo, Donthu and Lee (2000) Composite Reliability 0.86-0.88, Cronbach Alpha 0.86-0.88; Beristain and Zorrilla (2011) Cronbach Alpha 0.911,Composite Reliability 0.921; Beatty and Kahle (1988) Brand Commitment Cronbach Alpha 0.75-0.76	Branding	Y
First Choice Store	Kim and Kim (2004); Aaker (1997); Yoo and Donthu (2001); Washburn and Plank (2002); Beristain and Zorrilla (2011)		Branding	Y
Future Intention to Shop	Beatty and Kahle (1988); Yoo and Donthu (2001); Beristain and Zorrilla (2011)		Branding	N
Shop Most Frequent	Yoo and Donthu (2001)		Branding	Y
Would Choose Other Brand	Beatty and Kahle (1988); Washburn and Plank (2002)		Branding	N
Recommend Store to Others	Kim and Kim (2004); Aaker (1997); Yoo and Donthu (2001)		Branding	N
Time Spent in Store	Tai and Fung (1997); Donovan and Rossiter (1982); Kalcheva and Weitz (2006); Gilboa and Rafaeli (2003); Russell and Mehrabian (1978); Foxall and Greenlay (1999);	No Brand Loyalty Scale Measured	Environmental Psychology	N
Socialisation Prospect in Store	Gilboa and Rafaeli (2003); Donovan and Rossiter (1982); Foxall and Greenlay (1999); Kalcheva and Weitz (2006)	No Brand Loyalty Scale Measured	Environmental Psychology	N

Avoidance of Store	Van Kenhove and Desrumaux (1997)	No Brand Loyalty Scale Measured	Environmental Psychology	N

It is, therefore, proposed to advance hypotheses seven, eight and nine in examination of the influence of the specified store environment on retail brand loyalty. This is also relevant to the examination of research question number two: examining the role of the store level aesthetic on consumer perceptions of retail brand loyalty. This means that should consumers identify with the behavioural-orientated responses of the retail brand loyalty construct, given the presented design, it would reveal how effectively the design communicates with consumers. For example, a store with a higher-level design should evidence higher store aesthetic preference, retail brand loyalty and brand attachment association values. Correspondingly, a store with a deliberately more functional, lower-level design should evidence lower store aesthetic preference, retail brand attachment and retail brand loyalty perception. Hypotheses seven, eight and nine are therefore proposed to examine:

H7: Store aesthetic preference is positively associated with retail brand loyalty in higher-level store design-architecture environments

H8: Retail brand attachment is positively associated with retail brand loyalty in higher-level store design-architecture environments

H9: Store aesthetic preference is positively associated with retail brand attachment in higher-level store design-architecture environments

4.4.5. Retail Brand Product and Retail Brand Price Associations with Retail Brand Attachment

The retail brand product and retail brand price constructs in the proposed conceptual framework examine research question two. The relative contribution of the non-visual retail brand product and retail brand price perceptions constructs to retail brand loyalty potentially emerge when their contributions are compared to those of the specified store environment constructs.

The retail brand product and retail brand price constructs, I propose, possess both emotional and functional properties in Penneys, the discount-fashion retailer under investigation. Distinguishing between the influences of emotional (what Martineau (1958) termed psychological) and functional components has drawn criticism (Burt, Johansson and Thelander 2007) on the grounds of measurement separation of what is considered psychological and functional. Very strong consumer product brand perception is essential to Penneys success, and this demands a need on their part to deliver significant hedonic and utilitarian value. It is, therefore, proposed to not separate the emotional and functional elements of price perception.

This approach is intended to reveal whether the retail brand product and retail brand price constructs have strong associations with retail brand loyalty in the case of Penneys relative to the contributions of the store environment. The Jara and Cliquet (2012) price perception scale is used. Both the Jara and Cliquet (2012) and Jinfeng and Zhilong (2009) scales are employed previously in retail brand equity studies with respectable Cronbach Alpha reliability values and are considered appropriate for the examination of retail brand price perceptions of Penneys.

Table 4.7. Retail Brand Price and Retail Brand Product Brand Item Domain				
Item Examination	**Authors Who Employ Items in Measurement of Construct**	**Scale Reliability**	**Literature Domain**	**Item Chosen (Y/N)**
		Retail Brand Price Perception		
Value	Jara and Cliquet (2012); Hansen and Deutscher (1977); Jinfeng and Zhilong (2009); Dodds, Monroe and Grewal (1991); Martinez and De Chernatony (2004)	Jara and Cliquet (2012) Cronbach Alpha 0.80; Jinfeng and Zhilong (2009) Cronbach Alpha 0.9263	Retail Branding	Y
Competitive Prices	Jara and Cliquet (2012); Jinfeng and Zhilong (2009); Lassar, Mittal and Sharma (1995)		Retail Branding	Y
Lower Prices	Jara and Cliquet (2012); Schiffman, Dash and Dillon (1977); Jinfeng and Zhilong (2009)		Retail Branding	Y
Good Deal	Jara and Cliquet (2012); Jinfeng and Zhilong (2009); Lassar, Mittal and Sharma (1995)		Retail Branding	Y
Saves Money	Jara and Cliquet (2012)		Retail Branding	Y
Affordable	Beristain and Zorrilla (2011)	Beristain and Zorrilla (2011) Cronbach Alpha 0.796	Retail Branding	N
Appropriate Price	Beristain and Zorrilla (2011)		Retail Branding	N
		Retail Brand Product Perception		
Good Selection	Tai and Fung (1997); Schiffman, Dash and Dillon (1977); Lindquist (1974); Yoo, Donthu and Lee (2000)	Yoo, Donthu and Lee (2000) Cronbach 0.70 Minimum	Retail Discount Fashion Retailing	Y
Good Quality	Hansen and Deutscher (1977); Lindquist (1974);			Y

	Yoo, Donthu and Lee (2000)	Value (Perceived Quality); Developed in Association With Penneys Management		
Modern Fashions	Tai and Fung (1997); Lindquist (1974)			Y
Well-Designed Fashions	Lindquist (1974)			Y

There is a difficulty with sourcing product brand and price brand scales. Surprisingly few scales exist to measure retail brand product (and retail brand price perception) in retail store environments. Retail product brand, when it is measured, frequently features single product items. These single items tend to feature in the measurement of other constructs such as retail image, retail brand equity and even complexity. In the measurement of complexity, for instance, Tai and Fung (1997) include three product ranging, modernity and atmosphere items in their measurement of complexity. There is further justification for this conceptualisation and measurement of retail brand product. In the retail image, branding and environmental psychology literatures, Schiffman, Dash and Dillon (1977); Lindquist (1974); Hansen and Deutscher (1977) each employ product items concerning range, quality, modernity and design of product in prior empirical investigations of product consumption. Similarly, Arnett, Laverie and Meiers (2003), Kim and Kim (2004), Beristain and Zorrilla (2011), Yoo and Donthu (2000) also emphasise the measurement of product items in overall retail brand equity.

The retail brand product construct, I propose, therefore, examines ranging, quality, fashionability and design perceptions. These are items specific to the context of a discount fashion retailer, I argue (Table 4.7). These items were also proposed to

Penneys management and feedback on these questionnaire items was solicited from Penneys to ensure the questions were relevant and appropriate for this research. The items, upon receipt of Penneys feedback, were subjected to further moderation by colleagues in DIT, who screened these retail brand product items at the questionnaire development stage, in advance of the survey administration.

It is proposed to state the following two hypotheses to reflect the visual versus non-visual retail brand product and retail brand price associations with retail brand loyalty (indirect) and retail brand attachment (direct):

H10: Retail brand price is positively associated with retail brand attachment in both higher-level and lower-level store design-architecture environments

H11: Retail brand product is positively associated with retail brand attachment in both higher-level and lower-level store design-architecture environments

4.5. Statement of Research Questions and Hypotheses

This thesis, therefore, proposes two research questions for investigation in the following chapters. The examination of these research questions involve investigations of hypotheses 1-11, as presented in Table 4.8. Hypotheses numbers 1-5 examine research question number one: the specification of the store environment and the associations between store-level novelty, prototype, complexity and aesthetic preference. Hypotheses 6-11 examine research question number two and whether the specified environment assumes a role in developing retail brand loyalty.

Chapter Five proposes the research instrument that is developed for this thesis. Consumers complete in-store surveys of their assessments of two-levels of design in two different Penneys stores. By subsequently comparing consumers' responses to their assessments of higher and lower levels of design in Penneys, in Chapters Six and Seven, the role of the specified store environment in consumer perceptions of retail brand loyalty is explained[8].

In summary, a higher-level of design in a store, I argue, should induce greater store novelty, a weaker store prototype and store complexity perception according to the aesthetic literature (Hekkert and van Wieringen 1990). Similarly, where higher store aesthetic preference is evident, thus reflecting consumers liking for the design of the store (Martindale 1984, Martindale and Moore 1988; Martindale, Moore and Borkum 1990), there should be resulting gains conferring on the retailer of retail brand attachment and retail brand loyalty. If the role of the store aesthetic preference is high relative to retail brand product or retail brand price perceptions, this would also indicate the strong contribution of aesthetics to retail brand development.

I propose that the examination of these associations evidences the kinds of objective-subjective, global-attribute, cognitive-emotional processing at store and retail levels that has been largely absent in extant examinations of the store environment. The improved specification of the store environment reflects these kinds of processing

[8] The higher and lower levels of design, employed by Penneys, are presented in Chapter Five.

taking place in the individual construct measurements and lends greater confidence to the findings that emerge from the examination of the various associations in the SEM.

Table 4.8.: Summary Table of Thesis Research Questions and Hypotheses[9]
Research Question Number One: is it possible to improve on the specification or measurement of the store environment beyond the novelty, complexity collative constructs proposed in traditional studies of the store environment?
H1: Store novelty is positively associated with store prototype perceptions in higher-level store design-architecture environments H2: Store complexity is negatively associated with store prototype perceptions in higher-level store design-architecture environments H3: Store novelty is positively associated with store aesthetic preference in higher-level store design-architecture environments H4: Store complexity is negatively associated with store aesthetic preference in higher-level store design-architecture environments H5: Store prototype perception is positively associated with store aesthetic preference in higher-level store design-architecture environments
Research Question Number Two: What effect, if any, do these improved store environment constructs (from answering research question number one) have in explaining the role of store design-architecture in consumer perceptions of retail brand loyalty?
H6: Store prototype perception is positively associated with retail brand attachment in higher-level store design-architecture environments H7: Store aesthetic preference is positively associated with retail brand loyalty in higher-level store design-architecture environments H8: Retail brand attachment is positively associated with retail brand loyalty in higher-level store design-architecture environments

[9] With the exception of hypothesis number two, which examines a negative association, all the other hypotheses involve the examination of positive associations. For the reason of brevity, the analyses of the associations that follow in Chapters 6-9 use the term "association" to mean a "positive association" exists between the relevant constructs. Reference to negative association is also made where applicable.

H9: Store aesthetic preference is positively associated with retail brand attachment in higher-level store design-architecture environments

H10: Retail brand price is positively associated with retail brand attachment in both higher and lower store design-architecture environments

H11: Retail brand product is positively associated with retail brand attachment in both higher-level and lower-level store design-architecture environments

4.6. End-of-Chapter Four Summary

This chapter presented the conceptual framework that is tested and examined in Chapters Six and Seven of this thesis. The conceptual framework synthesises the marketing, psychology and aesthetics literatures and proposes how store design-architecture assumes a role in consumer perception of retail brand loyalty development.

The limitations of the extant literatures presented in Chapters Two and Three is addressed in the conceptual model presented in this chapter. An improved understanding of the communicative efficacy of objective-subjective, cognitive-emotional and global-attribute design-architecture makes it easier to understand how consumers relate to the store environment (Keaveney and Hunt 1992). It is, therefore, necessary to integrate theory such as Keller's (1993) consumer brand equity model, Martindale's (1984) preference-for-prototypes model, and Park's et al. (2010) brand attachment theory, into the store environments literature, to overcome the overly objective bias of the currently defined Berlyne collative constructs.

The theory in the conceptual framework is operationalised using five modified scales, one new scale and two scales introduced from general marketing contexts to retail contexts for the first time. This research, in proposing these scales, contributes to extant measurements of design-architecture in store environments research. For example, this thesis employs the Cox and Cox (2002) scales for store novelty and store aesthetic preference that have been elsewhere developed in product aesthetic consumption contexts.

The development of a new scale (retail brand product), modified scales (store prototype, store novelty, store aesthetic preference, store complexity, retail brand price), and incorporation of scales from non-retail branding research (retail brand attachment and retail brand loyalty) in this research marks a potentially significant contribution to the extant research.

The store prototype has been measured only once before in a retail context (Ward, Bitner and Barnes 1992). Although store prototype has previously been measured in a retail context, store novelty and store aesthetic preference scales will be significantly modified to measure in a retail specific context. Similarly, retail brand attachment (Park et al. 2010) and retail brand loyalty (Yoo and Donthu 2001; Yoo, Donthu and Lee 2000) have either not (retail brand attachment) or minimally (retail brand loyalty) been measured in retail contexts before.

The conceptual framework as proposed in this chapter, therefore, presents how the diverse literatures are used to reflect individual construct measurement. However, as these scales have been infrequently employed in retail research, it is necessary to complete rigorous measurement of these constructs using a research instrument appropriate for this research. The development of the research instrument is the focus of the next chapter.

Chapter Five - Research Design and Research Instrument Development

5.1. Introduction

This chapter describes and justifies the research design used in this thesis. It will review why the research philosophy, the research instrument, the administration of the survey and the analyses methods used are relevant to this research.

To address research questions one and two, the research instrument proposes a comparison of two stores with different levels of design from one retailer. It is proposed in this chapter that a comparison of a higher-level designed store to a lower-level designed store effectively investigates how the specified store environment assumes a role in consumer perception of retail-level brand loyalty.

It is proposed to employ pilot, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equations Modelling (SEM) in this thesis. This chapter proposes how separate survey data is collected for the pilot, EFA and CFA-SEM as part of the thesis research design. The focus of this chapter is on the research design; Chapters Six and Seven, in contrast, analyse this empirical data and present the findings of the thesis.

5.2. Research Design

This section outlines the research philosophy, unit of analysis, the development of the survey instrument, the sampling frame, sample sizes and conduct of the pilot survey.

5.2.1. Research Philosophy

This thesis reflects a positivist perspective where causes determine effects (Creswell 2009). The holistic representation of the environment is decomposed into small, discrete sets of constructs such as the store prototype, retail brand attachment and retail brand loyalty to comprise hypotheses and research questions (Creswell 2009). It is proposed to employ a hypothetico-deductive or falsification approach of reasoning. This approach has been variously employed in studies of consumer perceptions of the store environment (Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Van Kenhove and Desrumaux 1997; Gilboa and Rafaeli 2003), and brand equity (Yoo and Donthu 2001; Washburn and Plank 2002; Beristain and Zorrilla 2011; Jara and Cliquet 2012).

This study employs a quantitative approach and thus builds on extant approaches to the investigation of store environments. A tradition of quantitative methods exists in the study of aesthetics and is typicality drawn from the experimental methods procedure (Barr and Neta 2006; Heath, Smith and Lim 2000; Herzog, Kaplan and Kaplan 1976; Kaplan and Kaplan 1982; Belke et al. 2010; Reber, Winkielman and Schwartz 1998; Veryzer 1993; Veryzer and Hutchinson 1998; Barsalou 1983; Boush and

Loken 1991; Martindale and Moore 1988; Meyers-Levy and Tybout 1989; Ward and Loken 1988; Ward, Bitner and Barnes 1992; Whitfield 1983). Most store environments frameworks employ either/or factor analysis and regression (Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Nasar 2002; Pedersen 1986; Frith and Nias 1974). Increasingly, in recent years, a structural equations modelling procedure in the branding literature is emerging (Beristain and Zorrilla 2011; Boo, Busser and Baloglu 2009; Jara and Cliquet 2012; Malar et al. 2011; Park et al. 2010; Thomson, MacInnis and Park 2005; Vazquez, del Rio and Iglesias 2002; Washburn and Plank 2002; McGoldrick and Pieros 1998; Greenland and McGoldrick 2004; Sherman, Mathur and Smith 1997).

EFA, CFA in Chapter Six and SEM in Chapter Seven are the analyses techniques employed in this thesis. CFA and SEM are advanced quantitative analyses techniques (Tabachnick and Fidell 2007; Hair et al. 2010), and although they are considered large data techniques (Netemeyer, Bearden and Sharma 2003; Fabrigar 1999; DeVellis 2003) they offer advantages in examining the associations proposed in the conceptual framework. (A developed rationale for why CFA and SEM are employed is provided in Chapters Six and Seven.)

The quantitative approach has been termed traditional, positivist, experimental or empiricist and is considered important in the creation of scientific knowledge (Easterby-Smith 2008). The purpose of the quantitative approach in this research is to measure the construct domains and to establish associations that allow generalisable, reproducible research to emerge that ultimately contributes to the development of further theory (Churchill 1979). The emphasis on construct measurement in Chapter

Six and examination of associations between these constructs in Chapter Seven observes the Churchill (1979) recommendations.

5.2.2. The Unit of Analysis

The unit of analysis is two Penneys stores. Penneys[10] is a large European discount fashion retailer with two hundred and fifty seven stores in nine European countries (further background information is available on Penneys in a bio-note in Appendix III). The two stores chosen for the research are the Mary Street and the O'Connell Street stores (referred to from here as the Case 1 and Case 2 stores respectively). These stores are chosen for their representative design in the Penneys store network. Penneys stores feature one of three different levels of prototypical design. The Case 1 store features the highest-level of design found across all Penneys stores and the Case 2 store features the lowest-level of design found across Penneys stores. Newer or recently refurbished stores, such as the Case 1 store, tend to feature the highest-level designs. Older stores, such as the Case 2 store, tend to feature lower-level design[11].

There are, therefore, two reasons for choosing Penneys as the unit of analysis. First, the introductions of new store designs in Penneys, over the last two years, means that store novelty comparisons to store prototypicality are possible. A clear prototype with identifiable, shared attributes is present in the Penneys lower-level prototype. Second, the presence of higher and lower designs across both Case 1 and 2 enable

[10] Penneys is the Irish operation of the Primark retail group. Primark is owned by Associated British Foods.
[11] The Case 1 store was extensively refurbished in 2012. The Case 2 store is a 1990s build and no extensive refurbishment has taken place in the interim period.

comparisons of their designs and the role of store prototypicality, store complexity and store aesthetic preference in perceptions of retail brand loyalty. The presence of the different levels of design in Penneys stores is confirmed in their current group store expansion and refurbishment strategy (Associated British Foods 2012; Incredibull 2014). The Case 1 store resembles the new Oxford Street store and showcases Primark's latest design concept, incorporating enhanced visual merchandising, branding, fixtures, lighting and state-of-the-art video screens. Edinburgh, Manchester, Newcastle and Dublin (Case 1 Store) are among the locations to also feature the new Oxford St design by Dalziel and Pow (see Figure 5.1.).

Figure 5.1.: Outline of the Penneys Oxford Street Design Prototype by Dalziel and Pow, London 2012

Located at the Tottenham Court Road end of Oxford Street, Primark's new store bookends the retail hub of London's West End, along with its Marble Arch older sister. It is comprised of three buildings, mixing historic with contemporary façades, spread over four floors and 82,400 sqft. The store retains the flavour of its predecessors – Berlin, Edinburgh, and Stratford – with a common DNA, whilst combining the buildings' heritage with a digital fashion experience. The brand speaks with a new level of personality through tone of voice, local narrative and communications.

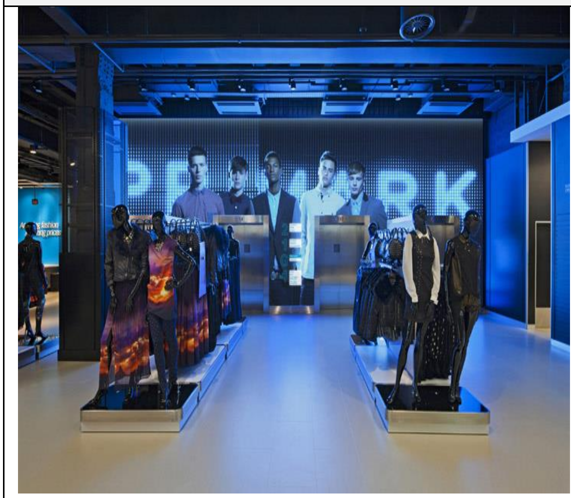
Each entrance to the store creates a different atmosphere. The main Oxford Street entrance arrives in the atrium with a digital lift wall, which focuses on high level vistas of VM and digital display. Another features a recreated 'tube carriage' display wall that promotes different looks, combining digital display with key product lines. By contrast, arriving via Tottenham Court Road presents a distinct destination within the store – a darker, theatrical space, with pops of colour to highlight a pace of fashion that is now synonymous with Primark.

Departments retain the look and feel of previous stores, but offer greater experience and depth through architecture, fixturing and graphic communication. Cash desks have been located within heritage areas of the building. Care has been taken to reveal these and make them relevant to a contemporary retail environment. Department specific frame walls line the escalators, and merchandise is merged with VM, and graphic and digital communication, to ensure the shopping experience is as lively in the atrium as it is on the shop floor.

Digital integration is a key element to this store. We [Dalziel and Pow] were commissioned to create Primark's first ever series of brand films, which showcase the attitude of the brand using the key values of 'Fashion, Value, Fun, Expressive and Eclectic'. These films, along with seasonal campaigns, are played on a giant lift wall, made up of nearly three million LEDs. We created a series of animated navigation that works with the films and helps customers navigate the store.

The iconic illustrated Primark map has taken on a new life in an animated form and is used, in its day-and-night-time versions, on the lift wall and tube train screens throughout the store. Seasonal imagery is projected onto brick arches on the ground floor. The cash desks on the first and second floors feature a huge Primark logo, extending the width of seven windows, in keeping with the corporate palette, but tweaked to convey the personality of the respective departments.

The store introduces a whole new family of navigation. Bold, confident typography, combined with use of exposed LEDs and supersized neon creates an edgy, more contemporary take on the brand palette. The navigation is clear – Accessories, Lingerie and Shoes all have bespoke signage to reflect their character and personality.



Source: RetailDesignBlog (2012) - Dalziel and Pow, London

The following are images of both stores and verify the two levels of design present in the two surveyed stores. The Case 1 store contains a markedly higher-level of design (Figures 5.2-5.11) compared to the Case 2 store (Figures 5.12-5.21). Both stores, it should be noted, are within two minutes walking distance of each other and are patronised by similar target markets (the issue of target markets is further addressed in Section 5.2.4.).

Figure 5.2. Image Number 1 of Case 1

Figure 5.3. Image Number 2 of Case 1

Figure 5.4. Image Number 3 of Case 1

Figure 5.5. Image Number 4 of Case 1

Figure 5.6. Image Number 5 of Case 1

Figure 5.7. Image Number 6 of Case 1

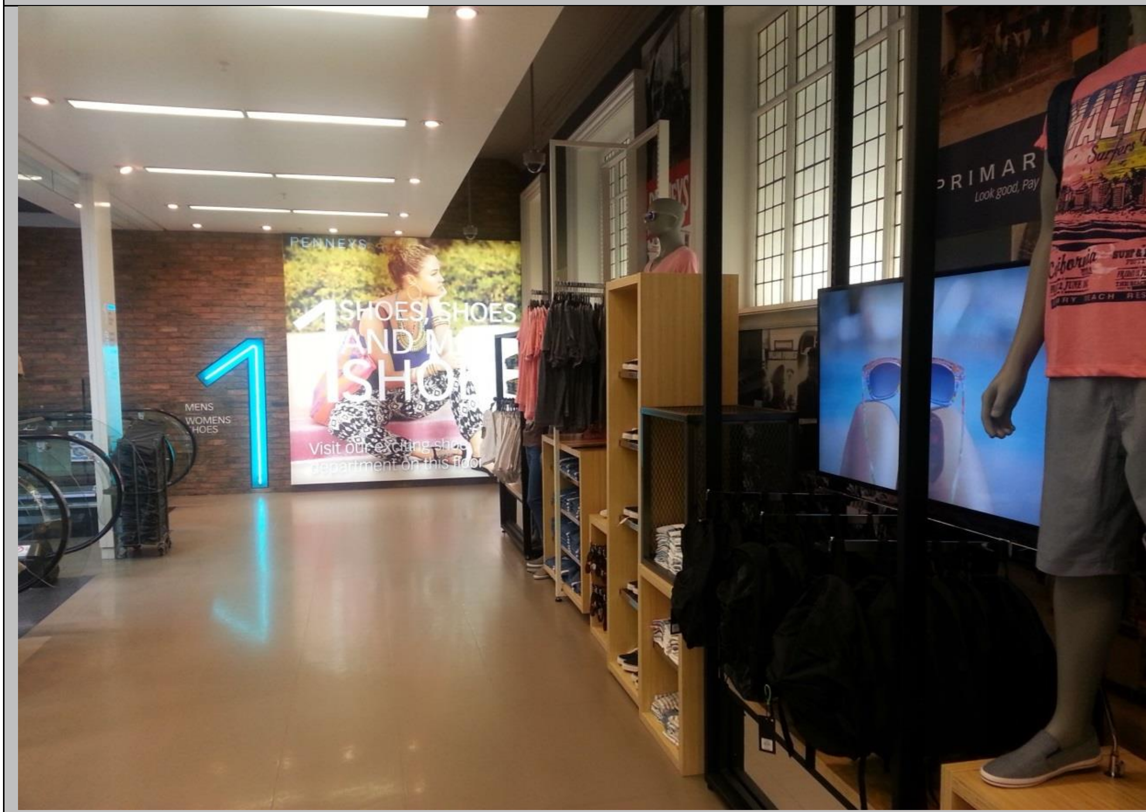


Figure 5.8. Image Number 7 of Case 1

Figure 5.9. Image Number 8 of Case 1

Figure 5.10. Image Number 9 of Case 1

Figure 5.11. Image Number 10 of Case 1

The following images (Figures 5.12-5.21), in contrast, display the design of the Case 2 store. This store has the lowest-level design typically evident across the Penneys store network.

Figure 5.12. Image Number 1 of Case 2

Figure 5.13. Image Number 2 of Case 2

Figure 5.14. Image Number 3 of Case 2

Figure 5.15. Image Number 4 of Case 2

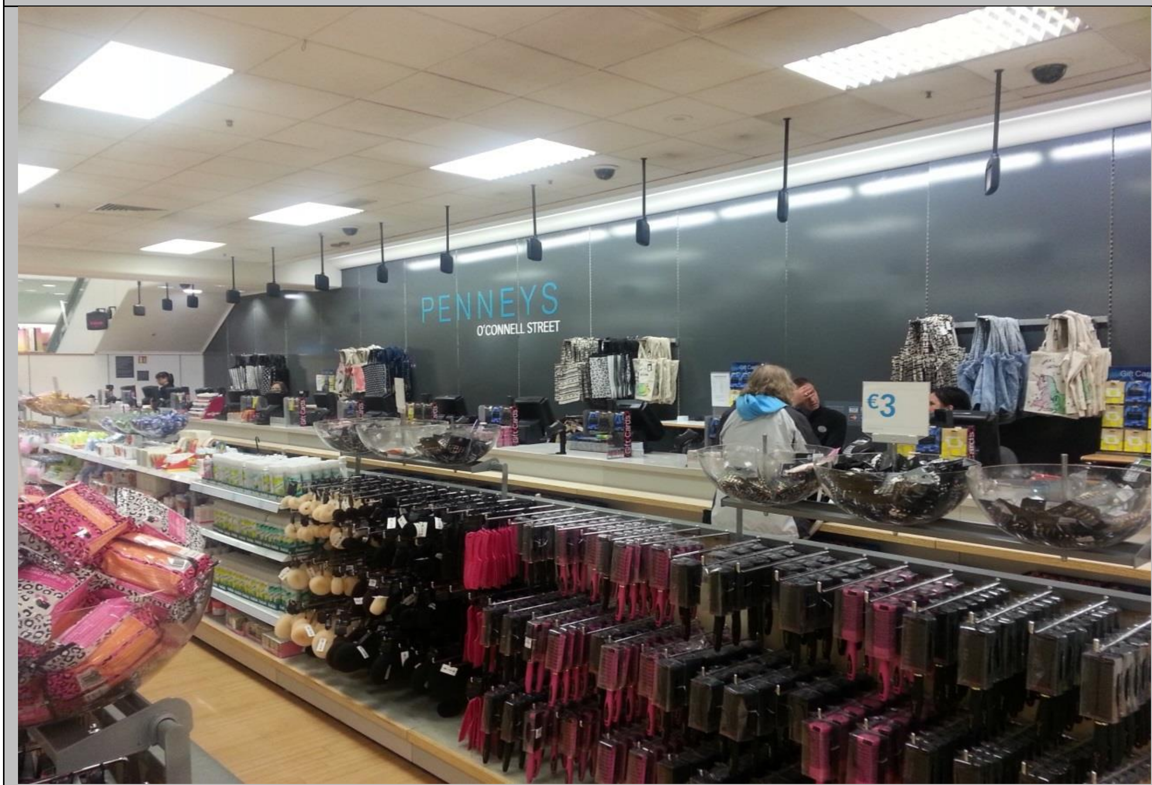


Figure 5.16. Image Number 5 of Case 2

Figure 5.17. Image Number 6 of Case 2

Figure 5.18. Image Number 7 of Case 2

Figure 5.19. Image Number 8 of Case 2

Figure 5.20. Image Number 9 of Case 2

Figure 5.21. Image Number 10 of Case 2

5.2.3. Administration of the Survey Instrument

Three separate meetings with Penneys management, including a meeting with Mr. Peter Francks, Director of Store Development of Penneys/Primark UK and Ireland, took place to obtain permission to survey consumers on Penneys premises. The outcomes to be achieved from the research collaboration, the selection of stores and the locations in-store where the survey work would be conducted were agreed with Penneys management. The survey commenced on August 24th, 2013 and data collection took over four weeks to complete.

The in-store survey method is employed in this thesis. The in-store method has been previously employed in numerous retail studies (Spies, Hesse and Loesch 1997; Yoo, Park and MacInnis 1998; Lusk et al. 2001; Birtwistle, Clarke and Freathy 1999; Mulhern and Padgett 1995; Michon et al. 2007; Tai and Fung 1997; Donovan and Rossiter 1982; Donovan et al. 1994; Ward, Bitner and Barnes 1992; Baker, Levy and Grewal 1992) and the current approach is informed by these uses of the in-store method.

Among the advantages to employing store visits when conducting retail research includes cost and simplicity (Baker et al. 2002). Store visits or visual imagery research facilitates degrees of control and environmental manipulation of the object under investigation (Bell 1996). Simultaneously, however, it is necessary to carefully control for bias stemming from how information is presented to respondents. Donovan and Rossiter (1982), Donovan et al (1994), Spies, Hesse and Loesch (1997), Kerfoot, Davies and Ward (2003) all consider situational bias and the merits of inside and outside store consumer surveying. In addition to controlling for situational bias, the selection of in-store surveying is also justified on the basis of avoiding potential confounding effects when alternative experimental methods are chosen.

As the store environment plays host to a multiplicity of potential cues and messages contained in real environments (Markin, Lillis and Narayana 1976), it is decided that controlling for this complexity undermines the case for using experimental methods. Instead, conducting the research using the real-life workings of the store environment is deemed more appropriate to studying consumer perceptions of the store environment. The holistic SOR model investigated with data from in-store surveys, for this reason, is favoured over experimental methods.

For the implementation of the in-store survey, it was considered important to choose locations inside the store that would not introduce specific situational effects. It was agreed with Penneys management to survey consumers at specific locations in both stores. Consumers were surveyed after the checkout in both stores and in a space that presented the clearest viewing of the typical design employed in the store. Intercepting consumers after the checkout maximised the chances that respondents had spent some time in the store and, therefore, had more time to process the store aesthetics even if they had not visited the store frequently in the past. Both checkouts are located a distance back into the store. This is consistent with the advice of Mulhern and Padgett (1995) who identify the importance of administering the survey without altering purchasing behaviour at a location such as the checkout, and to not prove intrusive to the workings of the store when the surveying takes place.

Figures 5.22-5.29. illustrate the situation-specific viewing consumers had of the stores and its design-architecture at the time they were interviewed inside the stores. Again, the higher-level design in the Case 1 store is confirmed compared to the lower-level Case 2 design in these images. The survey was also administered on the ground floors adjacent to the womenswear and accessories departments in both stores.

Figure 5.22: Situational Viewpoint Image Number 1 for Case 1

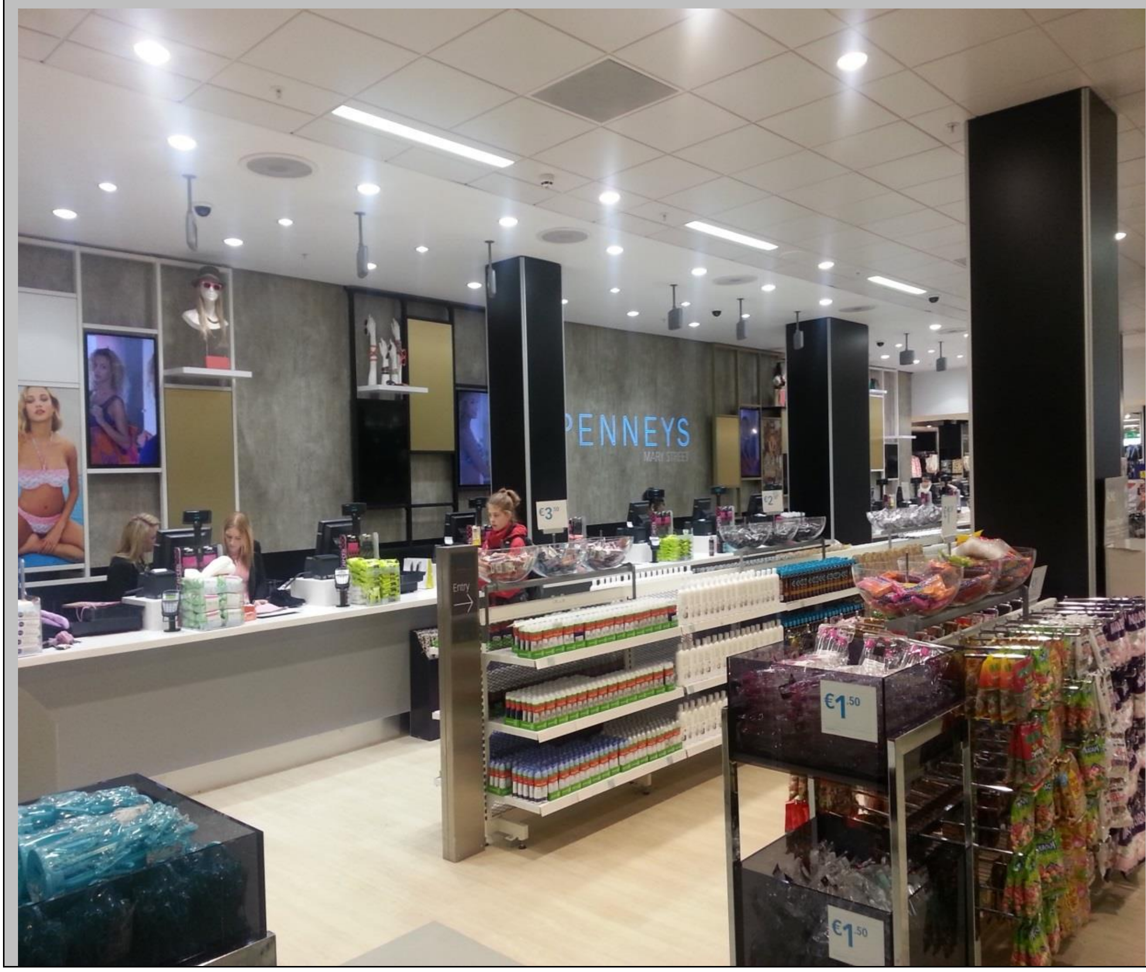


Figure 5.23: Situational Viewpoint Image Number 2 for Case 1

Figure 5.24: Situational Viewpoint Image Number 3 for Case 1

Figure 5.25: Situational Viewpoint Image Number 4 for Case 1

Figure 5.26: Situational Viewpoint Image Number 5 for Case 1

Figure 5.27: Situational Viewpoint Image Number 1 for Case 2

Figure 5.28: Situational Viewpoint Image Number 2 for Case 2

Figure 5.29: Situational Viewpoint Image Number 3 for Case 2

An inducement of a Penneys voucher for €5 was offered to increase the survey response. From a total of 630 respondents, approximately 124 respondents received vouchers. One student from the DIT Student Enterprise and Retail Society was trained to act as a co-interviewer for this research. The approach adopted is consistent with the approach of Bush and Hair (1985) who suggest using random selection and providing respondents with a brief introduction to the research, before requesting them to participate in the survey. Questions likely to require clarification by respondents, in particular, were identified and consistent clarification was given to respondents by both interviewers.[12] Prospective respondents were notified that responses would be treated anonymously. The student was paid for his time in helping to collect the data; I personally received no remuneration for my involvement in the research from Penneys.

5.2.4. The Sampling Plan

The sampling plan involved a convenience sample of consumers in specific locations inside both stores. This approach is consistent with the suggestions of Netemeyer, Bearden and Sharma (2003), Yu and Cooper (1983) and Bentler and Chou (1987) who point to the need for representative samples and the validity of personal interview over other approaches e.g. mail or online data collection.

Upon the advice received from Penneys management at head office level, and confirmed at store level, the primary survey population or target market identified for survey administration was the 18-35 year old female. Ninety-four percent of respondents in the exploratory factor analysis are aged between 14 and 40 years; 96% are female. Ninety-four percent of Case 1 respondents in the confirmatory factor analysis are aged between 14-40 years and 98% are female. Ninety-three percent of Case 2 respondents in the confirmatory factor analysis are aged between 14-40 years and 98% are female.

[12] An analysis of the data using common method bias and standard deviation tests indicates that respondents give similar answers uninfluenced by interviewer survey approach or by the receipt of a financial inducement.

The high proportion of females sampled is justified on the grounds that it is representative of the target market population that Penneys serves across both stores. Every effort was made to remove method bias by surveying at each time of day and each day of the week over four weeks. Other research to deliberately survey high proportions of females in retail and fashion contexts include Yoo, Park and MacInnis (1998) and separately Lusk et al. (2001). Both studies surveyed 69% females. Additionally, Michon et al. (2007), in a mall intercept survey, deliberately decided to survey only females. Michon et al. (2007) justified sampling only females on the grounds that three-quarters of apparel and accessories speciality stores target female shoppers. Males generate model noise, according to Michon et al. (2007), and they reference other studies that suggest that males and females do not have the same attitudes toward fashion. These gender differences may contribute to structural and factor loading invariance, Michon et al. (2007) suggest, and make this kind of analysis more difficult.

This research controlled for situational issues that could influence respondent feedback by administering the survey after the checkouts where consumers could clearly observe the typical design of both stores. This in effect reduced the likelihood of surveying male respondents. The menswear section is upstairs in both stores. Different design is also evident in the menswear section of both stores. In other words, there is less of a difference observed between the designs on the ground and upper floors in Case 2 and more difference in the design between floors in Case 1.

Notwithstanding the differences in design within each store, I propose that the survey administration steps I have outlined have presented the prototypical designs of both stores to consumers. The comparisons of the situational images in Figures 5.22-5.29 to the higher and lower prototype images presented in Figures 5.2-5.21 confirms that consumers were exposed to prototypical designs at the time of interviewing. I argue that the high sampling of females increases the prospect of obtaining representative responses that captures product, price contributions relative to the visual aesthetic in determination of retail brand loyalty. No promotional events including seasonal sales promotions took place during the period of data collection.

Therefore, it is believed that the gathered responses are representative of the Penney's consumer with less likelihood for sampling error (Hair et al. 2010). It will also be explained in Chapter Six that there appears to be no situational or gender specific issues present that compromises the normal distribution of this data.

5.2.5. The Sample Sizes for the Research

The decision on the size of the sample to use in this thesis is influenced by the advice of Tabachnick and Fidell (2007), Hair et al. (2010) who distinguish between the data requirements of initial pilots, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equations Modelling (SEM) research.

Although there is no prescribed or advised minimum number of responses advised for a pilot study (de Leeuw, Hox and Dillman 2008), this research gathered 30 responses for the pilot study. One hundred and fifty-five responses were gathered for the EFA for the Case 1 store. A separate data collection of an additional 228 responses from the Case 1 store and 225 for the Case 2 store were obtained between September 4th and September 22nd 2013 for the CFA-SEM analyses.

Exploratory factor analysis is considered a large-sample technique. A general recommendation by DeVellis (2003) suggests that when the number of items and constructs are high then more subjects should be included in the analysis. For a 20 or 90 item analysis, more than 100 and up to 400 respondents should be used (DeVellis 2003). Similarly, recommendations on the appropriate number of items in a factor analysis may vary according to Netemeyer, Bearden and Sharma (2003), Fabrigar (1999) depending on how well the items can capture communalities of 0.70 or higher. In many studies, a sample size of 150 cases with sufficient communality of 0.80 can prove adequate for a factor analysis according to Tabachnick and Fidell (2007). This thesis obtained 155 responses for the EFA phase of the research and over 220 respondents for each store for the CFA and therefore adheres to the Tabachnick and Fidell (2007) requirement for minimal sample size.

There are a number of assumptions associated with samples sizes in SEM. Unlike EFA, CFA-SEM has an additional requirement of needing continuous constructs of multi-variate normality (Bowen and Guo 2012). It is recommended to conduct CFA-SEM on a dataset that is different to the original one on which EFA is conducted but on the same studied population (Raykov and Marcoulides 2011). This minimises the prospect of untrustworthy p-values and the risk of capitalisation on chance occurring (Raykov and Marcoulides 2011). This research gathered separate data for the EFA and CFA phases of the research. The prospect of obtaining untrustworthy data is minimised by surveying the Case 1 store twice for the EFA and CFA and surveying the Case 2 store once for the CFA. Due to the invariant testing of both store designs in the SEM, I propose that it also made no difference as to which store is chosen for the EFA: both stores were still going to be compared in the CFA-SEM.

The number of cases largely depends on the strength of the measurement and structural associations being modelled and the complexity of the model being tested (Bowen and Guo 2012). The sample size in SEM is variously defined as a product or multiple of parameter number. The multiple varies from 20 responses to 5 responses per parameter where 20:1 is desirable and 5:1 doubtful or minimally acceptable (Hair et al 2010; Bowen and Guo 2012; Fabrigar 1999; Nunnally and Bernstein 1994). There is an additional assumption that sample sizes less than 100 responses are small and unsound and more than 200 responses is considered large (Kline 2010).

In general, there is no real rule-of-thumb for the sample size to be employed in SEM. There is a general understanding that where normality is likely to be violated, specification error materialise or an estimation method other than maximum likelihood (ML) be chosen then the sample size should be larger (Hair et al. 2010). Between 10-20 subjects per construct is advised by Schumacker and Lomax (2010). Many studies that employ SEM tend on average to survey 200 respondents (Kline 2010; Breckler 1990). However, when multiple groups are being compared, it is recommended to ideally have 200 responses per group (Bowen and Guo 2012). With datasets with less than 200 respondents, it is generally advised to retain a 10:1 responses to parameter multiple ratio.

This research obtained 228 responses for Case 1 and 225 responses for Case 2 and meets the minimum requirements advised by Kline (2010), Breckler (1990) for 200 respondents for multiple-group invariance testing and the 5:1 respondent to item requirement suggested by Schumacker and Lomax (2010), Bentler and Chou (1987).

