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Exploring the Grocery Store Satisfaction of England's Older Population: An Evaluation of Antecedents and Consequences Using Structural Equation Modelling

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STORE

EXPLORING THE GROCERY STORE SATISFACTION
OF ENGLAND'S OLDER POPULATION:
AN EVALUATION OF ANTECEDENTS AND
CONSEQUENCES USING STRUCTURAL EQUATION
MODELLING

ROBERT J. ANGELL

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**Exploring the grocery store satisfaction of England's older
population: An evaluation of antecedents and consequences
using structural equation modelling**

by

Robert J Angell

**A thesis submitted to the University of Plymouth
in partial fulfilment for the degree of**

DOCTOR OF PHILOSOPHY

Plymouth Business School

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Exploring the grocery store satisfaction of England's older population: An evaluation of antecedents and consequences using structural equation modelling

Robert J Angell

Abstract

The number of people aged 60 years and above is increasing in the UK. In total, this age group represents 22% of the population with estimates indicating a rise to 29% by 2050 (United Nations, 2009). One market sector that is extremely important to the health and wellbeing of older people is grocery retail (Khan, 1981). However, little previous research has addressed how older people rate the service delivered by their grocery provider, particularly in regard to satisfaction. To reconcile this gap in theoretical understanding, a sequential transformative mixed-method research design was specified using 36 qualitative interviews and quantitative questionnaires with 524 subjects. A model including both drivers and consequences of satisfaction was formulated using past research. As such, an antecedent scale for grocery store image was developed via procedures suggested in the extant literature (e.g. DeVellis, 2003). Pre-existing scales (i.e. commitment and loyalty) representing exemplary reliability and validity were borrowed and specified as consequences. The scales were modified and integrated into a 'structural equation model'. Older people were found to place a high level of importance in aspects of merchandise, store environment, personnel and services. Price/promotions and clientele were found to be insignificant in driving satisfaction. Differences in factor mean scores and structural parameters were then analysed using 'finite mixture structural equation modelling' to identify segments of similar respondents (Jedidi et al, 1997). Using posterior probabilities, the emerging

segments were subjected to profiling using personal and behavioural variables (Hahn et al, 2002). Market Segmentation showed three groups of similar respondents in the sample population, differing in factor mean scores and psychological operationalisation of satisfaction. Nonetheless, only several differences in personal and behavioural characteristics were found between the segments. Whilst, the results show that segmenting this group is necessary when measuring satisfaction, basing this purely on *a priori descriptive* variables might be erroneous given the inherent levels of unobserved heterogeneity. The model developed and tested in this study is considered the most up-to-date available in the literature.

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author registered for any other University award without prior agreement of the Graduate Committee.

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Students Signature:



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*'I can't get no satisfaction
cause I try and I try and I try and I try'*

(The Rolling Stones, June 1965)

1. Introduction

1.1. Contextual Background to the Research

Global population, particularly in the developing world, is rapidly increasing. However, in the UK social transformation has caused a demographic shift resulting in a burgeoning elderly population. A lower fertility rate, when compared with population replenishment levels, has been cited as an antecedent of the growth in the older age group¹ (Seabrook, 2003). The post-war baby boom segment, as well as increased longevity through medical advancements, provides further causes for such growth (Seabrook, 2003). These transformations are already proving to be significant, since people aged 60 years and above represent a substantial proportion of the population. This trend is predicted to continue. Projections indicate that 16.5 million people in the UK will be 60 years and above by 2050 (United Nations, 2009), representing approximately 29% of the total population compared with 22% (12 million) in 2009.

¹ The "older" or "elderly" age group refers to people aged 60 years and above in the UK. The distinction of "older" age is provided in more depth during Chapter 2.

Such profound changes are expected to have implications for policy makers in healthcare, housing, pensions and finance, transport and business (Dodge, 1958). With regard to business, particularly marketing, respected academic commentators believe that practitioners need to reassess their strategies to capitalise and benefit from these demographic changes (e.g. Moschis, 1992b; Gunter, 1998). This advice is borne from the general perception that older people are often neglected by the marketing and advertising industries (Carrigan and Szmigin, 1999).

Whether or not these industries are responsible for breeding a negative perception of older people is unknown. However, research undertaken by Leventhal (1997) in the United States suggests that people younger than 60 years tend to be naive and misinformed when it comes to understanding the older population. Misperceptions have been exposed surrounding the wealth, health, living arrangements and happiness of those aged 60 years and above (see for example: Moschis, 1992b; Gunter, 1998; Metz and Underwood, 2005). Challengers of these have suggested that the current cohort is significantly different to those of the past (Thompson and Thompson, 2009). In fact, evidence suggests they are wealthier, healthier, more active and more willing to spend than ever before (Metz and Underwood, 2005; Thompson and Thompson, 2009). As such, older people should be considered socially and financially different to previous generations.

For practitioners to realise the potential value of the older segment, more work is thought to be imperative (Thompson and Thompson, 2009). Currently, marketers find it more difficult to identify with an age group many have not yet

experienced (Corlett, 1998; Carrigan and Szmigin, 1999). One way in which this issue could be rectified is through academic research which, to date, has yielded a dearth of devoted studies. Of the research projects that have been undertaken, few are based outside of the United States (Meneely et al, 2008; Thompson and Thompson, 2009). From a British, and European, perspective the significant gap in knowledge has subsequently led to calls for further research:

“Ageing ... is a global phenomenon, and businesses, governments, and non profit organizations need to understand these people and their motivations better” (Szmigin and Carrigan, 2001: 1002)

This study contributes to the wider foundation of research pertaining to the older consumer segment. One under-researched area within this context relates to grocery store satisfaction, which forms an important activity in the everyday life of people given the basic human need for food and nutrients (Khan, 1981). This was, therefore, the focus of the study.

1.1.1. Grocery Retailing

Grocery shopping is an essential activity in everyday life given the basic requirement of food acquisition (Khan, 1981). It is also an activity considered as important by many older people, representing a task which accounts for, on average, 15% of annual total expenditure in age groups of 50 years and above (ONS, 2009c). If grocery retailers are to better understand, and consequently improve the way they serve older people, they must gain insight into their shopping behaviours. In recent times, several studies have invested in gaining a better understanding of this (i.e. Hare et al, 1999 and Meneely et al, 2008). These studies represent work carried out in Scotland and Northern Ireland respectively. In this regard, an exploration of shopping behaviours from an

English perspective was considered particularly useful. An examination of where they shop, how often, their travel arrangements and the factors driving and resulting from different levels of satisfaction, represent several important questions requiring further attention.

To date, most research involving older people, in the context of grocery retailing, has focused on the causes of disadvantage and social exclusion. Issues such as disability, lack of local access, lack of personal transport and financial insecurity are often identified as denying elderly people a balanced and healthy diet (Westlake, 1993; Bromley and Thomas, 1993). Whilst one, or a combination of these, may influence store choice, this is not necessarily synonymous with disadvantage or social exclusion (Leighton and Seaman, 1997). Woodliffe (2007) suggested that disadvantage is manifested in the perceptions held by the individual. For instance, one is only disadvantaged if one *feels* disadvantaged, which is linked intrinsically to satisfaction. It is considered pertinent that research explores how people *feel* about their grocery store. As such, customer satisfaction represents a valuable marketing utility for both academics and practitioners. This coincides with literature that suggests it to be opportune for organisations to address the satisfaction of older customers (Myers and Lumbers, 2008; Thompson and Thompson, 2009).

1.1.2. Customer Satisfaction

The pursuit of satisfying customers is considered one of the most critical objectives undertaken by organisations (Oliver, 1997). Those with satisfied customers have been shown to benefit from higher revenues (Gomez et al, 2004) and market shares (Anderson et al, 2004). As a marketing concept,

satisfaction forms an affective judgement based on whether an experience (product, service, etc.) gratifies certain pre-conceived needs (Oliver, 1997).

Two types of satisfaction are posited in the literature; i.e. transactional and cumulative. The former is most useful in one-off consumer experiences (Fornell, et al, 1996). This includes, for example, a shopping trip or product consumption on a certain date or at a particular time. Contrarily, the latter is based on cumulative experience and is therefore most informative when experiences are regular or observed over a period of time – e.g. grocery shopping (Fornell et al, 1996). In cumulative models, satisfaction is the *pivotal* focus of a complex system or process. This tends to be operationalised using quantitative procedures in which variables are measured using multiple-items (Fornell, 1992). As such, antecedents and consequences are commonly included to identify and assess the most important drivers and most likely outcomes associated with variations of satisfaction (see Fornell, 1992; Fornell et al, 1996). As a result, grocery retail and marketing decision makers are able to establish how satisfaction levels can be improved and consequently how this will relate to key future behaviours such as loyalty (e.g. Fornell, 1992; Fornell et al, 1996; Johnson et al, 2001).

Although several antecedents and consequences have been postulated in the literature, experts have advised that satisfaction models evolve and are thus constantly developed and improved (Johnson et al, 2001). Models should also attempt to represent the industry, organisation, or sample for which the study is based (Johnson and Gustafsson, 2000). They should, therefore, be contextually specific and innovative.

To date, research pertaining to the satisfaction of older people has been applied in the context of financial services (Moschis et al, 2003), shopping malls (Johnson-Hillery et al, 1997; Lu and Seock, 2008), automobile purchases (Lambert-Pandraud et al, 2005), apparel (Shim and Bickle, 1993), as well as grocery retailing (Mason and Bearden, 1978; Hare et al, 1999; Hare, 2003). With reference to the latter context, quantitative studies have been limited to analysing satisfaction on an individual attribute level. This approach provides little insight into the formation of satisfaction. Similarly, these studies have tended to be operationalised using single-item measures, generally regarded as inferior to latent multiple-item scales (see for example Fornell, 1992). Additionally, with the exception of the study by Lu and Seock (2008), which focused on mall shopping in the USA, none have attempted to measure any *consequences* arising from satisfaction. As such, those factors which are both drivers and outcomes of satisfaction had yet to be integrated into a conceptual framework applicable to older people. It followed that a new satisfaction model, for this purpose, was overdue.