5.2.6. Designing the Questionnaire and Conducting the Pilot Study

The questionnaires developed for the EFA and CFA-SEM phases of the research emerged from an extensive literature review and consultation with Penneys managers. The questionnaires for both the pilot and EFA data collection involved some minor refinements before the surveying for the CFA-SEM took place. This emphasis on questionnaire development is especially important given the extensive modification of scales in this thesis. The development of reliable and valid items is more likely to emerge when items are refined and improved using different data at the pilot and EFA stages of research before the CFA-SEM (Tabachnick and Fidell 2007).

The objective of conducting the pilot study is to ensure questionnaire item reliability and validity where errors in framing questions, question sequencing and general operationisation issues are addressed before the EFA (Cooper and Schindler 2008). The collection of trial data to detect weaknesses in design and instrumentation is an essential first step in conducting research with new or modified scales (Cooper and Schindler 2008; DeVellis 2003).

The pilot test also assists in the determination of the uni-dimensional nature of the factor structure (something important in the measurement approach of Chapter Six) and the existence of singular traits or constructs underlying the set of proposed measures (Gerbing and Anderson 1988).

The pilot questionnaire was also reviewed for readability and content validity by research colleagues in DIT. Colleagues were asked to evaluate each item according to their expert opinion as to whether each item measured what it was intended to measure. Slight wording changes resulted in the case of a few items, but no changes were made to the item pool. Penneys were asked to collaborate on the development of the product and pricing questions to obtain questions suited to a discount fashion retailer.

Thirty pilot surveys were administered in the Penney's Case 1 store on August 26th, 2013. There is no clear guidance as to how many pilot surveys are typically necessary (de Leeuw, Hox and Dillman 2008), but some minor wording and sequencing changes were made to the survey and improved its ease and speed of administration for the EFA.

In summary, the pilot survey suggested that questions were understood by respondents and the basis existed for a progression to the EFA phase of research. (The changes and improvements made in the questionnaires for the pilot, EFA and CFA-SEM are available in Appendix II).

5.2.7. Ethics Compliance

Permission to conduct this research was received from the Ethics Committee at the University of Stirling.

5.3. End-of-Chapter Five Summary

This chapter interprets how the conceptual framework proposed in Chapter Four is operationalised. The focus of this chapter is, therefore, to provide the necessary justification for the proposed research design of this thesis.

This research adopts the positivist research philosophy and proposes a quantitative approach for the examination of higher and lower levels of design in two Penneys stores. It is proposed to investigate the two research questions presented in Chapter Four with separate data collections for the pilot, EFA and CFA-SEM. Extensive imagery of both stores is presented in this chapter to justify the presence of different levels of design across the two stores selected for the empirical research. The approach to the administration of the survey at the pilot, EFA and CFA-SEM phases of data collection is also presented.

The issues of situational variables potentially introducing confounding effects is addressed by choosing the same types of spaces (after the checkout and adjacent to the womenswear, accessories departments) in each store to enable consumers to make comparisons of the representative designs of the two stores. This induces a very high number of female respondents in the samples that is reflective of the Penneys target market.

The explanation of the sample plan and questionnaire design for this thesis brings the chapter to a close and provides the necessary context for the analysis of the empirical survey data that is presented in the next two chapters.

Chapter Six: Findings from the Exploratory (EFA) and Confirmatory Factor Analysis (CFA) of the Thesis Survey Data

6.1. Introduction

In this chapter, the conceptual framework is examined using the survey data gathered from the two stores. The purpose of this chapter is to present the findings from the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) of the survey data. More specifically, this chapter concerns the measurement of eight constructs: one new scale; five modified scales; and two scales previously not measured before in a retail context.

The emphasis on the measurement of constructs addresses the first research question of this thesis, namely the development of constructs that help specify the store environment in retail brand loyalty perception. The hypothesised associations between these constructs are examined in the Structural Equations Modelling (SEM) that takes place in Chapter Seven.

The purpose of the EFA is to establish if a factor structure exists before proceeding to the confirmatory measurement and testing of these constructs (Fabrigar et al. 1999; Harrington 2009; Brown 2006). This is justified on the grounds that the proposed constructs (store prototype, store novelty, store complexity, store aesthetic preference, retail brand attachment and retail brand loyalty) have not been frequently measured and operationalised in the past in retail studies.

The purpose of the CFA, in contrast, is to go further than the EFA to ensure the measurement reliability and validity of each construct. The EFA may suggest the presence of a distinct factor structure, but it is still necessary to confirm the presence of the factor structure. In particular, it is necessary to confirm the quality of the construct scales and to ascertain if the proposed construct scales perform adequately (Bowen and Guo 2012; Brown and Moore 2012; Harrington 2009). The CFA is intended to be used to produce constructs that are generalisable in different design contexts. The comparison of two levels of design, in this thesis, with these constructs, advances the extant knowledge of the role of the store aesthetic in perceptions of retail brand loyalty.

The constructs that emerge, it is proposed, are usable in different design contexts. The constructs can be employed in different consumer assessments of design-architecture, and thus are argued to be generalisable. It is explained, however, that it is necessary to delete items that do not reach minimum statistical requirements to generate these uni-dimensional, reliable constructs (Fornell and Larcker 1981; Williams, Vandenberg and Edwards 2009).

The CFA approach to the measurement of constructs in this chapter also characterises the first of two-steps (development of measurement models and structural models) suggested by Anderson and Gerbing (1988) that are necessary when SEM is performed. This chapter emphasises the development of measurement models. Measurement model adequacy is considered, in this research, using Goodness-of-Fit (GOF) indices and uni-dimensionality measures of individual parameter estimates for each construct as advised by Anderson and Gerbing (1988).

A systematic approach is, therefore, pursued in this thesis to delete items that improve the overall measurement models for both Case 1 and Case 2. Although it may prove necessary to selectively delete items that measure satisfactorily in one store, it is proposed to not retain items that do not measure satisfactorily across both stores.

In summary, this chapter proposes measurement models for each construct that are demonstrated to be reliable, valid and generalisable, with uni-dimensional properties as suggested by Tabachnick and Fidell (2007), Hair et al. (2010), Bagozzi and Yi (2012), Williams, Vandenberg and Edwards (2009), Fornell and Larcker (1981), Anderson and Gerbing (1988), Bollen (1989), Churchill (1979), DeVellis (2003), Netemeyer, Bearden and Sharma (2003). These constructs, I argue, based on this approach, are usable in different design contexts and enable comparisons of different levels of design in the structural model (Schumacker and Lomax 2010) that is central to the investigation of the two thesis research questions.

6.2. Data Screening and Cleaning for Both the EFA and CFA

This section is concerned with explaining how the data is prepared and screened for both the EFA and CFA. Assumptions of data normality are necessary to complete these analyses and are observed to be present in the gathered survey responses.

6.2.1. Dealing with Missing Data

Upon gathering responses, data were checked for inconsistencies, completeness and engagement as suggested by Tabachnick and Fidell (2007). From the first phase of data collection for the exploratory factor analysis, 10 responses out of a total of 155 were discarded due to high numbers of missing responses. Similarly, 8 Case 1 responses and 6 Case 2 responses were discarded from the CFA-SEM data collection phase out of a total of 453 responses. The reason for these discards is primarily due to respondents commencing and not finishing the survey due to time pressure and fatigue effects. There is, therefore, no significant missing data in this research. Surveys were administered in person, and once a survey commenced, it generally was completed with only these few exceptions.

6.2.2. Assessment of Normality, Linearity, Multicollinearity and Outliers

To ensure that data were entered correctly and normally distributed, this research conducted data screening to identify levels of unengaged responses, outliers, linearity, multicollinearity and homoscedascity.

Data entry accuracy was checked using random checks and comparisons of highest and lowest values. The presence of outliers also involved the identification of specific cases with the Mahalanobis distance test. This test measures the influence of a case by examining its distance from the mean(s) of the predictor items. The Chi-Square ($\chi 2$)

critical values table is used in line with the suggestion by Tabachnick and Fidell (2007), Pallant (2010), to detect potential Mahalanobis multi-variate outliers with values greater than 94 with p=0.001 and df = 65. A further 19 responses are deleted from the Case 1 dataset and 17 from the Case 2 dataset (for the CFA-SEM analyses) in this effort to remove the effects of potential outliers. The effect of these largely precautionary deletions is the removal of multivariate outliers that thus enabled the examination of other assumptions (Pallant 2010). There appeared to be no underlying trait or characteristic and these deleted outliers appeared random.

A total of 201 usable responses from the Case 1 store and 202 responses in the Case 2 store are usable for analyses in the dataset. A univariate outlier analysis using box-and-whisker revealed few cases with standardised values higher than 3. Based on these data examinations, it is concluded that it is not necessary to transform data (Tabachnick and Fidell 2007).

Subsequent to removing outliers, the data was then subjected to examinations of normality. Skewness and kurtosis tests are presented for those suspect items in Table 6.1. and provide comparisons of the distributions of construct data based on symmetries and shape of distribution. Where the absolute value of the skewness or kurtosis is more than three times its standard error, as happens in these item cases, skewness or kurtosis obtains (Hair et al. 2010).

Table 6.1. Items with Both Skewness and Kurtosis					
	Mean	**Std. Deviation**	**Variance**	**Skewness**	**Kurtosis**
Case 1 Exploratory Factor Analysis (EFA)					
Comp5sr	2.6812	1.35617	1.839	1.400	1.434
Comp6s	2.18	1.102	1.215	1.690	3.444
Nov1s	2.07	1.379	1.901	1.662	2.085
Nov7s	2.420	1.3280	1.764	1.275	1.405
Aespref1s	2.14	1.293	1.672	1.370	1.763
Aespref3s	2.33	1.274	1.623	1.235	1.497
Aespref4sr	2.0797	1.08110	1.169	1.457	2.447
Aespref5s	2.28	1.087	1.182	1.213	2.042
Prod1r	2.21	1.136	1.291	1.212	1.571
Prod3r	2.14	0.953	0.908	1.055	1.567
Price1r	1.68	0.936	0.876	1.710	3.146
Price2r	1.77	1.069	1.143	1.786	3.532
Price3r	1.64	0.943	0.890	2.216	6.505
Price5r	1.77	1.109	1.231	1.677	2.432
Case 1 Confirmatory Factor Analysis (CFA)					
Nov1s	2.04	1.513	2.288	1.674	1.767
Aespref1s	2.11	1.272	1.618	1.456	2.258
Prod1r	2.02	1.051	1.104	1.282	2.779
Price1r	1.60	0.889	0.791	1.605	2.446
Price2r	1.59	0.992	0.984	2.396	6.904
Price3r	1.56	0.926	0.858	2.138	5.166
Price4r	1.61	0.837	0.700	1.365	1.471
Price5r	1.73	1.135	1.287	2.017	4.807
Case 2 Confirmatory Factor Analysis (CFA)					
Prod1r	2.00	1.005	1.010	1.347	2.163
Prod3r	2.07	0.977	0.955	1.305	2.392
Price1r	1.59	0.837	0.700	1.397	1.534
Price2r	1.56	0.822	0.676	1.953	5.373
Price3r	1.44	0.683	0.466	1.752	3.867
Price4r	1.50	0.735	0.540	1.406	1.416
Price5r	1.68	1.115	1.242	2.220	5.658
Note: the abbreviations used in description of these items and other named items in this research are explained in Appendix II					

The items where skewness and kurtosis are suspect, in Table 6.1, are retained in this analysis on the grounds of theoretical justification. These items are used to define constructs for a discount fashion retailer and, I argue, it is to be expected that price and product perceptions be skewed to the extremes of strong price advantage positioning. These items are exceptions, and skewness or kurtosis is not observed in measurement of the other constructs. Therefore, no data transformation is required (Tabachnick and Fidell, 2007).

Multi-collinearity is investigated with respect to the independence of items in the dataset. Where items prove too correlated with each other the regression weights produced in any analysis may prove less credible in explaining the nature of the association between variables or constructs (Field 2013). To check for multicollinearity a variable inflation factor (VIF) is computed for each item by regressing it on all remaining items as evident in Tables 6.2 and 6.3.

Table 6.2. Variable Inflation Factor (VIF) Values >3 for Case 1

Item Label	**Proto3s**	**Proto4s**	**BLoyal2r[13]**
AesPref3s	3.029	3.086	3.024
AesPref6s	3.022	3.071	3.018
Bloyal2r	3.008	3.041	
BLoyal3r	3.024	3.083	

[13] No tests could be run or didn't apply in certain cases. The blacked-out boxes denote cases where no tests were run or where tests didn't apply.

Table 6.3. Variable Inflation Factor (VIF) Values >3 for Case 2					
	Proto3s	**Proto4s**	**AesPref1s**	**AesPref2s**	**AesPref5s**
Proto3s			3.166	3.209	3.207
Proto4s			3.164	3.208	3.216
AesPref1s	3.176				3.127
AesPref2s	3.187	3.301			3.150
AesPref3s	3.187	3.300	3.152	3.121	
AesPref5s	3.162	3.285	3.3073	3.127	

The majority of items proved to be independent although retail brand loyalty items 2 and 3, store prototype items 3 and 4, store aesthetic preference items 3 and 6 are identified as potential candidates for multicollinearity with VIF values of between 3-5 in the Case 1 store dataset. Similarly, store aesthetic preference items 1,2,3,5 and store prototype items 3 and 4 are most obviously identifiable as having potential multicollinearity or inter-correlation issues in Case 2. These VIF values of 3-5 are considered high by Hair et al. (2010) and inform the approach to performing the EFA as will be explained in the next section[14].

In summary, the data are continuous and actions such as the removal of potential outliers suggest that the data is normally distributed (Byrne 2001). This section also identifies a few candidates for removal in the EFA and CFA.

[14] It should be noted also that in Chapter Seven that store prototype item 3; store novelty items 1,5,7; store aesthetic preference items 1,4; retail brand attachment/loyalty items 2,4 are all deleted from their respective measurement models on the basis of measurement concerns. The reasons for these deletions are explained in Chapter Seven.

6.3. What is Exploratory Factor Analysis (EFA)[15]?

The purpose of the first phase of data collection, namely the exploratory factor analysis (EFA), is to examine if the proposed scales for the thesis can evidence construct uni-dimensionality and describe consumer perceptions that are often complex, multi-faceted and multi-factor determined (Raykov and Marcoulides 2011).

EFA may be used to generate basic explanatory theories and to identify the underlying latent construct structure. EFA in this thesis is proposed as a first, necessary step during the process of developing or modifying construct measurement (Harrington 2009; Brown 2006). Given the few widely employed scales currently available in retail studies to measure store prototype, store aesthetic preference, store novelty, store complexity, retail brand attachment and retail brand loyalty, the approach pursued in this thesis is consistent with the advice of both Harrington (2009) and Brown (2006).

A typical usage of exploratory factor analysis is to develop scales on the basis of factor loadings. Factors or constructs are formed by assigning factor loads. Recommendations on this vary where values of at least 0.40 (Gerbing and Anderson 1988) or between 0.30-0.40 for large samples are required (Hair et al. 2010). For the EFA, the data I use for the EFA meets the minimum loadings of 0.45 suggested by Hair et al. (2010), based on an EFA sample size of 155 respondents.

[15] Note the term factor is used as it is the commonly used term in exploratory factor analysis and confirmatory factor analysis. I use the term construct instead of factor in the confirmatory factor analysis and structural equations modelling to denote the final measurement models that are used in this thesis.

Exploratory factor analysis (EFA), as distinct from principal components analysis (PCA), is employed in this thesis. EFA is a data simplification technique capable of reducing the number of indicators to a manageable set (Park, Dailey and Lemus 2002). EFA is described as a data-driven approach. No prior decisions are made on the number of common factors or the power of the associations between the common factors and their item loadings in advance of running the analysis (Brown 2006; Hoyle 2012). It is thus more suited to this research where the scales require modification and refining even in the presence of well-developed theory.

EFA differs from PCA in that it is based on the common factor model and preferable to PCA (Costello and Osborne 2005; Harrington 2009). It is also suggested that results from the common factor EFA may present a stronger foundation for CFA than results from a PCA (Harrington 2009). PCA is identified as a data reduction method computed without due regard to the underlying structure caused by the latent constructs with no differentiation between common and unique variance (Hair et al. 2010; Fabrigar 1999). There has been some disagreement, however, as to whether the results differ substantially when either method is employed (Hair et al. 2010; Costello and Osborne 2005). This can be partly attributable to the poor choices of researchers and reporting practices that have not allowed for uniformed review, accumulation of results and replicability (Ford, MacCallum and Tait 1986).

This thesis employs the maximum likelihood factoring method for the exploratory (and confirmatory) factor analyses. Maximum likelihood is the most commonly used estimation method in CFA (Brown 2006). A key advantage of maximum likelihood is that allows for a statistical evaluation of how well the factor solution is able to reproduce the associations among the indicators of the input data and the appropriate number of factors (Brown 2006). This is a form of common factor analysis that extracts factors by producing better estimates than the principal factor method and has desirable asymptotic properties (Bickel and Doksum 1977). The maximum-likelihood analysis examines only the common variance whereas the principal factor analysis considers total variance (Tabachnick and Fidell 2007). Maximum likelihood does assume the presence of normally distributed data (confirmed to exist in this thesis data in the previous section) and also allows for the computation of a wide range of fit indexes and parameter significance values (Fabrigar et al. 1999).

Although varimax may be considered the most common factor rotation method, this thesis reports the direct oblimin rotation approach[16]. No specific rules guide the researcher in selecting the appropriate rotational technique (Hair et al. 2010), but this thesis choose the direct oblimin rotation because it assumes that the factors are correlated (Hair et al. 2010; Tabachnick and Fidell 2007). The previous section of this thesis revealed that a few items drawn from the store prototype and store aesthetic preference may not be completely independent (however, these inter-correlations are low in value). The suspicion of circularity effects between, for instance, the store prototype and store aesthetic preference constructs is raised by Boselie (1991) who argues that store prototype and store aesthetic preference constructs may measure the same thing. I, therefore, justify the decision in this thesis to choose the direct oblimin rotation on the basis that some factor correlation is suspected to be present.

[16] Note: both the varimax and direct oblimin approaches were run and minimal differences were observed to exist when both sets of results were compared.

The direct oblimin method has also been used elsewhere by Morshett, Swoboda and Schramm-Klein (2006), Teltzrow, Meyer and Lenz (2007) for similar reasons.

6.3.1. Findings from the Exploratory Factor Analysis (EFA)

The previous section presented the theoretical rationale for why EFA is necessary in this research and the specific EFA method that is employed. This section presents the results for the EFA.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy compares the observed correlation coefficients to partial correlation coefficients (Table 6.4). Values of at least 0.50 (Hair et al. 2010) or 0.60 (Pallant 2010) are necessary to consider a factor analysis of the constructs. Similarly, the Bartlett's test of sphericity tests the null hypothesis that items in the population correlation matrix are uncorrelated. Values of 0.000 invoke rejection of the null hypothesis and therefore predict that a credible basis for associations among the items is strong. When all items are considered in an initial EFA model, presented in Table 6.4., the KMO and Bartlett's values are 0.829 and 0.000 respectively. It is, therefore, considered appropriate to proceed further with the EFA (Field 2013).

Table 6.4. Initial KMO and Bartlett's Test for the Exploratory Factor Analysis (EFA)		
Kaiser-Meyer-Olkin Measure Of Sampling Adequacy		0.829
Bartlett's Test of Sphericity		0.0000
	Approx. Chi-Square (χ2)	708.682
	DF	619
	Sig.	0.007

Tests for communality, where items are examined on the basis of their correlation with all the other items, indicate that communalities are above the desired 0.50 threshold (Hair et al. 2010) with the exception of the items that examine complexity. The items with communalities less than 0.50 are drawn mainly from comp6s, aespref7s, comp8s, and comp5sr (see Appendix II for description of these items). Items with low communality values are potential candidates for removal, according to Hair et al. (2010), to produce the refined factor model. A total of 11 factors are suggested in the initial EFA and explain 61% of total variance when complexity items are included. The Chi-Square (χ2) value of 708.682 and 619 degrees of freedom produce a desired fit result and explain how this factor structure reduces the data satisfactorily even with the inclusion of the complexity items.

However, when the complexity items are excluded, the revised pattern matrix model in Table 6.5. presents a more definite factor structure[17]. Complexity items evidenced significant cross-loading and low levels of loading within factors. To improve the exploratory factor structure, it was decided to first delete the complexity items with low communalities and low loadings in the pattern matrix. This met with limited success and it was then decided to remove all complexity items as well as nov9s,

[17] Appendix II presents the progression from the initial to the final lists of items produced by the EFA and the CFA.

proto1s, and nov8s. Upon the recommendation of Hair et al. (2010), Tabachnick and Fidell (2007), loadings of 0.30-0.40 are minimally acceptable and values of greater than 0.45 are generally considered necessary for samples of 150 persons to discern minimum desired loadings between items and their factors or constructs. This condition is met in the revised pattern matrix presented in Table 6.5 where the lowest value is 0.465 for the only item to cross-load, namely prod2r.

Table 6.5. Revised Pattern Matrix for Exploratory Factor Analysis

	Factor					
	1	**2**	**3**	**4**	**5**	**6**
Aespref1s	0.888					
Aespref4sr	0.777					
Aespref2s	0.752					
Aespref3s	0.738					
Aespref5s	0.733					
Aespref6s	0.590					
Proto3s		0.924				
Proto4s		0.842				
Proto6s		0.661				
Proto5s		0.594				
Proto2s		0.573				
Bloyal2r			0.850			
Battach3r			0.786			
Bloyal3r			0.785			
Battach1r			0.634			
Battach2r			0.600			
Bloyal1r			0.591			
Battach4r			0.575			
Price3r				0.853		
Price4r				0.747		
Price1r				0.647		
Price5r				0.628		
Price2r				0.599		
Nov5s					0.832	
Nov4s					0.802	
Nov6s					0.721	

Nov7s					0.700	
Nov3s					0.679	
Nov1s					0.653	
Nov2s					0.561	
Prod3r						0.762
Prod1r						0.748
Prod4r						0.725
Prod2r			-0.313			0.465

Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalisation. Rotation converged in 8 iterations

The revised EFA presented in Table 6.5. excludes items that do not have minimum loadings or that evidence cross-loading. The revised EFA produces an improved KMO of 0.872, Bartlett's of 0.000, and a reduced 6 factors that explain a slightly higher 63% of total variance as presented in Table 6.6. The Chi-Square (χ2) value of 544.704 and 372 degrees of freedom of the revised EFA produces a desirable model fit at 0.000 significance. The exclusion of these items, therefore, promotes uni-dimensionality in the EFA and suggests that these items be either excluded or changed for the CFA (Hair et al. 2010; Pallant 2010).

Table 6.6. Revised KMO and Bartlett's Test for the Exploratory Factor Analysis (EFA)		
Kaiser-Meyer-Olkin Measure Of Sampling Adequacy		0.872
Bartlett's Test of Sphericity		0.0000
	Approx. Chi-Square (χ2) (χ2)	544.704
	DF	372
	Sig.	0.000

This thesis, therefore, observes outcomes from the EFA suggestive of best fit to the data: item loadings in the EFA are above 0.30-0.40 (Hair et al. 2010; Tabachnick and Fidell 2007; Costello and Osbourne 2005; Netemeyer, Bearden and Sharma 2003; Ford, MacCallum and Tait 1986); only one item is cross-loading, and no factors have fewer than three items (Hair et al. 2010; Churchill 1979; Costello and Osborne 2005). The pattern matrix, presented in Table 6.5., observes these outcomes. It also reveals convergent and discriminant factor structures with factors that are distinct and uncorrelated. No factors also correlate highly with values higher than the 0.70 threshold identified by (Gaskin 2012) in the factor correlation matrix presented in Table 6.7. Consequently, the amount of shared variance explained in the exploratory factor analysis (EFA) is also desirably low.

Table 6.7. Factor Correlation Matrix for the EFA

Factor	1	2	3	4	5	6
1	1.000					
2	0.020	1.000				
3	-0.363	-0.081	1.000			
4	0.262	0.126	-0.140	1.000		
5	0.440	-0.401	-0.232	0.135	1.000	
6	0.334	-0.020	-0.407	0.309	0.188	1.000

Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalisation.

This thesis follows the advice of Costello and Osborne (2005) who advise on the numbers of factors to retain and items to drop to improve the factor structure. Dropping the complexity items definitely improves the factor structure for the EFA. Although Anderson and Gerbing (1988) suggest that a 0.40 Cronbach Alpha is an acceptable minimum reliability value for EFA, Churchill (1979) instead proposes the more conservative value of 0.70. All constructs, as illustrated in Table 6.8., with the exception of store complexity, appear to be reliable in this research. Cronbach Alpha values are higher than 0.70. However, store complexity, even if some of its items are deleted, has a maximum Cronbach Alpha possibility of 0.627.

Table 6.8. Exploratory Factor Analysis with Item Numbers and Cronbach Alpha Reliabilities

Construct	Number of Items Proposed	Number of Items from Proven Scales	Cronbach Alpha for All Items	Cronbach Alpha if Item(s) Deleted
Store Complexity	9		0.562	0.627
Store Prototype	6	3	0.89	0.89
Store Novelty	9		0.919	0.919
Store Aesthetic Preference	7		0.885	0.908
Retail Brand Attachment	4	4	0.855	0.855
Retail Brand Product	4		0.83	0.845
Retail Brand Price	5	5	0.831	0.831
Retail Brand Loyalty	3	3	0.845	0.90

To improve the prospects for attaining reliability for the store complexity items in the CFA, the complexity questions were changed from Likert scaling to semantic differential scaling. It should be noted that there is no general agreement in the literature (Tai and Fung 1997; Gilboa and Rafaeli 2003; Donovan and Rossiter 1982) on the scaling procedure to employ in measurement of store complexity. Store complexity, in this thesis is changed from Likert scaling as proposed by Tai and Fung (1997), instead, to semantic differential scaled questioning as employed by Gilboa and Rafaeli (2003), Donovan and Rossiter (1982). This change is also justified on the grounds that Hair et al. (2010) also uses both semantic and Likert scaled questions in the same CFA and SEM so there is no barrier to using both types of questions in the one SEM.

Some other minor refinements are also proposed to items for the store prototype and store novelty constructs. Most items in these constructs demonstrate high levels of face validity and their items load predictably as intended on store prototypicality and store novelty, but certain items, I argue could benefit from minor rewording changes[18].

6.4. What is a Confirmatory Factor Analysis (CFA)?

This section first outlines the theoretical rationale for developing the CFA before presenting the CFA findings.

CFA is a sophisticated technique used in the advanced stages of the research process to test a theory about latent constructs and is often performed with SEM (Tabachnick and Fidell 2007). Whereas EFA may be used as an exploratory first step in development of measures, CFA may be used as a second step to examine whether the structure identified in the EFA can work (Harrington 2009). Its positivist purpose involves testing hypotheses structures rather than as a procedure to generate

[18] These changes are presented in Appendix II.

hypotheses. CFA accounts for observed associations in the data (Loehlin 2011; Raykov and Marcoulides 2011).

CFA is, therefore, described as an indispensable tool for construct validation (Brown and Moore 2012). The results from CFA provide evidence of the convergent and discriminant validity of theoretical constructs. It helps to determine whether constructs are uni or multi-dimensional (Bagozzi and Yi 2012; Harrington 2009) and this assistance in establishing measurement model adequacy before testing structural associations in SEM is widely considered as best practice (Anderson and Gerbing 1988; Bollen 1989; Bowen and Guo 2012).

CFA, unlike EFA, assumes that the researcher has some knowledge of the underlying latent construct structure (Byrne 2001). However, the distinctions between the two can become blurred when EFA researchers restrict their analysis to selected indicators influenced by one factor or when CFA researchers modify their models in an exploratory way to improve fit (Bollen 1989).

This thesis research proposes some minor changes in item measurement in the CFA from the EFA and justifies these changes on the grounds that the construct measurements are likely to be improved. Certain items that didn't measure well in the EFA are deleted or modified for the CFA (see Appendix II for a comparison of the EFA and CFA questionnaires).

Confirmatory factor analysis is considered superior to EFA where the adequacy of an EFA model does not stand up to the tests required in CFA (Bowen and Guo 2012). Specifically, EFA factor loadings cannot be constrained to values of zero, and correlated errors of measurement are not allowed in EFA (Bollen 1989). In contrast, CFA requires a researcher to specify a specific number of constructs as well as to specify the pattern of zero and non-zero loadings of the measured items on the common factors or constructs (Fabrigar 1999). The research of this thesis, therefore, warrants CFA in addition to EFA.

Although EFA proves useful in suggesting underlying structures in the data, EFA is limited in its ability to test these ideas (Bollen 1989). This is also attributable to the limitation of EFA to not provide explicit tests of uni-dimensionality where every item is allowed to load on every factor. CFA, in contrast, typically allows each observed item to load on only one factor. The more rigorous specification that is required for a CFA of a multiple-indicator measurement model, in-turn, affords a more rigorous evaluation of uni-dimensionality according to the constraints imposed by internal and external consistency (Gerbing and Anderson 1988).

There are clear differences between EFA and CFA in the manner in that item cross-loadings are handled in solutions containing multiple factors (Brown 2006). All indicators in EFA freely load on all factors and the solution is rotated to maximise the magnitude of primary loadings and minimise the magnitude of cross-loadings. Factor rotations do not apply in CFA. This is because the identification restrictions associated with CFA are achieved in part by fixing most or all indicator cross-loadings to zero. CFA models are typically more parsimonious than EFA solutions because while primary loadings and factor correlations are freely estimated, no other associations are specified between the indicators and factors (Brown 2006). As CFA typically proposes a more parsimonious solution than EFA, it is possible to estimate such associations when this specification is substantively justified and other identification requirements are met. Consequently, because of EFA identification restrictions, factor models in EFA are mostly specified under the assumption that measurement error is random. In contrast, correlated measurement error can be modelled in a CFA solution (Brown 2006).

EFA, instead, standardises all items in the analysis (Brown 2006). Although CFA also produces a completely standardised solution, much of the analysis does not standardise the latent or observed items. Instead of using a correlation matrix, CFA typically uses a variance-covariance matrix to produce an unstandardised CFA solution. SEM has a strong preference for unstandardised solutions because the analysis itself is based on unstandardised items and completely standardised values are potentially misleading (Brown 2006).

The measurement models that follow reflect principal factor models where covariation among the items reflects variation in the underlying latent factor with direction of causality from construct to items. Changes in the latent construct thus cause changes in the items and are thus reflective (not formative) and suited to measuring marketing constructs such as attitudes or purchase intention (Jarvis, MacKenzie & Podsakoff 2003). The development of reflective measurement models in the sections to follow in this chapter also benefit with generations of measures of internal consistency reliability in assessment of model adequacy. Unlike formative models, it is also possible to delete items under standard scale development procedures in reflective models without changing the domain of the construct (Jarvis, MacKenzie & Podsakoff 2003).

6.4.1. Findings from the Confirmatory Factor Analysis: Measurement Development

This research employs the two-step procedure for examining CFA measurement models and SEM in line with the advice of Andersen and Gerbing (1988). Measurement models first explain the associations between observed items and their latent (unobserved) constructs before structural models examine the associations between these latent constructs. This CFA measurement models reported in this chapter are assessed based on their uni-dimensionality, Goodness-of-Fit (GOF), construct reliability and validity.

Goodness-of-Fit (GOF) indices and uni-dimensionality measures are used in this thesis to evaluate the constructs proposed in the conceptual model (tests and values for GOF are presented in Table 6.9.). Uni-dimensionality is examined using: parameter estimates, t-values and R^2; GOF indices; reliability and validity tests (composite reliability and average variance extracted). Chi-Square (χ^2), degrees-of-freedom (df), RMSEA, RMR, GFI, AGFI, NFI and CFI fit indices are among the more frequently employed GOF indices (Schumacker and Lomax 2010). Upon the advice of Schumacker and Lomax (2010), Hu and Bentler (1998, 1999) and Bagozzi and Yi (2012) the χ^2, RMSEA, NNFI(TLI), and CFI GOF indices are employed as the primary tests to assess model fit in both the measurement and structural models of this thesis. (A review of these indices is available in Appendix IV).

Uni-dimensionality in CFA is assessed using Composite Reliability (CR) and Average Variance Extracted (AVE) consistent with the advice of Fornell and Larcker (1981).

Composite Reliability examines standardised loadings and measurement error for each construct and values should exceed 0.70 (Bagozzi and Yi 2012). Average Variance Extracted (AVE) explains the level of variance accounted for by measurement error (Fornell and Larcker 1981). Its values should be higher than 0.50 (Hair et al. 2010; Bagozzi and Yi 1988). (Examinations of CR and AVE are completed in summative comparison in Section 6.5.1. and Table 6.18). The various Goodness-of-Fit (GOF) indices employed in this thesis are thus summarised in Table 6.9.

Table 6.9. Goodness-of-Fit (GOF) Criteria Used in this Research

Fit indices	Abbreviation	Type	Acceptance Level in this Research
Composite Reliability	CR	Reliability	0.70
Average Variance Extracted	AVE	Validity	0.50
Standardised Regression Weight	*B*	Uni-dimensionality	*B*>0.5
Squared Multiple Correlations	R^2	Uni-dimensionality	None Specified by Hair et al. (2010)
Chi-Square (χ^2)	χ^2	Model Fit	Significant p-values even with good fit[a]
Normalised Fit Index	NFI	Incremental Fit (comparison of proposed model to independent baseline model)	Generally values above 0.80 and close to 0.90 indicate acceptable fit; 0.95 or better[a]
Non-Normalised Fit Index (Tucker Lewis Index)	NNFI (TLI)		
Comparative Fit Index	CFI		
Goodness of Fit Index	GFI	Absolute Fit	≥0.90
Adjusted Goodness of Fit	AGFI		≥0.90
Root Mean Square Residual and Standardised RMR	RMR and SRMR		No RMR specified by Hair et al. (2010); SRMR 0.09 or less (with CFI of

			0.92 or higher)[a]
Root Mean Square Error of Approximation	RMSEA		Values <0.08 with CFI of 0.92 or higher[a]
Source: a. Hair et al. (2010) suggests when number of items is between 12 and 30 and number of respondents is less than 250. When the number of items is more than 30 and the number of respondents is less than 250 the SRMR is less than 0.09 with CFI above 0.92. RMSEA values less than 0.08 with CFI above 0.92. It will be explained in the sections that follow in this chapter that 43 items are used in the initial overall model and 28 items in the final overall model.			

Uni-dimensionality is also considered with individual parameter estimates (such as *B* and R^2) for each measurement model for each construct. Parameter estimates reflect the population covariance matrix for the measurement model (Tabachnick and Fidell 2007). The directionality of the sign should prove theoretically consistent e.g. an increase in the item values for "first choice retailer" should increase the values of the retail brand loyalty construct. Small standard error values also indicate that parameter values are estimated accurately and where t-values assume values beyond critical ratios i.e. 1.96 or 2.58, significant differences obtain. Where R^2 values are low it also indicates that the item explaining the construct variance possesses a low value. Ideally, Kline (2010) suggests the R^2 should be a minimum value of 0.50 but lower values are acceptable. This research retains items with minimum R^2 values of 0.40. Standardised regression *B*-values of 0.50 based on the recommendation of Hair et al. (2010) and Churchill (1979) have also been observed as minimum threshold values in this research.

In CFA – unlike structural models – the modification indices also propose which error terms may be made to covary to minimise differences between the proposed and estimated model. Modification indices inform the search for converged, effective model solutions and are achieved in an iterative manner. However, care must be taken as parameter and model fit statistics change (such as in the removal of prod2r upon the suggestion of modification indices) as a consequence of these measurement modifications.

Given these requirements for the development of good construct measurement, I propose, therefore, the production of simple, refined CFA measurement models suitable for the structural model analysis (Gerbing and Anderson 1988) in the next section of this chapter. The Goodness-of-Fit (GOF) indices, and uni-dimensionality tests, I propose in this section, inform the selections I make in making item deletions and in developing constructs to promote better model fit.

6.4.2. Store Prototype: Initial Measurement and Improved Measurement of the Construct

The initial measurement model for the prototype construct for both stores produces reasonable parameter values but unsatisfactory fit indices (Tables 6.10a and 6.10b). The Ward, Bitner and Barnes (1992) scale is modified to measure this construct. The store prototype construct reflects through its category membership and shared attributes the knowledge and ease of identification consumers have of the visited store against other stores in the network.

Weaker R^2 for proto5s, proto6s for Case 1 and high inter-item correlations for proto3s and proto4s of 0.816 and 0.825 for both stores are present. The modification indices for both stores also indicated in the case of the Case 1 store (the higher level design store) that model fit could be greatly improved with covariance of the two error terms. χ^2 improved by 106.088, an improvement also of Cmin from 12.696 to 1.022 in Case 1.

It is, therefore, decided to delete proto3s to improve the fit indices for both stores. Although little difference is evident in either model if item proto3s or proto4s is deleted, it is felt that a theoretical justification supports the removal of proto3s. The questions are similar and may ask for the same response. Some respondents could interpret the question for proto3s and "the design of this store is a good example" as requiring an evaluation of the design. With deletion, this measurement, instead, reflects a consumer assessment of how well the proposed design possesses a prototype membership, the traditional conceptualisation of prototypes.

The decision to delete an item(s) from the measurement of store prototype for both stores even if the item measures well for one store is further justified on the grounds that the resulting measured construct proves: a) more reliable and possesses more validity by consistently measuring across different contexts (Hair et al. 2010; Tabachnick and Fidell 2007); and b) enables a comparison of a common store prototype construct in the SEM. An invariant analysis would also not be possible on different measurements of the same construct when groups are compared.

<table>
<tr><th colspan="8">Table 6.10a. Store Prototype Measurement for Case 1[19]</th></tr>
<tr><th>Item Label</th><th>Item Wording</th><th colspan="2">Initial Standardised Loadings</th><th>Initial R^2</th><th>Final Standardised Loadings</th><th colspan="2">Final C.R. (t-value)</th></tr>
<tr><td>Proto1s</td><td>This Penneys store design is similar to other Penneys stores</td><td colspan="2">0.776</td><td>0.602</td><td>0.815</td><td colspan="2">9.457</td></tr>
<tr><td>Proto2s</td><td>The design of this store is typical of the designs of other Penneys discount fashion stores</td><td colspan="2">0.799</td><td>0.638</td><td>0.839</td><td colspan="2">9.733</td></tr>
<tr><td>Proto3s</td><td>The design of this store is a good example of the designs of other Penneys discount fashion stores</td><td colspan="2">0.751</td><td>0.565</td><td>Delete (Both Stores)[20]</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>Proto4s</td><td>The design of this store is a good representation of the design one sees in all Penneys stores</td><td colspan="2">0.777</td><td>0.603</td><td>0.667</td><td colspan="2">8.231</td></tr>
<tr><td>Proto5s</td><td>The design of this store is identical to other Penneys stores</td><td colspan="2">0.705</td><td>0.497</td><td>0.742</td><td colspan="2">9.059</td></tr>
<tr><td>Proto6s</td><td>This store has all the same visual characteristics found in other Penneys stores</td><td colspan="2">0.662</td><td>0.438</td><td>0.663</td><td colspan="2">Standardised</td></tr>
<tr><th></th><th>χ^2/df (Cmin)</th><th>RMSEA</th><th>TLI</th><th>RMR</th><th>GFI/AGFI</th><th>NFI</th><th>CFI</th></tr>
<tr><td>Initial</td><td>114.260/9df (12.696)</td><td>0.242</td><td>0.732</td><td>0.242</td><td>0.834/0.612</td><td>0.829</td><td>0.839</td></tr>
<tr><td>Final</td><td>6.055/5df (1.211)</td><td>0.032</td><td>0.995</td><td>0.071</td><td>0.988/0.965</td><td>0.986</td><td>0.998</td></tr>
</table>

[19] Parameter values are displayed by item and question for initial standardised loadings (regression weights), initial R^2 and final standardised loadings and their final critical ratio t-values. The fit statistics are displayed at the bottom of these tables for χ^2, RMSEA, TLI, RMR, GFI/AGFI, NFI and CFI.

[20] Delete (Both Stores) denotes that the item is deleted from both the Case 1 and 2 stores and this is evident in both tables for each construct where this takes place.

Table 6.10b Store Prototype Measurement for Case 2							
Item Label	**Item Wording**	**Initial Standardised Loadings**		**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**	
Proto1s	This Penneys store design is similar to other Penneys stores	0.73		0.533	0.785	8.459	
Proto2s	The design of this store is typical of the designs of other Penneys discount fashion stores	0.79		0.625	0.833	8.817	
Proto3s	The design of this store is a good example of the designs of other Penneys discount fashion stores	0.875		0.765	Delete (Both Stores)	Delete (Both Stores)	
Proto4s	The design of this store is a good representation of the design one sees in all Penneys stores	0.898		0.807	0.809	8.829	
Proto5s	The design of this store is identical to other Penneys stores	0.607		0.368	0.661	7.631	
Proto6s	This store has all the same visual characteristics found in other Penneys stores	0.594		0.353	0.612	Standardised	
	χ^2/df (Cmin)	**RMSEA**	**TLI**	**RMR**	**GFI/AGFI**	**NFI**	**CFI**
Initial	42.204/9df (4.689)	0.135	0.918	0.132	0.927/0.829	0.939	0.951
Final	8.926/5df (1.785)	0.063	0.982	0.071	0.983/0.949	0.980	0.991

6.4.3. Store Novelty: Initial Measurement and Improved Measurement of the Construct

The initial fit indices for store novelty are statistically unsatisfactory (Tables 6.11a and 6.11b). Low standardised item loadings and R^2 are contributory to low initial measurement model fit for store novelty when both store designs are considered.

Store novelty is considered a separate construct from store prototype where its mean values and correlations suggest an inverse association consistent with the aesthetics and not marketing literature (Martindale 1990). Increased store novelty in the Case 1 store appears to lessen consumer identification of the Case 1 store prototype. The mean value for the Case 1 store prototype is 3.05 and is 3.65 for Case 2. The mean store novelty value in Case 1 is 4.95 and 3.21 in Case 2. (This assertion is further examined in the SEM that takes place in Chapter Seven.)

The different levels of design result in different parameter values for the standardised weights and R^2 for both stores. Store novelty, similarly to the other stimulus constructs, has not been extensively measured in either the aesthetic or marketing literatures. Store novelty, or what Berlyne (1971) terms "relative newness" as adapted from the Cox and Cox (2002) scale in this thesis, is difficult to employ in the initial measurement model. Assessing whether the design of both stores is new (Cox and Cox 2002; Herzenstein, Posavac and Brakus 2007), or novel (Tai and Fung 1997; Cox and Cox 2002; Mehrabian and Russell 1974) meets with mixed results.

To develop a common measurement model across both stores to assess consumer perceptions of their different levels of store design, it is necessary, in Table 6.11a and 6.11b, to delete nov1s, nov5s, and nov7s from both stores. The R^2 for nov1s for Case 1 is low at 0.271; the R^2 for nov5s and nov7s for Case 2 are low at 0.221 and 0.118. The standardised loading for nov7s for Case 2 is also low with a *B* value of 0.344, less than the required 0.40 (Tabachnick and Fidell 2007).