1.1.3. Segmentation

A further issue concerning the application of models, such as those applied in satisfaction, is that the data is often treated as homogenous (Jedidi et al, 1997; Hahn et al, 2002). In other words, models are tested following the assumption that relationships between variables are consistent across the entire sample. This may be an erroneous assumption since the older population has been considered as a heterogeneous group. Authors such as Treguer (2002), Metz and Underwood (2005) and Stroud (2005) have commented upon the need to identify and acknowledge the differences between segments comprising the

wider group. This is, in part, owing to the fact that older people age at different rates biologically, psychologically and socially (Moschis, 1992b). During their life-course people have different experiences which induce variance, for example, in behaviours, preferences, needs and expectations (Gunter, 1998). Additionally, other strands of research have suggested that disadvantage and exclusion from the grocery market may influence the perceptions held by customers towards their shopping experiences (e.g. Wrigley et al, 2003). Segmentation is thus critical in any marketing study involving the older consumer market (Chaston, 2009). Against this background, the study's aim and objectives are now presented.

1.2. Study Aim and Objectives

Given issues outlined in the previous sections, it seemed timely that priority was given to research involving the older generation. Grocery shopping is an important activity in everyday life, yet to date, an understanding of the most basic behaviours employed by older people had not been studied from an English perspective. It is particularly critical that retailers have the means to identify and improve customer satisfaction. However, an understanding of how satisfaction is driven and how behaviours are affected was required in order to be of value. Nonetheless, a comprehensive model which includes both drivers (antecedents) and outcomes (consequences) of grocery store satisfaction was not available. What is more, it has been suggested that the older population is heterogeneous. An appropriate segmentation schema was therefore needed. The study aim and objectives were as follows:

Aim:

To analyse and evaluate the factors influencing the grocery store satisfaction of older shoppers in England.

Objectives:

1. To explore and evaluate the grocery shopping behaviours of older people in England.
2. To develop and evaluate an empirical model for measuring customer satisfaction of older grocery shoppers.
 - a. To develop and evaluate the factors driving (antecedents of) customer satisfaction.
 - b. To develop and evaluate the factors resulting from (consequences of) customer satisfaction.
3. To explore heterogeneity within the older population by implementing an appropriate segmentation schema for modelling differences.
 - a. To evaluate any differences in the level of customer satisfaction between segments.
 - b. To evaluate whether there are differences between segments in the operationalisation of customer satisfaction.
 - c. To evaluate if personal characteristics (demographics, behaviours, etc.) differ between segments.

The following section provides a synopsis of how the aim and supporting objectives were addressed through empirical research.

1.3. The Research Approach and Process

In response to the research aim and objectives outlined, an empirical approach underpinned by the pragmatist research philosophy was applied (Plano-Clark and Cresswell, 2008). A thorough review of the extant literature relating to the older consumer segment, grocery retailing and satisfaction measurement guided and helped focus the study. Following the advice provided by 'cumulative' satisfaction experts (Fornell, 1992; Fornell et al, 1996), an innovative conceptual model was developed to include both drivers and consequences (Johnson et al, 2001). Using recent developments in the literature, relationships between variables were hypothesised. For instance, store image factors were specified to *drive* satisfaction (Bloemer and De Ruyter, 1998; Theodoris and Chatzipanagiotou, 2009). Resultantly, commitment (affective and calculative) and loyalty (future intentions, word-of-mouth, price insensitivity) were selected as consequences given their wide uptake in the literature (e.g. Johnson et al, 2001; Gustafsson et al, 2005). The composition of the proposed model, and the relationships hypothesised between them, represented a unique and innovative interpretation of the satisfaction process.

For the development and testing of the conceptual model, a mixed-method approach utilising both qualitative and quantitative research was used. Owing to the fact that a scale for *grocery store image* had yet to be established for older shoppers, a full scale-development procedure was followed (Hinkin, 1995; DeVellis, 2003). In-depth semi-structured interviews were held with people aged 60 years and above (n=36) to elicit store image attributes representing their perceptions of the most important aspects of their grocery store. A blend of convenience and snowball sampling was used to recruit participants, who

belonged to one of six organisations attended by older people. All were located in Devon, south-west England. Data from the interviews were analysed (Miles and Huberman, 1994), yielding a *pool* of 42 store image items. These were taken forward for further scale development using quantitative research.

In the second stage, a postal questionnaire survey was used as the data collection instrument. The questionnaire included questions pertaining to the *pool* of store image items identified through qualitative interviewing. The remaining variables proposed in the conceptual model (i.e. satisfaction, commitment and loyalty outcomes) utilised scales from well established studies, representing exemplary validity and/or reliability (i.e. Fornell, 1992; Fullerton, 2003; Gustafsson et al, 2005). A list of household contacts was purchased from a specialist database company. Subjects on the list were selected using an interlocking quota sampling procedure by gender and geographical location. Respondents were eligible for the questionnaire if they were older than 60 years and claimed responsibility (or joint responsibility) for household grocery shopping. Subjects recalled the store, in which they conducted the majority of their shopping, as the basis for their answers. Following an intensive piloting procedure, resulting in a low 7% response rate, Dillman's (1978) Total Design Method was followed for the full survey. A total of 524 responses (i.e. 28.6%), representing a fairly accurate cross-section of the wider population, were collected as a result.

Subsequent to the testing of multivariate assumptions, including the imputation of missing data (Tabachnick and Fidell, 2007), an intensive quantitative analysis procedure was followed. In the first instance a number of behavioural

characteristics of respondents were reviewed. Specifically, data was assessed to gain a better understanding surrounding *how* people shopped for groceries.

The newly developed *store image* scale was then subjected to exploratory factor analysis (EFA) in SPSS 17.0 using principal axis factoring, revealing a tentative structure. A measurement model incorporating the scales for all other variables was specified using MPlus 5.21 (Brown, 2006). A confirmatory factor analysis (CFA) was performed on the measurement model using maximum likelihood estimation. A thorough analysis and re-specification procedure was followed until the model, and the scales representing it, revealed acceptable levels of fit, validity and reliability (Fornell and Larcker, 1981). Full structural equation modelling (SEM), specified by the hypothesised relationships between variables, estimated how appropriately the model fitted the data. This also showed *how* grocery store satisfaction is operationalised by older shoppers.

To explore heterogeneity in the conceptual model (i.e. mean scores on factors and differences in structural paths), and thus the sample, finite mixture structural equation modelling was applied. In the past, the only way of performing segmentation on structural equation models was through *a priori* multi-group SEM (Kline, 2005). This limited the segmentation of structural models to a single variable. In reality, this approach may be less valid, not guaranteeing true heterogeneity in the sample to be found. Finite mixture structural equation modelling represents a relatively new advancement in the literature (Jedidi et al, 1997) and has been applied infrequently in marketing contexts (see Hahn et al, 2002). This method revealed segments differing in both factor mean scores (i.e. satisfaction levels) and relationships between

variables (i.e. structural path regression weights) in the model. The latter representing differences in how segments operationalise satisfaction with regard to its drivers and consequences. Posterior probabilities for belonging to a segment were assigned on a case-by-case basis, allowing these groups to be profiled using personal and behavioural characteristics. Post-hoc tests were used to examine whether these characteristics significantly differed between segments. This approach represented a new and innovative application of segmentation, providing support for its use in marketing.

1.4. Thesis Structure

This section briefly outlines the contents of the thesis, which is divided into eleven distinct chapters.

Chapter 1 introduces the reader to the research. A brief overview of the study is given and justified and the specific *gaps* in the literature outlined. The aim and objectives, followed by a synopsis of the research approach are given. **Chapter 2** presents an introduction to the older consumer population within the UK. An overview of the relevant literature regarding demographic shifts, the ageing process and the behaviour of the age group are provided. Specific attention is given to the importance of targeting older consumers. Consequently, some misperceptions of older age are evaluated. The need for segmenting this age group is also explored. **Chapter 3** provides insight into the UK grocery market. The relevant literature pertaining to the historical evolution of grocery retailing and how it has contributed to the current market composition is offered. Specific attention is given to competitive forces within the sector. Factors influencing the store choice and preferences of the older population are reviewed. **Chapter 4**

provides an overview of customer satisfaction with regard to its definition, benefits and measurement. Two types of satisfaction are reviewed before a new and innovative conceptual model is proposed using the extant literature. **Chapter 5** details the methodology and specific methods used for the empirical investigation. The research philosophy is postulated and a research design justified as a consequence. Specific issues pertaining to both the qualitative and quantitative procedures are given with an evaluation of the inherent ethical issues. **Chapter 6** presents the data for the qualitative interviews. Following a brief synopsis of some of the key shopping behaviours of those in the sample, a *pool* of research attributes (store image) representing the most salient aspects of a grocery store are listed and justified using quotes taken from participants. **Chapter 7** provides an introduction to the quantitative research analysis. Specific attention is afforded to multivariate assumptions, missing data and descriptive analyses for the personal characteristics and key shopping behaviours of respondents. **Chapter 8** presents the steps taken to develop and test the conceptual model. This includes the development of scales, specification of a measurement model and the analysis of specific structural relationships using full structural equation modelling. **Chapter 9** provides the findings of a finite mixture SEM used to identify heterogeneity in the proposed model. The segmentation is given before the identified segments are profiled using personal and behavioural characteristics. **Chapter 10** provides a discussion of the findings of the research. Specific attention is given to *how* the research objectives were addressed as a result of the study. **Chapter 11** concludes the thesis by providing an overview of how the findings contributed to theoretical knowledge, the ways in which policy makers and retailers can use

and implement these findings, as well as the study's limitations. An insight of how research could be further developed is also provided.

1.5. Summary and Conclusions

This chapter presented an introduction to the thesis. The intention was to provide the reader with an overview of the background to the research problem and the gaps in current understanding that needed to be addressed. Several objectives underlined by an overall aim were formulated and given. There is provision of a brief synopsis of how the aim and objectives of the study were approached. Finally, an outline of the eleven chapters and the contents of each were presented. The following chapter is the first of three chapters devoted to reviewing the extant literature relevant to the study.