Table 6.11a Store Novelty Measurement for Case 1

Item Label	Item Wording	Initial Standardised Loadings	Initial R^2	Final Standardised Loadings	Final C.R. (t-value)
Nov1s	The design in this store is new compared to other Penneys stores	0.521	0.271	Delete (Case 1)[21]	Delete (Case 1)[21]
Nov2s	This design in this store is original compared to other Penneys stores	0.713	0.508	0.709	Standardised
Nov3s	The design of this store has distinguishing characteristics compared to other Penneys stores	0.701	0.492	0.752	8.846
Nov4s	This design of this store is novel and fresh compared to other Penneys stores	0.739	0.546	0.734	8.610
Nov5s	The design of this store is different compared to other Penneys stores	0.697	0.486	Delete (Case 2)[22]	Delete (Case 2)[22]
Nov6s	The design of this store has innovative changes compared to other Penneys stores	0.727	0.528	0.679	7.990
Nov7s	This design of this store has a different level of design compared to other Penneys stores	0.705	0.497	Delete (Case 2)	Delete (Case 2)

	χ^2/df (Cmin)	RMSEA	TLI	RMR	GFI/AGFI	NFI	CFI
Initial	17.432/14df (2.879)	0.097	0.926	0.112	0.947/0.895	0.927	0.951
Final	1.35/2df (0.675)	0.000	1.008	0.033	0.997/0.984	0.995	1.000

[21] This denotes deletion of this item for the Case 1 store only. This item possesses adequate parameter values for Case 2. To develop a common measurement model, this item is deleted from the measurement of the construct to derive one construct that proves reliably measurable across different contexts and enables the invariant analysis to take place.

[22] This denotes deletion of this item for the Case 2 store only. This item possesses adequate parameter values for Case 1. Again, to develop a common measurement model, it is necessary to delete this item from the measurement of the construct to derive one construct that proves reliably measurable across different contexts and enables the invariant analysis to take place.

Table 6.11b Store Novelty Measurement for Case 2

Item Label	Item Wording	Initial Standardised Loadings	Initial R^2	Final Standardised Loadings	Final C.R. (t-value)
Nov1s	The design in this store is new compared to other Penneys stores	0.731	0.534	Delete (Case 1)	Delete (Case 1)
Nov2s	This design in this store is original compared to other Penneys stores	0.615	0.378	0.592	Standardised
Nov3s	The design of this store has distinguishing characteristics compared to other Penneys stores	0.679	0.462	0.696	7.213
Nov4s	This design of this store is novel and fresh compared to other Penneys stores	0.813	0.661	0.773	7.593
Nov5s	The design of this store is different compared to other Penneys stores	0.470	0.221	Delete (Case 2)	Delete (Case 2)
Nov6s	The design of this store has innovative changes compared to other Penneys stores	0.734	0.539	0.768	7.474
Nov7s	This design of this store has a different level of design compared to other Penneys stores	0.344	0.118	Delete (Case 2)	Delete (Case 2)

	χ^2/df (Cmin)	RMSEA	TLI	RMR	GFI/AGFI	NFI	CFI
Initial	74.741/14df (5.339)	0.147	0.810	0.24	0.90/0.80	0.851	0.874
Final	0.494/2df (0.247)	0.000	1.019	0.021	0.999/0.994	0.998	1.000

6.4.4. Store Complexity: Initial Measurement and Improved Measurement of the Construct

The store environment has presented measurement difficulties in the past (McGoldrick 2002; McGoldrick and Pieros 1998; Eroglu and Machleit 2008). It has infrequently been measured or has been measured with less than three items (Cox and Cox 2002; Nasar 2002). A consumer interpretation of store complexity generally requires an interpretation of the following: how the store environment presents variability among the design elements; the presence of systematic or unpredictable information loadings; or whether higher or lower perceptions of space density are present (Donovan and Rossiter 1982).

The initial parameter values and fit indices for both stores are presented in Tables 6.12a and 6.12b. With deletions of comp1s primarily due to weak Case 1 parameter values, and comp5s, comp6s due to weak Case 2 parameter values the model fit indices improve in both stores to the required statistical fit levels. However, although the remaining items measure store complexity on the basis of satisfactory fit indices, the standardised loadings and R^2 values remain low after these item deletions. These measurement concerns are confirmed when the store complexity construct is examined for reliability and validity.

Table 6.12a Store Complexity Measurement for Case 1							
Item Label	**Item Wording[23]**	**Initial Standardised Loadings**		**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**	
Comp1s	Low or High Complexity	0.398		0.159	Delete (Case 1)	Delete (Case 1)	
Comp2s	Low or High Complexity	0.490		0.241	0.431	Standardised	
Comp3s	Low or High Complexity	0.712		0.507	0.748	4.742	
Comp4s	Low or High Complexity	0.756		0.572	0.773	5.174	
Comp5s	Low or High Complexity	-0.158		0.025	Delete (Case 2)	Delete (Case 2)	
Comp6s	Low or High Complexity	0.196		0.039	Delete (Case 2)	Delete (Case 2)	
Comp7s	Low or High Complexity	0.411		0.169	0.378	3.694	
	χ^2/df (Cmin)	**RMSEA**	**TLI**	**RMR**	**GFI/AGFI**	**NFI**	**CFI**
Initial	65.166/14df (4.655)	0.135	0.636	0.214	0.917/0.833	0.719	0.757
Final	(4.342/2df) 2.171	0.077	0.947	0.062	0.990/0.949	0.969	0.982

Table 6.12b Store Complexity Measurement for Case 2					
Item Labels	**Item Wording**	**Initial Standardised Loadings**	**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**
Comp1s	Low or High Complexity	0.565	0.32	Delete (Case 1)	Delete (Case 1)
Comp2s	Low or High Complexity	0.502	0.252	0.452	Standardised
Comp3s	Low or High Complexity	0.776	0.602	0.778	5.913
Comp4s	Low or High Complexity	0.831	0.690	0.869	5.898
Comp5s	Low or High Complexity	-0.195	0.038	Delete (Case 2)	Delete (Case 2)
Comp6s	Low or High Complexity	0.168	0.028	Delete (Case 2)	Delete (Case 2)
Comp7s	Low or High Complexity	0.566	0.321	0.536	5.158

[23] Note that the wording for these items is longer and the wording presented here is abbreviated. The full and actual wording is available in the questionnaire in Appendix II.

	χ^2/df (Cmin)	RMSEA	TLI	RMR	GFI/AGFI	NFI	CFI
Initial	120.708/14df (8.622)	0.195	0.584	0.316	0.863/0.727	0.702	0.723
Final	3.094/2df (1.547)	0.052	0.984	0.080	0.992/0.962	0.986	0.995

6.4.5. Store Aesthetic Preference: Initial Measurement and Improved Measurement of the Construct

The initial fit indices for both stores for the measurement of store aesthetic preference are statistically unsatisfactory (Table 6.13a and 6.13b). The RMSEA for Case 1 and 2 is 0.163 and 0.159 although some of the other fit statistics such as NFI and CFI reached satisfactory minimum values.

It is decided to delete aespref1s given its low R^2 value of 0.232 for the Case 1 store. The same item presents no measurement issues for the Case 2 store, but as it is preferable to develop a measurement construct that could measure store aesthetic preference reliably and with validity in different contexts, it is deemed necessary to delete aespref1s. The modification indices upon deletion of aespref1s suggest that the error terms for aespref2s and aespref4s covary. Comparisons of the improvement in measurement fit, with deletions of aespref2s and aespref4s, suggests that deletion of the negatively worded aespref4s is warranted and helps to obtain the better statistical Goodness-of-Fit (GOF) for both stores. The final model is, therefore, reflective of the deletion of aespref1s and aespref4s.

<table>
<tr><th colspan="8">Table 6.13a Store Aesthetic Preference Measurement for Case 1</th></tr>
<tr><th>Item Labels</th><th>Item Wording</th><th colspan="2">Initial Standardised Loadings</th><th>Initial R^2</th><th>Final Standardised Loadings</th><th colspan="2">Final C.R. (t-value)</th></tr>
<tr><td>Aespref1s</td><td>I like the design of this store</td><td colspan="2">0.716</td><td>0.232</td><td>Delete (Case 1)</td><td colspan="2">Delete (Case 1)</td></tr>
<tr><td>Aespref2s</td><td>The design of this store helps me to experience a pleasant time when I visit this store</td><td colspan="2">0.762</td><td>0.675</td><td>0.704</td><td colspan="2">11.552</td></tr>
<tr><td>Aespref3s</td><td>This store is stylish</td><td colspan="2">0.874</td><td>0.672</td><td>0.887</td><td colspan="2">Standardised</td></tr>
<tr><td>Aespref4s</td><td>The design of this store is bad</td><td colspan="2">0.758</td><td>0.575</td><td>Delete (Both Stores)</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>Aespref5s</td><td>This is an attractive store</td><td colspan="2">0.820</td><td>0.763</td><td>0.835</td><td colspan="2">15.251</td></tr>
<tr><td>Aespref6s</td><td>The interior of this store looks impressive</td><td colspan="2">0.822</td><td>0.580</td><td>0.865</td><td colspan="2">15.927</td></tr>
<tr><td>Aespref7s</td><td>This store is the best design of any Penneys store I have seen</td><td colspan="2">0.481</td><td>0.513</td><td>0.438</td><td colspan="2">6.308</td></tr>
<tr><th></th><th>χ^2/df (Cmin)</th><th>RMSEA</th><th>TLI</th><th>RMR</th><th>GFI/AGFI</th><th>NFI</th><th>CFI</th></tr>
<tr><td>Initial</td><td>87.976/14df (6.284)</td><td>0.163</td><td>0.868</td><td>0.109</td><td>0.871/0.742</td><td>0.898</td><td>0.912</td></tr>
<tr><td>Final</td><td>10.519/5df (2.104)</td><td>0.074</td><td>0.979</td><td>0.076</td><td>0.979/0.937</td><td>0.980</td><td>0.989</td></tr>
</table>

Table 6.13b Store Aesthetic Preference Measurement for Case 2					
Item Labels	**Item Wording**	**Initial Standardised Loadings**	**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**
Aespref1s	I like the design of this store	0.808	0.652	Delete (Case 1)	Delete (Case 1)
Aespref2s	The design of this store helps me to experience a pleasant time	0.823	0.678	0.857	13.411

<table>
<tr><td></td><td>when I visit this store</td><td colspan="2"></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Aespref3s</td><td>This store is stylish</td><td colspan="2">0.862</td><td>0.743</td><td>0.887</td><td colspan="2">Standardised</td></tr>
<tr><td>Aespref4s</td><td>The design of this store is bad</td><td colspan="2">0.769</td><td>0.591</td><td>Delete (Both Stores)</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>Aespref5s</td><td>This is an attractive store</td><td colspan="2">0.878</td><td>0.771</td><td>0.921</td><td colspan="2">17.492</td></tr>
<tr><td>Aespref6s</td><td>The interior of this store looks impressive</td><td colspan="2">0.811</td><td>0.658</td><td>0.872</td><td colspan="2">15.904</td></tr>
<tr><td>Aespref7s</td><td>This store is the best design of any Penneys store I have seen</td><td colspan="2">0.671</td><td>0.450</td><td>0.732</td><td colspan="2">11.213</td></tr>
<tr><td></td><td>χ^2/df (Cmin)</td><td>RMSEA</td><td>TLI</td><td>RMR</td><td>GFI/AGFI</td><td>NFI</td><td>CFI</td></tr>
<tr><td>Initial</td><td>85.374/14df (6.098)</td><td>0.159</td><td>0.897</td><td>0.139</td><td>0.878/0.756</td><td>0.919</td><td>0.931</td></tr>
<tr><td>Final</td><td>6.193/5df (1.239)</td><td>0.034</td><td>0.996</td><td>0.046</td><td>0.988/0.963</td><td>0.991</td><td>0.998</td></tr>
</table>

6.4.6. Retail Brand Attachment and Brand Attachment/Loyalty: Initial Measurement and Improved Measurement of the Constructs

The previous measurement models presented in Sections 6.4.2-6.4.5 concerned store-level measurement models. Sections 6.4.6-6.4.8, instead, explore retail-level measurement models. Retail brand attachment, retail brand loyalty, retail brand product and retail brand price measurement models are each considered in-turn.

The initial Goodness-of-Fit (GOF) for the retail brand attachment construct reflects an unsatisfactory statistical performance with elevated RMSEA for both stores (Table 6.14). The measurement of retail brand attachment is based on the Park et al. (2010) scale that is developed in a marketing consumption context. The fit indices, parameter loadings and R^2 for this scale when applied in a retail context generally meet the minimum required values for both stores.

However, the modification indices suggest that battach4r, a reversely worded question, covaries with battach3r. As a four item construct, a decision to modify the measurement model by deleting either battach3r or battach4r to improve Goodness-of-Fit (GOF), in this respect, also presents a problem. Removing either item in a four item construct measurement removes two degrees-of-freedom and makes the measurement model just identified. Accordingly, it is necessary to investigate the measurement of retail brand attachment together with the retail brand loyalty construct.

Table 6.14. Retail Brand Attachment Measurement for Case 1 and Case 2[24]					
Item Label	**Item Wording**[25]	**Initial & Final Standardised Loadings Case 1**	**Initial & Final R^2 Case 1**	**Initial & Final Standardised Loadings Case 2**	**Initial & Final R^2 Case 2**
BAttach1r	To what extent is Penneys part of you and who you are?	0.920	0.388	0.864	0.747
BAttach2r	To what extent do you feel personally connected to Penneys?	0.840	0.486	0.859	0.737
BAttach3r	To what extent… on	0.697	0.706	0.694	0.482

[24] As there are only four items for retail brand attachment and because the deletion of one item makes the measurement model just identified, the measurement model reported in Table 6.14 is therefore considered as both the initial and final measurement model when four items are used.
[25] These are abbreviated wording of the items and the full wording for these items is available in Appendix II.

	their own?						
BAttach4r	To what extent … naturally and instantly?	0.623		0.847	0.659	0.434	
	χ^2/df (Cmin)	**RMSEA**	**TLI**	**RMR**	**GFI/AGFI**	**NFI**	**CFI**
Initial & Final Case 1	24.930/2df (12.465)	0.239	0.828	0.192	0.942/0.708	0.939	0.943
Initial & Final Case 2	28.142/2df (14.071)	0.255	0.796	0.207	0.934/0.670	0.928	0.932

When an exploratory factor analysis is performed on both the retail brand attachment and retail brand loyalty constructs for both stores (on the second data collection of 403 responses and not the first data collection of 145 responses), in examination of the dimensionality of both constructs, both constructs are found to share the same dimensionality. Case stores 1 and 2 confirm uni-dimensional measurement for retail brand attachment and retail brand loyalty. KMO values are 0.875, 0.869 for Case 1 and 2. Total Variance Explained of 60.24 and 58.64 is also present for Case 1 and Case 2, respectively. Retail brand loyalty is a 3-item construct and similarly succumbs to just-identified status and needs to be measured alongside brand attachment.

When the two constructs are measured together in one measurement model, the initial model Goodness-of-Fit (GOF) indices are statistically unsatisfactory for both stores (Table 6.15a and 6.15b). Although parameter loadings and R^2 are reasonably good, modification indices suggest that the battach2r error term covaries with battach1r for both stores. When battach2r is deleted there is improvement in model fit, but this improvement is still insufficient to reach reasonable fit requirements. The modification indices also suggest that improvement in the measurement model to close to the required fit is obtainable if battach4r is deleted. However, even with this deletion of brand4r, the RMSEA remains high with a value of 0.103 for Case 1.

Table 6.15a Retail Brand Attachment and Loyalty Measurement for Case 1							
Item Label	**Item Wording**	**Initial Standardised Loadings**		**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**	
BAttach1r	To what extent is Penneys part of you and who you are?	0.841		0.708	0.780	Standardised	
BAttach2r	To what extent do you feel personally connected to Penneys?	0.758		0.575	Delete (Both Stores)	Delete (Both Stores)	
BAttach3r	To what extent… on their own?	0.757		0.574	0.729	10.965	
BAttach4r	To what extent … naturally and instantly?	0.629		0.396	Delete (Both Stores)	Delete (Both Stores)	
BLoyal1r	I consider myself to be a loyal customer of Penneys	0.722		0.521	0.716	10.598	
BLoyal2r	Penneys is the fashion retailer I shop in most frequently	0.834		0.695	0.880	13.542	
BLoyal3r	I usually use Penneys as my first choice compared to other fashion retailers	0.865		0.748	0.902	13.974	
	χ^2/df (Cmin)	**RMSEA**	**TLI**	**RMR**	**GFI/AGFI**	**NFI**	**CFI**
Initial	114.732/14df (8.195)	0.190	0.837	0.183	0.856/0.711	0.879	0.891
Final	15.658/5df (3.132)	0.103	0.965	0.089	0.970/0.910	0.975	0.983

<table>
<tr><th colspan="8">Table 6.15b Retail Brand Attachment and Loyalty Measurement for Case 2</th></tr>
<tr><th>Item Label</th><th>Item Wording</th><th colspan="2">Initial Standardised Loadings</th><th>Initial R^2</th><th>Final Standardised Loadings</th><th colspan="2">Final C.R. (t-value)</th></tr>
<tr><td>BAttach1r</td><td>To what extent is Penneys part of you and who you are?</td><td colspan="2">0.783</td><td>0.613</td><td>0.707</td><td colspan="2">Standardised</td></tr>
<tr><td>BAttach2r</td><td>To what extent do you feel personally connected to Penneys?</td><td colspan="2">0.762</td><td>0.581</td><td>Delete (Both Stores)</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>BAttach3r</td><td>To what extent… on their own?</td><td colspan="2">0.793</td><td>0.629</td><td>0.772</td><td colspan="2">10.353</td></tr>
<tr><td>BAttach4r</td><td>To what extent … naturally and instantly?</td><td colspan="2">0.638</td><td>0.406</td><td>Delete (Both Stores)</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>BLoyal1r</td><td>I consider myself to be a loyal customer of Penneys</td><td colspan="2">0.741</td><td>0.549</td><td>0.725</td><td colspan="2">9.687</td></tr>
<tr><td>BLoyal2r</td><td>Penneys is the fashion retailer I shop in most frequently</td><td colspan="2">0.840</td><td>0.705</td><td>0.895</td><td colspan="2">11.405</td></tr>
<tr><td>BLoyal3r</td><td>I usually use Penneys as my first choice compared to other fashion retailers</td><td colspan="2">0.788</td><td>0.620</td><td>0.836</td><td colspan="2">11.085</td></tr>
<tr><td></td><td>χ^2/df (Cmin)</td><td>RMSEA</td><td>TLI</td><td>RMR</td><td>GFI/AGFI</td><td>NFI</td><td>CFI</td></tr>
<tr><td>Initial</td><td>118.704/14df (8.479)</td><td>0.193</td><td>0.821</td><td>0.194</td><td>0.854/0.708</td><td>0.868</td><td>0.880</td></tr>
<tr><td>Final</td><td>12.179/5df (2.436)</td><td>0.085</td><td>0.974</td><td>0.068</td><td>0.978/0.934</td><td>0.979</td><td>0.987</td></tr>
</table>

The confirmation of a uni-dimensional structure for both the retail brand attachment and retail brand loyalty constructs also has implications for the approach to the analysis of data in the SEM in Chapter Seven. It is proposed to present analyses involving retail brand attachment and retail brand loyalty using proposed and alternative models. The proposed model examines what is hypothesised in the conceptual framework and treats retail brand attachment and retail brand loyalty as separate constructs. The alternative SEM investigates associations in the SEM using the combined retail brand attachment and retail brand loyalty construct. This is further explained in Chapter Seven.

6.4.7. Retail Brand Price Perception: Initial Measurement and Improved Measurement of the Construct

Using the Jara and Cliquet (2012) price sensitivity scale, the parameter values for standardised loadings and R^2 for retail brand price meet the desired minimum thresholds. The only exception to meeting the desired parameter values is the R^2 of 0.382 for price5r for Case 2, as presented in Tables 6.16a and 6.16b. However, the R^2 of 0.382 for Case 2 for price5r is very close to the desired 0.40 threshold value.

The fit indices for both stores are statistically unsatisfactory upon running the initial measurement models. Modification indices suggest improvements in fit with covariance of the error terms of: price3r and price4r, price2r and price4r for Case 1; price1r and price2r, price2r and price3r, for Case 2. In the examination of consumer perception of price competiveness using the Jara and Cliquet (2012) retail price sensitivity scale, the price2r item is suggested as a candidate for removal in the modification indices. Price2r is, therefore, deleted in Tables 6.16a and 6.16b. The revised model results in the necessary fit indices for Case 2, but the RMSEA for Case 1 is a still high at 0.095.

<table>
<tr><th colspan="8">Table 6.16a Retail Brand Price Measurement for Case 1</th></tr>
<tr><th>Item Label</th><th>Item Wording</th><th colspan="2">Initial Standardised Loadings</th><th>Initial R^2</th><th>Final Standardised Loadings</th><th colspan="2">Final C.R. (t-value)</th></tr>
<tr><td>Price1r</td><td>Penneys delivers value for money</td><td colspan="2">0.768</td><td>0.589</td><td>0.729</td><td colspan="2">Standardised</td></tr>
<tr><td>Price2r</td><td>Penneys prices are competitive</td><td colspan="2">0.698</td><td>0.487</td><td>Delete (Both Stores)</td><td colspan="2">Delete (Both Stores)</td></tr>
<tr><td>Price3r</td><td>Penneys charges prices lower than competitors</td><td colspan="2">0.797</td><td>0.636</td><td>0.763</td><td colspan="2">9.695</td></tr>
<tr><td>Price4r</td><td>I get a good deal when I shop with Penneys</td><td colspan="2">0.795</td><td>0.632</td><td>0.833</td><td colspan="2">10.921</td></tr>
<tr><td>Price5r</td><td>Penneys saves me money</td><td colspan="2">0.724</td><td>0.525</td><td>0.767</td><td colspan="2">9.739</td></tr>
<tr><td></td><td>χ^2/df (Cmin)</td><td>RMSEA</td><td>TLI</td><td>RMR</td><td>GFI/AGFI</td><td>NFI</td><td>CFI</td></tr>
<tr><td>Initial</td><td>62.880/5df (12.576)</td><td>0.241</td><td>0.769</td><td>0.057</td><td>0.904/0.711</td><td>0.877</td><td>0.884</td></tr>
<tr><td>Final</td><td>5.590/2df (2.795)</td><td>0.095</td><td>0.969</td><td>0.020</td><td>0.985/0.927</td><td>0.984</td><td>0.990</td></tr>
</table>

Table 6.16b Retail Brand Price Measurement for Case 2							
Item Label	**Item Wording**	**Initial Standardised Loadings**		**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**	
Price1r	Penneys delivers value for money	0.735		0.540	0.691	Standardised	
Price2r	Penneys prices are competitive	0.685		0.469	Delete (Both Stores)	Delete (Both Stores)	
Price3r	Penneys charges prices lower than competitors	0.702		0.493	0.646	8.409	
Price4r	I get a good deal when I shop with Penneys	0.851		0.723	0.934	10.029	
Price5r	Penneys saves me money	0.618		0.382	0.610	7.998	
	χ^2/df (Cmin)	**RMSEA**	**TLI**	**RMR**	**GFI/AGFI**	**NFI**	**CFI**
Initial	35.118/5df (7.024)	0.173	0.850	0.030	0.943/0.830	0.915	0.925
Final	0.640/2df (0.320)	0.000	1.015	0.007	0.998/0.982	0.998	1.000

6.4.8. Retail Brand Product Perception: Initial Measurement and Improved Measurement of the Construct

The initial fit Goodness-of-Fit (GOF) indices for consumer perceptions of Penneys retail product brand offering are statistically unsatisfactory in Table 6.17a and 6.17b. Attempts to improve the measurement for retail brand product brand for both stores prove unsuccessful. Despite the presence of reasonable parameter values for standardised loadings and R^2 for both stores, the improvement in fit suggested in the modification indices are extensive. By covarying the error terms of prod2r with prod4r, prod2r with prod3r for Case 1 and prod2r with prod3r for Case 2 the resultant improvements in fit would achieve a desired fit. The improvement in the measurement model arising from covarying these items is illustrated in Tables 6.17a and 6.17b. Item prod2r is common to Case stores 1 and 2 and appears to present the most problems.

Prod2r responses generally revealed fewer positive responses than the other product items. It should be noted that perceived quality using, for instance, the Yoo and Donthu (2001), Yoo, Donthu and Lee (2000), Zeithaml, Berry and Parasuraman (1996), Zeithaml (1988) scales is not measured in this research. This item, may, therefore, need to be included in a perceived quality construct. Prod2r, may on its own in a retail brand product scale, not measure as effectively in a discount retail context[26]. On this basis, it is proposed to delete prod2r from the measurement model and to use the revised measurement model excluding this item in the SEM.

Table 6.17a Retail Brand Product Measurement for Case 1					
Item Label	**Item Wording**	**Initial Standardised Loadings**	**Initial R^2**	**Final Standardised Loadings**	**Final C.R. (t-value)**
Prod1r	Penneys offers a good selection of products	0.807	0.651	0.842	Standardised
Prod2r	Penneys offers good quality fashions	0.661	0.437	0.563	7.756
Prod3r	Penneys offers	0.792	0.628	0.832	10.482

[26] It is again similar to the cases where items have been deleted in the retail brand attachment and retail brand loyalty measurement models and not possible to produce measurement models with only three items. Three item measurement models succumb to just identified status and Goodness-of-Fit (GOF) statistics cannot be produced.

<table>
<tr><td></td><td>modern fashionable products</td><td colspan="2"></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td>Prod4r</td><td>Penneys offers well-designed products</td><td colspan="2">0.752</td><td>0.565</td><td>0.672</td><td colspan="2">9.138</td></tr>
<tr><td></td><td>χ^2/df (Cmin)</td><td>RMSEA</td><td>TLI</td><td>RMR</td><td>GFI/AGFI</td><td>NFI</td><td>CFI</td></tr>
<tr><td>Initial</td><td>34.122/2df (17.061)</td><td>0.283</td><td>0.716</td><td>0.127</td><td>0.919/0.593</td><td>0.901</td><td>0.905</td></tr>
<tr><td>Final</td><td>2.608/1df (2.608)</td><td>0.090</td><td>0.972</td><td>0.021</td><td>0.994/0.936</td><td>0.992</td><td>0.995</td></tr>
</table>

<table>
<tr><th colspan="8">Table 6.17b Retail Brand Product Measurement for Case 2</th></tr>
<tr><th>Item Label</th><th>Item Wording</th><th colspan="2">Initial Standardised Loadings</th><th>Initial R^2</th><th>Final Standardised Loadings</th><th colspan="2">Final C.R. (t-value)</th></tr>
<tr><td>Prod1r</td><td>Penneys offers a good selection of products</td><td colspan="2">0.701</td><td>0.491</td><td>0.696</td><td colspan="2">Standardised</td></tr>
<tr><td>Prod2r</td><td>Penneys offers good quality fashions</td><td colspan="2">0.643</td><td>0.413</td><td>0.718</td><td colspan="2">8.208</td></tr>
<tr><td>Prod3r</td><td>Penneys offers modern fashionable products</td><td colspan="2">0.750</td><td>0.562</td><td>0.824</td><td colspan="2">9.403</td></tr>
<tr><td>Prod4r</td><td>Penneys offers well-designed products</td><td colspan="2">0.862</td><td>0.744</td><td>0.808</td><td colspan="2">10.444</td></tr>
<tr><td></td><td>χ^2/df (Cmin)</td><td>RMSEA</td><td>TLI</td><td>RMR</td><td>GFI/AGFI</td><td>NFI</td><td>CFI</td></tr>
<tr><td>Initial</td><td>21.648/2df (10.824)</td><td>0.221</td><td>0.811</td><td>0.070</td><td>0.952/0.762</td><td>0.932</td><td>0.937</td></tr>
<tr><td>Final</td><td>7.861/1df (7.861)</td><td>0.185</td><td>0.868</td><td>0.048</td><td>0.981/0.812</td><td>0.975</td><td>0.978</td></tr>
</table>

6.4.9. Factor Loadings and Critical Ratio Values Analysis of All Constructs

The factor loadings for construct items are important in supporting the rationale for SEM (Tabachnick and Fidell 2007). An examination of the standardised factor loadings of each construct, in previous sections of this chapter, confirms that minimum values of 0.50 are present in Tables 6.10a-6.17b. This indicates the existence of strong associations between the items and their constructs. Similarly, for R^2, only comp2&7s, battach1 for Case 1 and Proto5&6s, nov2s, comp2&7s, price5r for Case 2 possess values below the 0.40 threshold in the final measurement model as required by Tabachnick and Fidell (2007). These items are retained for theoretical reasons and are needed to justify comparisons between the high and low levels of designs in Penneys. Critical ratio or t-values are above 1.96 for all of these same items demonstrating that their factor loadings are statistically significant and assist in the measurement of their constructs (Byrne 2001; Hair et al. 2010).

6.4.10. Examination for Common Method Bias

In this section, common method bias is examined to account for the likelihood of how the proposed research approach itself influences the results obtained in the research (Podsakoff et al. 2003). Podsakoff et al. (2003) recommends completing tests for common method bias unless a credible basis exists to not demand such examination.

The existence of common method variance or bias proposes a research problem by generating a false internal consistency and apparent correlation among items generated by their common source (Chang, van Witteloostuijn and Eden 2010). Common method bias, if present, effectively introduces systematic measurement errors that either inflate or deflate the observed associations between constructs, generating Type I and II errors (Chang, van Witteloostuijn and Eden 2010).

Four sources of common method bias are identified by Podsakoff et al. (2003). The use of a common rater, the manner in that items are presented to respondents, the context in which items are placed on a questionnaire and contextual influences may all generate common method bias. Authors such as Podsakoff et al. (2003) and Chang, van Witteloostuijn and Eden (2010) propose remedies to address the occurrence of common method bias and these proposals influence the implementation of this research.

This thesis examines different levels of design in two stores of the same retailer. Particular controls are introduced to lessen the prospect of situational variables influencing results in this thesis. Situational variable issues are addressed in this research, by gathering data in similar locations, in both stores, from similar groups of consumers. This promotes the prospects of ensuring construct validity when researchers collect measures for different constructs from different sources (Chang, van Witteloostuijn and Eden 2010; Bagozzi and Yi 2012). Collecting data from the two surveyed stores and subjecting the data to an invariance analysis in the structural model is intended to further confirm that common method bias is not present.

A Harman single factor test is performed in this research and the results of this test indicate that common method bias is not a problem. The one factor that emerges from Harman's test accounts for 27.58% of the variance in the Case 1 store and 24.87% of the variance for the Case 2 store. This level of variance explained on one factor is less than the problematic 50% threshold in both stores, and is similar to the approach noted in Podsakoff et al. (1984). Accordingly, common method bias is not a problem and it is unnecessary to complete additional tests for common method bias.

Various survey administration issues also possibly generate this low value for method variance. The questionnaire design in this thesis involves questions posed to consumers demanding the answering of store level and overall retail-level responses to semantic and Likert scaled questions in different stores. When the measures of the predictor items and latent constructs are collected from different sources (Podsakoff et al. 2003), such as from different stores employing different levels of design-architecture, the prospect for method bias to be present in this research is minimised.

6.5. Measurement Models Reliability and Validity

Given the absence of common method bias, this thesis moves to a review of the reliability and validity of the measurement models developed in previous sections (Churchill 1979). This section outlines the rationale for the reliability and validity measures chosen for this research before reviewing the findings of the reliability and validity measures.

A measure is considered reliable to the extent that independent but comparable measures of the same trait or construct of a given object agree and where variation in scores is attributable to chance errors (Churchill 1979; DeVellis 2003). Internal consistency in measuring reliability, therefore, assesses item interrelatedness where items composing the scale should have high levels of internal consistency where items should correlate well with each other (DeVellis 2003; Netemeyer, Bearden and Sharma 2003).

The Cronbach Alpha as a reliability measurement is examined in the EFA. In the examination of CFA reliability, the composite reliability measurement of reliability is instead examined. Composite reliability in measuring the internal consistency of a construct is considered to be a more effective measurement of reliability than Cronbach Alpha according to Fornell and Larcker (1981), Bagozzi and Yi (2012). Although, Bagozzi and Yi (2012) state that no universally acceptable standard for composite reliability exists, they recommend the classic reliability standard value of 0.70.

Whilst a measure is considered reliable, it may not necessarily be considered valid (Churchill 1979). Therefore, in purifying the scales to be employed in the CFA, it is also necessary to check also for validity and ensure that the proposed constructs measure what they are supposed to measure (Bollen 1989; Chang, van Witteloostuijn and Eden 2010). More specifically, validity observes: 1) a construct as a suitable representation of the "domain of observables" related to the construct; 2) a construct well represented by alternative measures; and 3) a construct that relates strongly to other constructs of interest (Nunnally and Bernstein 1994). There are several different types of approaches to measuring validity.

Construct validity lies at the very heart of the scientific process and is most directly related to the question of what the instrument measures (Churchill 1979). Uni-dimensionality, within-method convergent validity, reliability, stability, across-method convergent validity, discriminant validity, and nomological validity are among the criteria that need to be satisfied for construct validity to be achieved (Terblanche and Boshoff 2006; Churchill 1979). As the most general form of validity, construct validity should be viewed broadly as the degree to which inferences can legitimately be made from measures to constructs (Netemeyer, Bearden and Sharma 2003). It thus confirms how hypotheses can be tested based on the suitability of the proposed measures (Hair et al, 2010) where the same constructs can be examined using different approaches to see if the same results can be reproduced (Bollen 1989; DeVellis 2003). The presence of nomological validity similarly ensures whether new proposed scales similarly confirm corresponding associations established in previous research (Hair et al. 2010). The next section of this chapter proposes tests to examine these validities.

The specification of the measurement models in this thesis requires sufficient content validity to ascertain the extent that a specific set of items reflects its content domain (DeVellis 2003). Content validity is a qualitative type of validity where expert judges can help confirm the items that define the intended construct (Bollen 1989). This operation was performed with managers in Penneys and academic colleagues in DIT, by screening questionnaire items, in advance of the administration of the survey.

Convergent validity is another form of validity, otherwise known as predictive or criterion validity, and is proposed by indicators of theoretically similar or overlapping constructs being strongly interrelated (Brown 2006). When the criterion exists at the same time as the measure it is called concurrent validity. If the criterion occurs in the future it is predictive of validity (Bollen 1989). Where an indicator is associated with a pre-existing indicator it is judged to have convergent validity. Convergent validity, therefore, establishes if the new proposed measure converges (correlates) to other similar measures intended to measure the same construct (Netemeyer, Bearden and

Sharma 2003). High correlations indicate that the scale is measuring the intended concept. Correlation values of 0.30 are proposed by Nunnally and Bernstein (1994) to demonstrate convergent validity. Variance extracted (VE) is another method of establishing convergence recommended by Hair et. al. (2010) and indicates the average percentage of variation explained among items. Values of 0.5 or higher are suggestive of adequate convergence although lower values may be acceptable if acceptable inter-correlations are used. Factor loadings are also used to suggest the presence of convergent validity. Standardised loading estimates of 0.5 and ideally 0.70 or higher are advised (Hair et al. 2010).

Discriminant validity differs from the preceding validity concepts and reflects the degree to which conceptually similar concepts are distinct (Hair et al. 2010). Indicators of theoretically distinct constructs should not be highly inter-correlated and instead should load on separate factors or constructs (Brown 2006). This means that correlation levels should be low demonstrating that the summated scale is sufficiently different from other concepts (Hair et al. 2010).

6.5.1. Convergent and Discriminant Validity

This section reviews the empirical reliability and validity of the CFA and SEM data in this thesis.

Assessments of discriminant validity demand that correlations between constructs be lower than their respective standardised composite reliabilities. An examination of the composite reliability values of Table 6.18 confirms that the data exceed the minimum threshold required of 0.70 (Bagozzi and Yi 2012; Hair et al. 2010), with the exception of the complexity construct. With the exception of the complexity construct the minimum composite reliability value is 0.80.

Table 6.18. Measures of Construct Reliability and Validity

	Case 1				Case 2			
	CR[a]	AVE[b]	MSV[c]	ASV[d]	CR[a]	AVE[b]	MSV[c]	ASV[d]
Store Prototype	0.863	0.561	0.346	0.069	0.860	0.555	0.152	0.039
Store Novelty	0.809	0.516	0.346	0.185	0.800	0.503	0.637	0.153
Store Complexity	0.690	0.370	0.402	0.157	0.771	0.467	0.461	0.146
Store Aesthetic Preference	0.871	0.585	0.402	0.206	0.909	0.668	0.637	0.235
Retail Brand Attach/Loyal	0.902	0.649	0.392	0.144	0.893	0.626	0.410	0.112
Retail Brand Price	0.855	0.596	0.310	0.127	0.819	0.536	0.250	0.060
Retail Brand Product	0.841	0.570	0.392	0.181	0.831	0.553	0.410	0.139

a.CR (Composite Reliability); b. AVE (Average Variance Extracted); c. MSV (Maximum Shared Variance); d. ASV (Average Shared Variance)

In a review of extant literature between the years 2005-2009 of the three accepted procedures for the assessment of discriminant validity, Shiu et al. (2011) identify the popularity of the Fornell and Larcker (1981) approach to the measurement of discriminant validity. The findings from the Fornell and Larcker (1981) test are evident in the presented data of Table 6.18. With the exception of store complexity for Case 1 and store novelty for Case 2, the AVE is larger than the corresponding construct correlations. This is suggestive of discriminant validity and the ability of the measurement scales to discriminate between these proposed measures (Fornell and Larcker 1981).

The concerns raised surrounding complexity measurement earlier in both the EFA and CFA are again confirmed in the tests for reliability and validity. The AVE in Table 6.18 for store complexity is 0.370 for Case 1 and 0.467 for Case 2. Together with the low composite reliability values of 0.690 and 0.771 for Case 1 and 2, this represents convergent, discriminant and reliability problems with the measurement of this construct. Accordingly, it has been decided to not include complexity in the SEM in Chapter Seven.

The concerns surrounding store novelty in Case 2 with the maximum shared variance (MSV) are mitigated by its AVE value where AVE exceeds the required threshold value of 0.50 (Hair et al. 2010). The ability of AVE to consider variance captured by the construct as against variance accounted for by measurement error normally presents a stronger reflection of reliability than the composite reliability measure (Fornell and Larcker 1981). The explanation for this elevated MSV is possibly attributable to the perception of store aesthetic preference.

Some consumers may perceive the design of Case 2 store as less impressive and attractive, but still like the design of the store. Consumers may consequently, in some cases, acknowledge that the Case 2 store has low novelty, but do not wish to speak ill of the Case 2 design. Even if they accept that there is high novelty, consumers can also state that they have some aesthetic preference for the Case 2 design-architecture and this may influence these validity values.

6.6. Overall Measurement Model Fit

This chapter has so far developed individual measurement models for each construct and assessed these models for reliability and validity. The constructs, in general, produce adequate Goodness-of-Fit (GOF) and thus increase the prospect of obtaining reliable results in the SEM (Anderson and Gerbing 1988). This section further examines these constructs at the overall measurement model level with all constructs simultaneously interpreted.

The individual construct measurement models presented in the previous sections of this chapter revealed a total of 15 items, if excluded from the overall measurement model that would improve Goodness-of-Fit (GOF). When comparisons are made in Table 6.19 between the Goodness-of-Fit (GOF) indices of the initial and final (inclusive of deletions) measurement models, there is a marked improvement in Goodness-of-Fit (GOF). The deletions greatly reduce the χ^2 values of both stores from 1620.258 to 520.442 (832df and p>0.001 to 329df, p>0.001) for Case 1 and 1677.476 to 577.276 χ^2 (832df and p>0.001 to 329df and p>0.001) for Case 2. The improvement is consistent and similar across both stores.

The final, revised Goodness-of-Fit (GOF) at the overall measurement level with 28 items, is indeed satisfactory in a number of respects, with desired Cmin and RMSEA for both stores. The Goodness-of-Fit (GOF) indices for CFI and TLI almost meet the stringent 0.95 value threshold identified by Hair et al. (2010) when less than 250 respondents and between 12 and 30 items are employed. I argue that although the CFI (0.939 and 0.921 for Cases 1 and 2) and TLI (0.929 and 0.909 for Cases 1 and 2) are marginally outside this 0.95 threshold value that the overall model is still indicative of the presence of good data.

Table 6.19. Overall CFA Measurement Model Goodness-of-Fit (GOF) for Case 1 and Case 2

Fit Indices	Overall CFA Measurement Model Goodness-of-Fit (GOF)					
	Case 1			Case 2		
	Initial (43 Items)	Final (32 Items)	Final (28 Items) excl Complexity	Initial (43 Items)	Final (32 Items)	Final (28 Items) excl Complexity
χ^2/df	1620.26 (832)	680.739 (436)	520.442 (329)	1677.476 (832)	774.609 (436)	577.267 (329)
Cmin	1.947	1.561	1.582	2.016	1.777	1.755
RMSEA	0.069	0.053	0.054	0.071	0.062	0.061
GFI/AGFI	0.732/ 0.696	0.832/ 0.796	0.848/ 0.812	0.712/ 0.673	0.815/ 0.776	0.842/ 0.805
TLI	0.821	0.916	0.929	0.818	0.891	0.909
NFI	0.714	0.822	0.850	0.717	0.807	0.836
CFI	0.835	0.927	0.939	0.832	0.904	0.921

Inspection of the modification indices in the overall CFA measurement model also suggests that no significant improvements are possible. The modification indices proposed with expected changes in fit identified with error covariances reveal one moderately scored mis-specification associated with one item, prod2r[27]. When the

[27] This is also a further justification for deletion of prod2r from the retail brand product measurement model. I propose based both on the individual and overall measurement models to exclude prod2r in the SEM.

prod2r error term is covaried and the model re-run the improvement in fit of the overall measurement model Goodness-of-Fit (GOF) is minimal. The fit indices for both stores only improved by CMin/df (0.07), RMSEA (0.03), GFI (0.08), AGFI (0.09), NFI (0.09) and CFI (0.01). This ad-hoc examination of the impact of larger error covariances and regression weights reaffirms that the items converge on their single factors and that each construct discriminates in the overall model.

The Goodness-of-Fit (GOF) indices at the individual construct level, when collated from preceding sections in this chapter and viewed together in Table 6.20, are also satisfactory. The important RMSEA, CFI, TLI Goodness-of-Fit (GOF) Indices (Schumacker and Lomax 2010; Bagozzi and Yi 2012), offer a credible basis for examination of these individual constructs in their revised state in a structural model examination, I argue.

Table 6.20. Overall Final CFA Measurement Model Goodness-of-Fit (GOF) by Construct for Case 1 and Case 2

	Overall Final CFA Measurement Model Goodness-of-Fit (28 Items)					
	χ^2/df (Cmin)	**RMSEA**	**RMR**	**GFI/AGFI**	**TLI**	**CFI**
Case 1						
Store Prototype	6.055/5df (1.211)	0.032	0.071	0.988/0.965	0.995	0.998
Store Novelty	1.35/2df (0.065)	0.000	0.033	0.997/0.984	1.008	1.000
Store Complexity	4.342/2df (2.171)	0.077	0.062	0.990/0.949	0.947	0.982
Store Aesthetic Preference	10.519/5df (2.104)	0.074	0.076	0.979/0.937	0.979	0.989
Retail Brand Attachment	24.930/2df (12.465)	0.239	0.192	0.942/0.708	0.828	0.943
Retail Brand Attachment/ Loyalty	15.658/5df (3.132)	0.103	0.089	0.970/0.910	0.965	0.983

Retail Brand Price	5.590/2df (2.795)	0.095	0.020	0.985/0.927	0.969	0.990
Retail Brand Product	2.608/1df (2.608)	0.090	0.021	0.994/0.936	0.972	0.995
Case 2						
Store Prototype	8.926/5df (1.785)	0.063	0.071	0.983/0.949	0.982	0.991
Store Novelty	0.494/2df (0.247)	0.000	0.021	0.999/0.994	1.019	1.000
Store Complexity	3.094/2df (1.547)	0.052	0.080	0.992/0.962	0.984	0.995
Store Aesthetic Preference	0.820/5df (1.239)	0.034	0.046	0.988/0.963	0.996	0.998
Retail Brand Attachment	28.142/2df 14.071	0.255	0.207	0.934/0.670	0.796	0.932
Retail Brand Attachment/ Loyalty	12.179/5df (2.436)	0.085	0.068	0.978/0.934	0.974	0.987
Retail Brand Price	0.640/2df (0.320)	0.000	0.007	0.998/0.982	1.015	1.000
Retail Brand Product	2.409/1df (2.409)	0.084	0.030	0.994/0.941	0.868	0.995

6.6.1. Overall Measurement Model Invariance Examination of Both Stores

Although the overall measurement models for both stores evidence constructs at the reduced 28 item number with improved Goodness-of-Fit (GOF), it is advised by Hair et al. (2010) to examine these models also for measurement invariance. The objective of measurement invariance, according to Hair et al. (2010), is to ensure that the measurement models, produced under different conditions (such as a comparison of two levels of design in two different stores), yield equivalent representations of the same construct. Hair et al. (2010) propose a framework for evaluating measurement invariance with progressively more rigorous comparisons of models with increasingly restrictive constraints.