*'You are old father William the young man said,
and your hair has become very white;
and yet you incessantly stand on your head -
do you think at your age it is right?'*

(Lewis Carroll, 1865 – Alice's Adventures in Wonderland)

2. The Older Consumer Segment

2.1. Introduction

Since the 1940's, many developed countries have had ageing populations. This has impacted upon business practices including marketing, which to date, has tended to be more focused on younger consumers. Given the extent of demographic shifts, managers and marketers are advised to adapt their strategies to better target and serve the older population². For this, a more informed contextual understanding of the older generation, its role in marketing and the need for change, is required. This chapter addresses these issues in detail.

As such, the chapter is outlined as follows. Firstly, population demographic shifts are reviewed. The nature of ageing is discussed with specific attention afforded to the definition of old age. The chapter moves on to review the older

² The names given to people considered of old age varies considerably. For example, the grey market (Gunter, 1998), older consumers (Moschis, 1992b), elderly consumers (Mason and Bearden, 1978), seniors (Metz and Underwood, 2004), will be used interchangeably.

consumer segment and its role in marketing practice. The need for segmentation is considered, before conclusions are drawn at the close.

2.2. Demographic Shifts

Since 1950, world population has risen from approximately 2.5 to 6.8 billion in 2009 (United Nations, 2009). The increase is most noticeable in less developed regions, which have experienced growth in excess of 400% during this period. More developed regions have experienced comparatively less growth, with a population increase of just 35% from 813 million to 1.2 billion (United Nations, 2009). This trend is predicted to remain constant in the next two decades as world population reaches just over 8.3 billion by 2030 (United Nations, 2009).

Increase of this magnitude indicates a change in demographics towards a younger social make-up. However, forecasts suggest that the opposite is true; we are living in a world 'growing old'. Table 1 shows the recorded and projected number of people in the world who are over the age of 60 years. Global statistics suggest that the percentage of people aged 60 years and above has risen from approximately 8% in 1950/60, to 11% in 2009. By 2050, this is expected to increase to 22%. These changes are likely to be more pronounced in developed regions (United Nations, 2009). Table 1 demonstrates that between 1950 and 2030, the growth of the 60 plus segment of the population in more developed regions such as Europe, North America and Oceania (United Nations, 2006) outstrips that of the total population increase.

Table 1 World Population Statistics for People Aged 60+

Year	World (thousands)	(%)	More Developed (thousands)	(%)	Less Developed (thousands)	(%)
1950	204 974	8.1	95 472	11.7	109 502	6.4
1955	222 793	8	104 533	12.1	118 260	6.2
1960	243 541	8	115 857	12.6	127 684	6
1965	271 732	8.1	130 144	13.5	141 588	6
1970	308 017	8.3	146 714	14.5	161 304	6
1975	345 714	8.5	161 949	15.5	183 765	6.1
1980	378 145	8.5	168 126	15.5	210 019	6.2
1985	424 224	8.7	182 999	16.4	241 225	6.5
1990	482 150	9.1	202 253	17.6	279 897	6.8
1995	540 849	9.5	215 705	18.4	325 144	7.2
2000	608 690	9.9	232 408	19.5	376 282	7.6
2005	672 820	10.3	244 566	20.1	428 254	8.1
2010	764 906	11.1	267 306	21.7	497 600	8.8
2015	896 763	12.3	292 351	23.5	604 412	10
2020	1 037 187	13.5	318 665	25.4	718 523	11.2
2025	1 200 877	15	343 775	27.3	857 103	12.7
2030	1 377 074	16.6	362 884	28.8	1 014 190	14.4

Note: Percentages relate to the proportion of the total population. Cited online United Nations (2006)

For some time now, gerontologists, sociologists and marketers have been aware of how the fundamental social changes in countries such as the UK, USA and Australia, correlate with these population transitions (Thompson and Thompson, 2009). An ageing population has implications for national policies regarding pension funding, housing, healthcare, workforce and marketplace activity (Dodge, 1958). To date, the latter has received scant academic attention in the UK (Ahmad, 2002).

The UK has an ageing population characteristic of most developed nations. In 2009, there were approximately 12 million people aged 60 years or above, representing 22% of the nation's total population. It is estimated that this figure will grow to approximately 29% (16.5 million) in 2050 (United Nations, 2009). It is expected that by 2031, the percentage of adults over 60 years will be more than the number of children under 14 and the fastest growing age group will be centenarians (ONS, 2005b).

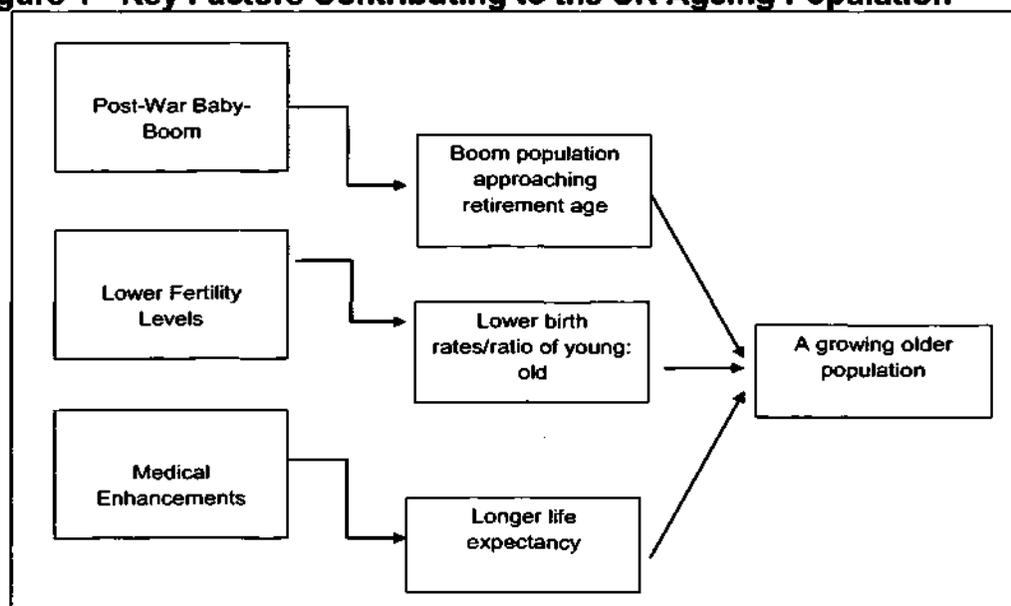
2.2.1. Sources of Demographic Change in the UK

Population shifts in developed countries have been explained as having four atypical stages (Johnson and Falkingham 1992:22). These include:

- 1. An initial stage with high levels of fertility and mortality and low population growth rates. The population has a youthful age profile with a high proportion of young people and relatively few older persons.*
- 2. Mortality rates begin to fall in the second stage while fertility levels remain at a high level. Thus, the natural rate of population growth rises and so too does the size of the population.*
- 3. Fertility rates also begin to decline. The rate of population growth starts to trail off and the proportion of the population who are elderly begins to increase.*
- 4. Fertility and mortality reach equilibrium. Population growth is again low and could be approaching zero. The age structure of the population stabilises with a relatively high proportion of elderly people.*

The UK is currently experiencing a similar transition as that described in stage three. At this point, general population growth decreases and the number of people in older age groups increase. Three reasons have been most commonly cited as explanations. These include the post-war baby boom, lower fertility levels and medical advancements (Moschis, 1992b; Seabrook, 2003).

Figure 1 - Key Factors Contributing to the UK Ageing Population



Source: Compiled by the researcher

2.2.1.1. The Post-War Baby Boom

The term “baby boom” was coined to depict a cohort of the twentieth century born immediately following World War II (Greller and Lee, 1989). After the war, soldiers began to return home. This period from 1946 until 1964 in America, and 1955 to 1975 in the UK, marked a time when couples began to start families. As a result, the birth rate increased dramatically relative to that experienced pre-war (Greller and Lee, 1989). During the 1950-60s attention was drawn to the growing number of children and the impact that this made on society, e.g. education (Doka, 1992). In 1996 the first cohort of the baby boom turned 50 in the USA (Leventhal, 1997). In the UK, the later baby boom has meant that the first boomers only reached this age several years ago. To date, the affect has not been as pronounced as in America, or as it will become in future years (Metz and Underwood, 2005). For this reason, Metz and Underwood (2005) warn against placing too much emphasis on American based studies and that instead, researchers in the UK begin to regard this generation of older people as a priority:

“We need to bear in mind differences [between the USA and UK] when reading across from American experience. We should also be open to the possibility that we could learn from US experience about how this generation behaves as consumers in retirement, despite the differences in national backgrounds” (p.3).

2.2.1.2. Lower Fertility Levels

In 2007, a fertility rate (births per woman) of 1.89 was the highest recorded in over 25 years (ONS, 2009c). This compares to 1.63 in 2001 which was lower than at any time recorded in the baby bust era (directly following the baby boom). However, the UK's birth rate is still not high enough to replace the generation preceding it (Seabrook, 2003). The USA is currently the only developed country with a fertility rate higher than its generation replenishment level (Seabrook, 2003). This has been a consequence of immigration policy, which has allowed the settlement of over 30 million non-Americans. In the UK, the government has adopted similar procedures, allowing the inflow of immigrants. In 2009 over 550,000 people entered the UK, 200,000 more than in 1991 and this is set to stay constant at 190,000 per year from 2014 onwards (ONS, 2009a; ONS, 2009b).

2.2.1.3. Medical Advances

The medical advances in the last century have played a huge part in extending the size of the UK's older population (Carrigan and Szmigin, 1998). Increased knowledge in human biology and the impact of fitness, nutrition and medical technologies have all contributed to raising the life span of the species, i.e. life expectancy (Birtwistle and Tsim, 2005). This has been demonstrated in the past one-hundred years. In 2008, life expectancy at birth for females born in the UK was 81.6 years, compared with 77.7 years for males. This contrasts with 49 and

45 years, respectively, in 1901 (ONS, 2009c). It is also predicted that by 2066 95,000 people in England and Wales will live to the age of 100 years old; twenty times more than in 1996 (ONS, 2005b). Recent discussions in the medical field have speculated about prolonging longevity, ultimately extending the current life expectancy to 120 years and beyond (Moody, 2006).