A comparison of the measurement models of both stores designs begins by developing good fitting models in separate runs for each group. The models are then tested in one run with none of the parameters across models constrained to be equal (Tabachnick and Fidell 2007). This unconstrained multiple group model serves as the baseline against which to judge more restricted models. Constraints are applied to parameters one at a time to present equal coefficients across the groups. Chi-Square (χ^2) tests can then reveal the differences between groups. Models with constraints should have higher Chi-Square (χ^2) values indicating less fit (Tabachnick and Fidell 2007). Alternatively, allowing parameters to vary across groups indicates that group membership moderates the associations represented by those parameters and is another approach that can be employed also in group-level SEM. The moderation hypothesis is rejected only when the null hypothesis – that models being compared are identical – is accepted at every step (Bowen and Guo 2012).

In this respect, changes in χ^2 (denoted $\Delta\chi^2$) propose comparisons between unconstrained models and models with varying levels of constraint. If significant increases in χ^2 (that indicates worse fit) do not materialise upon the introduction of constraints then the constraints can be accepted as evidence that the constructs are invariant. With additional constraints imposed in successive models, stronger forms of invariance are achieved. The models, therefore, progress from the least to most constrained models.

Normally, measurement invariance is not desired. In the case of this research, it is expected that non-invariance should be observed. The groups should observe variances and covariances that are different across the two stores because consumers are presented with two different levels of design. Table 6.21 presents the results from the measurement invariance examination of the two levels of design drawn from the two stores.

Table 6.21. Overall Final Measurement Model Invariance Examination for Both Stores

	Model Fit Measures			Model Differences	
Model Tested	**χ^2/df (Cmin)**	**RMSEA**	**CFI**	**$\Delta\chi^2/\Delta df$**	***P***
Measurement Model Case 1	520.442/329 (1.582)	0.054	0.939		
Measurement Model Case 2	577.267/329 (1.755)	0.061	0.921		
Configural Invariance Model	1097.709/658 (1.668)	0.041	0.929		0.000
Metric Invariance Model	1172.022/686 (1.708)	0.042	0.922	74.313/28	0.000
Scalar Invariance Model	1219.422/671 (1.817)	0.045	0.912	121.713/13	0.000

The results from the configural invariance model in Table 6.21. confirms the extent that the same basic construct structure exists in the two store designs. The configural (otherwise known as the baseline model), being without constraints, allows all free parameters to be estimated separately and to be free to take on the values of each group. The same configuration is, therefore, desired across groups (or stores in the case of this research). If the configural model proves non-invariant then it is not possible to compare across stores at all. The configural model in Table 6.21 reports satisfactory Goodness-of-Fit (GOF) with χ^2 (1097.709) df 658, p=0.000, RMSEA 0.041 and CFI of 0.929, but the model is non-invariant. The configural model is considered non-invariant where the examined constructs do not reflect the same traits or perceptive processes among consumers as they interpret the two-levels of design.

This also means that imposing any constraints on the configural model become meaningless (Hair et al. 2010). An equal unit of measurement is unconfirmed based on the results from the configural model and imposing constraints is unproductive.

If constraints are imposed and the data subjected to metric invariance examination, the data is also unsurprisingly found to be non-invariant. Metric invariance examines the equivalence of factor loadings. It establishes the basic meaning of the construct as loadings denote the association between items and the construct. Hair et. al (2010) describes the metric invariance test as a critical test as it determines cross-group validity beyond the basic construct structure.

The results for the metric invariance tests (the constrained model) confirm that when comparisons are made to the unconstrained configural model that the groups are non-invariant. The $\Delta\chi^2$ of 74.313 and 28 df when the configural and metric models are compared are not suggestive of both groups employing the same unit of measurement. Similar tests for scalar or other invariance are unproductive for these same reasons.

Non-invariance is expected, and desired, in this research. The levels of design are different and non-invariance confirms that the same associations between consumers' perceptions of the different levels in the two stores don't happen in this case. The confirmation that non-invariance is observed is an important finding in this research.

It is necessary in cases where the constrained model proves non-invariant to complete stepwise item deletions to identify the reasons for invariance (Hair et al. 2010). However, given invariance is expected in this case due to the presence of the two-levels of design, it is instead preferred to check the path differences and understand how these differences in design-architecture account for consumers perceptions of retail brand loyalty. In Chapter Seven, the hypothesised associations in the conceptual framework for this thesis examine these path differences.

6.7. End-of-Chapter Six Summary

This chapter presented the results from the EFA and CFA. The EFA of the data completes a necessary first step in measuring the factor structure of the survey data. Given the need to develop one new scale, to modify five scales and incorporate two scales from non-retail contexts, for the first time, this justifies the use of EFA and CFA in this research (Anderson and Gerbing 1988; Harrington 2009; Churchill 1979; DeVellis 2003).

Few developed scales, it is argued, exist to measure the various constructs examined in this thesis. Store prototype has only been measured once previously in a retail context (Ward, Bitner and Barnes 1992). Store novelty and complexity have only been examined as collative constructs in narrowly defined experimental aesthetics contexts

(Donovan and Rossiter 1982; Donovan et al. 1994; Gilboa and Rafaeli 2003; Desrumaux and van Kenhove 1997; Tai and Fung 1997). Store aesthetic preference has not been measured before; it has only been conceptually examined in the preference-for-prototypes literature (Martindale 1984; Martindale and Moore 1988). Retail brand attachment has not been used in a retail context before (Park et al. 2010), and retail brand loyalty, at least in the measurement I propose, has not been measured in retail contexts. Therefore, it is necessary to develop these individual measurement models before the examination of the associations between these constructs takes place in the next chapter.

The results from the EFA reveal that a valid and reliable factor structure with low cross-loadings, high convergence of own items, and minimal interaction with other constructs is present in the survey data. Although there are concerns with cross-loading of multiple complexity items, it is found that when the complexity items are deleted that the revised factor structure performed better. The revised KMO of 0.872, Bartlett's of 0.000, and a reduced 6 factors explain 63% of total variance and confirm a reliable factor structure in the exploratory factor analysis. The pattern matrix reveals convergent and discriminant factor structures with factors that are distinct and uncorrelated. No factors also correlate highly with values higher than 0.70 (Hair et al. 2010). The amount of shared variance explained in the exploratory factor analysis (EFA) is found to be desirably low.

A credible basis is found to exist, therefore, to proceed to the CFA and structural equations modelling phase of the research. Results from the CFA confirm that the individual construct measurement models with the exception of store complexity are found to possess satisfactory Goodness-of-Fit (GOF) and parameter values. The individual measurement models developed in this chapter are also found to be reliable and to possess validity. The composite reliability, average variance extracted and average shared variance measures of reliability and validity, however, suggest that complexity is not reliable and to possess validty. Owing to these reliability and validity concerns, it is, therefore, decided that complexity is not be examined in the SEM in the next chapter, Chapter Seven.

Another important issue to arise from the individual measurement of these constructs is the uni-dimensionality of the retail brand attachment and retail brand loyalty constructs. This has implications for the reporting of findings in the next chapter where proposed and alternative models are used to report findings. The proposed model reports SEM analyses with separate constructs and the alternative model, instead, treats both constructs based on their uni-dimensional structure. The rationale for retaining the proposed model is also provided in the next chapter.

The overall measurement models in the CFA for both stores similarly possess good χ^2, CMin/df, RMSEA, CFI, TLI and NFI. The RMSEA values are higher than their desirable 0.80 threshold values for some constructs, such as retail brand attachment and retail brand loyalty (due most likely to the uni-dimensional structure of retail brand attachment and retail brand loyalty), but are satisfactory at the overall measurement level.

In summary, this chapter verifies the measurement of store prototype, store novelty, store aesthetic preference, retail brand attachment, retail brand price, retail brand product and retail brand loyalty. This chapter contributes to the research on store environments, therefore, by confirming the measurement of constructs that have not been frequently measured in store environments research in the past. Chapter Seven examines the hypothesised associations between these constructs.

Chapter Seven - Findings from the Structural Equations Modelling (SEM) of the Survey Data

7.1. Introduction

Chapter Six proposed new and modified measurement models that specify the store environment, and, therefore, addresses the first research question for this thesis. This chapter, in contrast, examines how these store specification constructs assume a role in consumers' perception of retail brand loyalty. In other words, the focus of the previous chapter was on establishing the dimensionality of the store specification and retail brand loyalty constructs; the focus of this chapter is, instead, on the modelling of the structural associations between these constructs.

The SEM, it is explained in this chapter, concerns the directional and non-directional nature of how the latent constructs are related to one another (Anderson and Gerbing 1988; Brown 2006; Bowen and Guo 2012; Loehlin 2011). Intrinsic to SEM is its hypotheses-driven nature where the CFA is further examined in the SEM. The examination of the associations between the store and retail constructs addresses the second research question of this thesis. Accordingly, this chapter further examines the hypotheses proposed in the conceptual framework (Chapter Four) and thereby the role of store design-architecture on consumer perceptions of retail brand loyalty.

The last chapter confirmed that measurement invariance is an issue with the measurement models proposed for this research. It is necessary in this chapter to confirm how respondents in both stores differ in their perceptions of the two levels of design proposed to them.

The SEM findings are reported as follows: 1) two separate SEM's for Case 1 and Case 2; 2) two separate SEM's for proposed and alternative models; and 3) multiple-group comparisons of Case 1 and 2 for the proposed and alternative models.

An important finding from the previous chapter and which has implications for the analyses of this chapter is the measurement of retail brand attachment and retail brand loyalty. Both constructs in the CFA are found to share a uni-dimensional status. Both constructs essentially measure the same underlying construct. This has implications for this chapter where two models, proposed and alternative models, are presented to investigate consumer perceptions of the two-levels of design in the two stores. The proposed model considers separate retail brand attachment and retail brand loyalty. The alternative model, in contrast, considers the uni-dimensional retail brand attachment and retail brand loyalty, as one construct.

The proposed model is retained on the grounds of its ability to discriminate between store and retail level associations. I argue that the confirmation of the presence of separate store aesthetic preference and retail brand attachment, retail brand loyalty associations clearly addresses the second research question for this thesis. In so doing, the confirmation of a store aesthetic preference and retail brand attachment or retail brand loyalty associations also marks the most important contribution of this thesis research.

This chapter also returns to the issue of non-invariance in the multiple-group SEM section of this chapter. It examines the presence of different values for path associations in group comparisons of the designs of both stores. Tests for statistical difference on these path associations confirm that higher-level store design does confirm the role of the store aesthetic in overall retailer brand building. Retail brand loyalty is, furthermore, explained differently across both stores in the SEM. The use of invariance or more accurately non-invariance testing to explain how parameter differences explain these perceptual differences in design perception marks another contribution of this thesis research.

Sections 7.2-7.4. present the theoretical rationale for the SEM approach taken in this research. The actual findings for the SEM are presented in Section 7.5.

7.2. What is Structural Equations Modelling (SEM)?

SEM is a single analysis procedure that examines multiple dependent associations simultaneously (Hair et al. 2010; Bowen and Guo 2012). SEMs are usually conceived of in terms of non-directly measurable or well-defined theoretical constructs. These models are subjected to structural examination for construct validation and clarification of theories (Raykov and Marcoulides 2011). A number of steps tend to feature in SEM including: model specification, identification, estimation, assessment of model fit and respecification (Kline 2010).

It has been described as an umbrella approach encompassing a set of multivariate statistical approaches to empirical data (Bowen and Guo 2012) that include multiple regression, factor analysis and canonical correlation (Tabachnick and Fidell 2007; Hoyle 2012). Certain constructs in an SEM are latent and others are directly observed. The decision on which kinds of construct to employ depends on the type of SEM to be employed (Tabachnick and Fidell 2007). SEM evaluates whether the model provides reasonable fit to the data and the level of association of each of the independent constructs to the dependent constructs (Tabachnick and Fidell 2007).

There are a number of advantages to using SEM. Its multiple construct, simultaneous association examination in theoretical models overcomes the problem of employing small numbers of constructs to understand complex social and behavioural phenomena (Schumacker and Lomax 2010). Tabachnick and Fidell (2007) go further, in this respect, by stating that SEM is the only analysis method that allows for complete and simultaneous tests of all associations. Achieving construct validity is enhanced using SEM given its ability to control for measurement error and dimensionality (Terblanche and Boshoff 2006). The ability of the SEM to estimate direct, indirect and total effects gives SEM more privileges over other statistical techniques. Advancements in SEM also enable group differences in theoretical models to be assessed through multiple-group SEM (Schumacker and Lomax 2010; Williams, Vanderberg and Edwards 2009; Kline 2010).

The primary goal of SEM is to examine research hypotheses about the observed means, variances and covariances in a set of constructs (Bowen and Guo 2012). The fundamental hypothesis for these structural equations procedures is that the covariance matrix of the observed construct is a function of a set of parameters that allow correct fitting models to reproduce the population covariance matrix (Bollen 1989).

Among the assumptions required for SEM to operate efficiently, Bentler and Chou (1987) suggests that independence of observations and normal distributions are necessary. However, SEM differs also from traditional regression techniques by requiring sufficient covariance structure or multi-collinearity to improve the prospects for model stability (Schumacker and Lomax 2010). Interval or ratio-scaled item values, Schumacher and Lomax (2010) argue should have a sufficient range of score values to introduce variance. If the range of scores is restricted, the magnitude of the correlation value is decreased and correlation associations cannot manifest themselves in construct development (Schumacher and Lomax 2010). This research employs mostly 7-point Likert-scaled questions.

This thesis research employs the SEM and not the Partial-Least-Squares (PLS) alternative approach to SEM. I argue that small sample sizes do not pose a problem for this research and the emphasis is on theory testing rather than prediction (Hair et al. 2012; Kline 2010). PLS estimates are also considered statistically inferior compared to those generated under the full-information method (e.g. Maximum Likelihood) in SEM. Multiple-group comparisons are also important in comparing the two levels of design in this research and are easily conducted in PASW AMOS.

Another strength of SEM lies in its ability to consider potential errors of measurement. SEM includes error terms and considers them as parameters estimated when the model is fit to the data (Raykov and Marcoulides 2011; Schumacker and Lomax 2010).

In so doing, SEM corrects for the amount of error in the constructs and estimates the association as if there is no measurement error (Hair et al. 2010).

Making definite causal inferences based on SEM test results, however, is controversial and possibly points to the limitations of SEM (Pearl 2012; Bollen 1989). Bollen (1989) suggests that proposing structural associations between constructs means suggesting parameters that are not just descriptive measures of association but that also reveal invariant causal relations. However, Pearl (2012) disagrees with this understanding of the term “structural”. Pearl (2012) questions what is understood as “causation”, and with specific reference to SEM, he questions if it is possible to prove causality or yield any results capable of causal interpretation. Concerns surrounding the falsifiability of models where it is not possible to disprove an SEM fit have also been raised, and challenge the usefulness of SEM (Bollen 1989).

Possibly in response to these kinds of concerns, a number of authors, including Edwards and Bagozzi (2000), Bollen (1989), and Kline (2012) propose specific reporting conventions before it is reasonable to infer causal relations between constructs.

7.2.1. Overview to the 5 Steps or 2 Steps SEM Procedure

This section explains how the Andersen and Gerbing (1988) two-step approach to SEM enables the investigation of the associations proposed in the conceptual model of this thesis. The CFA completed in the last chapter involved completion of the first of the two Anderson and Gerbing (1988) steps; this chapter, in contrast, investigates the modelling of the SEM, the second of the two steps. Completion of the SEM and the second step involves meeting the following requirements[28]: model specification, identification, estimation, and testing. The findings presented in Section 7.5.1. emerge from the SEM and interpret these requirements.

7.2.1.1. SEM Specification

Model specification is considered as one of a number of requirements (or steps) in SEM according to Schumacker and Lomax (2010). Model specification involves using all of the available theory to decide which observed and latent constructs to include in the model. Model specification also considers which constructs are related and whether the associations between these constructs are directional or non-directional (Hoyle 2012). Every parameter and association of interest must also be specified as fixed or freely constrained with specification of each observed indicators measurement error and suspected correlation (Hoyle 2012; Schumacker and Lomax 2010; Bowen and Guo 2012).

These specifications help to propose how the true population (actual data) model is deemed consistent with the implied (specified) theoretical model being tested i.e. the sample covariance matrix is sufficiently reproduced by the implied theoretical model (Schumacker and Lomax 2010). If the true model is not consistent with the implied

[28] These SEM (as distinct from CFA) requirements are also known as steps. The five SEM steps or requirements commonly identified are specification, identification, estimation, testing and possibly respecification.

model, then the implied theoretical model is considered mis-specified (Schumacker and Lomax 2010). This is principally owing to exclusion or inclusion of constructs that can result in biased parameter estimates and specification error (Schumacker and Lomax 2010).

Model specification is very important in accounting for the naturally occurring patterns in the data. This thesis has undertaken an extensive literature review and taken care to propose a robust conceptual framework. This thesis, therefore, proposes reliable and valid factor structures and aims to build on this solid base by investigating the associations between these constructs in the SEM.

7.2.1.2. SEM Identification

In addition to specification in a SEM, it is necessary to identify a SEM (Schumacker and Lomax 2010; Kline 2010). The uniqueness of parameters is synonymous with identification (Bentler and Chou 1987). Models may have many different parameter values that equivalently account for the data, but models are described as identified when parameters assume single values that are consistent with the data (Hoyle 2012). This depends on the transposition of the variance–covariance matrix of observed items and constructs into the structural parameters of the model under study. This facilitates model estimation and, therefore, the model can also be tested (Byrne 2001).

If the parameter values are subject to arbitrariness it implies that different parameter values define the same model. This means that the model cannot be evaluated empirically and the SEM may not converge on a final estimated solution (Bentler 1980; Byrne 2001). SEM is considered as just identified if there is only one estimate for each parameter and thus the SEM generates zero degrees of freedom (Schumacker and Lomax 2010). Under-identified models pose problems as they yield statistics that are not correct (Bentler and Chou 1987). However, the most desirable identification is over-identification when there are few parameters to the number of data points or observed constructs, thus yielding positive degrees of freedom (Bentler and Chou 1987).

Identification can be achieved in two ways by fixing parameter values because a fixed parameter can, by definition, assume no other value and is therefore identified (Hoyle 2012). However, this simple solution may not prove possible in complex SEM (Schumacker and Lomax 2010).

The specified SEM in this thesis is over-identified and parameter values can, therefore, be trusted (Schumacker and Lomax 2010). Critically, in this respect, the number of free parameters is 434 (28(28+3)/2) as against the number of 406 (28(28+1)/2) distinct values, a necessary condition for identification known as the order condition (Kline 2010).

7.2.1.3. SEM Estimation

Having specified and identified the SEM, the next step is to choose the model estimation approach (Schumacker and Lomax 2010; Kline 2010). Maximum likelihood

(ML) is the most common estimation procedure (Hair et al. 2010; Hoyle 2012) and is the estimation procedure employed in this research. If the data are normally distributed then maximum likelihood is the best choice because it allows for a wide range of fit indexes to be computed (Bowen and Guo 2012; Costello and Osbourne 2005).

Maximum Likelihood estimates the parameters of the model and determines the Goodness-of-Fit (GOF) to the sample data that minimises the difference between the observed covariance matrix and the estimated or implied covariance matrix (Hoyle 2012; Bentler 1980; Schumacker and Lomax 2010). The process of estimation is iterative, and is described as a simultaneous or full-information method, which means that the estimates of model parameters are calculated at once (Kline 2010). The process begins with a set of start values and after a series of re-runs substantial reductions can materialise in the differences between the two matrices and values of the fitting function (Hoyle 2012). What is termed convergence is obtained when the fitting function is minimised and no further updates of the parameter estimates is obtained (Hoyle 2012). For most just-identified models, the fit of the model to the data is eventually perfect (Kline 2010). For over-identified solutions (such as in this research), the fit of the model achieves predefined minimum values (Kline 2010). Accurate start values or initial estimates of the parameters promote convergence (Kline 2010). Due to error propagation, Kline (2010) suggests that correctly specified models are essential; otherwise, specification errors in one parameter can affect results for other parameters elsewhere in the model (Kline 2010).

The requirements for estimation include sample size and plausibility of normality and independence assumptions (Tabachnick and Fidell 2007; Hair et al. 2010), model complexity, level of missing data, and error variance (Hair et al. 2010). Simpler models with fewer parameters, constructs with at least three indicators and one group analysis can be tested with smaller samples (Hair et al. 2010). Model stability and power is compromised with complexity where achieving optimal solutions demands more estimates and is, therefore, inversely related to the sample size (Bentler and Chou 1987; Schumacker and Lomax 2010).

This research has attempted to propose a reasonably parsimonious model with normal, independent data and adequate sample sizes to meet these estimation requirements (normality and multicollinearity is confirmed in the data in the previous chapter as is the appropriateness of the sample sizes for the analyses of this research).

7.2.1.4. SEM Testing and Possible Respecification

This section presents the theoretical rationale for model testing in SEM (Schumacker and Lomax 2010; Kline 2010). It revisits the theoretical ground covered by the examination of Goodness-of-Fit (GOF) in the CFA.

In evaluating the fitness of an SEM, Goodness-of-Fit (GOF) criteria and parameter values are typically assessed. Once the specified model is estimated, model fit compares the theory to reality by assessing the similarity of the estimated covariance matrix (theory) to reality (observed covariance matrix). Goodness-of-Fit (GOF) measures compare these two matrices and when the two matrices with lower values are observed then the better the SEM is said to fit and represent the observed data (Raykov and Marcoulides 2011; Hair et al. 2010). The specified model where this happens, therefore, supports the sample data (Schumacker and Lomax 2010). If the specified model is not supported by the sample data then the researcher is required to modify the model to improve model fit (Schumacker and Lomax 2010).

In addition to measurement changes in the CFA, respecification requires a reconsideration of identification, estimation and reevaluation of fit and the consideration of separate fit indices and structural associations and shifts the emphasis of the research towards model generation (Hoyle 2012). Although the CFA, in this research, proposed that retail brand attachment and retail brand loyalty are identified in the EFA and share the same factor structure there is no implication for new theory generation.

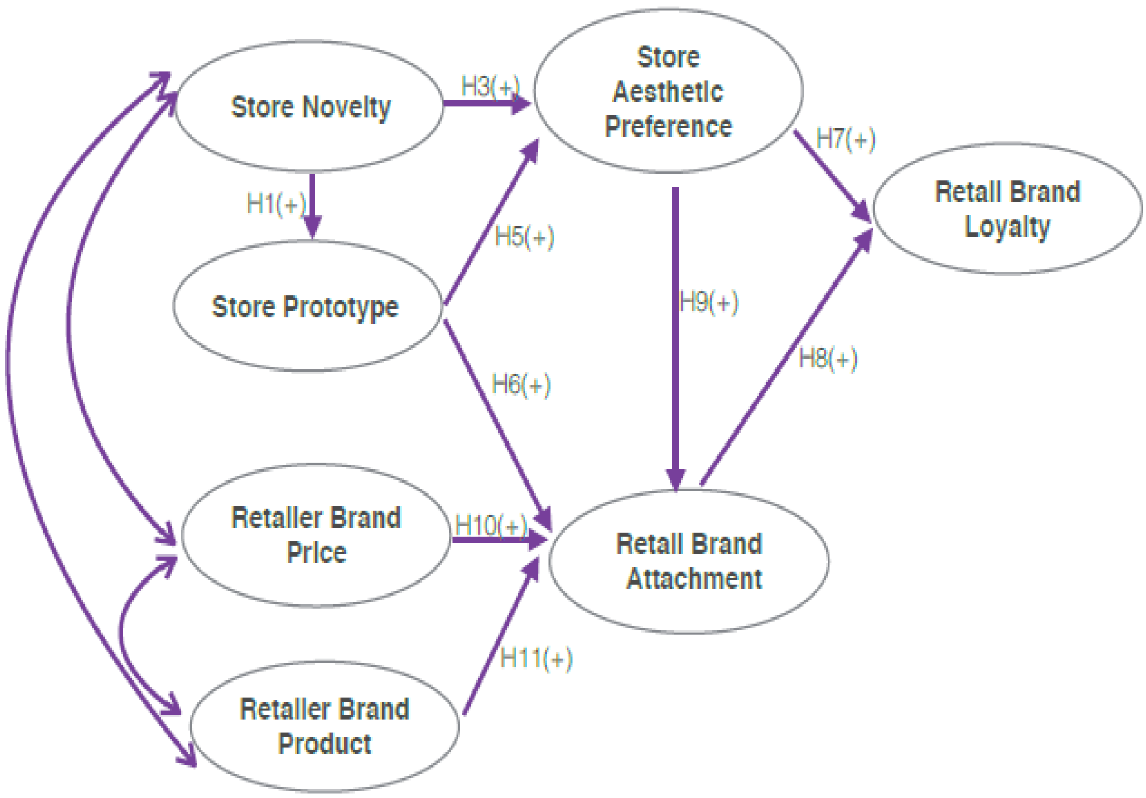
The actual testing of the proposed model is completed in section 7.5.1. and verifies that the data for Case 1 and 2 with their two levels of design supports the sample data. Perceptions of the two-levels of design as hypothesised in the conceptual framework are consistent with the sample data.

7.3. Approach to Reporting SEM Findings and Illustration of the SEM Examined in this Thesis

This section illustrates the SEM examined in this thesis in Figures 7.1. and 7.2. The SEM essentially restates the research questions and hypotheses stated in the conceptual framework (Chapter Four). The validity problems evidenced with the measurement of store complexity in the previous chapter also requires an adaptation of the conceptual framework to exclude hypotheses 2 and 4, the hypotheses that concern store complexity, from the structural model. The findings are reported based on: 1) two separate SEM's for Case 1 and Case 2; 2) two separate SEM's for proposed and alternative models; and 3) multiple-group comparisons of Case 1 and 2 for the proposed and alternative models.

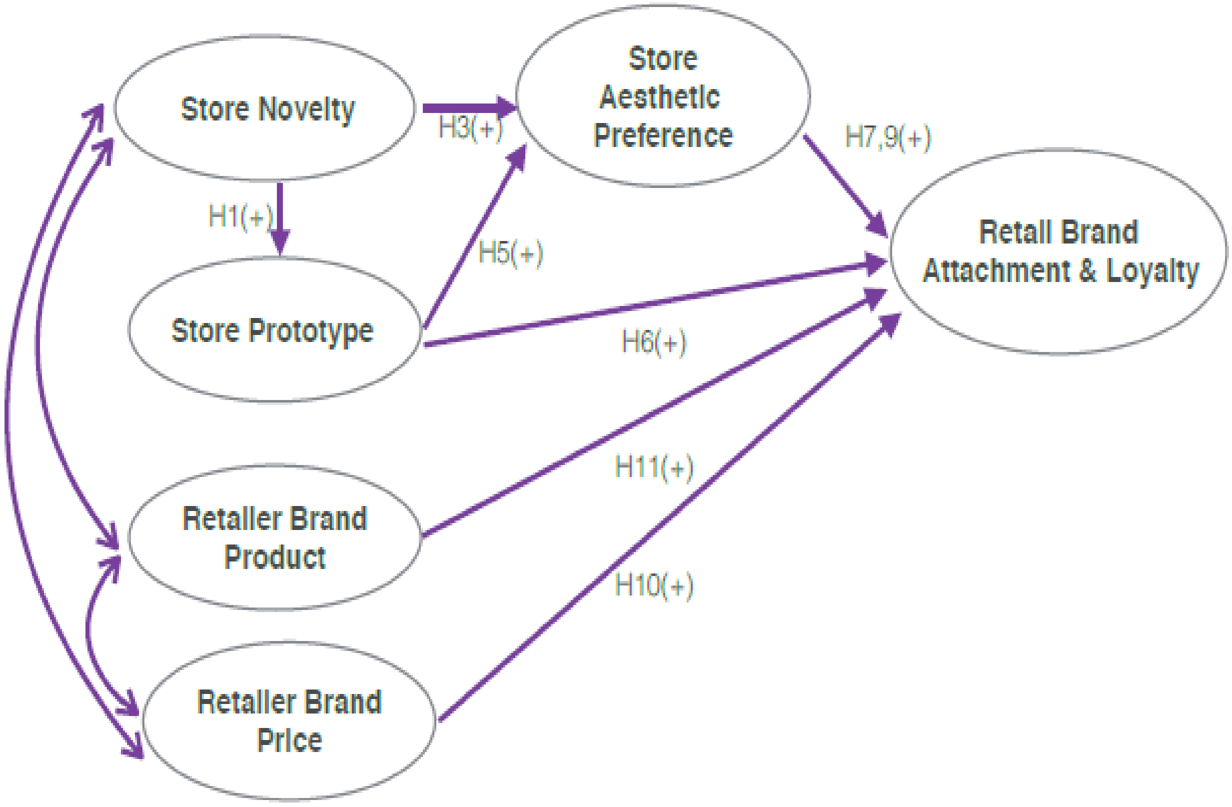
All three SEM examinations are illustrated in the path diagrams presented in Figures 7.1. and 7.2. Path diagrams are fundamental to SEM because they allow the research to diagram and hypothesise the examined sets of associations (Tabachnick and Fidell 2007). The latent or observed constructs and examined associations are depicted in squares, circles, arrows with fixed and constrained parameters in Figures 7.1. and 7.2. (Raykov and Marcoulides 2011). A measurement arrow, such as the one between store novelty and store prototype (H1+), represents the unique variation for a particular observed association beyond the variation due to the relevant association (Schumacker and Lomax 2010). An important benefit to the visualisation of the latent variable associations is that it becomes clear which associations are examined, or not examined, in research of the thesis research questions and hypotheses.

Figure7.1: Proposed Structural Model[29]



[29] Note: due to reliability and validity measurement problems the store complexity construct and the associations proposed in hypotheses 2 and 4 are omitted from the proposed SEM.

Figure 7.2: Alternative Structural Model



Where the constructs are also correlated, it is permitted to covary the exogenous latent constructs to account for systematic statistical correlations without implying causal associations. This is completed for the store novelty, retail brand product and retail brand price constructs in Figures 7.1. and 7.2. This achieves a parsimonious fit between the data and the proposed theoretical model when all exogenous latent constructs are allowed to covary (Holmes-Smith, Coote & Cunningham 2004; Kline 2010).

AMOS 19 is the software programme that will be used in this thesis. It is composed of two modules: AMOS Graphics and AMOS Basic. Users can specify models by drawing them using a GUI interface. Conceptual models are easily tested using AMOS (Kline 2010) and the results presented later in this chapter are based on AMOS output.

7.4. SEM Comparisons of Multiple Groups

After the design-architecture for Cases 1 and 2 are examined in separate SEM's for proposed and alternative models in Section 7.5.1., the reporting of findings then proceeds to multiple-group invariance testing of the same hypothesised associations.

It was established in Chapter Six, in overall examinations of the CFA measurement models, that the data is non-invariant. Examinations of the overall CFA measurement models, configural and constrained models, reveals that the measured constructs and their items are non-equivalent or non-invariant across groups. Of the six potential invariance or equivalence tests proposed by Williams, Vandenberg and Edwards (2009), configural and metric invariance tests are considered the most important. As the survey data in this research is non-invariant, it presents important implications for how this thesis completes multiple-group comparisons of non-invariant data.

The two levels of design account for why the survey data is non-invariant. Consumers perceive the design as different across both stores in a group comparison. Consumers in each store, consequently, respond by proposing parameter values that reflect these different perceptions. I, therefore, argue that non-invariance is expected and desired in the case of this thesis research.

Given that research question two investigates whether the specified store environment and its aesthetic content influences consumer perceptions of retail brand loyalty, it is necessary to demonstrate that the design of the two stores is clearly non-invariant. Section 7.5.3. accounts for the source(s) of this non-invariance by examining parameter values and the structural paths between latent constructs (Williams, Vandenberg and Edwards 2009; Hair et al. 2010). It confirms non-invariance by demonstrating how factor loadings vary in the metric invariance comparisons of both groups.

The demonstration of non-invariance confirms that a higher-level design can be shown to result in higher retail brand loyalty compared to lower-level designs. By performing tests on these structural parameters it is possible to confirm if the presence of higher store novelty and store aesthetic preference in Case 1 is also statistically associated with retail brand attachment and retail brand loyalty compared to Case 2.

7.5. Findings from the Structural Equations Modelling of Hypothesised Associations

Sections 7.5.1. presents a comparison of the fit statistics of the proposed and alternative models for both stores. The eleven thesis hypotheses are examined in Section 7.5.2. The thesis hypotheses are either upheld or refuted on the basis of the statistically verified strength of association found to exist between the constructs in Case 1 and 2 for the proposed and alternative models. This is followed in Section 7.5.3. by a presentation of the SEM findings for the comparisons of both stores parameter values and structural paths. These results explain the origin of the non-invariance in the multiple-group comparisons of perceptions of the designs in Cases 1 and 2. These results also confirm how higher-level store design-architecture can have a statistically significant association with retail brand loyalty.

7.5.1. Comparison of CFA and SEM Fit Indices for the Proposed and Alternative Models: the need for model respecification?

When the CFA measurement model fit indices from Chapter Six (re-presented in Tables 7.1a and 7.1b) are compared for both stores in proposed and alternative models, the alternative models for both Case 1 and Case 2 produce desired lower χ^2. χ^2 is 416.592, 284df for Case 1 and 439.083, 284df for Case 2 for the alternative model and is higher for the proposed measurement models (520.442, 329df for Case 1; 577.267, 329df for Case 2).

This better Goodness-of-Fit (GOF) is observed also in the SEM Goodness-of-Fit (GOF) indices. The alternative models for Case 1 and 2 report improved SEM fit indices that are lower for χ^2 for the alternative model (443.509, 289df for Case 1; 449.864, 289df for Case 2) compared to the SEM proposed model (559.097, 338df for Case 1; 590.613, 338df for Case 2) in Tables 7.1a and 7.1b. The CMin for the proposed and alternative SEM for Case 1 and Case 2 (1.654 and 1.535 for Case 1; 1.747 and 1.557 for Case 2) demonstrates satisfactory Goodness-of-Fit (GOF). The proposed and alternative models also suggest that RMSEA (0.057 and 0.052 for Case 1; 0.061 and 0.053 for Case

2), GFI/AGFI (0.838/0.805 and 0.858/0.828 for Case 1; 0.837/0.804 and 0.860/0.830 for Case 2), NFI (0.839 and 0.856 for Case 1; 0.832 and 0.855 for Case 2), TLI (0.928 and 0.944 for Case 1; 0.919 and 0.942 for Case 2) and CFI (0.920 and 0.937 for Case 1; 0.910 and 0.935 for Case 2) similarly demonstrate satisfactory SEM Goodness-of-Fit (GOF). However, the baseline Goodness-of-Fit (GOF) indices are slightly below their required minimum threshold values. All of the Goodness-of-Fit (GOF) indices, for both the CFA and SEM, and notably the RMSEA, CFI and TLI Goodness-of-Fit (GOF) indices, are very good and within acceptable limits as outlined by Byrne (2001), Hair et al. (2010), and Tabachnick and Fidell (2007).

Table 7.1a Comparison of Fit Indices for CFA and SEM for Proposed and Alternative Models for Case 1						
Level of Model Fit	**Overall Model Fit**					
	Model Fit Indices		**Model Comparison Indices**			
Fit Measures	**CMin/df**	**RMSEA**	**GFI/AGFI**	**NFI**	**CFI**	**TLI**
CFA Overall Measurement Model Fit (Proposed Model)[a]	1.582	0.054	0.848/0.812	0.85	0.938	0.929
CFA Overall Measurement Model Fit (Alternative Model)[b]	1.467	0.048	0.866/0.835	0.865	0.952	0.945
SEM Fit (Proposed Model)[a]	1.654	0.057	0.838/0.805	0.839	0.928	0.920
SEM Fit (Alternative Model)[b]	1.535	0.052	0.858/0.828	0.856	0.944	0.937
χ^2 (df) in CFA Overall Measurement Model (Proposed Model)[a]	520.442 (329)					
χ^2 (df) in CFA Overall Measurement Model (Alternative Model)[b]	416.592 (284)					
χ^2 (df) in SEM (Proposed Model)[a]	559.097 (338)					
χ^2 (df) in SEM (Alternative Model)[b]	443.509 (289)					
a.The proposed model treats retail brand attachment and retail brand loyalty as separate						

constructs in the CFA and the SEM b. The alternative model treats retail brand attachment and retail brand loyalty as uni-dimensional and as one construct in the CFA and the SEM

Table 7.1b Comparison of Fit Indices for CFA and SEM for Proposed and Alternative Models for Case 2						
Level of Model Fit	**Overall Model Fit**					
	Model Fit Indices		**Model Comparison Indices**			
Fit Measures	**CMin/df**	**RMSEA**	**GFI/AGFI**	**NFI**	**CFI**	**TLI**
CFA Overall Measurement Model Fit (Proposed Model)[a]	1.755	0.061	0.842/0.805	0.836	0.921	0.909
CFA Overall Measurement Model Fit (Alternative Model)[b]	1.546	0.052	0.864/0.832	0.859	0.944	0.936
SEM Fit (Proposed Model)[a]	1.747	0.061	0.837/0.804	0.832	0.919	0.910
SEM Fit (Alternative Model)[b]	1.557	0.053	0.860/0.830	0.855	0.942	0.935
χ^2 (df) in CFA Overall Measurement Model (Proposed Model)[a]	577.207 (329)					
χ^2 (df) in CFA Overall Measurement Model (Alternative Model)[b]	439.083 (284)					
χ^2 (df) in SEM (Proposed Model)[a]	590.613 (338)					
χ^2 (df) in SEM (Alternative Model)[b]	449.864 (289)					
a.The proposed model treats retail brand attachment and retail brand loyalty as separate constructs in the CFA and the SEM b. The alternative model treats retail brand attachment and retail brand loyalty as uni-dimensional and as one construct in the CFA and the SEM						

On the basis of comparisons of Goodness-of-Fit (GOF) for either the CFA or SEM, the data in Tables 7.1a and 7.1b suggests that the alternative model offers a more credible basis for examining the SEM of associations between constructs. However, I argue that it is necessary to retain the proposed model for the examination of the hypothesised associations and the multiple-group comparisons of these associations. Fewer differences at the parameter level materialise in the more parsimonious alternative model where retail brand attachment and retail brand loyalty are treated as one construct. The more parsimonious alternative model, with its fewer associations, does not discriminate between consumer perceptions of the store design-architecture as effectively as the proposed model, I argue.

The proposed model still explains the data very well with slightly lower fit indices than the alternative model. No large standardised residuals or modification indices denoting salient localised areas of conflict, or non-uniformly interpretable parameter estimates that would warrant a respecified or alternative model are present (Hoyle 2012). I argue that the theory represented in the conceptual framework effectively interprets the survey data. If the Goodness-of-Fit (GOF) of the proposed model were not high – which is not the case in this research – then it would be necessary to respecify the proposed model with attendant theoretical implications (Schumacker and Lomax 2010).

In any event, this thesis has already employed, CFA, the first of three respecification strategies (CFA, competing and model generation) as identified by Hair et al. (2010). The CFA, of Chapter Six, produced measurement models for each of the identified constructs by deleting items one at a time, with model re-runs after each modification until conceptually sound and acceptable model fit was achieved (Schumacker and Lomax 2010). The respecification of the proposed model in this research, based on the CFA is minor in nature, I argue.

On this basis there is little reason to warrant a model respecification and a need to adopt an alternative model. The proposed model possesses similar Goodness-of-Fit (GOF) to the alternative model; the proposed model is, therefore, retained for the examination of the thesis hypotheses. The hypotheses are investigated with findings reported for both the proposed and alternative models in the next section.

7.5.2. Hypotheses Testing of Proposed and Alternative Models

The hypotheses for the proposed and alternative models examined in Tables 7.2a-7.2d for Cases 1 and 2 employ the measured constructs developed in the CFA. Examinations of the standardised regression path coefficients, critical ratio values (t-values) and probabilities generally uphold the various hypotheses.

The hypotheses that examine associations between the store specification constructs (H1-5) as presented in Tables 7.2a-d for the proposed and alternative models for Case 1 and 2 confirm that store novelty is associated with store prototype and store aesthetic preference. Store novelty in the lower-level designed store (Case 2) does not associate with store prototype perception (H1), but does associate with store aesthetic preference (H3). (Extensive discussion of these findings with reconciliation to the extant literature is provided in Chapter Eight.)

Notably, increased levels of store novelty, implied in the higher-level design in Case 1, weaken perceptions of the store prototype for hypothesis 1 (H1: t=--5.646, p>0.01 in Table 7.2a&b for the proposed and alternative models). However, the lower-level design in the Case 2 store does not evidence store novelty having an effect on the store prototype (t=-0.439, p=0.661 in Table 7.2c&d for the proposed and alternative models). Although the findings suggest that the association is negative for Case 1, I argue, that this confirms the aesthetics and not the marketing interpretation of this association. This is an important finding that I return to in the next chapter.

Similarly, hypotheses three and five are upheld. Store novelty and store prototype have significant associations with store aesthetic preference for the proposed and alternative models for Cases 1 and 2 (H3 t= 5.723, p>0.01; H5 t= 2.149, p>0.032 for the Case 1 proposed model; H3 t=9.164, p>0.01; H5 t=4.588, p>0.01 for the Case 2 proposed model) in Tables 7.2a&c.

Table 7.2a Case 1 Hypotheses Testing (Proposed Structural Model)

H	Standardised Regression Paths			Estimate[a]	S.E. [b]	C.R. [c]	P [d]	H Tested
Store Stimulus Specification Hypotheses (H1-5)								
H1 (+)	Store Novelty	→	Store Prototype	-0.742	0.131	-5.646	***	Supported
H2 (-)	Store Complexity	→	Store Prototype	Store Complexity Validity Problems – Association Not Tested				
H3 (+)	Store Novelty	→	Store Aesthetic Preference	0.807	0.141	5.723	***	Supported
H4 (-)	Store Complexity	→	Store Aesthetic Preference	Store Complexity Validity Problems – Association Not Tested				
H5 (+)	Store Prototype	→	Store Aesthetic Preference	0.173	0.080	2.149	0.032 **	Supported
Response to Store Stimulus Specification Hypotheses (H6-11)								
H6 (+)	Store Prototype	→	Retail Brand Attachment	0.024	0.089	0.267	0.790	Not Supported
H7 (+)	Store Aesthetic Preference	→	Retail Brand Loyalty	0.006	0.055	0.116	0.907	Not Supported

H8 (+)	Retail Brand Attachment	→	Retail Brand Loyalty	0.539	0.057	9.489	***	Supported
H9 (+)	Store Aesthetic Preference	→	Retail Brand Attachment	0.370	0.117	3.163	0.002 ***	Supported
H10 (+)	Retail Brand Price	→	Retail Brand Attachment	0.325	0.171	1.893	0.058 **	Not Supported
H11 (+)	Retail Brand Product	→	Retail Brand Attachment	0.693	0.169	4.104	***	Supported
a. Standardised Regression Weight Estimate Value; b.Standard Error; c. Critical Ratio; d. ***p-value < 0.01; ** p-value < 0.05; * p-value < 0.10								

Table 7.2b Case 1 Hypotheses Testing (Alternative Structural Model)

H	Standardised Regression Paths			Estimate[a]	S.E. [b]	C.R. [c]	P [d]	H Test
Store Stimulus Specification Hypotheses (H1-5)								
H1(+)	Store Novelty	→	Store Prototype	-0.743	0.132	-5.647	***	Supported
H3 (+)	Store Novelty	→	Store Aesthetic Preference	0.803	0.141	5.704	***	Supported
H5 (+)	Store Prototype	→	Store Aesthetic Preference	0.172	0.080	2.142	0.032 **	Supported
Response to Store Stimulus Specification Hypotheses (H6-11)								
H9 (+)[e]	Store Aesthetic Preference	→	Retail Brand Attachment/ Loyalty	0.183	0.071	2.576	0.010 ***	Supported
H10 (+)	Retail Brand Price	→	Retail Brand Attachment/ Loyalty	0.159	0.107	1.480	0.139	Not Supported
H11 (+)	Retail Brand Product	→	Retail Brand Attachment/ Loyalty	0.513	0.111	4.627	***	Supported
a.Standardised Regression Weight Estimate Value; b. Standard Error; c. Critical Ratio; d. ***p-value < 0.01; ** p-value < 0.05; * p-value < 0.10; e. H8 doesn't exist in the alternative model as retail brand attachment and loyalty are considered as one construct and therefore no association exits between them.								

Table 7.2c Case 2 Hypotheses Testing (Proposed Structural Model)								
H	Standardised Regression Paths			Estimate [a]	S.E. [b]	C.R. [c]	P [d]	H Tested
Store Stimulus Specification Hypotheses (H1-5)								
H1 (+)	Store Novelty	→	Store Prototype	-0.034	0.077	-0.439	0.661	Not Supported
H2 (-)	Store Complexity	→	Store Prototype	Store Complexity Validity Problems – Association Not Tested				
H3 (+)	Store Novelty	→	Store Aesthetic Preference	1.008	0.110	9.164	***	Supported
H4 (-)	Store Complexity	→	Store Aesthetic Preference	Store Complexity Validity Problems – Association Not Tested				
H5 (+)	Store Prototype	→	Store Aesthetic Preference	0.424	0.092	4.588	***	Supported
Response to Store Stimulus Specification Hypotheses (H6-11)								
H6 (+)	Store Prototype	→	Retail Brand Attachment	-0.161	0.104	-1.538	0.124	Not Supported
H7 (+)	Store Aesthetic Preference	→	Retail Brand Loyalty	0.103	0.042	2.468	0.014 **	Supported
H8 (+)	Retail Brand Attachment	→	Retail Brand Loyalty	0.623	0.068	9.115	***	Supported
H9 (+)	Store Aesthetic Preference	→	Retail Brand Attachment	0.137	0.078	1.764	0.078 *	Supported
H10 (+)	Retail Brand Price	→	Retail Brand Attachment	0.130	0.172	0.757	0.449	Not Supported
H11 (+)	Retail Brand Product	→	Retail Brand Attachment	0.970	0.176	5.502	***	Supported
a.Standardised Regression Weight Estimate Value; b. Standard Error; c. Critical Ratio; d. ***p-value < 0.01; ** p-value < 0.05; * p-value < 0.10								

Table 7.2d Case 2 Hypotheses Testing (Alternative Structural Model)								
H	Standardised Regression Paths			Estimate[a]	S.E. [b]	C.R. [c]	P [d]	H Tested
Store Stimulus Specification Hypotheses (H1-5)								
H1 (+)	Store Novelty	→	Store Prototype	-0.036	0.077	-0.460	0.646	Not Supported
H3 (+)	Store Novelty	→	Store Aesthetic Preference	1.009	0.110	9.163	***	Supported
H5 (+)	Store Prototype	→	Store Aesthetic	0.422	0.092	4.573	***	Supported

			Preference					
Response to Store Stimulus Specification Hypotheses (H6-11)								
H9 (+)	Store Aesthetic Preference	→	Retail Brand Attachment/ Loyalty	0.140	0.054	2.591	0.010 ***	Supported
H10 (+)	Retail Brand Price	→	Retail Brand Attachment/ Loyalty	0.031	0.125	0.252	0.801	Not Supported
H11 (+)	Retail Brand Product	→	Retail Brand Attachment/ Loyalty	0.730	0.134	5.464	***	Supported
a.Standardised Regression Weight Estimate Value; b. Standard Error; c. Critical Ratio; d. ***p-value < 0.01; ** p-value < 0.05; * p-value < 0.10								

An examination of the associations between store-level and retail-level constructs (H6-11) also confirms that store-level design-architecture does assume a role in perceptions of retail brand loyalty (research question two).

The store prototype construct does not associate significantly with retail brand attachment for either Case 1 or Case 2 for hypothesis six (t-values for H6 are less than 1.96 and p>0.05) for the proposed models in Tables 7.2a&c. Thus, the store prototype construct is perceived as a store-level construct and the retail brand attachment is instead perceived as a retail-level construct. Although theoretically similar, consumers relate differently to each construct.

Additionally, another important finding, and contribution to the extant literature, is evident in the strong association between store aesthetic preference and retail brand attachment/loyalty in examination of hypothesis nine in the alternative models of both stores (t=2.576, p=0.010 for Case 1; t=2.591, p=0.010) in Tables 7.2b and 7.2d. This confirms the role of store design-architecture in consumer perceptions of retail brand loyalty.

However, the proposed model also reveals more nuanced, subtle distinctions in the store aesthetic preference and retail brand loyalty, retail brand attachment association. These associations are more qualified for the proposed models than for the alternative models in Tables 7.2a&c. The more emotionally valenced (inclusive of emotional bond and automaticity properties) retail brand attachment construct has a more significant association with store aesthetic preference (hypothesis nine) for the Case 1 store than for the Case 2 store ($t=3.163$, $p=0.002$ for Case 1; $t=1.764$, $p=0.078$ for Case 2). In contrast, the arguably more behavioural valenced retail brand loyalty construct (Yoo and Donthu 2001; Yoo, Donthu and Lee 2000) evidences a strong association with store aesthetic preference for the lower level design of Case 2 ($t=0.116$, $p= 0.907$ for Case 1; $t=2.468$, $p=0.014$ for Case 2). This means that hypothesis number seven is upheld, especially for Case 2. In contrast, there appears to be no statistically significant association in Tables 7.2a&d between the higher-design in Case 1 with its higher store aesthetic preference and retail brand loyalty ($t=0.116$, $p=0.907$ for Case 1; $t=2.468$, $p=0.014$ for Case 2).

Although the retail brand attachment and retail brand loyalty constructs share a uni-dimensional structure, the analyses, I have just presented, justifies retention of the proposed model on two grounds: a) it explains different perceptions of how the store aesthetic construct is perceived across two different levels of design; and b) it explains how store aesthetic preference associates differently with retail brand attachment and retail brand loyalty depending on the level of design. On this basis, I argue that the proposed model for this thesis makes a contribution to the extant understanding of consumer perception of the role of design-architecture to retail brand loyalty. This analysis confirms that consumers who perceive higher store aesthetic preference, given the presence of higher design, are more prepared to evidence retail brand attachment, and indirectly retail brand loyalty also. (This important finding is further discussed in Chapter Eight.)

Notably, Penneys consumers appear to consider retail brand product as a greater instigator of retail brand attachment in both stores relative to the other retail-level (retail brand price construct) or store-level (store prototype, store novelty and store aesthetic preference) constructs. It would appear, on this basis that the driver of retail emotional attachment originates more from retail brand product perception in this research. The contribution of retail brand product, rather than retail brand price, to retail brand attachment and retail brand loyalty in Tables 7.2b&d is slightly stronger for Case 2. In hypothesis ten, the retail brand price and retail brand attachment association is t=1.480, p=0.139 for Case 1 and t=0.252, p=0.801 for Case 2. In hypothesis eleven, the retail brand product and retail brand attachment association is t=4.627, p>0.001 for Case 1 and t=5.464, p>0.001 for Case 2.

7.5.3. Multiple-Group Invariance Testing in the SEM

Having tested the various hypotheses, in the previous section, to determine if associations exist between the constructs, this section examines if differences exist (or do not exist) between the two levels of design in the two stores. The second research question of the thesis is thus addressed by determining whether the presence of higher-level design in Case 1 leads to a statistically verifiable association with retail brand loyalty in Case 1.

Multi-group invariance analysis is a particular form of moderation that examines whether associations or hypotheses vary depending on the values of the moderator (Williams, Vandenberg and Edwards 2009). This multi-group comparison is completed by comparing critical ratio for differences and standardised regression coefficient parameter values for each association for the higher and lower levels of design. Given the non-invariant nature of the data in this thesis, it is a recommended practice to identify the source of the non-invariance (Hair et al. 2010). As previously explained in this chapter and in Chapter Seven, non-invariance is expected and desired in this research. The analyses in this section confirm the source of the group differences by store and by association. In so doing, the identification of the source of this non-invariance also confirms the role of design-architecture in consumers' perceptions of retail brand loyalty.

The hypotheses when tested should therefore reflect differing levels of consumer discrimination of the two levels of design. For instance, Penneys' consumers in Case 1 should perceive higher novelty than Penneys consumers in Case 2 as this is deliberately represented in the Case 1 higher-level design compared to the Case 2 lower-level design. Similarly, store aesthetic preference should associate with retail brand attachment and store prototype perception to a greater extent in Case 1 compared to Case 2.

Findings for the multiple-group comparisons for the two stores, with proposed and alternative models, are presented in Tables 7.3a and 7.3b. The higher levels of store novelty on offer in Case 1 statistically weakens the perception of the store prototype in Case 1 compared to Case 2 with a z-score of -4.643 and p<0.01 for the proposed model in Table 7.3a (-4.634 z-score and p<0.01 for the alternative model in Table 7.3b). This is an important finding and means that increased introductions of store novelty need to be carefully considered (I return to this finding in the discussion presented in Chapter Eight).

Both the proposed and alternative models also identify statistically significant differences between the two store prototypes and the levels of store aesthetic preference they elicit (z-score of 2.05 and p<0.05 for the proposed model; z-score of 2.042, p<0.05 for the alternative model). The more basic and older Case 2 store prototype produces the familiarity gains and preference-for-prototypes suggested by Martindale (1984), Martindale and Moore (1988). Case 1 does not produce these same gains.

Table 7.3a Multiple-Group Comparison of Retail Brand Attachment and Retail Brand Loyalty (Proposed Model)

H	**Standardised Regression Paths [a]**			**Case 1**		**Case 2**		
				Estimate	***P***	**Estimate**	***P***	**z-score**
1	Store Novelty	→	Store Prototype	-0.742	0.000	-0.034	0.661	-4.643***
3	Store Novelty	→	Store Aesthetic Preference	0.807	0.000	1.008	0.000	1.126
5	Store Prototype	→	Store Aesthetic Preference	0.173	0.032	0.424	0.000	2.05**

6	Store Prototype	→	Retail Brand Attachment	0.024	0.790	-0.161	0.124	-1.345
7	Store Aesthetic Preference	→	Retail Brand Loyalty	0.006	0.907	0.103	0.014	1.398
8	Retail Brand Attachment	→	Retail Brand Loyalty	0.539	0.000	0.623	0.000	0.941
9	Store Aesthetic Preference	→	Retail Brand Attachment	0.370	0.002	0.137	0.078	-1.661*
10	Retail Brand Price	→	Retail Brand Attachment	0.325	0.058	0.130	0.449	-0.800
11	Retail Brand Product	→	Retail Brand Attachment	0.693	0.000	0.970	0.000	1.134

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

a.Note: there are no hypotheses for H2 & H4, the hypotheses that concern examination of complexity related associations.

Table 7.3b Multiple-Group Comparison of Retail Brand Attachment/Loyalty (Alternative Model)

H	Standardised Regression Paths [b]			Case 1		Case 2		
				Estimate	***P***	**Estimate**	***P***	**z-score**
1	Store Novelty	→	Store Prototype	-0.743	0.000	-0.036	0.646	-4.634***
3	Store Novelty	→	Store Aesthetic Preference	0.803	0.000	1.009	0.000	1.151
5	Store Prototype	→	Store Aesthetic Preference	0.172	0.032	0.422	0.000	2.042**
9A [a]	Store Aesthetic Preference	→	Retail Brand Attachment/ Loyalty	0.183	0.010	0.140	0.010	-0.369
10A [a]	Retail Brand Price	→	Retail Brand Attachment/ Loyalty	0.159	0.139	0.031	0.801	-0.773
11A [a]	Retail Brand Product		Retail Brand Attachment/	0.513	0.000	0.730	0.000	1.253

		→	Loyalty					

*** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

a.Hypotheses 9A, 10A and 11A concern investigation of the alternative model and the uni-dimensional retail brand attachment/loyalty construct.

b. Note: there are no hypotheses for H2 & H4, the hypotheses that concern examination of complexity related associations.

However, these familiarity gains accruing to Case 2 are mitigated by the benefits accruing to the Case 1 store from small retail brand attachment gains. The more favoured store aesthetic of Case 1 realises statistically moderate gains in building retail brand attachment compared to the Case 2 store. This statistical effect is, however, moderate in size. The higher-level design in Case 1 in the proposed model produces statistically different findings to the Case 2 store with a z-score of -1.661, $p<0.10$. This statistical difference is not possible to estimate in the alternative model when retail brand attachment and retail brand loyalty are defined as one construct.

Confirmation of a moderate contribution of the higher-level design to retail brand attachment, and indirectly to retail brand loyalty, in the group comparison, further (to the findings presented in the last section) upholds hypothesis nine and addresses the second research question of this thesis. This is the primary contribution to the extant literature of this thesis research.

In a more detailed examination of the differences between groups at the item level, both the proposed and alternative models propose nov2s and proto4s as the items that statistically account for most perceptual difference at the construct level (Table 7.4a & 7.4b). In the proposed model aespref2, aespref3, and aespref6 propose non-invariance in store aesthetic preference perception when the designs of both stores are compared.

This statistically verifies the items that account for the higher preferences consumers have for the Case 1 design compared to the Case 2 design. Notably, the differences are identifiable from the store specification items from store novelty, store prototype and store aesthetic preference. Consumers in Tables 7.4a&b in both stores perceive fewer item differences at the retail-level for retail brand attachment, retail brand loyalty, retail product brand and retail price brand particularly at the p<0.05 level. This confirms the ability of the conceptual framework proposed in this thesis to reflect consumer perceptions at the store-level and separately at the retail-level. The existence of non-invariance is confirmed in consumers perceptions at the store-level more than at the retail-level and, therefore, confirms that the specified store environment and its design-architecture associates, albeit moderately, to retail brand loyalty.

Table 7.4a Multiple Group Differences at Item Level: Retail Brand Attachment and Retail Brand Loyalty (Proposed Model)

Construct & Item Label[a]			Case 1		Case 2		
			Estimate	***P***	**Estimate**	***P***	**z-score**
Store Prototype	→	Proto4s	0.938	0.000	1.412	0.000	-2.422**
Store Novelty	→	Nov2s	1.385	0.000	0.924	0.000	2.31**
Store Aesthetic Preference	→	Aespref3s	1.882	0.000	1.346	0.000	1.711*
Store Aesthetic	→	Aespref6s	2.040	0.000	1.178	0.000	2.59***

Preference							
Store Aesthetic Preference	→	Aespref2s	1.760	0.000	1.158	0.000	1.937*
Retail Brand Attachment	→	Battach1r	1.505	0.000	1.145	0.000	1.903*
Retail Brand Product	→	Prod1r	0.907	0.000	0.706	0.000	1.676*
* p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01							

a. SPrototype (Store Prototype Construct); SNovelty (Store Novelty Construct); SAesPref (Store Aesthetic Preference Construct); BAttach (Retail Brand Attachment Construct); RProd (Retail Brand Product Construct).

Nov2s (the design in this store is original compared to other Penneys stores); BAttach1r (to what extent is Penneys part of you and who you are);

Prod1r (Penneys offers a good selection of products);

Aespref3 (this store is stylish);

Aespref6s (the interior of this store looks impressive);

Aespref2s (the design of this store helps me helps me to experience a pleasant time when I visit this store);

Proto4s (the design of this store is a good representation of the design one sees in all Penneys stores).

Table 7.4b Multiple Group Differences at Item Level: Retail Brand Attachment/Loyalty (Alternative Model)

Construct & Item Label[a]			Case 1		Case 2		
			Estimate	***P***	**Estimate**	***P***	**z-score**
Store Prototype	→	Proto4s	0.938	0.000	1.411	0.000	2.416**
Store Novelty	→	Nov2s	1.386	0.000	0.924	0.000	-2.308**
Store Aesthetic Preference	→	Aespref7s	0.567	0.000	0.863	0.000	2.334**
Retail Brand Product	→	Prod4r	0.938	0.000	1.411	0.000	2.414**
* p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01							

a. SPrototype (Store Prototype Construct); SNovelty (Store Novelty Construct); SAesPref (Store Aesthetic Preference Construct); RProd (Retail Brand Product

Construct). Proto4s (the design of this store is a good representation of the design one sees in all Penneys stores). Nov2s (the design in this store is original compared to other Penneys stores); BAttach1r (to what extent is Penneys part of you and who you are); Aespref7s (this store is the best design of any Penneys store I have seen); Prod4r (Penneys offers well-designed products);

7.6. End-of-Chapter Seven Summary

The structural model analyses in SEM reveal good model fit and uphold the proposed hypotheses that concern the specification of the store and how this specification results in retail brand attachment and retail brand loyalty. This research makes notable contributions to the specification of the store environment, with the modification of store prototype, store novelty, and store aesthetic preference constructs. It also demonstrates how these constructs associate with measurements of retail brand attachment and retail brand loyalty in retail-specific contexts.

This research suggests a number of specific, important findings arising from the SEM analyses. Increased store novelty does weaken perceptions of the store prototype as proposed in hypothesis number one. The store prototype as measured in this research functions at a store level only and does not influence retail-level attachment and thus hypothesis number six is rejected.

The role of store-level design-architecture is also examined in hypotheses seven and nine. The hypothesised association of store aesthetic preference with retail brand loyalty is upheld in hypothesis number seven. It appears that the higher-level of design present in Case 1 influences an emotionally valenced retail brand attachment perception more than occurs in the lower-level design (hypothesis number nine), but this effect is only noticeable at p-value <0.10. Interestingly, there is a greater identification among consumers in the lower-level design store with the more behaviourally valenced retail brand loyalty.

Notably, the non-visual retail brand product construct has a strong association with retail brand attachment (hypothesis number eleven). Retail brand product exerts a strong influence on retail brand attachment and retail brand loyalty compared to the store aesthetic preference construct association. This is perhaps to be expected in the case of a discount fashion retailer, such as Penneys, and confirms the ability of the proposed framework to contextualise the role of the store design-architecture relative to non-visual associations.

The proposed and alternative models account for significant levels of variance in the data and reasonable grounds exist to replicate this research in other retailer contexts in future. The next chapter discusses the findings of this chapter and the attendant implications of these findings for the extant literature.

Chapter Eight - Discussion of the CFA and SEM Findings

8.1. Introduction

The two research questions of this thesis examine: 1) the specification of the store environment; and 2) how the store environment assumes a role in perceptions of retail brand loyalty. Chapters Six and Seven propose some important contributions to our understanding of how consumers interpret two levels of design-architecture in the development of retail brand loyalty in the particular case of Penneys.

The findings proposed in this thesis contribute to our understanding of how the store environment is specified using revised store novelty, store prototype and store aesthetic preference constructs (research question number one). Consequently, improved measurement of these store specification constructs contribute to an improved understanding of how design-architecture assumes a role in consumer perceptions of retail brand loyalty (research question number two).

These two important contributions to the extant literature is made possible by the consideration of multiple literatures drawn from: consumer and environmental psychology (Donovan and Rossiter 1982; Donovan et al. 1994; Mehrabian and Russell 1974; Tai and Fung 1997; Gilboa and Rafaeli 2003); and aesthetics, design and architecture (Hekkert 2006; Reber, Schwartz and Winkielman 2004; Hekkert and van Wieringen 1990; Norberg-Schultz 1965; Pallasmaa 2011). These literatures and the retail branding literature (Jara and Cliquet 2012; Beristain and Zorrilla 2011; Arnett, Laverie and Meiers 2003) help to better reflect the comprehensive perceptive basis of how consumers engage with the visual characterisation of store environments. The inclusion of additional literatures has expanded the conceptual understanding of these constructs and what they measure. This also addresses the Mehrabian & Russell (1974), Donovan and Rossiter (1982), Donovan et al. (1994) limitations by enabling cognitive-emotional, global-attribute, objective-subjective discriminations to be better understood. This thesis research addresses an overt objective-bias in extant conceptualisations and measurements; it, consequently, improves the understanding of consumer processing of store design-architecture.

This chapter examines the findings of the previous chapter by discussing: a) the measurement of the various store specification constructs (store prototype, store novelty, store complexity and store aesthetic preference); and b) the associations between these store specification constructs and retail-level brand attachment, retail brand loyalty.

8.2. Research Question One (H1-5): Specification and Measurement of the Store Environment

This section of this chapter concerns discussion on the CFA measurement of perceptions of the relatively underexplored store prototype (Ward, Bitner and Barnes 1992) and store novelty, store complexity constructs (Berlyne 1970, 1971, 1974; Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Gilboa and Rafaeli 2003). It was discussed in the development of the conceptual framework in Chapter Four that the store prototype has only once previously been employed in a retail context by Ward, Bitner and Barnes (1992). Similarly, store novelty and store complexity have only been studied in particular retail contexts (Donovan and Rossiter 1982; Donovan et al 1994; Sherman, Mathur and Smith 1997; McGoldrick and Pieros 1998; Tai and Fung 1997; Gilboa and Rafaeli 2003) and without any reference to possible interactions with “meaning” constructs such as the store prototype. Therefore, few retail specific research scales are available to measure and reveal the interpretive dynamics of how attribute-level processing work in conjunction with global-level processing, a particular problem identified in retail image studies (Keaveney and Hunt 1992; Burt, Johansson and Thelander 2007).

Chapter Six confirmed successful measurement of the store prototype, store novelty, and store aesthetic preference constructs with modified scales in the examination of two levels of design for Penneys, a discount fashion retailer. Sections 8.2.1.-8.2.4. discuss the measurement of the store prototype, store novelty, and store aesthetic preference constructs and the implications of these successful construct measurements for the extant literature. The measurement difficulties involving store complexity are also discussed in Section 8.2.3.

8.2.1. Measurement of Store Prototype Perception

The final measurement model for store prototype reflects very satisfactory measurement for all GOF indices. The final measurement model modifies the existing Ward, Bitner and Barnes (1992) scale, and incorporates conceptual contributions from branding theory (Keller 1993; Aaker 1991; Yoo and Donthu 2001) and visual categorisation theory (Loken and Ward 1990; Rosch and Mervis 1975; Hampton and Gardiner 1983; Cox and Cox 2002; Ward, Bitner and Barnes 1992).

The store prototype possesses validity and is a reliable construct (Case 1 CR 0.863, AVE 0.561, MSV 0.346, ASV 0.069; Case 2 CR 0.860, AVE 0.555, MSV 0.152, and ASV 0.039)[30]. It reflects how similarity, typicality, good representation, identicality and sameness of visual characteristics are present. Together these conceptual elements of the store prototype measure the shared attributes that account for the collective meaning of the objective, formal design present in the store concept.

This is the second study to measure retail prototypicality (Ward, Bitner and Barnes 1992 is the first) and the third if retail image (Sherman, Mathur and Smith 1997) is considered. Researchers of store environments have found it difficult to explain how environments possess clear meanings where environments possess formal, objective properties at the attribute, architectural componential level and simultaneously evidence global perceptive ease at the corresponding marketing level (Keaveney and Hunt 1992). Formal approaches to advance the study of archetypes and how specific architectural affects can be programmed to achieve the desired expression (Thiis-Evensen 1987) where environmental elements are knowingly brought together into functional relations has not proven easy in architectural studies (Norberg-Schultz 1965; Jencks 1979; Preziosi 1979). The measurement of the store prototype construct adds to the extant conceptualisation of global-attribute interpretation and

[30] Data presented in this chapter is not new data. The data concerning construct reliability and validity in this chapter is represented from Table 6.18. from Chapter Six. Similarly, data referenced from SEM and invariance testing from the previous chapter is presented in this chapter also.

complements literatures that investigate symbolism, phenomenology, personality or similar to reflect subjective meanings in marketing contexts (Esberg and Bech-Larsen 2009; Kirby and Kent 2010; Joy and Sherry, 2003; Arnold, Kozinets and Handelman 2001; Kozinets 2008; Borghini et al. 2009; D'Astous and Levesque 2003; Zentes, Morschett and Schramm-Klein 2008).

The successful measurement of the store prototype construct, evident in Chapter Six, and the examination of its association with store novelty and store aesthetic preference, improves our understanding of the specification of the store environment. Therefore, this thesis with its development of the store prototype construct, addresses a need for a composite architectural and marketing construct. Its global-attribute perception reflects composite sets of shared meanings that consumers have of the store environment.

The measurement and definition of the store prototype makes initial inroads into relating the formal to the schematic and symbolic as demanded by Nasar (2002). The basis of the meaning of the store prototype, I argue, is in its typical, similar, shared meanings. The separate and integral attribute combinations, present in the store prototype, also reflect the similarity judgments upon much categorisation theory are founded (Tversky 1977). The abstraction of similarity judgments at the attribute level with appreciations of the design and architecture present in the two stores confirms how higher formal structures with corresponding marketing meanings are identified and reflect the basis of unifying order and architectural coherence properties (Norberg-Schultz 1965). The whole is either accentuated or diminished in the store prototype by integrality and separability in attribute formulations. Strong brands benefit from the presence of common, shared associations that are identified in the aesthetic content of store environments by consumers.

The importance of the store prototype with its characterisation of both aesthetic and marketing meaning notably addresses a need identified by Berlyne (1971) for ecological meaning to be present in any study of the aesthetic. This marks an important contribution of this thesis research. Both marketing and aesthetic meaning in global-attribute, objective-subjective perception is reflected in a store prototype construct that measures: a) respondent knowledge (Washburn and Plank 2002; Yoo and Donthu 2001; Yoo, Donthu and Lee 2000; Beristain and Zorrilla 2011); b) familiarity with the store design-architecture (Aaker 1991; Keller 1993; Yoo and Donthu 2001; Yoo, Donthu and Lee 2000; Washburn and Plank 2002) and; c) judgment of typicality (Loken and Ward 1990; Rosch and Mervis 1975; Hampton and Gardiner 1983; Cox and Cox 2002; Ward, Bitner and Barnes 1992). The decision to remove the "good example" item of proto3s does perhaps lessen the reflection of exemplar theory (Barsalou 1983) in the measurement of the construct, but the category membership perspective is still very evident in the remaining five items.

In addition to the successful measurement of a global, shared attribute prototype, the construct also goes further by assessing the level of similarity of the construct. This is reflective of the contributions of Hekkert, Snelders and van Wieringen (2003) and Meyers-Levy and Tybout (1989) who approach stimulus assessments from aesthetic or marketing consumption contexts and not just identification of the objective, shared attributes present in the stimulus.

The strategic brand exemplar view of category representation is similar to the prototype view with brands accounted for by specific instances of consumer identification with the brand category (Park, MacInnis and Priester 2008). As brands are perceived in particular usage contexts by consumers, these specific encounters with specific retailers at specific times also suggest how the store prototype can assume dynamic perceptive properties with comparative possibilities with different prototype manifestations in different stores. The clear definition of store prototype is confirmed in this thesis, but the weak emphasis on exemplar theory in the store prototype construct demands further research. Further research is required to refine the scale to reflect the extent that it is possible to confirm how the proposed store prototype captures exemplar or ad-hoc categorisation (Barsalou 1983).

8.2.2. Measurement of Store Novelty Perception

The revised, final measurement model for store novelty evidences very strong Goodness-of-Fit (GOF) indices for both stores. RMSEA is 0.000 for both stores. CMin is 0.675 and 0.247 for Cases 1 and 2. GFI, AGFI, TLI, CFI, and NFI all have values of over 0.90 in Cases 1 and 2. Extant definitions of store novelty reflect measurement based on contributions from the environmental psychology literature (Mehrabian and Russell 1974; Donovan and Rossiter 1982). This research broadens the conceptualisation and measurement of store novelty to include additional aesthetic and marketing perspectives of novelty (Hekkert, Snelders and van Wieringen 2003, Greenland and McGoldrick 2004).

Novelty is modified from the EFA to the CFA phases of data collection from "novel" to "novel and fresh" with resulting improvement in measurement. Items that concern "unique personality" was, for instance, dropped from the CFA. This possibly emphasises the presence of one store prototype in the minds of consumers, and the conceptual limits of what is measurable for a store novelty construct (see Appendix II for questionnaires).

The measurement of store novelty is advanced as an important contribution to the extant research. Both aesthetic and marketing conceptualisation are present in the proposed store novelty construct and conceptually broaden the extant store novelty conceptualisation beyond an objective, aesthetic measurement bias in store environments research (Donovan and Rossiter 1982; Donovan et al. 1994; Tai and Fung 1997; Gilboa and Rafaeli 2003).

Store novelty incorporates the marketing literature conceptualisations of novelty and its uniqueness, differentiation, positioning conceptualisations (Anselmsson, Johansson and Persson 2007). In so doing, store novelty affirms how aesthetic and marketing attributes together effect uniqueness (Anselmsson, Johansson and Persson 2007). The measurement of store novelty includes items that examine originality, distinguishing characteristics, novelty, freshness and innovative change. When found together these items offer a definite basis for marketing differentiation and store novelty (Hirschman 1980; Veryzer and Hutchinson 1998).

This also confirms how the implied relative newness of the store novelty construct is deemed important to aesthetic creations. Novel aesthetic information induces more pleasure (Biederman and Vessel 2006) and is thus preferred (Hekkert and Leder 2008; Leder et al. 2004; Martindale 1984, Martindale and Moore 1988, Martindale, Moore, and Borkum 1990; Page and Herr 2002; Reber, Schwarz and Winkielman, 2004; Meyers-Levy and Tybout 1989; Whitfield and Slater 1979, Whitfield 1983).

This expanded conceptualisation of store novelty (in addition to the expanded conceptualisation of the store prototype construct in the previous section) is evidence of attempts made in this thesis of including ecological, subjective interpretations in the measurement of constructs. This widening of conceptual definition of store novelty to include marketing and aesthetic interpretations, therefore, addresses an objective bias in the extant literature.

8.2.3. Measurement of Store Complexity Perception

The final measurement model for store complexity possesses satisfactory Goodness-of-Fit (GOF) indices. Store complexity, however, possesses poor R^2 parameter measurements and significant reliability, validity concerns exist in measurement of the construct. The reliability and validity concerns for store complexity are confirmed in the following statistics: Case 1 CR 0.69, AVE 0.37, MSV 0.402, ASV 0.157; and Case 2 CR 0.771, AVE 0.467, MSV 0.461, ASV 0.146. Efforts to refine measurement of the construct in the exploratory and confirmatory phases are unsuccessful.

Although it is confirmed that the measurement models for store complexity for both stores meet the desired Goodness-of-Fit (GOF), it is suggested by Williams, Vandenberg and Edwards (2009) that measurement models may not always measure what they are supposed to measure. In other words, the measurement models may not necessarily reflect the presence of reliable, high validity data. The EFA and CFA reveal significant cross-loadings, weak factor loadings and inter-item correlations, in measurement of store complexity, and are undesirable (Costello and Osbourne 2005; Netemeyer, Bearden and Sharma 2003; Ford, MacCallum and Tait 1986; Hair et al. 2010; Churchill 1979).

Consequently, it is decided to not examine the associations between store complexity and store prototypicality or store aesthetic preference in this research due to these reliability and validity measurement concerns. These associations are, therefore, unproven.

Improvements need to be made in the measurement of store complexity. Tests on the two items with the highest loadings in both stores, namely comp3s and comp4s, are the items most frequently examined in studies of complexity (Hekkert and Van Wieringen 1990; Gilboa and Rafaeli 2003; Mehrabian and Russell 1974; Donovan and Rossiter 1982; Donovan et al. 1994). These items examine the sense of; orderly-deliberate; coherent-chaotic; high or low complexity environment and are the better measuring complexity items. However, the items that examine layout, space density perceptions (comp1s, comp2s) or information loading (comp5s, comp6s, comp7s) appear to be less effective in measuring complexity (Donovan and Rossiter 1982; Donovan et al. 1994).

The presence of these problematic items in measurement of store complexity is surprising. When store complexity reflects measurement of layout, perceived spaciousness, or randomness of product displays – all terms consumers are more likely to understand – store complexity is measured, in this research, at the overall measurement level only.

Irrespective, of the difficulty of measuring store complexity, in this research, I believe that there is a credible theoretical contribution to be made by a store complexity construct. The extant literature suggests that consumers prefer designs that observe unity or order over high complexity (Veryzer 1993; Jansson, Bointon and Marlow 2003). Questions aimed at examining layout in the CFA seek to reveal how consumers adapt their purchasing behaviours based on their determinations of the complexity of the design of the store. It is, in this respect, proposed that comparisons of novel, striking architecture in Case 1, with high levels of variability among the design elements are preferred, when the design is not as complex as to be unidentifiable (Herzog, Kaplan and Kaplan 1982, Kaplan and Kaplan 1989; Nasar 2002). Successful measurement of a store complexity construct could reveal these kinds of research outcomes, I argue.

There is a credible, extant literature that reviews the concept of complexity. In this respect, future research involving a store complexity construct could reveal how a measurement of "unity in variety" could explain interpretations of aesthetic beauty toward the stimulus. In other words, future research with a store complexity construct could explain preferences for variety given the presence of maximum amounts of order (Wohlwill 1980; Hekkert and Leder 2008). The understanding of how complexity is considered in the design of a given store at both the attribute and global level (with the requisite ordering, space density management or variability) would also reveal “superadditive” gains (Veryzer 1993) when store complexity also includes situational and contextual items. Research along these lines could add greatly to the extant understanding of consumer perceptions of the store environment, I propose.

Situation and context-specific circumstances could have influenced perceptions of store complexity in this research and should be considered in future research. The size of the Case 1 store is twice the size of the Case 2 store. The associated browsing prospects of the Case 1 store based on its larger size are, I argue, enhanced also with its higher-level design. Numerous Case 2 consumers indicate that they visit the store primarily for its retail brand product and value reasons. Their mission-driven shopping approach forces them to perceive a complexity and spaciousness of store layout on this basis. Depending on the mission purpose of the shopper, more or less objective complexity present in the design may, therefore, be preferred (Bloch 1995; Bloch, Brunel and Arnold 2003). Consumers who shop for value might not welcome complex store layouts, but in other cases could enjoy “the thrill of the hunt” and evidence more hedonic responses. Both utilitarian and hedonic responses may be evident and consumers may similarly or differently respond in their levels of cognitive elaboration and accommodation of store complexity (Reber, Schwarz and Winkielman 2004). Familiarity effects, in addition,, should not be underestimated. The new Penneys design in Case 1 is one year old; Penneys design in Case 2 is a 1990s build. Products tend to be more frequently moved on the floor of the Case 1 store and together with its larger footprint, it is possibly difficult for consumers to separate the complexity of design in visual aesthetic terms from the complexity of actually shopping the store.

Related issues that concern design order, situational space density perception and context-specific issues, thus need to be addressed in the future measurement of store complexity.

8.2.4. Measurement of Store Aesthetic Preference Perception

The final measurement model for store aesthetic preference reflects satisfactory Goodness-of-Fit (GOF) measurement. The RMSEA, TLI, RMR, GFI, AGFI, NFI and CFI all exceed the desired Goodness-of-Fit (GOF) thresholds. The higher level of store aesthetic preference in Case 1 is also confirmed in the mean values of both constructs. Store aesthetic preference has a mean value of 2.32 for Case 1 (1 for strongly agree the aesthetic is present and 7 strongly disagree that the aesthetic is present) and a mean value of 4.27 for Case 2[31].

This thesis research marks the first effort to measure store aesthetic preference in a retail context. The store aesthetic preference construct, I have developed, is notable for its measurement reliability and validity (CR 0.871, AVE 0.585, 0.402, 0.206 for Case 1; CR 0.909, AVE 0.668, MSV 0.637, ASV 0.235 for Case 2) across the two levels of design in the two stores.

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[31] Mean values for all items are available in Appendix II.

Store aesthetic preference is measured in this research with Penneys consumers on the basis of pure stimulus discrimination. Items aespref1s and aespref4s are removed and improve the measurement models by only permitting aesthetic appreciation of the store environment on purely visual terms. The items aespref1s and aespref4s ("I like this store" and "the design of this store is bad") score more strongly with mean values of 3.70 and 3.52 respectively for Case 2 compared to 2.11 and 2.24 for Case 1. Case 2 consumers tend to consider the Case 2 store functional in its presentation of the aesthetic. Although they do not consider the store attractive, impressive or the best design of any of the Penneys stores they have seen, the Case 2 store design is still seen in a positive light by some Case 2 consumers.

Removal of these two items, therefore, removes possible familiarity effects evident in environmental discrimination for Case 2. Persons who like Case 2, based on its familiarity effects, also acknowledge the limitations of its aesthetic appeal, the measurement in this thesis suggests. The CFA measurement model isolates the visual association of design with store preference by excluding the possibility of how familiarity with older designs associates with aesthetic preference. The familiarity effects of older designs are thus excluded from measurement in this research although familiarity effects may be preferred (Bloch, Brunel and Arnold 2003; Bloch 1995). Numerous consumers in the Case 2 store, with its older build, expressed a liking for the Case 2 store (aespref1s), and didn't wish to say it is a bad design (aespref4s). These items are removed in the final store aesthetic preference construct and thus enable an assessment of newer and older designs to take place. The measurement of store aesthetic preference is an important contribution of this research and proves generalisable across different levels of design.

Store aesthetic preference measures as a separate, defined construct from store prototype and store novelty and does not succumb to circularity effects as proposed by Boselie (1991). The proposed scale for store aesthetic preference also reflects the everyday reality of consumer encounters with the aesthetic such as their visiting of retail stores. Much of the earlier inspiration for aesthetics studies in environmental psychology derives significant contributions from aesthetic psychology (Berlyne 1970, 1971) and not marketing considerations of aesthetics. This store aesthetic preference scale, in contrast, encompasses everyday, subjective consumer perception given its confirmation in real stores, namely Cases 1 and 2, in the Penneys retail chain. The store aesthetic preference construct, as proposed in this research, therefore, reflects consumer consumptions of the aesthetic in everyday store environments contexts. This kind of consumer-focused research has generally not frequently featured in extant environmental psychology research.

The measurement of store aesthetic preference with deletions of aespref1s and aespref4s is also consistent with Nasar's (2002) architectural conceptualisation of aesthetic preference and Cox and Cox's (2002) marketing conceptualisation of the stimulus. This confirms the successful broadening of the conceptual definition of store aesthetic preference to include other literatures and perspectives. The measurement model for store aesthetic preference, for instance, also includes the Martindale (1984), Martindale and Moore (1988), Martindale, Moore and Borkum (1990) interpretation of aesthetic preference. The emphasis on a mild pleasure arising from everyday aesthetic encounters (not artistic works) features in this measurement and possibly offers a better basis to interpret consumer perceptions of the store environment than the Berlyne pleasure or arousal constructs (this issue is further discussed in the next section of this chapter).

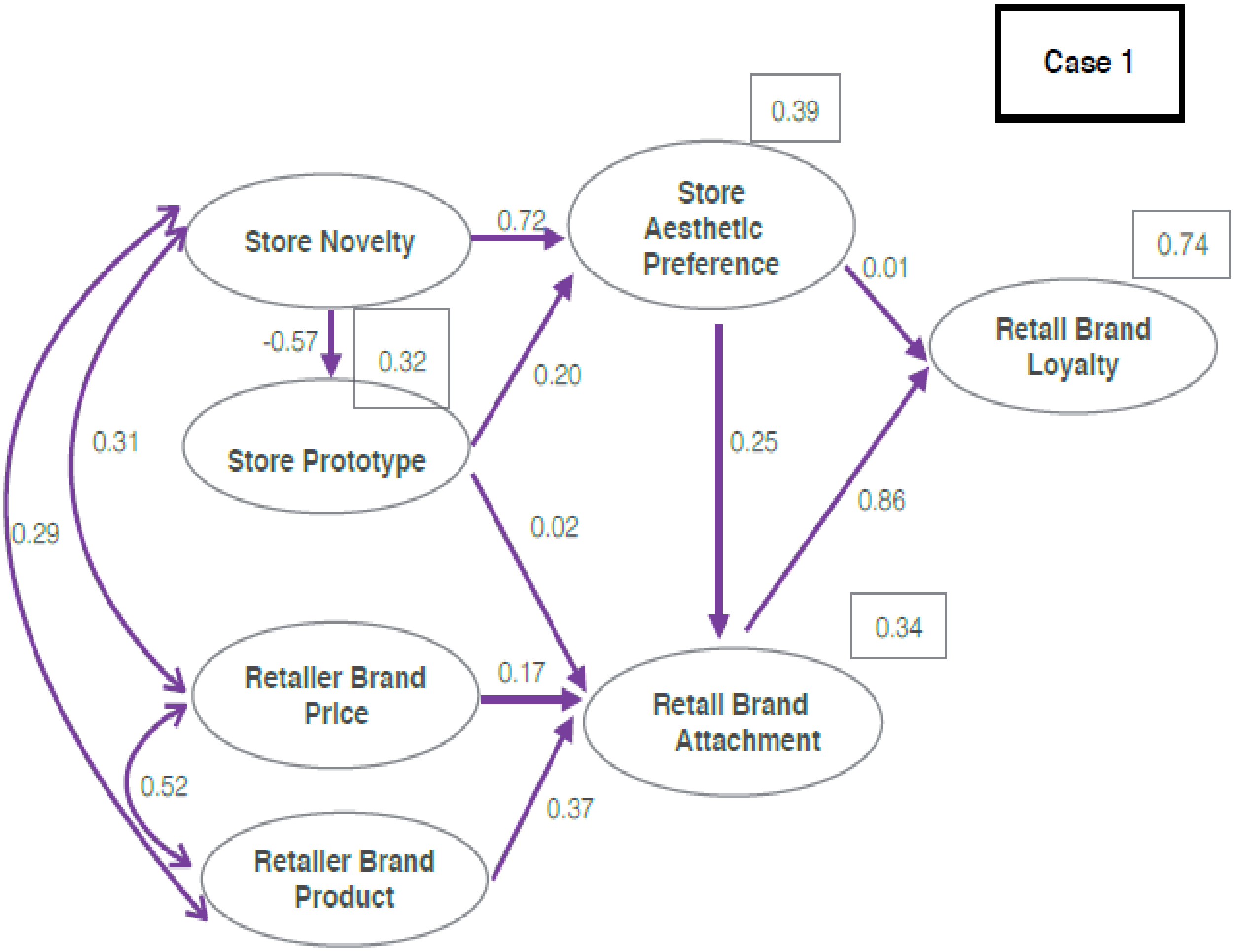
The conceptualisation and measurement of store aesthetic preference in this research also reflects other recent, mainly cognitive conceptualisations of aesthetic pleasure or preference (Hekkert 2006; Reber, Schwarz and Winkielman, 2004; Winkielman et al. 2006; Jacobsen 2006; Whitfield 2000, 2009; Charters 2006; Cupchik 2003; Hekkert and Leder 2008; Leder et al. 2004, Belke et al. 2010). This measurement of store aesthetic preference, therefore, makes another important contribution to the specification of the store environment by incorporating a more cognitive interpretation of design-architecture in the measurement of store aesthetic preference.