It is clear that a combination of the post-war baby boom, lower fertility levels and medical advances, have all contributed to the ageing population. Given this evidence, it is perhaps more plausible that the current and future cohorts of the older population will be notably different to those in the past (Moschis, 1992b). One issue that remains, however, is the definition of ageing when it is stated as a chronological parameter. Given the context of the study, this was deserving of exploration.

2.3. Defining Older Age

For a person to grow old, he or she must first undertake the process of ageing (Moody, 2006). Moody (2006) presents ageing as the most inevitable part of human life. As a process, ageing has three main characteristics. Firstly, it is universal. Secondly, it is gradual, progressing with time and an irreversible loss of fitness. Finally, it ultimately leads to death (Wickens, 1998). This procession has been one that has fascinated humans for thousands of years. Historically, man's first interest with ageing dates back to the epic Sumerian legend of Gilgamesh (Bromley, 1990). The Sumerians felt that the ageing process could be controlled through superstition and god worship. The Greeks, and then the Romans, brought a more logical, scientific approach to ageing, and were fascinated by the exchange of reduced looks and mobility with wisdom

(Bromley, 1990). Nonetheless, through the course of history, those who reached old age were respected, but seen as a burden. Eskimos would leave the old to die in the snow from hypothermia. American Indians would do the same when food was in short supply. The Victorians made no provision for old age, making it the responsibility of the immediate family, or the church, to nurse them till death (Bytheway, 1995).

The chronological definition of “old” bears little resemblance to that of the Sumerians, Greeks, Romans, Victorians or even the American Indians. Even so, current-day definitions are arguably over-simplified guess work, often justified unscientifically (Gunter, 1998). A deeper knowledge of the causes of ageing helps to better understand the process. It is now understood that this transition is governed by certain multi-faceted indicators (Moschis, 1992b; Stuart-Hamilton, 2006). Life-course theory, which aligns a person to the stages he or she passes through, is therefore provided.

2.3.1. The Human Life Course

The human ‘life course’ has been conceptualised in several theoretical discussions (see for example Erikson, 1950; Fenkel-Brunswick, 1968; Nicholson, 1980). Nonetheless, one of the best known descriptions comes from William Shakespeare’s “As You Like It”, in which the melancholy character called Jaques describes the seven ages of man as follows: infant, school-boy, lover, soldier, justice, pantaloon, and second childhood. Each act (i.e. ages of man) represents a time of transition and change. This tends to be multi-faceted, indicated independently (or in combinations) by biological, psychological and social changes (see Table 2).

There is still no firm agreement as to the exact chronological age that constitutes this transition. There is also no solid answer to back up the various attempts to accurately formulate this definition. What confuses the issue even further is that many of the changes indicated in Table 2 commence at different times between people. Knowing this, the most appropriate chronological definition has to be approximated based on the ageing process. A theory offered by Fox et al (1984) and French and Fox (1985), is that retirement represents a time of great changes socially, which can trigger faster biological and psychological ageing. Given that the national retirement age for women in the UK is 60 years, and that more men are retiring earlier than before (ONS, 2005b), the definition of an older person in this study refers to those of “60” years and above. This definition also coincides with recent research undertaken in Northern Ireland, in which the authors proposed the threshold between middle and old age to be 60 years (Meneely et al, 2008; Meenely et al, 2009).

Table 2 - Changes Associated with Ageing

Ageing Function	Main Change	Literature
<i>Biological</i>	Hearing Loss	Stuart-Hamilton, 2006; Bellamy, 1995; Sekuler and Blake, 1985; Eggermont and Roberts, 2004
	Vision Loss	Briggs, 2001; Stuart-Hamilton, 2006
	Touch	Stuart-Hamilton, 2006
	Skin, Muscle and Bone Weakening	Morgan and Kunkel, 2007; Briggs, 2001; Stuart-Hamilton, 2006
	Main Organ Efficiency Decline	Briggs, 2001
<i>Psychological</i>	Intelligence & Creativity Decline	Coleman, 2001; Stuart-Hamilton, 2006
	Memory Loss	Coleman, 2001; Stuart-Hamilton, 2006; Botinwick, 1984
	Language and Pronunciation Decline	Mackay and Abrams, 1996; Burke et al, 1991; Stuart-Hamilton, 2006
	Reaction Time Decline	Birren and Fisher, 1995; Stuart-Hamilton, 2006
<i>Social</i>	Social Disengagement	Moschis, 1992b; Mathur & Moschis, 1994
	Depression	Moschis, 1992b; Mathur & Moschis, 1994

Source: Compiled by the researcher

2.4. The Older Consumer Segment

This section looks at the perception of older people as seen by the marketing industry. It then establishes a rationale for why the segment is deserving of greater attention from academics and practitioners.