8.3. Research Question One (H1-5): Structural Associations between the Store Specification Constructs

The CFA presented in Chapter Six for the two stores produces successful Goodness-of-Fit (GOF) for the specified store environment constructs (store prototype, store novelty, store complexity and store aesthetic preference) and is within the acceptable limits outlined by Byrne (2001), Hair et al. (2010) and Tabachnick and Fidell (2007). The RMSEA for some of the constructs is higher than the 0.08 value threshold, but the measurement of these constructs is encouraging given the very limited use of them in the extant research.

The encouraging CFA measurement of the store specification constructs is also followed through into the SEM investigation of their hypothesised associations. The visual depiction of the structural associations in the two proposed models for Case 1 and 2 in Figures 8.1 and 8.2 reveals that the store specification constructs of store prototype, store novelty and store aesthetic preference can account for significant amounts of variance. For instance, variance for thirty-two percent of store prototype, thirty-nine percent of store aesthetic preference, and seventy-four percent of retail brand loyalty in Case 1 is explained for the proposed model. Differences also exist in the variance explained by store prototype and store aesthetic preference for each store when comparisons are made between Case 1 and Case 2.

Figure 8.1. Standardised Regression Weights of Proposed Model of Case 1

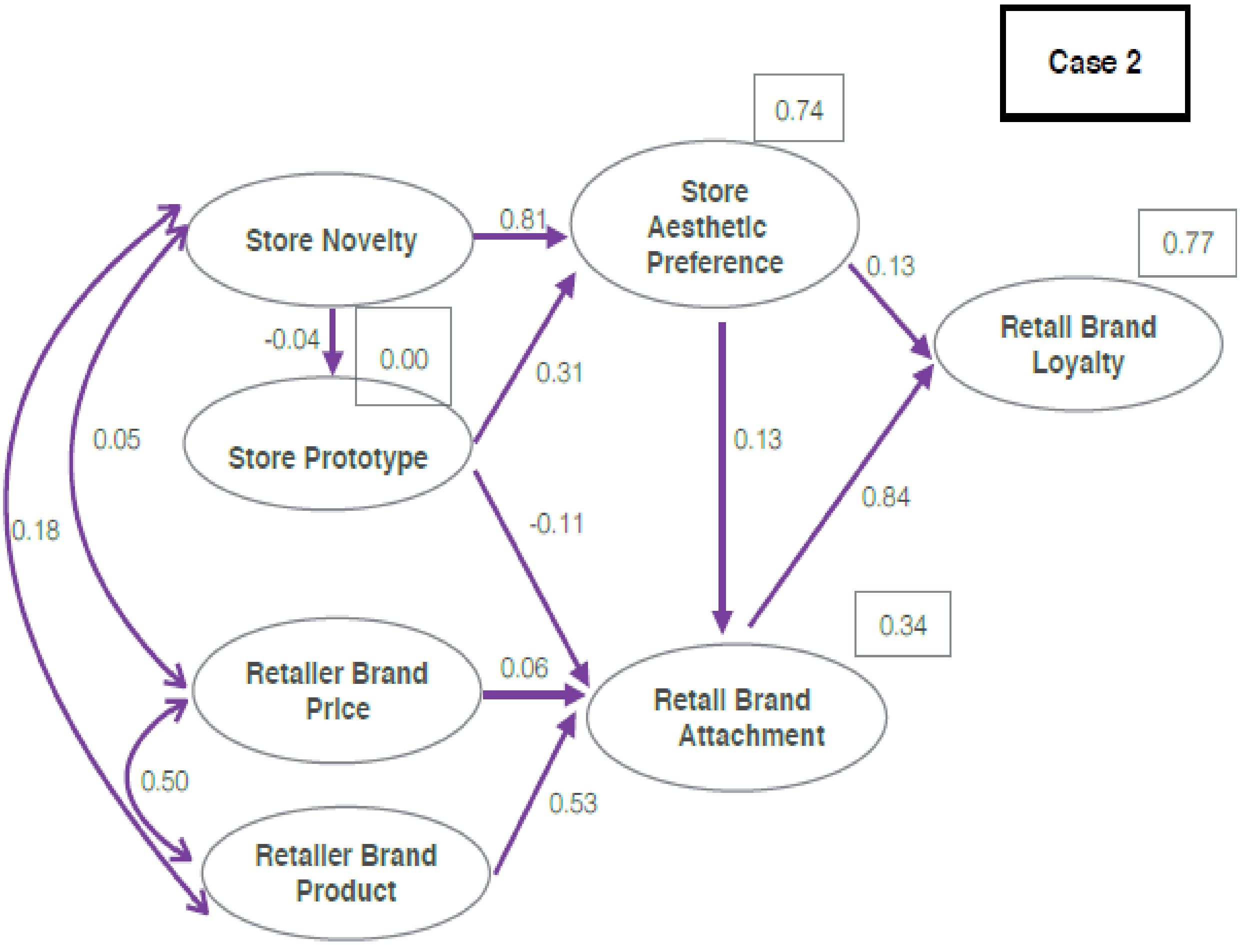


Notable differences are apparent across the different levels of design where the higher store novelty in Case 1 is strongly and negatively associated with the Case 1 store prototype (Proposed Model - Case 1 B-value -0.742, S.E. 0.131, t-value -5.646, p<0.01; Case 2 B -0.034, S.E. 0.077, t-value -0.439, p=0.661)[32]. A weaker store prototype (with the introduction of increased store novelty) is also more likely to be associated with store aesthetic preference in Case 1 (Proposed Model - Case 1 B-value 0.173, S.E. 0.08,

[32] Data represented from Table 7.2a-7.2d.

t-value 2.149, p=0.032; Case 2 B 0.424, S.E. 0.092, t-value 4.588, p<0.01 (see Tables 7.2a-7.2d).

Figure 8.2. Standardised Regression Weights of Proposed Model of Case 2



8.3.1. H1: Novelty is Positively Associated with Store Prototype Perceptions Mixed Support

The SEM findings confirm a store novelty-prototype association where increased perceptions of store novelty in the Case 1 store correspond with weaknesses in the store prototype identification of the same store (Table 8.1.). The testing of the associations between store prototype and store novelty in this thesis confirms a need for retailers to consider changes in design-architecture to strengthen identifications with the store prototype.

This finding is further confirmed in multiple-group non-invariance tests that statistically confirm differences in store novelty and store prototype perception between the two levels of design in the two stores. The higher level of store novelty in Case 1 has a negative association with store prototype and, therefore, weakens consumer identification with the Case 1 store prototype (a z-score of -4.643 and $p<0.01$ for the proposed model; -4.634 z-score and $p<0.01$ for the alternative model). In contrast, the Case 2 store, owing to its basic design, which is closer to the traditional, widely prevalent Penneys store prototype, does not evidence perceptions of store novelty that change the identification with the store prototype.

The confirmation of separate dimensionality of the store prototype and store novelty constructs also reflects that consumers identify and perceive new design as congruous or incongruous to the existing store prototype. Being able to perceive design as congruous or incongruous to the store prototype is an important finding. For possibly the first time, it allows academics to understand consumers' perceptions for new designs, and how new designs may differentially impact on the store prototype. It could assist retail architects to advance designs with sufficient store novelty that are aesthetically preferred for their novelty but also achieve the requisite atypicality to secure differential positioning (Meyers-Levy and Tybout 1989). Penneys, for instance, could introduce more novel designs that are preferred, and achieve a positioning and differentiation at the value end of the fashion market that is atypical from competitors with consequent brand awareness advantages.

This weakening of store prototype perception upon introductions of increased store novelty is interestingly more similar to the aesthetic (Hekkert, Snelders and van Wieringen 2003) and not the marketing interpretation (Ward and Loken 1988; Meyers-Levy and Tybout 1989) of the store novelty-prototype association. This research does not confirm the marketing understanding of the store prototype-novelty association by Meyers-Levy and Tybout (1989) and Ward and Loken (1988).

Table 8.1. Store Novelty and Store Prototype Structural Association

H	**Response to Store Stimulus Specification**			**Case 1**	**Case 2**	**Case 1**	**Case 2**
				Proposed	**Proposed**	**Alternative**	**Alternative**
1	Store Novelty	→	Store Prototype	Supported (Aesthetics Perspective)	Not Supported	Supported (Aesthetics Perspective)	Not Supported

Increased store novelty does not positively induce atypicality in this research. At least, in the short-term (consumers are possibly still becoming accustomed to the higher-level design in Penneys), these findings support the aesthetics viewpoint that the newer, higher-level design makes the store prototype weaker and less familiar to consumers. Strictly speaking, this of course means that hypothesis one should be rejected. I argue, however, that although the direction of the association is negative in this research that, fundamentally, the presence of a strong association is confirmed for the higher-level design and not for the lower-level design. The store novelty-prototype association is theoretically consistent, therefore, and presents on the basis of aesthetic conceptualisations of the association.

8.3.2. H2: Complexity is Negatively Associated with Store Prototype Perceptions Untested

This association is not tested due to concerns over the reliability and validity measurement of the store complexity construct as discussed in Chapter Seven.

Table 8.2. Store Complexity and Store Prototype Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
2	Store Complexity	→	Store Prototype	Untested	Untested	Untested	Untested

8.3.3. H3: Novelty is Positively Associated with Store Aesthetic Preference Supported

The store aesthetic preferences construct measures satisfactorily for reliability and validity. As a store specification construct, it also enables perception of the aesthetic in both high-level and low-level design contexts (Table 8.3.). The presence of stylishness, attractiveness, impressiveness and design rating items in the measurement scale enable these novelty comparisons of higher and lower levels of design in this thesis.

Table 8.3. Store Novelty and Store Aesthetic Preference Structural Association

H	**Response to Store Stimulus Specification**			**Case 1 Proposed**	**Case 2 Proposed**	**Case 1 Alternative**	**Case 2 Alternative**
3	Store Novelty	→	Store Aesthetic Preference	Supported	Supported	Supported	Supported

This thesis reflects an updating of the SOR model with a more cognitive reconceptualisation of the emotional response to the store environment. More novel store designs can lead to a liking or store aesthetic preference based on pure stimulus discrimination and without mediating retail brand associations. The store aesthetic preference scale, therefore, functions effectively at the store-level.

This examination of consumer perceptions of the store versus the retail-level interpretation of the specified store environment marks another notable contribution from this research. These particular findings demonstrate that store novelty is associated with store aesthetic preference and also reveals relational, possibly appraisal-like dynamic processes taking place at the store-level (Whitfield 2000, 2009).

This means that consumers identify a distinct role for the design-architecture of stores and this can be measured using the store aesthetic preference construct. Store novelty is strongly associated with store aesthetic preference for the Case 2 store as well as the Case 1 store, however. This is perhaps surprising. The lower-level designed Case 2 store, with its lower-level of store novelty, is also strongly aesthetically preferred, the data suggests. This could further confirm the preference-for-prototypes hypothesis of Martindale (1984), Martindale and Moore (1988), Martindale, Moore and Borkum (1990) where less store novelty implies the presence of greater store familiarity. Case 2, with lower novelty, higher prototype familiarity is still preferred by Case 2 consumers. Consumers in the Case 1 store, may, in contrast, prefer the newer Case 1 design because of its relative newness.

Multiple-group testing of the differences between store novelty and store aesthetic difference are also not suggestive of statistical differences being present. Statistical differences are not evident in preferences for the higher-level Case 1 store with its higher store novelty over preferences for the Case 2 store. This means that care must be taken in the introductions of store novelty: designers and architects may need to consider the appraisal trade-offs that take place between the preferences for newness and the competing preferences for familiarity retention. Newness may not be preferred for newness sake, this research suggests.

8.3.4. H4: Complexity is Negatively Associated with Store Aesthetic Preference Untested

This association is not tested due to concerns over the reliability and validity measurement of the store complexity construct as discussed in Chapter Seven.

Table 8.4. Store Complexity and Store Aesthetic Preference Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
4	Store Complexity	→	Store Aesthetic Preference	Untested	Untested	Untested	Untested

8.3.5. H5: Store Prototype Perceptions are Positively Associated with Store Aesthetic Preference Supported

Store prototype perceptions assume an important role in explaining store aesthetic preference in the specification of the store environment. The differences of perceptions across the proposed and alternative models for both stores confirm statistically significant differences between the two store prototypes and the level of store aesthetic preference they elicit (multiple group comparisons of two stores with z-score of 2.05 and $p<0.05$ for the proposed model; z-score of 2.042, $p<0.05$ for the alternative model).

Consumers prefer what they become familiar with and this is confirmed in the surprisingly numerous consumers who prefer the older, lower-level Case 2 design as well as the newer, higher-level Case 1 design . Notably, the SEM is able to discriminate between the presence of higher and lower levels of store novelty, stronger and weaker store prototypes and how these perceptions vary with perceptions of store aesthetic preference.

Table 8.5. Store Prototype and Store Aesthetic Preference Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
5	Store Prototype	→	Store Aesthetic Preference	Supported	Supported	Supported	Supported

The confirmation that there is a store prototype-store aesthetic preference association, in Table 8.5, is an important contribution to store environments research. Confirmation of the presence of this association confirms the applicability of preference-for-prototypes theory from the aesthetics psychology literature (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990). The inclusion of these theoretical perspectives in the SOR model widens the appeal of the SOR, to what in effect becomes an evolved SOR theory. This evolved SOR, therefore, integrates or absorbs prototypes theory to reflect a more aesthetics and marketing conceptualisation (Loken and Ward 1987, 1990; Loken, Joiner and Peck 2002; Nedungadi and Hutchinson 1985; Ward and Loken 1988). It assumes, in this respect, more dynamic processing in explaining: representativeness; global-attribute meaning; and what accounts for a commonly held image of the store in consumers' minds (Joiner 2007; Park, MacInnis and Priester 2008; Martineau 1958; Keaveney and Hunt 1992; Barsalou 1983; Whitfield 2009).

The measurement of store aesthetic preference in this thesis observes a more cognitive bias. In common with recent evolutions in aesthetics theory, it implies mild emotional and physiological interpretations by consumers (Bitner 1992; Baker et al. 2002; Holbrook 1980; Hekkert 2006; Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990; Reber, Schwarz and Winkielman 2004). This is further evidence of attempts, in this thesis, to improve the extant literature on the perceptive processes employed by consumer in their processing of store environments. By evolving the SOR model of store environments, to include these contributions, this thesis research overcomes some difficulties frequently encountered in the restrictive applications of the Berlyne inspired biological-arousal theory to store environments research (Berlyne 1971; Donovan and Rossiter 1982; Donovan et al. 1994).

This thesis research arguably circumvents the cognitive-emotional response conundrum with this more cognitive definition of the store aesthetic preference to the store environment. Consumers can indicate whether they prefer the store design on the basis of pure stimulus discrimination. It is perhaps easier to answer these cognitive questions compared to the Mehrabian and Russell (1974) arousal-scaled questions. Questions in the Mehrabian and Russell (1974) scale ask whether consumers feel "jittery" or "dull", among other questions, and may be difficult for consumers to answer. The store aesthetic preference construct, therefore, proposes to more effectively mediate perceptions of the store prototype, or other store specification constructs, than the use of pleasure, biological-arousal, or emotional response constructs.

8.4. Research Question Two (H6-11): Measurement of Retail Brand Loyalty and Other Consumer Responses to the Specified Store Environment

This section of this chapter discusses the measurement of the retail-level brand attachment and brand loyalty constructs. This is the first time, to this authors knowledge, that the brand attachment scale, developed by Park et al. (2010), is employed in a retail context. Similarly, the Yoo and Donthu (2001), Yoo, Donthu and Lee (2000) brand loyalty construct has only with a few exceptions been previously employed in retail studies. Chapters Six and Seven confirm these constructs, together with the retail brand product and retail brand price constructs, evidence the presence of satisfactory measurement and associations with store-level constructs. The contributions of this thesis to the limited extant knowledge of consumers processing of store-level design-architecture and its role in consumer perception of retail brand loyalty are evident in this section.

8.4.1. Measurement of Retail Brand Attachment Perception

This is the first research to confirm the measurement potential of the Park et al. (2010) brand attachment construct in a retail context. Its successful measurement enables new association testing in consumer discriminations of the store environment. The retail brand attachment scale absorbs a range of attitudes, personality, relationship, phenomenology theory in its conceptualisation and measurement (Fournier 1997; Morgan and Hunt 1994; Chaplin and John 2005; Fedorikhin, Park and Thomson 2008; Park, MacInnis and Priester 2006, 2008).

The final CFA measurement model proposes an alternative model, with uni-dimensional measurement of the retail brand attachment and retail brand loyalty constructs. Although the RMSEA, RMR values are slightly higher than required, the other Goodness-of-Fit (GOF) indices meet required thresholds.

One automaticity item and one emotional item (battach2r and battach4r) are deleted from the measurement of the brand attachment/loyalty construct for the alternative model. The improvement in fit is obtained notably with the removal of battach2r. Together with battach1r (not deleted), battach2r reflects the emotional connection that consumers have with the Penneys brand. The removal of the battach4r item also removes one of the two automaticity items for brand attachment. (Automaticity implies the front-of-mind awareness and cognitive processing of consumers as they relate to the Penneys brand.)

The store prototype and retail brand attachment constructs share some conceptual similarities and differences. Arguably, conceptual differences exist between Aaker (1991) and Keller's (1993) conceptualisations of consumer-based brand equity. Specifically, differences may exist between them on whether brand salience – as a product of awareness and association – predicts loyalty or is the outcome of loyalty. I argue that applications of the consumer-based brand equity literature, in retail contexts, explain how rich and accessible memory networks promote store prototypicality (given its design-architecture) and its attendant salience advantages. This means that the consumer-based brand equity literature when interpreted specifically in retail contexts could explain how cognitive thoughts and feelings toward the store also reconcile into aggregated retail-level perceptions of one's attachment or relationship with the retail brand.

The measurement of the retail brand attachment construct potentially offers other possibilities in adding to the extant literature on store environments research. Examinations of the associations between retail brand attachment and store aesthetic preference, for instance, also reflect contributions from a host of symbolism, personality, phenomenology, relationships and attitudes theory (Fournier 1997; Morgan and Hunt 1994; Chaplin and John 2005; Fedorikhin, Park and Thomson 2008; Park, MacInnis and Priester 2006, 2008). Retail brand attachment in reflecting contributions from these literatures assumes a very global character. It reflects and explains the multiple perceptive processes at work in building retail brand loyalty and benefits this research.

8.4.2. Measurement of Retail Brand Loyalty Perception

The measurement model of retail brand loyalty, with only three items from the Yoo and Donthu (2001), Yoo, Donthu and Lee (2000) scale, is just-identified. No measurement of Goodness-of-Fit (GOF) indices is produced in measurement of retail brand loyalty under these circumstances. Therefore, the only way to produce fit statistics in measurement of retail loyalty is with a combined retail brand attachment/loyalty construct that includes the four Park et al. (2010) retail brand attachment items and three Yoo and Donthu (2000) items.

The measurement model to emerge for the combined retail brand attachment and retail brand loyalty construct confirms satisfactory Goodness-of-Fit (GOF), although RMSEA is slightly elevated for Case 1. The confirmation of the measurement of retail brand attachment/loyalty adds further to a limited literature of empirical measurement of consumer-based brand equity in retail specific contexts (Jara and Cliquet 2012; Kim and Kim 2004; Arnett, Laverie & Meiers 2003; Jinfeng and Zhilong 2009; Beristain and Zorrilla 2011; Pappu and Quester 2006).

The measurement of the Yoo and Donthu (2001), Yoo, Donthu and Lee (2000) retail brand loyalty scale, I argue, is also more behavioural in its measurement. The retail brand attachment construct, in contrast, is more emotionally valenced in its measurement. Two of the three retail brand loyalty items are arguably behavioural and not attitudinal in nature. Consumers are asked if they consider the retailer as a "first choice" or "most frequently" shopped choice and I argue that these items are behaviourally valenced items. In the past, some authors have defined loyalty behaviourally (Bloemer and Odekerken-Schroder 2002; Oliver 1997; Tranberg and Hansen 1986) or attitudinally (Chaudhuri and Holbrook 2001; Yang and Peterson 2004; Yoo and Donthu 2001). I acknowledge that my conceptualisation of retail brand loyalty is at odds with Yoo and Donthu (2001) who believe the construct is more attitudinal. I argue that my measurement approach to retail brand loyalty is more consistent with reflecting behavioural outcomes in the context of this research.

It is demonstrated in Section 8.5. that the behaviourally-valenced retail brand loyalty and emotionally-valenced retail brand attachment constructs better reflect consumer discriminations between lower and higher level designs. Lower level designs, being more functional in nature, induce more behavioural responses with a retail brand loyalty construct. Correspondingly, a higher-level design, such as in Case 1, induces a greater association with the more emotionally valenced retail brand attachment construct. This is the theoretical basis for assuming behavioural and emotional perception of retail brand loyalty and retail brand attachment, I propose, in this research.

8.4.3. Measurement of Retail Brand Product Perception

The parameter values in measurement of retail brand product for the final measurement model are satisfactory (based on deletion of prod2r and the employment of modification indices in generation of the Goodness-of-Fit (GOF) indices). The RMSEA values are slightly elevated, but the other fit indices, especially for Case 1, meet the desired thresholds[33].

Retail brand product items were developed with the assistance of Penneys management. Although the Cmin is above 3.0 and the RMSEA is above the required 0.08 threshold value, the retail brand product is still employed based on its theoretical contribution.

There could be other items perhaps from a perceived quality scale, such as Yoo and Donthu's (2001) perceived quality scale, that were not asked, and if they were included that could help to better measure the retail brand product construct. Conceivably, given the mean scores of 3.49, 3.50 for prod2r for Case 1 and Case 2 as against overall mean values for the construct of 2.59, 2.56 there is a perceived quality issue in consumers' product evaluations.

Additional items or alternatively a separate perceived quality construct, on this basis, may need to be employed in similar research in future. However, I argue that the retained items in this research reflect product consumption in the specific context of Penneys, a discount fashion retailer. No alternative scales for retail brand product are available, to this author's knowledge, for the discount fashion retail sector. This research, therefore, marks a contribution to measurement of retail brand product consumption in this context.

[33] Note the measurement model for the initial four-item product scale evidences poor Goodness-of-Fit (GOF). This is primarily due to prod2r. When prod2r is deleted the measurement model succumbs to just-identified status and does not produce Goodness-of-Fit (GOF) indices. Retail brand product cannot, unlike retail brand loyalty and retail brand attachment, be measured with other constructs in this research.

8.4.4. Measurement of Retail Brand Price Perception

The measurement model for retail brand price perception in this research is based on the Jara and Cliquet (2012) price perception scale. The Jara and Cliquet (2012) scale, it should be noted, is employed in investigations of the retail brand equity literature. When item price2r is deleted, model fit is found to improve to the necessary thresholds for Case 2, but the RMSEA for Case 1 remains slightly elevated.

It appears as if consumers when asked if Penneys prices are competitive (price2r) may instead want to say that prices are actually lower than competitors (price3r). Thus, consumers at the time the question was posed to them, may have believed that they were not going to have the opportunity to say prices were lower than competitors. Prod2r is, therefore, deleted in the measurement of retail brand price.

8.5. Research Question Two (H6-11): Structural Associations between the Store Specification Constructs and Retail Brand Loyalty

This section reviews if and how the specified store environment (store prototype, store novelty, store aesthetic preference) assumes a role in consumer perceptions of retail brand loyalty. It helps to identify if the store-level aesthetic evidences associations with retail brand attachment and retail brand loyalty relative to non-visual determinants such as retail brand product or retail brand price.

The relative associations of retail brand product and retail brand price to retail brand loyalty has traditionally been high in Penneys, a discount fashion retailer. Or at least the deliberate emphasis in Penneys strategy of using different levels of store design-architecture to enhance the customer experience appears to be more of a recent strategy emphasis (Associated British Foods 2012). Traditionally, most emphasis has instead focused on retail brand product and retail brand price perception in their business. This research establishes that retail brand product perceptions are more important than retail brand price perceptions in their associations to retail brand attachment or retail brand attachment/loyalty. This non-visual association of retail brand product with retail brand attachment is also stronger than a relatively mild association that exists between store aesthetic preference and retail brand attachment.

8.5.1. H6: Store Prototype Perceptions is Positively Associated with Retail Brand Attachment

Store prototype perception does not associate significantly with retail brand attachment for either store (Table 8.6.). Figures 8.1-8.2, illustrated earlier in this chapter, propose that the standardised regression weights possess weak values for the store prototype to retail attachment association in comparison to other associations in the SEM. The store prototype and retail brand attachment association has not to this authors knowledge been examined before.

Table 8.6. Store Prototype and Retail Brand Attachment Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
6	Store Prototype	→	Retail Brand Attachment	Not Supported	Not Supported		

This weak association possibly demonstrates how the presence of typical, similar designs associates directly with store aesthetic preference and indirectly with retail brand attachment. No direct association between store prototype and retail brand attachment is observed. I argue that this could demonstrate that the cognitive inspired processing of the store-level prototype is distinct from responses to the emotionally valenced retail-level brand attachment construct.

The store prototype, similarly to the retail brand attachment construct, references awareness and association properties in its conceptualisation. Where associations at the attribute and global levels are judged typical, similar or shared, these associations simultaneously produce preference, bonding and self-referent abstractions at a retail (and global) brand attachment level. Perhaps the reason for why the store prototype and retail brand attachment association is not supported directly is accounted for by separate store-level and retail-level discriminations?

The store prototype construct shares some characteristics in common with brand awareness and brand attachment, but only at the store level. Retail brand attachment in its measurement of automaticity and emotive bond properties implies the effort of consumers to process environmental information and to evidence self-connection and brand prominence responses (Park et al. 2010; Park, MacInnis and Priester 2006, 2008; Thomson, MacInnis and Park 2005). These responses reveal a host of sensory, aesthetic, hedonic gratification and schema referenced thoughts and feelings toward the brand, but indirectly through a construct such as store aesthetic preference and not directly from the store prototype. Retail brand attachment is thus more expansive in its conceptualisation compared to the store prototype. Although the store prototype builds awareness prospects, it is a construct such as store aesthetic preference that is instead more likely to evidence stronger associations with retail brand attachment.

This research, therefore, confirms that brand awareness and salience is attained on the basis of the ease and frequency that store prototype connections become part of one's memory at the store level and simultaneously emotional at the retail brand attachment and retail brand loyalty level. However, no direct association between these store and retail-level constructs is found to exist.

8.5.2. H7: Store Aesthetic Preference is Positively Associated with Retail Brand Loyalty Mixed Support

Although it has not proven possible to develop a measurement model for retail brand loyalty due to its just-identified status, a defence for the separation of the two constructs is made on the grounds that: a) the overall model fit for the SEM is satisfactory and not very different for either the proposed or alternative models; and b) constructs such as store aesthetic preference have stronger associations with retail brand attachment and not retail brand loyalty for higher-level designs.

The SEM for the proposed and alternative models confirms that the association between store aesthetic preference and retail brand loyalty is supported for the Case 2 store only (with its lower-level design). In contrast, a strong association is evident between store aesthetic preference and retail brand attachment for the Case 1, but less so (at the 10% probability level) for the Case 2 store (Table 7.2a&c). Invariance testing of the store aesthetic preference to retail brand attachment association confirms statistically significant differences in this perception. The higher-level design is preferred perceptively differently for the proposed model (z-score of -1.661 and p<0.10 for the proposed model).

Table 8.7. Store Aesthetic Preference and Retail Brand Loyalty Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
7	Store Aesthetic Preference	→	Retail Brand Loyalty	Not Supported	Supported		

Invariance testing also reveals that there is no statistically significant difference between the store aesthetic preference and retail brand loyalty association for the proposed model. This means that when the retail brand loyalty and retail brand attachment constructs are kept separate in the proposed model the z-score of 1.398, p>0.05 confirms a non-significant difference on the store aesthetic preference to retail brand loyalty association.

This means that the store aesthetic preference construct is found to associate more strongly with retail brand attachment for the higher-level design and retail brand loyalty for the lower-level design. It essentially confirms the role of higher store design-architecture in consumer perceptions of retail brand loyalty when mediated by retail brand attachment.

I justify retention of the proposed model in this research on the grounds of this ability to parse consumers' responses to the store aesthetic preference construct. The more parsimonious alternative model with a uni-dimensional retail brand attachment/loyalty measurement model is not able to discern differences in consumers' perceptions of the higher and lower levels of design. No statistically significant differences are found for the store aesthetic preference and retail brand attachment/loyalty association in the alternative model (z-score of -0.369 and p>0.05). Although the variance explained is notably inflated and higher when brand attachment is treated separately to brand loyalty in the SEM, there is still a credible basis for retaining the more discriminating proposed model.

This is to this author's knowledge the first time this association has been examined in the literature. This research raises some interesting areas for future research surrounding how consumers employ a store aesthetic preference in their determination of either emotional (retail brand attachment) or behavioural (retail brand loyalty) responses when the Park et al. (2010) and Yoo and Donthu (2001), Yoo, Donthu and Lee (2000), scales are employed.

8.5.3. H8: Retail Brand Attachment is Positively Associated with Retail Brand Loyalty Supported

The association between retail brand attachment and retail brand loyalty is supported for Case 1 and 2 in the proposed model (Table 8.8.). The SEM suggests that 74% and 77% of variance for retail brand loyalty is explained for Case 1 and Case 2 respectively in the proposed model (see Figure 8.1 and 8.2 earlier in this chapter). In contrast, when the association between retail brand attachment and retail brand loyalty is examined in the alternative model (with one, uni-dimensional construct) the variance explains 34% and 38%[34].

Table 8.8. Retail Brand Attachment and Retail Brand Loyalty Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
8	Retail Brand Attachment	→	Retail Brand Loyalty	Supported	Supported		

This is to this author's knowledge the first time the retail brand attachment and retail brand loyalty association has been examined. The previous section provided rationale for why the proposed model with separate treatments of retail brand attachment and retail brand loyalty constructs should be retained in this thesis research. I justify retention of the proposed model due to its ability to explain the differences in store aesthetic preference and retail brand attachment, retail brand loyalty association across the two-levels of design. I propose that retail brand attachment is more

[34] The Alternative SEM for Cases 1 and 2 are provided in Appendix V.

emotionally valenced and retail brand loyalty is more behaviourally valenced in its measurement. Retaining these constructs, separately, in the proposed model, enables these kinds of cognitive and emotional discriminations of the store environment.

Additionally, the retail brand loyalty construct is more similar (than the retail brand attachment construct) in its measurement to the approach-avoidance construct traditionally employed in store environments research (Donovan and Rossiter 1982; Donovan et al. 1994). The retention of a retail brand loyalty construct as a response construct in the SEM, therefore, allows for comparison of these findings to the extant research. This research complements and adds to this extant environmental psychology research.

8.5.4. H9: Store Aesthetic Preference is Positively Associated with Retail Brand Attachment Mixed Support

The findings from hypothesis number nine, as previously indicated in this chapter, reveal that where a higher-level design is used in Case 1, there is an association with the more emotionally valenced retail brand attachment construct. The lower-level design, in contrast, does not have a strong association with retail brand attachment. The higher-level design in Case 1 proposes statistically significant differences in multiple-group invariance testing for the store aesthetic preference and retail brand attachment association with a z-score of -1.661 significant at $p<0.10$. This multiple-group comparison, it should be noted, only evidences a weak statistically significant difference at the $p<0.10$ level.

This is an important finding in this research. This finding further substantiates that higher-level designs reflect the existence of the bonds or attachments that consumers have with their brands (Park et al. 2010). In relative terms, the store aesthetic preference to retail brand attachment association in the higher-level design is, however, small relative to the size of the retail brand product association with retail brand attachment and brand loyalty (see Figures 8.1 and 8.2). Hypothesis number nine is consequently supported for the higher-level design in Case 1, but not supported for the lower-level Case 2 design (see Table 8.9.).

Table 8.9. Store Aesthetic Preference and Retail Brand Attachment Structural Association

H	Response to Store Stimulus Specification			Case 1 Proposed	Case 2 Proposed	Case 1 Alternative	Case 2 Alternative
9	Store Aesthetic Preference	→	Retail Brand Attachment	Supported	Not Supported		

The finding that store aesthetic preference in higher design contexts associates more strongly with retail brand attachment is also discussed in Section 8.5.2. and possibly explains the symbolic connections that exist between consumers and their brands. The formal properties of the preferred design can help consumers to satisfy key aspects of the self: a) pleasing and comforting to the self; b) enriching to the self; and c) and enabling of the self (Park, MacInnis and Priester 2006). This characterises a level of perceptual-sensory aesthetics where the brand pleases and comforts the consumer by providing sensory, hedonic and aesthetic pleasure (Park, MacInnis and

Priester 2006). This processing dynamic could underpin the emotionally valenced store aesthetic preference and retail brand attachment association.

The existence of this association establishes also how consumers' store-level and retail-level processing takes place. It explains how a cognitively valenced store aesthetic preference construct associates with an emotionally valenced retail brand attachment construct at the store and retailer levels. The demonstration of a store-retail and cognitive-emotional association between these constructs is a notable finding particularly in light of the failure of the store-level prototype construct to associate with retail brand attachment (hypothesis six).

8.5.5. H10 and 11: Retail Brand Product and Retail Brand Price is Positively Associated with Retail Brand Attachment Supported (Product) and Unsupported (Price)

Retail brand product rather than retail brand price also appears to have a stronger association with retail brand attachment for both stores. Few existing scales and extant research are available to examine retail brand product and retail brand price perceptions. Consequently, no examinations in the extant literature of retail brand price and retail brand attachment associations are currently available. This research adds to the extant knowledge of how retail brand product and retail brand price perception are measured in retail studies and how these constructs associate with retail brand attachment and indirectly with retail brand loyalty (see Table 8.10).

Table 8.10. Retail Brand Product, Retail Brand Price Structural Association with Retail Brand Loyalty and Retail Brand Attachment							
H	Response to Store Stimulus Specification			Case 1	Case 2	Case 1	Case 2
				Proposed	Proposed	Alternative	Alternative
10	Retail Brand Price	→	Retail Brand Attachment	Not Supported	Not Supported		
11	Retail Brand Product	→	Retail Brand Attachment	Supported	Supported		

The findings of this thesis confirm that retail brand product is a greater instigator of retail brand attachment in both stores relative to retail brand price, or store prototype, store novelty and store aesthetic preference. The Case 1 store reports: B= 0.693, t=4.104, P<0.01; and Case 2 reports B =0.970, t=5.502, p<0.01 for the retail brand product and retail brand attachment association. The store aesthetic preference and retail brand attachment association, in contrast, is weaker in strength. Case 1 reports B=0.370, t=3.163, p=0.002 and Case 2 reports B=0.137, t=1.764, p=0.078 for the proposed model for the store aesthetic preference and retail brand attachment association.

This suggests that the driver of retail brand loyalty and retail brand attachment is not store design, and instead it is more likely to be the retail brand product offering that is responsible for building retail brand attachment and retail brand loyalty in Penneys.

This confirmation of the relative contribution of retail brand product is also likely to be preferred by Penneys management and consistent with the general positioning of the retailer in discount fashion. Multiple-group comparisons reveal no differences in retail brand product or retail brand price with retail brand attachment across the two retailers. Thus far, the higher-level design in Case 1 hasn't shifted consumer price perceptions notably beyond consumer price perceptions in the lower-level designed Case 2 store. Essentially, there appear to be no perceptible differences in price perception on what are the same product offerings in both stores, although the store designs are different.

The cumulative experience based on repeated visits to Penneys is based on strong retail brand product perceptions, I argue. It will be interesting to note if the current efforts of Penneys to refurbish stores will, in future, improve or weaken their strong retail brand product positioning in the minds of consumers.

Chapter Nine – Conclusions Chapter

9.1. Introduction

This chapter concludes the thesis with the principal and other contributions of this research. It follows these thesis contributions with brief examinations of the limitations of the research, areas of potential future research and some implications for practitioners arising from this research.

9.2. Principal Contribution: Confirmation of the Role of Store Design-Architecture in Perceptions of Retail Brand Loyalty

Both research questions posed in this thesis research have been satisfactorily addressed. The second research question confirms that there is a role played by store design-architecture in consumer perceptions of retail brand loyalty and is the principal contribution of this thesis research.

The store aesthetic preference construct is observed to associate more strongly with retail brand attachment in higher-level designs, in multiple-group comparisons, although this statistical difference is evident at $p<0.10$. Notably, results for the lower-level designed store (Case 2), confirm an association between store aesthetic preference and retail brand loyalty. I argue that retail brand attachment is more emotionally valenced than retail brand loyalty, which is more behaviourally valenced.

The proposed framework tested in this research is therefore also able to reflect, to some degree, consumer emotional and/or behavioural discriminations at store and retailer level.

Store aesthetic preference is also, I argue, conceptually cognitive in nature. The measurement model for store aesthetic preference, I propose, reflects recent evolutions in the aesthetics literature that reflect a cognitive conceptualisation of the response to the stimulus (Charters 2006; Cupchik 2003, Hekkert, Snelders and van Wieringen 2003; Whitfield 2009). The retail brand attachment construct, in contrast, evidences a myriad of automaticity, emotional, sensory, aesthetic and hedonic gratification in its conceptualisation and measurement (Park et al., 2010; Park, MacInnis and Priester 2008). This thesis in confirming a stronger association between store-level aesthetic preference and retail-level brand attachment, in higher-level designs, also explains an association between a cognitive and emotional response to the presented store design-architecture. Clarifying the nature of a cognitive or emotional-arousal response has traditionally presented problems in the extant environmental psychology literature and this research may provide a new perspective on these problems.

The role and nature of the cognitive-emotional response to the store-level aesthetic and its association with retail-level brand attachment is, therefore, confirmed in this research.

9.2.1. Contribution Number Two: Measurement Advances in Store Specification of the Store Environment

The confirmation of the role of store design-architecture in retail brand loyalty and attachment (research question two), however, first requires that research question number one be addressed in this research. The first research question demands that an improved specification of the store environment is accomplished. I argue that the extant measured store novelty and store complexity collative constructs are limited in their ability to act as store stimulus constructs.

Extensive scale modification in this thesis addresses this deficiency and I modify scales for the store prototype, store novelty, and store aesthetic preference constructs in this research. I also introduce a brand attachment and brand loyalty construct into the proposed framework and develop a new scale for retail brand product. This is the first time that brand attachment and brand loyalty scales have been incorporated into retail branding research.

Therefore, this thesis research makes a significant contribution to the measurement of constructs that specify the store environment and in-turn enables discriminations of the role of design-architecture in consumers' perceptions of retail brand loyalty. EFA and CFA confirm that the measurement models for store prototype, store novelty, and store aesthetic preference are reliable and possess validity.

The conceptual underpinnings of these measurement advances in store specification arise from an expansive review of multiple, diverse literatures drawn from design-architecture, branding and psychology. I believe that I have identified and collated literature from across these perspectives and reflected them in a more expansive conceptualisation how consumers identify with the store environment. This broadened understanding of how consumers identify with the store environment is obvious in the approach I use to measure the constructs and their associations.

The proposed conceptual framework emphasises inclusions of recent evolutions in the aesthetics, prototypes and retail brand equity theory. The incorporation and testing of recent advances in these different literatures improves our understanding of the workings of the extant SOR model. I argue that this research benefits in this respect by reflecting objective-subjective, global-attribute, cognitive-emotional perceptive processing at store and retail levels by consumers. This thesis, therefore, I argue, advances both the conceptual and empirical measurement of the store specification constructs and retail branding constructs. This thesis also addresses the objective bias in the extant specifications of the store environment by academics such as Donovan and Rossiter (1982).

The store prototype construct that I employ modifies the Ward, Bitner and Barnes (1992) prototypicality construct and it is only the second time that it has been used in retail research. I argue that the measurement model for store prototypicality that I propose reflects composite marketing and aesthetic attribute meaning. It reflects how the formal, attribute-laden store environment is subjectively considered by consumers. The store prototype construct, furthermore, reflects respondent knowledge and judgment of attribute membership in the prototype. It therefore reflects consumer familiarity and awareness of the prototype. In this way, I believe that the store prototype construct also possesses awareness and salience prospects at the store-level. The store prototype consequently shares similar conceptual origins with what Keller (1993) and Aaker (1991) identify as brand awareness and association.

Measurement advances are also noted in measurement of the store novelty construct where its measurement is broadened beyond an exclusively aesthetics-centric measurement that's evident in the extant environmental psychology literature. I argue that the objective-bias present in extant approaches to measuring store novelty is addressed in this research. Subjective interpretations of uniqueness and novelty improve the measurement of store novelty and address demands by Berlyne (1971) for ecological and objective meaning to be considered simultaneously in any analyses.

The other notable measurement scale I propose in specification of the store environment is the store aesthetic preference construct. The store aesthetic preference construct removes potential familiarity effects where designs are considered by consumers on the basis of a cognitive review of pleasantness, attractiveness, stylishness and impressiveness. No circularity effects are observed in the measurement of store novelty, store prototype and store aesthetic preference. They are conceptually distinct constructs and measure separately.

9.2.2. Contribution Number Three: Improved Understanding of the Associations between the Store Specification Constructs

The expansive, broadened constructs that are successfully measured and examined in this thesis research thus enable a number of specific contributions to the extant literature. These contributions specifically add to the extant understanding of how the store prototype and store novelty constructs associate with store aesthetic preference. The successful measurement of these constructs for the first time in retail contexts proposes some interesting associations between these constructs that were untested before this thesis research.

In an examination of the store prototype and store novelty association the aesthetics (Hekkert 2006; Hekkert, Snelders and van Wieringen 2003) rather than the marketing (Meyers-Levy and Tybout 1989; Ward and Loken 1988) understanding of the dynamic between these constructs is observed. Increased store novelty weakens perceptions of the store prototype for the higher-level design as the extant aesthetics literature confirms.

This association, therefore, reflects a natural trade-off between the gains arising from consumer preferences for store novelty and the losses arising from weakened awareness prospects for the store prototype. This research confirms this effect in the case of a discount fashion retailer where this trade-off is observed for higher-level designs at least in the short-term. Further research is needed to determine if this research is generalisable to other retailers and retail contexts. Further research could confirm longitudinal comparisons and imply that over time increases in store novelty can also increase store prototypicality. This would confirm the marketing perspective on the dynamic between these constructs. Confirmation of a strong association between store novelty and store prototype also demonstrates how objective-subjective, global-attribute discriminations of the store environment take place, I argue.

In examinations of associations between store protoypicality, store novelty and store aesthetic preference the influence of the preference-for-prototypes literature (Martindale 1984; Martindale and Moore 1988; Martindale, Moore and Borkum 1990) is important. The store prototype construct is confirmed to have a strong association with store aesthetic preference for both levels of design when they are compared using multiple-group invariance testing. Both high and low levels of store novelty positively associates with store aesthetic preference. Store novelty appears to be both preferred for its newness in the higher-level design and also preferred for its familiarity in the lower-level design.

This confirms the ability of the proposed and alternative models employed in this research to reflect consumers appraisal-like processing of objective-subjective, global-attribute elements in store environments. It also confirms the versatility and robustness of the proposed and alternative models in their ability to examine these associations with different levels of store design-architecture.

9.2.3. Contribution Number Four: Improved Understanding of the Role of Visual and Non-Visual Associations with Retail Brand Loyalty

As research questions one and two are satisfactorily addressed in this research, the role of the store design-architecture in consumers perceptions of retail brand loyalty is confirmed. This thesis research goes further, however, by suggesting the relative contribution of the store design-architecture.

This research confirms, in the context of a discount fashion retailer, that retail brand product has a very strong association with retail brand attachment and retail brand loyalty. This association is also stronger than the association of store aesthetic preference or store prototypicality with retail brand loyalty. I argue, in comparisons of the standardised regression coefficients for both stores, that consumers are still drawn to Penneys for their products and not necessarily their prices or store design-architecture. It would be an interesting future analysis to confirm if this same relative association is observable in non-discount fashion retail.

9.2.4. Contribution Number Five: Improved Understanding of Invariance Testing and Approaches to Research Instrument Development for Store Environments Research

As this research contributes to the extant knowledge of how these specified store constructs confirm the role of design-architecture in consumer perceptions of retail brand loyalty, this research also makes an important contribution to the extant use of invariance testing in store environments research.

This research proposes a research instrument that examines consumer perceptions of different levels of design in one retailer. Future research may confirm if the approach to developing this instrument is generalisable also to other retail contexts. I argue that there is a credible basis to build on this research and to deliberately employ non-invariance testing to compare consumers' assessments of the store aesthetic and its ability to confer retail-level loyalty gains.

This thesis explains that multiple levels of design examinations are likely to produce non-invariant data. However, unlike in most cases where non-invariance is observed, I argue that this is desired in research that compares different design-architecture. Non-invariance testing on differences in parameter values, as I have used in this research, reveals the extent that the new proposed design differs from existing design(s). Non-invariance testing identifies the origins of visual and non-visual instigators of retail brand loyalty and thus contributes to retail branding research.

9.3. Limitations of this Research

The CFA measurement model for store complexity presents reliability and validity issues and the retail brand product construct may need additional perceived quality items in its measurement. These are the two main limitations encountered in this research.

The collative construct of store complexity, despite extensive measurement efforts in the EFA and CFA, presented significant reliability and validity measurement problems in this research. It is a multi-dimensional construct and an extensive battery of items is possibly needed to measure its various sub-dimensions. This research underestimates the number of sub-dimensions and the seven or eight items employed are not effective in measuring the construct. The measurement of store complexity is not helped in this respect by the little consistency or agreement on how the construct is conceptualised. For instance, Greenland and McGoldrick (2004) reference a host of novel-standard, unusual-common, high and low technology, varied–repetitious, crowded–uncrowded, too-big–too-small items to denote design and emotional factors in measurement of complexity. Similarly, Tai and Fung (1997) essentially employ product ranging items in their questionable measurement of store complexity.

Part of the problem of measuring store complexity is partly due to its demands on the cognitive participation and knowledge required of respondents. Store complexity questions tend to involve technical terms and often take more time to administer in surveys (Greenland and McGoldrick 2004). Validity concerns, therefore, persist across store environments research in the measurement of store complexity.

Another possible limitation of this research concerns the measurement of retail brand product perceptions. Although retail brand product is found to possess the strongest association with retail brand loyalty, its association may not include sufficient consideration of perceived quality (Zeithaml, Berry and Parasuraman 1996; Zeithaml 1988). The retail brand product scale proposed in this research essentially involves ranging and selection items only. A possible implication arising from this research is the consideration of perceived quality in the specific context of discount fashion retail. Even if retailers such as Penneys deliver significant value to consumers a minimum product quality is still assumed and expected. Retail brand product scales in discount fashion retail may need to consider the inclusion of items that capture consumers' minimum quality expectations.

9.4. Areas for Future Research

There are at least two future directions this research could take. First, the proposed model developed in this research could be replicated to examine other retailers and contexts. This would confirm the ability of the scales and associations examined in this research to generalise to other situations also. Second, scales observed to measure in different contexts would also enable future research at the group-level with inclusions of interaction and moderation effects.

The role of store design-architecture in perceptions of retail brand loyalty is better understood from this research, but additional empirical testing in contexts other than discount fashion retail, is required to confirm the reliability and validity of these constructs and their examined associations. Possible additional refinements to the measurement of the store novelty construct, and to the store prototype, store aesthetic preference constructs, I argue, are required.

In this respect, specific examinations of how well the store aesthetic preferences construct measures in non-discount fashion contexts are advisable. Consumers in this research acknowledge that the lower level design is less impressive and attractive but still do not wish to say that they do not like the design or think it a bad design. The measurement of store aesthetic preference in this research successfully removes familiarity and habituation effects with its concentration on pure stimulus discrimination (store aesthetic preference concentrates on assessments of the impressiveness and attractiveness of the design and not on brand interpretation). To confirm the generalisability of the store aesthetic construct across different retailers and contexts, I argue that familiarity, contextual and situational effects need to be more considered in future research (Bloch 1995; Bloch, Brunel and Arnold 2003).

This gives rise to the second significant stream of research that could, I argue, emerge from this research. Future research could pursue group level comparisons of design with SEM, but with additional emphases on the processing dynamic of consumers (Barsalou 1983; Kaltcheva and Weitz 2006; Whitfield 2000, 2009). Future research, in this respect, could propose measurement models and structural examinations of Barsalou's (1983) conceptualisation of flexible, ad-hoc categories and Park, MacInnis and Priester's (2008) exemplar theory. Empirical testing of this theory would, therefore, relate categorisation to perceptions of self-referent symbolism. Consumers identify themselves with the brand category when associations are vivid, typical, affective and rich in memory associations (Park, MacInnis and Priester 2008; Keller 1993, 2003) and further development of the store prototype construct could surface this conceptual definition. Much more research in retail specific contexts of consumer-based brand equity and prototype theory is needed to elaborate on the perceptive basis of how consumers prefer prototypes for these reasons.

This kind of consumption could be better understood, I argue with more research that interprets goal-directed, situational and temporal moderating/interacting effects and how groups respond differently to the design presented to them (Spies, Hesse and Loesch 1997; Bloch 1995; Alba and Hutchinson 1987; Bloch, Brunel and Arnold 2003; Mehrabian 1977, 1995). For instance, research that examines a store prototype-store novelty interaction by fashion knowledgeable groups using the Bloch, Brunel and Arnold (2003) scale could reveal which groups prefer higher levels of novelty. A store prototype-store novelty interaction could suggest how store aesthetic preference is preferred by certain groups only. These groups could possess increased aesthetic knowledge, interest and usage likelihood and respond differently to aesthetic content in their visits to stores.

Certain groups could, for instance, appreciate more novel or complex designs and may accordingly identify themselves more strongly with the store and retail prototype. Some groups could be identified as more aesthetically informed consumers (Bloch, Brunel and Arnold 2003), expert or novice (Alba and Hutchinson 1987), with high or low screening propensities (Mehrabian 1978, 1995), and thereby respond in different ways to the presented environment.

Ultimately, this type of research could reflect how design informs definitions of the strategic brand prototype and the processes that generate salient, perceptually fluent processes and top-of-mind awareness at the group level (Park et al. 2010; Park, MacInnis and Priester 2008). Improvements are first required, however, in store specification. The improved store specification constructs that emerge will, I argue, enable better research subsequently at the group-level.

9.5. Managerial and Practitioner Implications

There are a number of important implications arising from this research for architects, designers, branding professionals and academics. This thesis in its comparison of the two levels of Penneys design proposes an approach to assess the role of store design-architecture in consumers' perceptions of retail brand loyalty. The thesis, therefore, makes some small, if significant steps, in providing practitioners with an approach to assessing the communicative efficacy of new design-architecture.

Few credible tools are available to practitioners to assess how their creations communicate. This means that practitioners currently have little access to tools that inform where they should: build standardised units; build iconic, flagship stores; and employ modular designs to drive down build costs (Klingmann 2008). This absence of design assessment tools and approaches, therefore, has implications for retailers' growth strategies, given the typically high costs of store builds.

This thesis research argues that it is important for architects and practitioners to be able to introduce: appropriate store novelty; designs that are aesthetically preferred; and designs that have differential impact over competitors' prototype creations. As branding involves resolving a range of personal identity questions, architects too need to reflect through their work consideration of how consumers feel, who consumers are and ultimately what is increasingly referred to as "the experience" (Klingmann 2008). More specifically, this research demonstrates how these questions can, partly, be addressed by understanding the role played by consumer novelty expectations and aesthetic interests in retail brand development.

The general absence of approaches to assess consumers' interpretation of design-architecture means that architects and marketers don't always know how to standardise or individualise store design. As architectural modernism typically involves simplification, standardisation, specialisation and precision; branding instead employs differentiation, customisation, communication and perception. This research demonstrates how the seemingly contradictory positions of standardised prototype and individualised novelty can be reconciled. For instance, appropriate levels of store novelty can be introduced in individualised store remodelling in certain instances. In other store builds, there may instead be a need for highly standardised prototypes with minimal introductions of novelty. This research informs practitioners as to whether either sufficient or too much store novelty is proposed in new store builds.

In this way, practitioners can manipulate their approaches to developing store design-architecture to achieve increased retail brand loyalty. In the examination of the two-levels of design in Penneys, it is confirmed that they have introduced sufficient store novelty that is also aesthetically preferred. In-turn, Penneys consumers tend to experience mild, positive associations between store aesthetic preference and retail brand attachment in the higher-level designed store. There is, therefore, a retail brand attachment and retail brand loyalty gain available to all retailers from their investments in design and architecture when store novelty is deliberately and knowingly manipulated, this research suggests.

This research demonstrates that the store prototype, store novelty and store aesthetic preference constructs are credible store specification constructs. The findings also confirm the important role of retail brand product in the generation of retail brand attachment and retail brand loyalty in discount fashion retail. The consumer identification with the non-visual product in retail brand attachment and retail brand loyalty perception further emphasises the need for designers and architects to carefully consider how they renovate stores. Updating and representing functional spaces in the store design may be what discount fashion consumers want and expect. There could also be a risk that new store builds or refurbishments may actually undermine Penneys price positioning with consumers when product and store design-architecture perception is not understood. This may even mean that architects should resist the temptation to build stores, with more experiential qualities, even if consumers appear to demand this.

The perceptual boundaries in consumers' minds of what characterises the functional and experiential denoted space demands of architects an understanding of how the design is interpreted. The design-architecture of a store contains a functional and/or experiential narrative with attendant personality, phenomenological and symbolic properties. The findings of this thesis confirm how the store specification constructs are perceived in building retail brand attachment and retail brand loyalty. Imagination, technology, man-made materials, and various symbolic reference points, all extensively used in Penneys, promote perceptions at a store-level of formalism and abstraction. Taken together, these perceptions relate to overall retail brand attachment and retail brand loyalty arising from the careful manipulation of novelty across different levels of design. To engage consumers in immersive, participatory environments, that are aesthetically preferred, it is considered important to present rigorous scripting of prototypes with necessary standardisation. This is evident in the current approach of Penneys to store development. The accumulative experience of Penneys consumers draws comfort from their learned and associative experiences and comforts Penneys consumers as they relate themselves to the retailer across all its stores.

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Appendices

Appendix I

Main Literature Summarised

Authors	Main Findings	Method Employed	Construct Main Dimensions Measured
General Aesthetics and Pleasure Response to the Berlyne Collative Variable Literature			
Barr and Neta (2006)	Participants liked curved objects significantly more than control objects and liked sharp-angled objects significantly less than control objects.	Experimental Design involving disembodied stimuli performed using t-test ANOVA	Curve Aesthetic preference Novelty/familiarity
Berkowitz (1987)	Consumers evidence a marked preference for untrimmed shape in food product packaging design. The design may not directly lead to inferences but instead cue another more discriminating variables such as quality	Experimental design and correlation tests	Shape Preference
Cox and Cox (2002)	Preferences for visually complex product designs tend to increase with repeated exposure, while preferences for visually simple product designs tend to decrease with repeated exposure. Repetition did not influence liking for design.	Experimental Design 2 x 3 full factorial between-subjects experiment.	Schema incongruity Meaningfulness Usefulness Perceived Novelty Complexity Stimulus Likeability
Eckman and Wagner (1994)	The usefulness of the application of universal principles of design to perceptions of attractiveness is confirmed with respect to clothing designs.	ANOVA and conjoint models involving coloured line drawings of clothing representations.	Clothing design (silhouette) Visual Attractiveness Involvement
Frith and Nias (1974)	Aesthetic preference and beauty explained in terms of simpler designs where contour is explained as an attribute of complexity. Findings differ with previous studies that suggest that moderate complexity is preferred.	Exploratory factor analysis of disembodied stimuli	Contour Complexity Aesthetic Preference
Heath, Smith and Lim (2000)	in a study of silhouette complexity and façade articulation on tall buildings found that greater silhouette complexity is associated with higher preference, higher arousal, and greater pleasure.	Experimental design with two experimental conditions	Complexity Preference

	Herzog, Kaplan and Kaplan (1976)	Complexity preferred by people but shouldn't be viewed in isolation from other variables the authors argue. Complexity is not viewed uniformly across all contents. The authors proposal of a new variable or familiarity is found to act as an effective predictor of complexity although its variation as a function of content is substantially greater.	F-STATS and basic ANOVA in response to images presented on urban scenes, including 7 retail scenes	Familiarity Complexity Aesthetic Preference
	Jansson, Bointon and Marlow (2003)	Found that aesthetic responses to point-of-purchase materials with three different design principles (proportion, focal point and unity) had important yet varying effects upon people's perceptions of stimulus attraction.	Conjoint analysis using images of p-o-p stimuli are used	Proportion, Focal point Unity
	Kaplan and Kaplan (1982)	Striking architecture is substantially more appreciated when it is identifiable	F-stats and basic ANOVA in response to images of unfamiliar urban environments	Complexity Coherence Identifiability Mystery Familiarity
	Leder and Carbon (2005)	Investigated the appreciation of different car designs varying in innovativeness and curvature. While the mere exposure theory (Zajonc, 1968) would predict a general increase of liking in increasing exposure, only innovative designs are shown to increase attractiveness.	Mixed experimental design ANOVA using 9 abstract, hand-drawn images based on real-life car models.	Complexity Curvature Innovativeness Design knowledge
	Leder, Strobach and Carbon (2010)	Results are in accordance with the fluency-affect-liking hypothesis where related titles produced highest appreciation and where the effect is moderated by the degree of abstraction. A natural confound existed between the degree of abstraction and perceived semantic match to titles	ANOVA experimental design of 24 paintings	Perceptual fluency Aesthetic preference
	Messinger (1998)	The interest and pleasure association is upheld in the Berlyne inverted u-shaped hypothesis. However, the complexity and pleasure association is not upheld.	ANOVA of 6 colour reproductions of paintings.	Pleasure Interest Complexity

	Nasar (2002)	Attractiveness and complexity identified as constructs. Results support earlier findings that preference rest more on the objective characteristics of the building. Complexity, order, goodness of example, and historical significance are related and therefore it is unclear whether persons prefer moderate complexity (Berlyne, 1971; Wohlwill, 1976) or whether preference relates to discrepancy from or fit to a schema (Mandler, 1984; Whitfield, 1983).	Factor analyses and general linear models using images of buildings	Complexity Typicality Order Historical Significance Attractiveness
	Pedersen (1986)	Environmental preferences identified in response to presentation of images reflecting different interior designs from different genres	Factor analysis of 20 items and AVOVA f-stat in response to interior design images	Interior design styles Aesthetic preference
	Reber, Winkielman and Schwarz (1998)	In three experiments they examine matching and non-matching primes (similarity and difference) and presentation duration. They conclude that perceptual fluency increases liking and the experience of fluency is affectively positive.	Experimental design of 20 drawings of neutral objects or disembodied stimuli using t-tests	Matching versus non-matching primes Perceptual fluency Aesthetic preference
	Snelders and Hekkert (1999)	Originality of a product is related to the mean uniqueness of an association with a domain. Originality ratings of telephones are determined by their absolute novelty as well as by the novelty of the associations they can have.	Correlations based study of associative evaluations to over 100 objects.	Product originality Novelty Appropriateness
	Veryzer (1993)	Aesthetic responses are shown to be influenced by the consistency of product versions with the design principles of proportion and unity.	Experimental Design 2x2 repeated measures experimental design with between subjects manipulation of images of 3 consumer products	Proportion Unity Aesthetic preference
	Veryzer and Hutchinson (1998)	Four experiments of wire drawings show that unity and prototypicality are important in determining aesthetic preference. The effect of unity is “superadditive” and has an all-or-nothing quality. The paper points to the componential meaning of design.	4 separate mixed experimental designs using wire-frame images of realistic consumer products	Unity Prototypicality Aesthetic preference

Holistic Studies of the SOR Model				
	Berlyne (1970)	Both pleasingness and interestingness increase with novelty. Habituation effects lead to simple stimuli presenting as less pleasant and vice-versa. A direct relation between novelty and hedonic value contradicts findings of Zajonc (1968).	Experimental design of disembodied stimuli using ANOVA	Pleasingness Interestingness Novelty Familiarisation
	Donovan and Rossiter (1982)	Although Novelty and Irregularity are clearly identified as information-rate constructs, it is not clear what kind of association is confirmed between novelty and pleasure or arousal. Variety, irregularity and density identified instead of complexity. Perceived information rate not a good predictor of arousal as suggested by Mehrabian and Russell (1974).	Exploratory Factor analysis and regression	Novelty Variety Irregularity Density Size Pleasure Arousal Approach Avoidance
	Donovan and Rossiter (1982) and Donovan et al. (1994)	The 2 similarly replicated studies produced mixed results. Pleasure and arousal suggest approach behaviour in the 1982 study, but displeasure induces avoidance in the 1994 study.	Exploratory Factor analysis and regression	Novelty Variety Irregularity Density Size Pleasure Arousal Approach Avoidance
	Gilboa and Rafaeli (2003)	The association between complexity, order, reported pleasantness and arousal is consistent with other findings.	t-tests anova and hierarchical regressions performed on twenty-four photographs representing 4 store sections (frozen foods, pasta, fruits and vegetables and dairy) in two grocery stores in two experimental designs.	Novelty Complexity Pleasure Arousal Approach Avoidance
	Mehrabian and Russell (1974)	Produced a range of studies that propose the information rate constructs of novelty, complexity and spaciousness; the organism constructs of pleasure, arousal and dominance; and approach and avoidance as response constructs	Experimental Design	Novelty Complexity Dominance Spaciousness Pleasure Arousal Approach Avoidance

	Tai and Fung (1997)	Novelty, complexity, scale and density identified as information-rate measure constructs. The information-rate measures are effective in predicting approach-avoidance; however, they are less effective than pleasure-arousal emotional variables predicting approach-avoidance. Information-rate measures predicted arousal more than pleasure, but this could be attributable to the nature of the study and the difficulty in simulating unpleasant environments. Results supportive of SOR and previous findings.	Exploratory factor analysis and Regression using questionnaire and store visits	Novelty Complexity Density Size Pleasure Arousal Approach Avoidance
	Van Kenhove and Desrumeaux (1997)	Examined the uni-dimensionality, construct validity, reliability and discriminant validity of measures of the association between the emotional states (pleasure and arousal) induced in a retail environment and the behavioural intentions (approach– avoidance) in that environment. Although findings generally supportive of the SOR model, the results indicated that pleasure and arousal are highly correlated and not good indicators for the underlying constructs.	SEM	Attribute rating Pleasure Arousal Approach Avoidance
General Perception, Collative Variables, Prototypicality and Brand Prototypicality Association Literature				
	Babin and Babin (2001)	Once the typical category becomes less salient, the store concept evokes different types and levels of affect, and these changes in affect influence patronage intentions and the perceived value of a shopping experience.	MANOVA and SEM of descriptions of stores	Prototypicality Emotions Patronage intentions Perceived shopping value.
	Barsalou (1983)	Ad-hoc categories could be found to be typically as or more salient than general categories	Experimental design	Typicality ratings

	Barsalou (1985)	Three possible determinants of graded structure (typicality) are observed in common taxonomic categories and goal-derived categories. Graded structures do not reflect invariant structures associated with categories but instead reflect people's dynamic ability to construct concepts. Person’s produce different exemplar’s depending on the context.	Experimental design with correlational analysis.	Typicality ratings
	Hampton and Gardiner (1983)	The three measures of internal category structure (typicality, familiarity and associative frequency) are inter-correlated, but there is also evidence that they reflect different sources of variance and do not derive from one underlying factor.	Correlational analysis	Typicality Familiarity Associative frequency
	Hekkert and Van Wieringen (1990)	Complexity determines aesthetic preference for abstract paintings. Prototype determines aesthetic preference for representational works. The representational works findings confirm Whitfield’s (1983) conclusions for real-life stimuli. High categorisability stimuli are preferred to low categorisability stimuli.	Correlations and first and second-order regression	Categorisability Prototypicality Complexity Aesthetic preference
	Hekkert, Snelders and Van Wieringen (2003)	Typicality and novelty are jointly and equally effective in explaining the aesthetic preference of consumer products.	Correlational analysis	Typicality Novelty Aesthetic Preference Consumer expertise
	Nedungadi and Hutchinson (1985)	Prototypicality of brands appears to be significantly related to personal preference. Brand awareness appears to be differentially sensitive to internal and environmental aspects of product familiarity. In particular, conditional awareness is found to be strongly related to prototypicality and liking.	Correlations used in response to 3 questionnaires	Prototypicality Brand name awareness Usage Liking

	Ward and Loken (1985)	Free recall category member listings, family resemblance scores, and mean prototypicality ratings are rank-ordered and correlated for 16 snack foods and 16 brands of shampoo.	Correlations used in response to free-recall, prototypicality and family resemblance questionnaire	Free recall category member listings Family resemblance scores Prototypicality ratings
	Loken and Ward (1987)	The attribute structure of product categories and its effects on product typicality are examined, for 14 brands of shampoo, in laboratory studies with college students. An alternative to Rosch and Mervis' (1975) family resemblance measure of the attribute structure underlying typicality is proposed, based on multi-attribute attitude theory. Results confirm a positive association between perceived product typicality, the proposed measure of attribute structure, and attitude toward the product.	Correlations across attribute structures	Product typicality Attribute structure Attitude
	Loken and Ward (1990)	In a study of product and brand level typicality, measures of both feature similarity (family resemblance) and goal achievement (ideals, attribute structure) predicted typicality. The latter measures are more likely to moderate the typicality-attitude association. Frequency of instantiation is superior to a general familiarity measure in predicting typicality.	Correlations based on ratings of 6 different measures of typicality	Feature similarity (family resemblance) Goal achievement (ideals, attribute structure) Typicality Attitude
	Bousch and Loken (1991)	An inverted U describes the association between brand extension typicality and evaluation process measures. Moderately typical extensions are evaluated in a more piecemeal and less global way than are either extremely typical or extremely atypical extensions.	Experimental design using ANOVA based on response times and verbal protocols	Brand extension typicality Brand breadth Attitude

	Loken, Joiner and Peck (2002)	A composite index of attitudes toward category exemplars, weighted by exemplar typicality, is related to overall category attitudes, sometimes more strongly than a traditional multi-attribute index. Elaboration upon the individual exemplars is found to strengthen the association between category attitudes and the composite index	Correlations and t-tests on measures of familiarity and exemplars	Category exemplar Exemplar typicality Attitude
	Martindale and Moore (1988)	Martindale advances that because more typical stimuli are coded such to enable greater activation that preference should be positively related to prototypicality.	Experimental design involving colours and use of ANOVA	Prototypicality Aesthetic preference
	Moreau, Markman and Lehmann (2001)	Products that are moderately incongruent with their associated category schemas are expected to stimulate processing that leads to a more favourable evaluation relative to prods that are either congruent or extremely incongruent	2x2x2 between subjects factorial experiments, separate Manovas and three-way interactions using product descriptions (not images).	Categorisations Expectations Preferences
	Myers-Levy and Tybout (1989)	Products that are moderately incongruent with their associated category schemas are expected to stimulate processing that leads to a more favourable evaluation relative to prods that are either congruent or extremely incongruent	Experimental design using product descriptions and ANOVA	Schema (in)congruity
	Rosch and Mervis (1975)	The authors propose the family resemblance measure to explain how members of categories that are considered most prototypical are those with most attributes in common with other members of the category with fewer attributes in common with other categories	Experimental design	Family resemblance Prototypicality
	Rosch et. Al (1976)	The authors show that basic objects are shown to be the most inclusive categories for which a concrete image of the category as a whole can be formed, to be the first categorizations made during perception of the environment, to be the earliest categories sorted and coded	Experimental design	Categorisation

	Sheinin and Schmitt (1994)	High and narrow-breadth brands are evaluated most positively when the concepts are moderately incongruous.	Experimental design using ANOVA based on consumer brands	Brand category extensions Affect Brand Breadth
	Sujan and Bettman (1989)	Perceptions that a brand is strongly discrepant results in a subtypicality (or niche) position, whereas perceptions that a brand is moderately discrepant result in a differentiated position within the general category.	Experimental design using ANOVA based on examination of a consumer brand and non-branded product	Brand categorisation discrepancy Brand positioning
	Ward and Loken (1988)	Typicality effects on preference and comparison are not generalizable across all product categories. If prestige, exclusiveness, or novelty are important goals for purchasing the products in a category, they may perceive a negative association between typicality and preference, and tend to use less typical but more preferred products as cognitive reference points.	Correlations and t-tests of prototypicality and attitude ratings	Typicality Preference Prestige Exclusiveness Novelty
	Ward, Bitner and Barnes (1992)	A method for measuring retail prototypicality is proposed. The associations between prototypicality, affect and market share are explored. Consumers perceptions of fast-food restaurants are strongly influenced by environmental cues and exterior cues are important than internal cues.	Respondents surveyed after visits to restaurants and correlations based analysis presented.	Prototypicality Attitude Market share
	Whitfield and Slatter (1979)	In a furniture selection task using real-life objects the determinants of prototypicality are investigated. Family resemblance, familiarity and social salience could be more easily considered using these prototype comparisons. Aesthetic choice is found to reflect categorisation and prototypicality.	Wilcoxon's, Kruskal-Wallis and multiple comparisons procedures used (t-tests used?)	Furniture styles Prototypicality Aesthetic preference

	Whitfield (1983)	The work reported compared the predictive ability of the Berlyne (1970, 1971, 1974) 'collative motivation' model and the Martindale (1984, 1988) 'preference-for-prototypes' model. The results are inconsistent with Berlyne's model, but supported the prototypicality model.	Experimental design with correlation and ANOVA	Furniture style Prototypicality Novelty Complexity Aesthetic preference
	Winkielman et. al (2006)	Varied levels of prototypicality is found to predict both fluency (categorization speed) and attractiveness.	t-tests with Sobels z using disembodied and name stimuli	Prototypicality Perceptual fluency Aesthetic preference
	Zajonc (1968)	The 'mere exposure' hypothesis is supported meaning that the stimulus is accessible to the individual's perception.	Basic frequency counts of lexical identifications	Repetition Attitude
General Branding and Retail Branding				
	Anselmsson, Johansson and Persson (2007)	Brand equity and price premium focusing on the grocery sector specifically highlights the role of uniqueness, together with the four traditionally basic dimensions of brand equity proposed: awareness, qualities, associations and loyalty.	Explorative and qualitative field study of consumer-based brand equity	Uniqueness Awareness Quality Associations Loyalty
	Beatty and Kahle (1988)	The authors generally establish that the low-involvement hierarchy model would-more accurately reflect the behaviour of low-brand-committed individuals and that the theory of reasoned action would more accurately reflect the behaviour of high-brand-committed individuals.	Cross-Lagged Panel Correlation (quasi-experimental design and a type of structural equation methodology)	Belief Attitude Behaviour
	Beristain and Zorrilla (2011)	Store image can be used by retailers to influence all components of store brand equity, essentially through its commercial and strategic dimension	Exploratory and confirmatory SEM	Store image Price Loyalty Awareness/Associations Quality Marketing, social, and strategic store image Store brand equity

	Bigne, Andreu and Gnoth (2002)	The cognitive theory of emotions rather than the emotions-cognitive theory better explains the effect of pleasure on satisfaction and loyalty.	2 model design using SEM	Satisfaction Behaviour Pleasure Arousal
	Boo, Busser and Baloglu (2009)	Develop a destination brand model by employing customer-based brand equity models	Multi-Sample Structural Equation Modelling	Destination brand awareness Destination brand image Destination brand quality Destination brand value Destination brand loyalty Destination brand experience
	Han (1998)	If there is a high fit between the established image of a brand and the extension category, a brand extension with attributes perceived to be typical in the extension category is judged to be of higher quality when consumers evaluate the brand extension on its own grounds rather than in comparison with brands in the extension category.	Experimental design using ANOVA based on booklets containing adverts for 3 consumer products	Brand prototypicality Quality
	Jara and Cliquet (2012)	Retail brand awareness and perceived quality explain most significantly retail brand equity. Retail brand personalities and retailers with particular managerial values have also a significant influence.	Structural equation modelling with Path-PLS	Awareness Perceived quality Price image Personalities Brand service Store service Consumer’s response

	Jacoby and Mazursky (1984)	The study consisted of asking respondents to evaluate sets of familiar store and brand names, and then to evaluate various combinations of store and brand names as in the phrase ' Macey sells lee jeans'. Retailers with relatively low images may be able to improve their image by associating it with their more favourably evaluated brand manufacturer image, a very favourable retail image is likely to be damaged if it somehow becomes connected with brands having less positive images.	Retailer images are compared using Chi-Square ($\chi2$)	Attribute level
	Kim and Kim (2004)	Brand awareness had the strongest direct effect on revenues, while loyalty had the least effect. although brand equity comprises all four factors being tested, awareness showed the smallest effect on brand equity, far eclipsed by image, loyalty, and product quality.	Chi-Square ($\chi2$), t-tests and factor analysis	Brand awareness Brand image Brand loyalty Perceived quality Revenues
	Lassar, Mittal and Sharma (1995)	The authors brand equity scale focuses on associations and not on behaviours	Exploratory factor analysis	Performance Social image Value Trust Attachment
	Liang and Wang (2008)	The authors examined the impact of different association efforts made by a retailer (financial bonding, social bonding, and structural bonding) on key relationship marketing outcomes (trust, relationship commitment, and behavioural loyalty). as relationship duration and product involvement are used as controllable variables in a relationship marketing system. Findings suggest that retailers undertaking relationship efforts to loyal consumers can positively affect these consumers' attitudes and behaviour.	CFA SEM	Financial bonding Social bonding Structural bonding Trust Relationship commitment Behavioural loyalty

	Malär, Krohmer, Hoyer, and Nyffenegger (2011)	The authors show that the implications of self-congruence for consumers' emotional brand attachment are complex and differ by consumers' product involvement, consumers' individual difference variables, and the type of self-congruence. Actual self-congruence has the greatest impact on emotional brand attachment	SEM	Emotional brand attachment, Brand personality, Self-congruence, Actual self, Ideal self, Product involvement, Self-esteem, Public self-consciousness
	Mano and Oliver (1993)	This article examines the underlying dimensionality of three aspects of the post consumption experience—product evaluation, product-elicited affect, and product satisfaction. Two primary dimensions of product evaluation—utilitarian and hedonic judgment can be viewed as causally antecedent to two dimensions of affect (pleasantness) and arousal—and to product satisfaction.	SEM	Utilitarian Judgment Hedonic Judgment Pleasure Arousal Product satisfaction
	Morgan and Hunt (1994)	The authors affirm the importance of relationship commitment and trust to successful relationship marketing	SEM	Relationship commitment Trust
	Oliver (1980)	A multidimensional structure to the affect dimensions is necessary. Additionally, attribute satisfaction and dissatisfaction are significantly related to positive and negative affect, respectively, and to overall satisfaction. It is suggested that all dimensions tested are needed for a full accounting of post purchase responses in usage.	SEM	Satisfaction Expectation disconfirmation Attitude Purchase intention
	Page and Herr (2002)	Examines aesthetics relative to product function and brand strength. Results suggest that design and brand strength differently impact liking and quality judgments.	Experimental design using images and ANOVA	Product design Brand strength Product liking Product quality

	Pappu and Quester (2006)	Retail brand equity is found to vary with customer satisfaction. For department stores, each consumer-based retailer equity dimension varied according to customer satisfaction with the retailer. However, for specialty stores, only three of the consumer-based retailer equity dimensions, namely retailer awareness, retailer associations and retailer perceived quality, varied according to customer satisfaction level with the retailer.	Experimental design and MANOVA	Retailer awareness Retailer associations Perceived retailer quality Retailer loyalty
	Park et al. (2010)	The authors distinguish (brand attachment) from brand attitude strength and propose a scale to measure brand attachment. They also demonstrate that both the brand–self connection and the prominence dimensions are critical and non-redundant indicators of attachment.	CFA SEM	Brand self-connection Prominence Brand Attachment Actual purchase Purchase and need share Brand attitude strength
	Park, MacInnis and Priester (2006, 2008)	The emotional attachment construct is further defined and items for its measurement are proposed. Two factors proposed to represent brand attachment: 1) the degree of the brand-self connectedness and 2) the automaticity of thoughts and feelings about a brand.	Conceptual papers	n/a
	Thomson, MacInnis and Park (2005)	The authors propose a scale to measure strength of consumers emotional attachment to brands. The finalized 10-item scale reflects three interrelated first order factors labelled Affection, Passion, and Connection that map onto the second-order emotional attachment construct.	Confirmatory factor analysis	Affection Connection Passion Emotional attachment Attitude Satisfaction Loyalty Involvement Price premium

	Vazquez, del Rio and Iglesias (2002)	The authors propose four basic dimensions of brand equity are proposed: product functional utility, product symbolic utility, brand name functional utility, and brand name symbolic utility	Confirmatory factor analysis	Product functional utility, Product symbolic utility Brand name functional utility Brand name symbolic utility
	Washburn and Plank (2002)	In an examination of the Yoo and Donthu (1997) scale, the authors suggest that the scale has its merits but that further development is required	Confirmatory factor analysis	Brand loyalty Brand awareness Brand awareness/associations Perceived quality Brand associations Attitude Purchase intention
	Yoo and Donthu (2001)	Authors develop and validate a multidimensional consumer-based brand equity scale (MBE) drawn from Aaker's and Keller's conceptualisations of brand equity	Multistep psychometric tests across different cultures	Brand associations combined Brand awareness combined Brand Loyalty combined Perceived quality combined
	Zaichkowsky (1985)	The Personal Involvement Inventory (PU). is developed to capture the concept of involvement for products.	Factor Analysis and MANOVA	Personal involvement scale

Appraisal and Group-Level Environment Discriminations				
	Dawson, Bloch and Ridgway (1990)	Study examines how pre-existing motives and transient emotions influence outcomes. Emotions are shown to vary across different shopping motivation groups where consumers who purposefully came to the market to look for and buy products appear to have experienced higher pleasure and arousal than consumers without strong product motives.	Survey of persons visiting a craftsmarket with factor analysis and regressions performed on data	Shopping motives Pleasure Arousal Retail preference Choice Shopper background
	Kaltcheva and Weitz (2006)	Consumer's motivational orientation moderates the effect of the arousal produced by a store environment on the pleasantness of the environment. When consumers have a recreational motivational orientation, high arousal has a positive effect on pleasantness, but when consumers have a task-oriented motivational orientation, high arousal decreases pleasantness.	CFA, Chi-Square ($\chi 2$) and ANOVA	Recreational motivation Task motivation Pleasure Arousal Consumer intention
	Greenland and McGoldrick (1994)	The authors present an "in-direct effects" model to reflect modern bank branch designs and their impact upon consumers' emotional states and direct-indirect evaluations of the service provided.	ANOVA tests	Aesthetic evaluative Pleasure Arousal Proxy indicators Service evaluation Image Satisfaction Services used
	McGoldrick and Pieros (1998)	Consumers with strong shopping motives are found to experience more pleasure and arousal; expectations also moderate the atmospherics-mood association. Novelty and complexity identified as information rate constructs but treated with caution.	SEM is performed on data collected of shopping centre patrons	Expectations Familiarity Shopping motives Pleasure Arousal Mood Screener Disposition Novelty Complexity Spaciousness

	Greenland and McGoldrick (2004)	The authors propose an environment response model, a conceptual framework for examining the impact of retail settings upon cognitive, affective and cognitive consumer responses. Pleasure, approach, novelty, arousal, dominance, and crowding identified as emotional variables. Complexity not identified in the exploratory factor analysis.	SEM performed on in-store survey data from 18 bank branches; interviews and focus groups also performed.	Pleasure Approachable/cooperative Novelty Arousal Dominance Crowding Design cognitive Service cognitive Emotional Outcome conative
	Mehrabian (1977, 1995)	The Trait Arousability Scale (TAS) proposed by Mehrabian (1977, 1995) proposes how persons trait arousability is adjudged to depend on their responses to how complexity, novelty and variation are perceived. High screeners tend to screen and filter higher levels of information content proposed by the environment than low screeners and consequently are less aroused by the environment. Mehrabian (1995) proposed a bi-polar scale where repeated exposure of the same stimulus yields a progressive drop in the arousal state.	A series of different experiments examined the TAS scale in different non-retail contexts.	Trait arousability scale
	Sherman, Mathur and Smith (1997)	The study generally reaffirms the SOR model. Social factors and the design of the store had a positive impact on pleasure, and ambience positively affected arousal.	In-store survey using exploratory and confirmatory SEM	Social Image Design Ambience Pleasure Arousal Money spent Liking Number of items Time spent
	Sujan and Dekleva (1987)	A categorisation approach to inference making is used to determine when the effects of comparative advertising would differ from those of non-comparative advertising. The findings also point to the critical role of expertise in inference generation especially at the subordinate or brand levels.	Directional t-tests performed on simulated advert	Comparative advertising Consumer expertise Similarity Distinctiveness Informativeness Brand attitudes

Appendix II

Questionnaire Development & Basic Descriptive Data

Construct Name	Item Label	Mean	Standard Deviation	Mean	Standard Deviation	Final Question Items that Measure Construct
		Case 1		**Case 2**		
Store Prototype	Proto1s	3.84	1.976	3.06	1.739	This Penneys store is similar to other Penneys Stores
	Proto2s	3.61	1.910	2.68	1.602	The design of this store is typical of the design one sees in all Penneys Stores
	Proto4s	2.98	1.849	2.83	1.696	The design of this store is a good representation of the design one sees in all Penneys stores
	Proto5s	4.98	1.694	4.14	1.774	The design of this store looks identical to other Penneys stores
	Proto6s	3.46	1.918	2.74	1.603	This store has all the same visual characteristics found in other Penneys stores
						Deleted Items from CFA
	Proto3s	3.02	1.838	2.86	1.696	The design of this store is a good example of the design one sees in all Penneys stores
Store Novelty						**Final Question Items that Measure Construct**
	Nov2s	3.22	1.853	5.13	1.661	The design of this store is original compared to other Penneys stores
	Nov3s	2.97	1.679	5.02	1.720	The design of this store has distinguishing characteristics compared to other Penneys

						stores
	Nov4s	2.40	1.477	5.21	1.586	The design of this store is novel and fresh compared to other Penneys stores
	Nov6s	2.562	1.489	5.20	1.439	The design of this store has innovative changes compared to other Penneys stores
						Deleted Items from CFA
	Nov1s	2.04	1.513	5.39	1.539	The design of this store is new compared to other Penneys stores
	Nov5s	3.01	1.655	4.58	1.763	The design of this store is different compared to other Penneys stores
	Nov7s	2.65	1.499	4.13	1.879	The design of this store has a different level of design compared to other Penneys stores
Store Complexity						**Final Question Items that Measure Construct**
	Comp2s	2.98	1.673	4.54	1.716	Spacious store environment – Congested store environment
	Comp3s	2.652	1.322	3.53	1.493	Deliberate and orderly arranged design and décor – Disjointed and chaotic arranged design and décor
	Comp4s	2.52	1.114	3.65	1.486	Coherently presented design and décor – Disorganised presented design and décor

	Comp7s	2.96	1.532	3.67	1.670	Orderly arranged product displays – Highly random arranged product displays
						Deleted Items from CFA
	Comp1s	3.44	1.489	3.51	1.443	Simple store layout – Complex store layout
	Comp5s	4.58	1.525	3.27	1.561	Monotonous, boring design and décor – Interesting design and décor
	Comp6s	3.94	1.634	3.40	1.670	Simple and minimal design, décor – Busy and stimulating design and décor
Store Aesthetic Preference						**Final Question Items that Measure Construct**
	Aespref2s	2.58	1.563	3.75	1.773	The design of this store helps me experience a pleasant time when I visit this store
	Aespref3s	2.28	1.357	4.44	1.781	This store is stylish
	Aespref5s	2.37	1.202	4.23	1.639	This is an attractive store
	Aespref6s	2.59	1.471	4.68	1.636	Is the interior if this impressive looking?
	Aespref7s	2.07	1.407	5.53	1.699	This store has the best design of any Penneys I have seen
						Deleted Items from CFA
	Aespre1s	2.11	1.272	3.70	1.862	I like the design of this store
	Aespref4s	2.24	1.325	3.52	1.737	The design of this store is bad
Retail Brand Attachment						**Final Question Items that Measure Construct**

	BAttach1r	4.20	1.893	4.00	1.735	To what extent is Penneys part of you and who you are?
	BAttach2r	4.54	1.949	4.18	1.792	To what extent do you feel personally connected to Penneys?
	BAttach3r	3.38	1.918	3.21	1.961	To what extent are your thoughts and feelings toward Penneys often automatic, coming to mind seemingly on their own?
	BAttach4r	2.75	1.721	2.83	1.824	To what extent do your thoughts and feelings toward Penneys come to your mind naturally and instantly?
						Deleted Items from CFA
						No deletions for retail brand attachment
Retail Brand Loyalty						**Final Question Items that Measure Construct**
	BLoyal1r	2.36	1.467	2.36	1.440	I consider myself a loyal customer of Penneys
	BLoyal2r	3.05	1.794	3.08	1.811	Penneys is the fashion retailer I shop in most frequently
	BLoyal3r	3.60	1.863	3.70	1.874	I usually use Penneys as my first choice compared to other fashion retailers
						Deleted Items from CFA
						No deletions for retail brand attachment

Retail Brand Product						**Final Question Items that Measure Construct**
	Prod1r	2.02	1.051	2.00	1.005	Penneys offer a good selection of fashions
	Prod3r	2.06	1.010	2.07	0.977	Penneys offers modern fashionable products
	Prod4r	2.77	1.406	2.66	1.406	Penneys offers well-designed fashions
						Deleted Items from CFA
	Prod2r	3.49	1.724	3.50	1.625	Penneys offer good quality fashions
Retail Brand Price						**Final Question Items that Measure Construct**
	Price1r	1.60	0.889	1.59	0.837	Penneys delivers value for money
	Price3r	1.56	0.926	1.44	0.683	Penneys charges lower prices than its competitors
	Price4r	1.61	0.837	1.50	0.735	I get a good deal when I shop with Penneys
	Price5r	1.73	1.135	1.68	1.115	Penneys saves me money
						Deleted Items from CFA
	Price2r	1.59	0.992	1.56	0.822	Penneys prices are competitive

Number:
Date:
Store:
Interviewer:

Pilot Survey

The Role of Store Design in Retail Branding

Hello. Would you be able to help me with research I am doing for my PhD? The research concerns… In appreciation, I would be delighted to offer you €5 in recognition of your time and assistance. Would you be interested in participating? It only takes about 5 minutes. All information is treated with utmost confidentiality

Complexity: number and variability of colours, materials, textures, materials, spaces, furniture and products

These first questions concern your impressions of this store. You will be asked questions later on your overall impressions of Penneys, but for now please consider this store only.

(Please circle only one number per line)

Please indicate your level of agreement with each of these statements as they concern your impressions of ***<u>this store specifically</u>***

	Strongly Agree						Strongly Disagree
It is simple and easy to navigate my way around this store	1	2	3	4	5	6	7
The furniture and products in this store are very systematically arranged	1	2	3	4	5	6	7
It is easy to find what I am looking for in this store	1	2	3	4	5	6	7
This store is cramped	1	2	3	4	5	6	7
The colours, space and materials of this store do not look well together	1	2	3	4	5	6	7
This store appears bright and airy	1	2	3	4	5	6	7
This store has a wide-range of colours, materials and displays of products	1	2	3	4	5	6	7
The design of this store appears complex	1	2	3	4	5	6	7
There are too many visual objects that clutter the store	1	2	3	4	5	6	7
The design of this store is typical of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is a good example of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is representative of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is more artistic than found in competitor (non-Penneys) stores	1	2	3	4	5	6	7
This store design is inferior to that found in competitor (non-Penneys) stores	1	2	3	4	5	6	7
This store design looks like the design used in competitor (non-Penneys) stores	1	2	3	4	5	6	7

Please Indicate your level of agreement with each of these statements as they concern your impressions of ***<u>this store specifically</u>***

	Strongly Agree						Strongly Disagree
The design in this store is new compared to other Penneys stores	1	2	3	4	5	6	7
This design in this store is original compared to other Penneys stores	1	2	3	4	5	6	7
The design of this store is unusual compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store is novel compared to other Penneys stores	1	2	3	4	5	6	7
The design in this Penneys store is new compared to other discount fashion stores	1	2	3	4	5	6	7
This design in this Penneys store is original compared to other discount fashion stores	1	2	3	4	5	6	7
The design of this Penneys store is unusual compared to other discount fashion stores	1	2	3	4	5	6	7
This design of this Penneys store is novel compared to other discount fashion stores	1	2	3	4	5	6	7
The design of this store suggests a store with a unique personality	1	2	3	4	5	6	7
I like the design of this store	1	2	3	4	5	6	7
The design of this store helps me experience a pleasant time when I visit this store	1	2	3	4	5	6	7
This store is stylish	1	2	3	4	5	6	7
The design of this store is bad	1	2	3	4	5	6	7
This is an attractive store	1	2	3	4	5	6	7
Is the interior of this store looks impressive	1	2	3	4	5	6	7
Is the exterior of this store looks impressive	1	2	3	4	5	6	7
The design of this store makes the store look expensive	1	2	3	4	5	6	7

Please indicate your agreement with each of these statements based on your memories and experiences of visits to ***any of Penneys stores***							
	Strongly Agree						Strongly Disagree
I can recognise the design of Penneys stores compared the designs of other retailers	1	2	3	4	5	6	7
I am aware of what the appearance of Penneys stores look like	1	2	3	4	5	6	7
Some visual characteristics of Penneys stores come to my mind quickly	1	2	3	4	5	6	7
I have difficulty in imagining what a Penneys store looks like in my mind	1	2	3	4	5	6	7
This Penneys store is similar to other Penneys stores	1	2	3	4	5	6	7
I like to spend much time browsing in Penneys stores	1	2	3	4	5	6	7
I want to avoid looking around or exploring Penneys stores	1	2	3	4	5	6	7
When in Penneys stores I try to avoid other people, and avoid talking with them	1	2	3	4	5	6	7
When in Penneys stores I feel friendly and talkative to store personnel who are near me	1	2	3	4	5	6	7
I like Penneys store environments	1	2	3	4	5	6	7
I enjoy shopping in Penneys	1	2	3	4	5	6	7
I would avoid ever having to return to Penneys	1	2	3	4	5	6	7
When shopping in Penneys I normally spend more money than I originally set out to spend	1	2	3	4	5	6	7

Please suggest to which extent you evidence the following toward Penneys at the overall level as a ***retailer***							
	Not at All						Completely
To what extent is Penneys part of you and who you are?	1	2	3	4	5	6	7
To what extent do you feel personally connected to Penneys?	1	2	3	4	5	6	7
To what extent are your thoughts and feelings toward Penneys often automatic, coming to mind seemingly on their own?	1	2	3	4	5	6	7
To what extent do your thoughts and feelings toward Penneys come to your mind naturally and instantly?	1	2	3	4	5	6	7

Please suggest to which extent you evidence the following toward Penneys at the overall level as a ***retailer***							
	Strongly Agree						Strongly Disagree
I consider myself to be a loyal customer of Penneys	1	2	3	4	5	6	7
Penneys is the fashion retailer I shop in most frequently	1	2	3	4	5	6	7
I usually use Penneys as my first choice compared to other fashion retailers	1	2	3	4	5	6	7
Penneys offer a good selection of fashions	1	2	3	4	5	6	7
Penneys offer good quality fashions	1	2	3	4	5	6	7
Penneys offers modern fashionable products	1	2	3	4	5	6	7
Penneys offers well-designed fashions	1	2	3	4	5	6	7
Penneys delivers value for money	1	2	3	4	5	6	7
Penneys prices are competitive	1	2	3	4	5	6	7
Penneys charges lower prices than its competitors	1	2	3	4	5	6	7
I get a good deal when I shop with Penneys	1	2	3	4	5	6	7
Penneys saves me money	1	2	3	4	5	6	7

Please indicate your level of agreement with these statements as they concern your approach to design in general							
	Strongly Agree					Strongly Disagree	
Owning products that have superior designs makes me feel good about myself	1	2	3	4	5	6	7
I enjoy seeing displays of products that have superior designs	1	2	3	4	5	6	7
A product's design is a source of pleasure for me	1	2	3	4	5	6	7
Beautiful product designs make our world a better place to live	1	2	3	4	5	6	7
Being able to see subtle differences in product designs is one skill I have developed over time	1	2	3	4	5	6	7
I see things in a product's design that other people tend to pass over	1	2	3	4	5	6	7
I have the ability to imagine how a product will fit in with designs of other things I already own	1	2	3	4	5	6	7
I have a pretty good idea of what makes one product look better than its competitors	1	2	3	4	5	6	7
Sometimes the way a product looks seems to reach out and grab me	1	2	3	4	5	6	7
If a product's design really "speaks" to me, I feel that I must buy it	1	2	3	4	5	6	7
When I see a product that has a really great design, I feel a strong urge to buy it	1	2	3	4	5	6	7
I spend a lot of time looking at the design of new stores when I visit them the first time	1	2	3	4	5	6	7
I appreciate good store design	1	2	3	4	5	6	7
I do not notice the design of stores and concentrate only on products instead	1	2	3	4	5	6	7
I enjoy stopping and spending time reviewing the various spaces and designs of stores	1	2	3	4	5	6	7
There are stores I will not shop in primarily because of their poor design	1	2	3	4	5	6	7

Respondent Information

Which age group do you belong to?	14-19 years	20-25 years	26-40 years
	41-60 years	61 years and over	
Please indicate your gender	male	female	
Please indicate your occupation	student	working	
	unemployed	stay at home	
How much did you spend in the store today?	€0-15	€16-30	€31-45
	€46-60	€61-90	€91 and more
How much time did you spend in the store today?	under 10 minutes	11-20 minutes	
	21-30 minutes	31 and more minutes	
How frequently do you visit this store?	more than once a week	at least once a week	
	at least once a month	at least once every three months	
	at least once a year	less frequently	
How many times have you visited this store before?	1-3 times	3-5 times	
	5-10 times	10 and more times	
How frequently do you visit any Penneys store?	more than once a week	at least once a week	
	at least once a month	at least once every three months	
	at least once a year	less frequently	

Do you have any comments to make on your experiences in either this or other Penneys stores you have visited?

Thank you very much for your assistance in participating in this survey!

Number:	
Date:	
Store:	**Case 1**
Interviewer:	

Phase One Survey: Exploratory Factor Analysis (EFA) Survey

Perceptions of Penneys Store Design in Branding

Hello. Would you be able to help me with research I am doing for my PhD? The research concerns… In appreciation, I would be delighted to offer you €5 in recognition of your time and assistance. Would you be interested in participating? It only takes about 5 minutes. All information is treated with utmost confidentiality

These first questions concern your impressions of this store. You will be asked questions later on your overall impressions of Penneys, but for now please consider this store only.

(Please circle only one number per line)

Please indicate your level of agreement with each of these statements as they concern your impressions of ***this store specifically***

	Strongly Agree					Strongly Disagree	
It is simple and easy to navigate my way around this store	1	2	3	4	5	6	7
The furniture and products in this store are very systematically arranged	1	2	3	4	5	6	7
It is easy to find what I am looking for in this store	1	2	3	4	5	6	7
This store is cramped and congested	1	2	3	4	5	6	7
The colours, space and materials of this store do not look well together	1	2	3	4	5	6	7
This store appears bright and airy	1	2	3	4	5	6	7
This store has lots of variation in colours, materials and signage	1	2	3	4	5	6	7
The design of this store has little repetition of colours, materials and signage	1	2	3	4	5	6	7
There are too many visual objects that clutter the store	1	2	3	4	5	6	7
This Penneys store design is similar to other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is typical of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is a good example of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is a good representation of the designs of other Penneys discount fashion stores	1	2	3	4	5	6	7
The design of this store is identical to other Penneys discount fashion stores	1	2	3	4	5	6	7
This store design has all the same visual characteristics of other Penneys discount fashion stores	1	2	3	4	5	6	7

Please Indicate your level of agreement with each of these statements as they concern your impressions of ***this store specifically***

	Strongly Agree					Strongly Disagree	
The design in this store is new compared to other Penneys stores	1	2	3	4	5	6	7
This design in this store is original compared to other Penneys stores	1	2	3	4	5	6	7
The design of this store has distinguishing characteristics compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store is novel compared to other Penneys stores	1	2	3	4	5	6	7
The design in this store is different compared to other Penneys stores	1	2	3	4	5	6	7
This design in this store is innovative compared to other Penneys stores	1	2	3	4	5	6	7
The design of this store has a different level of design compared to other Penneys stores	1	2	3	4	5	6	7
This design of this Penneys store is more artistic compared to other discount fashion stores	1	2	3	4	5	6	7
The design of this store suggests a store with a unique personality	1	2	3	4	5	6	7
I like the design of this store	1	2	3	4	5	6	7
The design of this store helps me experience a pleasant time when I visit this store	1	2	3	4	5	6	7
This store is stylish	1	2	3	4	5	6	7
The design of this store is bad	1	2	3	4	5	6	7
This is an attractive store	1	2	3	4	5	6	7
Does the interior of this store look impressive?	1	2	3	4	5	6	7
Does the exterior of this store look impressive?	1	2	3	4	5	6	7

Please indicate your agreement with each of these statements based on your memories and experiences of visits to *any of Penneys stores*							
	Strongly Agree					Strongly Disagree	
I can recognise the design of Penneys stores compared the designs of other retailers	1	2	3	4	5	6	7
I am aware of what the appearance of Penneys stores look like	1	2	3	4	5	6	7
Some visual characteristics of Penneys stores come to my mind quickly	1	2	3	4	5	6	7
I have difficulty in imagining what a Penneys store looks like in my mind	1	2	3	4	5	6	7
I like to spend much time browsing in Penneys stores	1	2	3	4	5	6	7
I want to avoid looking around or exploring Penneys stores	1	2	3	4	5	6	7
I like Penneys store environments	1	2	3	4	5	6	7
I enjoy shopping in Penneys	1	2	3	4	5	6	7
I would avoid ever having to return to Penneys	1	2	3	4	5	6	7
When shopping in Penneys I normally spend more money than I originally set out to spend	1	2	3	4	5	6	7
Please suggest to which extent you evidence the following toward Penneys at the overall level as a *retailer*							
	Not at All						Completely
To what extent is Penneys part of you and who you are?	1	2	3	4	5	6	7
To what extent do you feel personally connected to Penneys?	1	2	3	4	5	6	7
To what extent are your thoughts and feelings toward Penneys often automatic, coming to mind seemingly on their own?	1	2	3	4	5	6	7
To what extent do your thoughts and feelings toward Penneys come to your mind naturally and instantly?	1	2	3	4	5	6	7
Please suggest to which extent you evidence the following toward Penneys at the overall level as a *retailer*							
	Strongly Agree					Strongly Disagree	
I consider myself to be a loyal customer of Penneys	1	2	3	4	5	6	7
Penneys is the fashion retailer I shop in most frequently	1	2	3	4	5	6	7
I usually use Penneys as my first choice compared to other fashion retailers	1	2	3	4	5	6	7
Penneys offer a good selection of fashions	1	2	3	4	5	6	7
Penneys offer good quality fashions	1	2	3	4	5	6	7
Penneys offers modern fashionable products	1	2	3	4	5	6	7
Penneys offers well-designed fashions	1	2	3	4	5	6	7
Penneys delivers value for money	1	2	3	4	5	6	7
Penneys prices are competitive	1	2	3	4	5	6	7
Penneys charges lower prices than its competitors	1	2	3	4	5	6	7
I get a good deal when I shop with Penneys	1	2	3	4	5	6	7
Penneys saves me money	1	2	3	4	5	6	7

Please indicate your level of agreement with these statements as they concern your approach to design in general							
	Strongly Agree					Strongly Disagree	
Owning products that have superior designs makes me feel good about myself	1	2	3	4	5	6	7
I enjoy seeing displays of products that have superior designs	1	2	3	4	5	6	7
A product's design is a source of pleasure for me	1	2	3	4	5	6	7
Beautiful product designs make our world a better place to live	1	2	3	4	5	6	7
Being able to see subtle differences in product designs is one skill I have developed over time	1	2	3	4	5	6	7
I see things in a product's design that other people tend to pass over	1	2	3	4	5	6	7
I have the ability to imagine how a product will fit in with designs of other things I already own	1	2	3	4	5	6	7
I have a pretty good idea of what makes one product look better than its competitors	1	2	3	4	5	6	7
Sometimes the way a product looks seems to reach out and grab me	1	2	3	4	5	6	7
If a product's design really "speaks" to me, I feel that I must buy it	1	2	3	4	5	6	7
When I see a product that has a really great design, I feel a strong urge to buy it	1	2	3	4	5	6	7
I spend a lot of time looking at the design of new stores when I visit them the first time	1	2	3	4	5	6	7
I appreciate good store design	1	2	3	4	5	6	7
I do not notice the design of stores and concentrate only on products instead	1	2	3	4	5	6	7
I enjoy stopping and spending time reviewing the various spaces and designs of stores	1	2	3	4	5	6	7
There are stores I will not shop in primarily because of their poor design	1	2	3	4	5	6	7
I am very familiar with this store based on my frequent visits to it	1	2	3	4	5	6	7
I am very familiar with other Penneys stores based on my frequent visits to them	1	2	3	4	5	6	7

Respondent Information

Which age group do you belong to?	14-19 years	20-25 years	26-40 years
	41-60 years	61 years and over	
Please indicate your gender	male	female	
Please indicate your occupation	student	working	
	unemployed	stay at home	
How much did you spend in the store today?	enter €Euro Spend Here		
How much time did you spend in the store today?	under 10 minutes	11-20 minutes	
	21-30 minutes	31 and more minutes	
How frequently do you visit this store?	more than once a week	at least once a week	
	at least once a month	at least once every three months	
	at least once a year	less frequently	
How many times have you visited this store before?	1-3 times	3-5 times	
	5-10 times	10 and more times	
How frequently do you visit any Penneys store?	more than once a week	at least once a week	
	at least once a month	at least once every three months	
	at least once a year	less frequently	
How many times have you visited this store before?	1-3 times	3-5 times	
	5-10 times	10 and more times	
Is this the only Penneys store you shop in?	Yes	No	

Do you have any comments to make on your experiences in either this or other Penneys stores you have visited?

Number:	
Date:	
Store:	**Case 1**
Interviewer:	**JM**

Phase Two Survey (CFA-SEM)

Perceptions of Penneys Store Design in Branding

Hello. Would you be able to help me with research I am doing for my PhD? The research concerns… In appreciation, I would be delighted to offer you €5 in recognition of your time and assistance. Would you be interested in participating? It only takes about 5 minutes. All information is treated with utmost confidentiality

These first questions concern your impressions of this store. You will be asked questions later on your overall impressions of Penneys, but for now please consider this store only.

Please Indicate your level of agreement with each of these statements as they concern your impressions of *__the colours, materials and presentation of products in this store specifically__*

Simple store layout	1	2	3	4	5	6	7	Complex store layout
Spacious store environment	1	2	3	4	5	6	7	Congested store environment
Deliberate and orderly arranged design and décor	1	2	3	4	5	6	7	Disjointed & chaotic arranged design & décor
Coherently presented design and décor	1	2	3	4	5	6	7	Disorganised presented design and décor
Monotonous, boring design and décor	1	2	3	4	5	6	7	Interesting design and décor
Simple and minimal design, décor	1	2	3	4	5	6	7	Busy and stimulating design and décor
Orderly arranged product displays	1	2	3	4	5	6	7	Highly random arranged product displays

Please Indicate your level of agreement with each of these statements as they concern your impressions of *__the colours, materials and presentation of products in this store specifically__*

	Strongly Agree						Strongly Disagree
This Penneys store design is similar to other Penneys stores	1	2	3	4	5	6	7
The design of this store is typical of the design one sees in all Penneys stores	1	2	3	4	5	6	7
The design of this store is a good example of the design one sees in all Penneys stores	1	2	3	4	5	6	7
The design of this store is a good representation of the design one sees in all Penneys stores	1	2	3	4	5	6	7
The design of this store looks identical to other Penneys stores	1	2	3	4	5	6	7
This store has all the same visual characteristics found in other Penneys stores	1	2	3	4	5	6	7
The design in this store is new compared to other Penneys stores	1	2	3	4	5	6	7
This design in this store is original compared to other Penneys stores	1	2	3	4	5	6	7
The design of this store has distinguishing characteristics compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store is novel and fresh compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store is different compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store has innovative changes compared to other Penneys stores	1	2	3	4	5	6	7
This design of this store has a different level of design compared to other Penneys stores	1	2	3	4	5	6	7
I like the design of this store	1	2	3	4	5	6	7
The design of this store helps me experience a pleasant time when I visit this store	1	2	3	4	5	6	7
This store is stylish	1	2	3	4	5	6	7
The design of this store is bad	1	2	3	4	5	6	7
This is an attractive store	1	2	3	4	5	6	7
Is the interior of this store looks impressive	1	2	3	4	5	6	7
This store has the best design of any Penneys store I have seen	1	2	3	4	5	6	7

Please indicate your agreement with each of these statements based on your memories and experiences of visits to ***any of Penneys stores***							
	Strongly Agree						Strongly Disagree
I can recognise the design of Penneys stores compared the designs of other retailers	1	2	3	4	5	6	7
I am aware of what the appearance of Penneys stores look like	1	2	3	4	5	6	7
Some visual characteristics of Penneys stores come to my mind quickly	1	2	3	4	5	6	7
I have difficulty in imagining what a Penneys store looks like in my mind	1	2	3	4	5	6	7
I like to spend much time browsing in Penneys stores	1	2	3	4	5	6	7
I want to avoid looking around or exploring Penneys stores	1	2	3	4	5	6	7
I like Penneys store environments	1	2	3	4	5	6	7
I enjoy shopping in Penneys	1	2	3	4	5	6	7
I would avoid ever having to return to Penneys	1	2	3	4	5	6	7
When shopping in Penneys I normally spend more money than I originally set out to spend	1	2	3	4	5	6	7

Please suggest to which extent you evidence the following toward Penneys at the overall level as a ***retailer***							
	Not at All						Completely
To what extent is Penneys part of you and who you are?	1	2	3	4	5	6	7
To what extent do you feel personally connected to Penneys?	1	2	3	4	5	6	7
To what extent are your thoughts and feelings toward Penneys often automatic, coming to mind seemingly on their own?	1	2	3	4	5	6	7
To what extent do your thoughts and feelings toward Penneys come to your mind naturally and instantly?	1	2	3	4	5	6	7

Please suggest to which extent you evidence the following toward Penneys at the overall level as a ***retailer***							
	Strongly Agree						Strongly Disagree
I consider myself to be a loyal customer of Penneys	1	2	3	4	5	6	7
Penneys is the fashion retailer I shop in most frequently	1	2	3	4	5	6	7
I usually use Penneys as my first choice compared to other fashion retailers	1	2	3	4	5	6	7
Penneys offer a good selection of fashions	1	2	3	4	5	6	7
Penneys offer good quality fashions	1	2	3	4	5	6	7
Penneys offers modern fashionable products	1	2	3	4	5	6	7
Penneys offers well-designed fashions	1	2	3	4	5	6	7
Penneys delivers value for money	1	2	3	4	5	6	7
Penneys prices are competitive	1	2	3	4	5	6	7
Penneys charges lower prices than its competitors	1	2	3	4	5	6	7
I get a good deal when I shop with Penneys	1	2	3	4	5	6	7
Penneys saves me money	1	2	3	4	5	6	7

Please indicate your level of agreement with these statements as they concern your approach to design in general							
	Strongly Agree						Strongly Disagree
Owning products that have superior designs makes me feel good about myself	1	2	3	4	5	6	7
I enjoy seeing displays of products that have superior designs	1	2	3	4	5	6	7
A product's design is a source of pleasure for me	1	2	3	4	5	6	7
Beautiful product designs make our world a better place to live	1	2	3	4	5	6	7
Being able to see subtle differences in product designs is one skill I have developed over time	1	2	3	4	5	6	7
I see things in a product's design that other people tend to pass over	1	2	3	4	5	6	7
I have the ability to imagine how a product will fit in with designs of other things I already own	1	2	3	4	5	6	7
I have a pretty good idea of what makes one product look better than its competitors	1	2	3	4	5	6	7
Sometimes the way a product looks seems to reach out and grab me	1	2	3	4	5	6	7
If a product's design really "speaks" to me, I feel that I must buy it	1	2	3	4	5	6	7
When I see a product that has a really great design, I feel a strong urge to buy it	1	2	3	4	5	6	7

Respondent Information

Which age group do you belong to?	14-19 years	20-25 years	26-40 years
	41-60 years	61 years and over	
Please indicate your gender	male	female	
Please indicate your occupation	student	working	retired
	unemployed	stay at home	
How much did you spend in the store today?	enter €euro spend here		
How much time did you spend in the store today?	under 10 minutes	11-20 minutes	
	21-30 minutes	31 and more minutes	
How frequently do you visit this store?	more than once a week	at least once a week	
	at least once a month	at least once every three months	
	at least once a year	less frequently	
How many times have you visited this store in the past month?	1-3 times	3-5 times	
	5-10 times	10 and more times	
Which other Penneys stores do you shop in?	This is the only Penneys I shop in		
	enter names of stores...		

Do you have any comments to make on your experiences in either this or other Penneys stores you have visited?

Thank you very much for your assistance in completing this survey!

Cover Letter and Introduction

Possible Screening Question to be used if prospective respondent is suspected to be a tourist or from a country where there is little or no Penneys store presence:

Do you live in Ireland? Yes/No

If No, where do you live? Name of Country

Do you visit Penneys on a regular basis in (insert name of country)?

Introduction to study: Hello, I am a student working on a PhD and wonder if you could help me? I am completing a survey on design and branding in Penneys and would value very much a few minutes of your time. I am interested in your opinions of this store and Penneys in general. The questions should be easy to answer. I would be delighted to pay you €5 for your assistance in answering some simple questions. I should say that I am paying for the cost of this research from my savings but I will report my overall findings to Penneys. Would you be interested in helping?

Upon Agreement of Respondent to Participate: I will read you some statements about design and branding at the store and overall retail-level. After each statement you will be asked to with one of the response possibilities on this show card (hand them the show card with 1 strongly agree to 7 strongly disagree). Please choose the one that matches your opinion.

__**Glossary of Technical Terms**__

Complexity: ease or difficulty of comprehension based on the number and variability of colours, materials, textures, materials, spaces, furniture and products present

Representativeness: the degree to which the store is classified as a member of the category of discount fashion stores

Scoring Card

Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
1	2	3	4	5	6	7

Note Sheets for Pilot Study Feedback

Store Complexity Qns (It is simple and easy to navigate my way around this store…There are too many visual objects that clutter the store)

Store Prototype Qns (The design of this store is typical… The design of this store is representative versus other Penneys stores)
(The design of this store is typical… The design of this store is representative versus other non-Penneys stores)

Store Novelty Qns (The design in this store is new … The design of this store is novel versus other Penneys stores)
(The design in this store is new … The design of this store is novel versus other non-Penneys stores)
Store Aesthetic Preference Qns (I like the design of this store… The design of this store looks expensive)

Retail Brand Associations Qns (I can recognise the design… This Penneys store is similar)

Store Approach and Avoidance Qns (I like to spend much time browsing… When shopping In Penneys I normally)

Retail Brand Attachment Qns (To what extent is Penneys part… To what extent do your thoughts)

Retail Brand Loyalty Qns (I consider myself … I usually use Penneys)
Retail Brand Product and Price Qns (Penneys offers a good selection… Penneys saves me money)

Store Aesthetic Disposition Qns (Owning products that have… When I see a product that has a really great design)

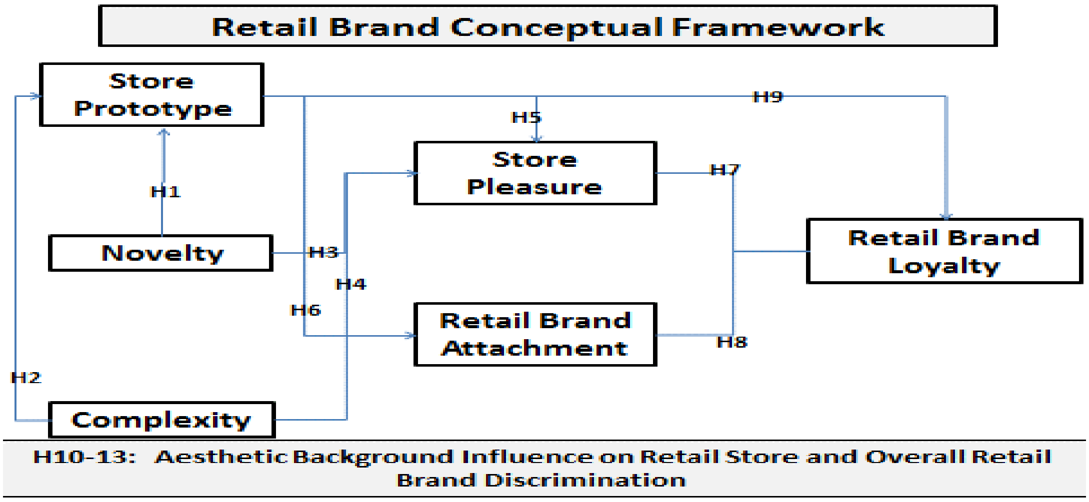
(I spend a lot of time… There are stores I will not shop in)

Respondent Information Qns

Scoping Document for Penneys (25June 2013)

Working Title: The Specification of Store Environments: the role of design-architecture in the expressiveness of retail brands

Key Issues: the thesis aims to assist retailers in their use of design in the development of their retail brands. It specifically examines consumer perceptions of the strength of the store prototype and its ability to elicit positive emotional bonds and brand loyalty. It will therefore aim to explore the brand awareness and projection impacts of new prototype designs on consumers. There are few credible approaches currently available to branding and design professionals to perform "proof-of-design-concept" assessment before store builds. This thesis aims to address this challenge.



Practical Benefits to Penneys: the thesis will aim to examine design contributions to overall Primark brand development. Are Primark stores overdesigned? Is there a contribution to Primark brand loyalty deriving from strong design statements? Do strong consumer bonds originate instead from other sources such as product associations? Can we tell the kinds of people who care more about the design of Primark stores?

What Do I Need from Primark? I need permission to use Primark stores as a unit of analysis. Visual imagery of existing and new concepts would be used in the thesis research. I would agree with you the process and modalities of prototype definition and desired Primark brand statements. The financial resource commitment for Primark would be minimal. I would not expect to be paid for this work. However, should I need to use students (who I would personally supervise) to gather consumer feedback, they would need to be paid for their time for a few days of data collection. The minimum financial commitment required of Primark would be for participation inducements, to involve, for example, a voucher to a certain value for participation in the survey.

How the Research Would Happen? There would be three phases: phase one would involve meeting Primark branding and design experts to decide which images could be used in the research; phase two would involve an in-store exploratory factor analysis to complete a preliminary testing of the various constructs (store prototype, brand loyalty etc.); and phase three would involve a confirmatory factor analysis and structural equations modelling of a second data collection of consumer perceptions.

What Next? Please note that this is a working framework and may change. I would hope to meet personnel from Primark in the coming weeks to discuss this further and to agree which new stores or refurbished stores could be used in the research. I am also open to suggestion from Primark on how other related brand research priorities could be examined in the context of this research.

Appendix III

Penneys Bio-Note

Fashion retailer Penneys Ltd is in the ownership of Associated British Food. It trades as Primark Ltd. in a number of countries across Europe. Generally considered a 'value' rather than a discounter retailer, Penneys has based much of its recent success on product style, competitively priced principally targeted at females aged 18-35 years. Menswear, childrenswear and homewares are stocked in addition to the core womenswear. Group revenues in 2012 are £3.5bn (ABF Annual Report 2012).

Penneys was founded in Dublin in 1969; Dublin remains the head office for the retailer. It currently counts 257 stores and 43,000 employees in Austria, Belgium, France, Germany, Portugal, Spain, the Netherlands, the UK and Ireland. Penneys sells a number of own-brand merchandise.

Penneys is a fast fashion retailer that captures current fashion trends and manages to turn these into designs and manufactured products sourced principally from Far-Eastern countries. Their business model requires the reproduction of current styles in considerable volumes at low prices. Its Quick-Response (QR) model is common to other fashion retailers where designer styles are offered to the mass-market at relatively low-prices. The fast-fashion market arguably expects frequent availability of new products thus emphasising shorter product lifecycles and the need for efficient supply-chains.

Penneys doesn't advertise its products and instead increasingly invests in store layout and visual merchandising, thus emphasising shopping experiences even at the discounted end of the market. There has in recent years been a greater effort to emphasise a store design to provide "inspirational, exciting, fashionable and fun shopping experience for all customers" (ABF Annual Report 2012).

In particular, the company highlights their effort to emphasise increased use of strategically placed mannequins combining with video screens to inspire customers to choose outfits that are readily available on adjacent fixtures. They also draw attention to prominent directional signage thus allowing easy navigation through stores. Increased brand engagement is also promoted through improved building facades and focal points consideration. Customer service is being enhanced by providing higher ratios of fitting rooms and cash registers to ensure better customer experiences.

Penneys currently owing to this increased emphasis on new and refurbished stores has three levels of design. The new Oxford Street store, for instance is a level one design with 82,000 sq ft of selling space over four floors and showcases Primark's latest design concept incorporating enhanced visual merchandising, branding, fixtures, lighting and state-of-the-art video screens showing the latest campaigns. Manchester, Newcastle and Dublin also feature the new Oxford St design. Primark have ruled out launching an online business in the near future and instead foresees growth through increasing store numbers and refurbishing existing stores.

Appendix IV

Supplemental Literature Review on Goodness-of-Fit (GOF) Indices

Structural Equations Modelling (SEM) and Fit Indices

Limitations of Fit Statistics

Determining the existence of Goodness-of-Fit (GOF) and inferring how well the sample data reflect the specified model is highly debated (Hair et al. 2010; Hoyle 2012). There is no common agreement on choosing indices suited to specific analyses or cut-off values suggestive of model fit (Bagozzi and Yi 2012; Hair et al 2010). Nor is there an assurance that indices suggestive of model fit are actually consistent with the theory. Researchers can tell very little about where and by how much the specified model departs from the data on the basis of fit statistics (Kline 2010). By its very nature, any model even if it is mis-specified can be made to fit the data by adding free parameters (Kline 2010). SEM is then prone to the risk of inducing researchers to change model specification and thus compromise the theory being tested simply to achieve model fit (Hair et al. 2010).

Criticisms of adjudging fit using fit statistics have been notably raised in the contribution of Barrett (2007) where the merit of using the χ^2 (chi-square) test, in particular, is questioned. Barrett (2007) even goes so far as to advocate the abandonment of approximate fit indices with cut-off values. A number of responses quickly emerged to the Barrett (2007) criticism and authors such as Markland (2007), Miles and Shevlin (2007), tend to agree with Barrett's recommendations on cut-off statistics, but also point to the need for improved reporting practices. The merit of reporting equivalent or near-equivalent models that discredit proposed theory with absence of fit is also advocated (Hayduk 2007).

This thesis has considered these contributions and has reported multiple fit indices with at least one absolute and one incremental fit index (Hair et al. 2010) drawn from the recommendations of Bagozzi and Yi (2012) and Schumacker and Lomax (2010) to at minimum report RMSEA, CFI, and TLI fit statistics. Only SRMR, a fit statistic recommended by Bagozzi and Yi (2012) and Schumacker and Lomax (2010), is not reported, owing to its unavailability in the AMOS package. Its close relation, RMR is instead reported.

Journal reviewers are furthermore advised by Hayduk (2007) and Goffin (2007) to insist on reporting of χ^2, its degrees of freedom (df), p-values in a more comprehensive model fit assessment. This more expansive diagnostic approach (as pursued also in the CFA) helps, for instance, to identify reasons for poor fit that can originate from poor data that do not measure the studied phenomenon (Raykov and Marcoulides 2011).

Absolute and Incremental Fit Indices

There is no silver bullet or singular index that will determine if fit exists (Kline 2010). As a consequence it is recommended to employ a number of fit indices to provide evidence of model fit (Hair et al. 2010; Kline 2010). Absolute fit indices directly measure how well the specified model independently reproduce the observed data using fit indices such as Chi-Square ($\chi 2$), Root Mean Squared Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), the Root Mean Square Residual (RMR) and the Standardised Root Mean Square Residual (SRMR).

Chi-Sq Test

A useful starting point for considering fit is the chi-sq (χ^2) test that tests to see if there is ideally no difference between the observed data and data implied by the specified model (Hoyle 2012). If the χ^2 is large compared to the degrees of freedom then the model does not appropriately mirror the causal process that generated the data (Bentler 1980).

Although χ^2 remains an enduringly popular fit index, it faces limitations in requiring data normality: a model could be rejected/accepted even when it is properly/improperly specified (Tabachnick and Fidell 2007; Fornell and Larcker 1981; McIntosh 2007). Sample size is also important to the computation of the χ^2statistic where small samples may not give rise to significant χ^2 statistics and larger sample sizes run the risk of Type II error (Fornell and Larcker 1981; Tabachnick and Fidell 2007). Kline (2010) argues that the χ^2 statistic can prove forgiving to a level within the bounds of sampling error, but requires that a correct model exists in the population examined. There is little consensus of the acceptable cut-off ratio for this statistic, and authors such as Hair et al. (2010) and Tabachnick and Fidell (2007) suggest a non-significant χ^2 value is preferred.

Root Mean Square Error of Approximation (RMSEA)

RMSEA advises how well the model with unknown but optimally selected parameter estimates would fit the population covariance matrix. RMSEA is a parsimonious technique. Unlike χ^2, it is not affected by sample size and it relaxes the stringent requirement that the model holds exactly in the population. It is thus referred to as a population based index (Kline 2011). Values of less than 0.05 indicate good fit and values as high as 0.08 represent reasonable errors of approximation in the population (Byrne 2001).

Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit (GOF) Index (AGFI)

The Goodness-of-Fit Index (GFI) measures the relative amount of variance and covariance in the sample matrix that is jointly explained by population matrix (Byrne 2001). The main difference between GFI and AGFI is that the AGFI adjusts for the number of degrees of freedom in the specified model with preference given to more parsimonious models (Byrne 2001; Tabachnick and Fidell 2007). Both are susceptible to increasing with sample size and need to be complemented with other indices. GFI and AGFI Values below 0.90 are not usually associated with good model fit (Byrne 2001; Hair et al. 2010; Tabachnick and Fidell 2007).

The Root Mean Squared Residual (RMR)

RMR is a measure of residual variance, reflecting the average amount of variances and covariances not accounted for by the model and is computed based on the scales employed. Where items possess 5 or 7 point scales the RMR may become difficult to interpret (Kline 2010). It is recommended to use the standardised RMR (SRMR) in these instances. Values for the SRMR in of less than 0.05 are suggestive of good fit, but again values need to be judged against parameter numbers and sample size.

Incremental Fit Indices

Unlike in absolute fit indices, incremental fit indices assess fit with a comparison to a baseline model. The Incremental Fit Index (IFI), the Normed Fit Index (NFI), the Tucker Lewis index (TLI) and Comparative Fit Index (CFI) are widely used indices in SEM to assess the relative improvement in fit to the model (Schumacker and Lomax 2010).

Normed Fit Index (NFI) and Comparative Fit Index (CFI)

The Normed Fit Index (NFI) compares χ^2 values of the proposed model to a baseline model. The baseline model assumes all variables are uncorrelated and therefore have no prospect for fit. The value of the specified model can then be determined (Tabachnick and Fidell 2007). As with all incremental fit indices, values range from 0-1 with zero denoting complete lack of fit and 1 denoting perfect fit (Hair et al. 2010). Values equal to or greater than 0.90 is considered good fit (Hair et al. 2010; Tabachnick and Fidell 2007).

Comparative Fit Index (CFI) is considered as an improved version of NFI index and accounts for sample size. Preferred CFI values range from 0 to 1, with values equal to or greater than 0.90 considered a good fit (Hair et al. 2010; Tabachnick and Fidell 2007).

The Tucker-Lewis Index (TLI) or Nonnormed Fit Index (NNFI)

The Tucker-Lewis Index (TLI) and the related Nonnormed Fit Index (NNFI) compare the specified model to the independent baseline model. It is considered sensitive to smaller sample sizes (Kline 2010; Tabachnick and Fidell 2007). Values equal to or greater than 0.90 are considered a good fit (Byrne 2001; Hair et al. 2010; Tabachnick and Fidell 2007).

Parsimony Fit Indices

The Parsimony Goodness-of-Fit (GOF) Index (PGFI) and the Parsimonious Normed Fit Index (PNFI) are developed to consider how model parsimony could be reflected in fit computation. It essentially reflects how simpler models should prove more likely to achieve the desired fit. Although it is difficult to ascertain which fit values are desired, Hair et al. (2010) identify index value ratios to degrees of freedom of 3:1 or less as acceptable (Hair et al. 2010).

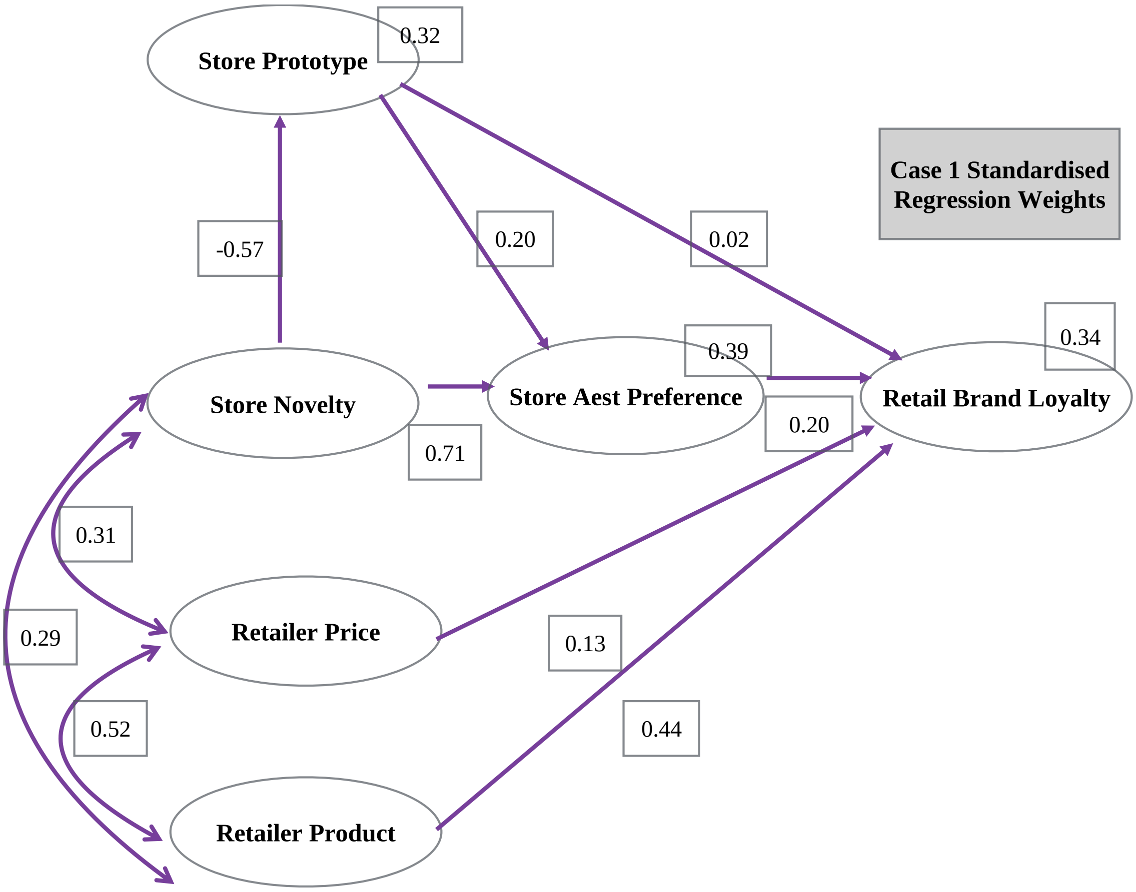
Appendix V

Additional Data

Covariance Matrices for Case 1 and 2 Stores (Excluding Store Complexity)

Case 1	**Retail Brand Attachment**	**Store Prototype**	**Store Novelty**	**Retail Brand Loyalty**	**Store Aesthetic Preference**	**Retail Brand Price**	**Retail Brand Product**
Retail Brand Attachment	1.247						
Store Prototype	-0.048	1.677					
Store Novelty	0.373	-0.826	1.182				
Retail Brand Loyalty	1.006	-0.015	0.206	1.106			
Store Aesthetic Preference	0.296	-0.164	0.373	0.250	0.388		
Retail Brand Price	0.319	0.029	0.231	0.281	0.148	0.452	
Retail Brand Product	0.554	0.027	0.291	0.578	0.244	0.340	0.945
Case 2	**Retail Brand Attachment**	**Store Prototype**	**Store Novelty**	**Retail Brand Loyalty**	**Store Aesthetic Preference**	**Retail Brand Price**	**Retail Brand Product**
Retail Brand Attachment	1.533						
Store Prototype	-0.067	0.952					
Store Novelty	0.243	-0.048	1.617				
Retail Brand Loyalty	1.124	0.043	0.260	1.111			
Store Aesthetic Preference	0.355	0.312	1.182	0.420	1.358		
Retail Brand Price	0.249	0.009	0.008	0.182	0.076	0.349	
Retail Brand Product	0.773	0.093	0.195	0.662	0.355	0.327	1.203
*** Correlation is significant at the 0.0001 level, ** Correlation is significant at the 0.001 level, * Correlation is significant at the 0.05 level (2-tailed), listwise							

Alternative Model for Case 1



Alternative Model for Case 2