2.4.1. Neglect and Ageism in Marketing

Despite the seminal paper by Dodge in 1958, it was not until Rena Bartos' (1980) paper, called "*Over 49: The invisible consumer market*", that the older consumer was revealed in a more positive light. Bartos proposed that the market was attractive in size and growth and, at that time, only tapped by needs-based products. Her general notion towards the total marketplace is expressed in the following quote:

"One does not need to be a marketing expert to know that marketers are enchanted, some might say obsessed, with younger consumers" (p.140)

However, the reason for marketers "obsession" with youth may lie in their sceptical view of older people in general. Gelb (1978) clarified this perception as an unwillingness to have involvement in any market segment that is close, albeit not necessarily imminently, to death:

"the same negative conclusion says, in effect, that society cannot afford to give the elderly much influence – they are too likely to die" (p.39)

Others have felt that this view is academic and that marketers should focus their attention on the fact that the over 60 consumer market (in the USA) is the largest and most powerful cohort (Nielsen and Curry, 1997). Although several (but not many) have accepted this, the majority have preferred not to embrace, possibly adopting the sceptical outlook presented by Gelb (1978). Wolfe (1997)

asserted that “too much stress is placed on compensating for older consumers’ declining acuities” (p.295). In essence, a disproportionate emphasis is placed upon the negative aspects of being old, such as having ‘older looking skin’, or suffering from ‘empty nest syndrome’.

Neglect of the older consumer market is blamed to a great extent on the social make-up of the marketing community. Academics are united in the belief that because marketers tend to be under the age of 40, they have little understanding of people older than themselves (Lee, 1995; Corlett, 1998).

Younger markets thus represent familiar territory for them:

“Another reason cited for the focus on youth is that...the marketing industries are comfortable working with younger markets; this is familiar territory, they understand it and since they are not prepared to deal with the challenge of taking on the over-50’s market, they avoid it” (Carrigan and Szmigin, 1999:223)

In general, marketers tend to lack the empathy (Greco, 1989; Bedell, 1998) and information/experience (Moschis et al, 1997) required to appropriately and successfully position products to target the older consumer. However, marketers alone are not solely to blame for this neglect. Academics believe that the practices of the advertising industry, in conjunction with those in marketing, have contributed towards ageist stereotypes and practices (Carrigan and Szmigin, 1999).

One of the earliest studies to accuse the marketing and advertising community of ageism was by Ursic et al (1986). This used a content analysis approach to find the percentage of US magazine adverts featuring people over the age of 50 years old. Their findings suggested that only 1 in 10 adverts contained a person

of a mature age, representing a trend that has changed little over the course of time (1950-1980).

Peterson (1992) used a similar research design to Ursic et al (1986). The findings of his study suggested that, relative to the entire US population, younger models are used more frequently than older ones. Additionally, he found that older models were more likely to be portrayed negatively; especially in brands targeted at younger people. This was corroborated in a UK-based replication study by Carrigan and Szmigin (1998). They reviewed two magazines and newspapers and concurred that fewer older people, particularly women, were evident in advertisements.

In a slightly different context, Harris and Feinberg (1977) found that few older people held authoritative roles in television shows. Of those who did, most were shown in an unflattering light. In a supplementary review of television advertisements, the authors found that few were associated with everyday products such as clothes, appliances, cosmetics and food. Only in those for health aids were people over the age of 60 likely to be shown (21.6% of adverts). Simcock and Sudbury (2006) received complementary results in, what they called, "the first content analysis of the inclusion and portrayal of older models (50+) in UK prime-time television advertising" (p.87). Using this approach, the authors reviewed a total of 2058 television adverts broadcast on weekday evenings. Their findings showed that approximately 25% of all major and minor acting roles in adverts were played by people over the age of 50; far fewer than the authors deemed representative of the wider population.

It is evident that ageism has existed in the advertising and media industries in the past, and although more recent findings have shown improvements in the portrayal of older people (see Langmeyer, 1993), there still remains an element of under representation and negativity. This is not only perceived by older people as a problem (see Festervand and Lumpkin, 1985; Burton, 1999), but also by a growing support of practitioners (Carrigan and Szmigin, 2003; Meneely, et al, 2008). For example, Meenely et al (2008) found that grocery retailers were cognisant to the needs of older consumers, but had no strategies in place to implement them.

With this in mind, it is important that practitioners and academics are aware of the importance and potential that older consumers represent. The following sections provide a more thorough insight into the lives of this segment.

2.4.2. Personal Characteristics, Lifestyles and Behaviours

It is generally accepted that the older segment differs markedly from the wider British population. As previously illustrated, this is in part, the result of the ageing process in which certain biological, psychological and social changes occur. People of this generation have experienced some significant changes in both the physical and social world around them (Gunter, 1998). In the following sections specific attention is given to reconciling some of the most common misconceptions pertaining to the lives they lead (Moschis, 1992b;Gunter, 1998).

2.4.2.1. Population Composition, Living Arrangements and Social Engagement

In 2010, the composition of men to women aged 60-64 years is 48.7% and 51.3% respectively. This compares to the 65-74 years age group in which the

divide is 47.5% and 52.5%. The 75-plus year age group has the greatest disparity, with 42.5% men and 57.5% women (ONS, 2010). These figures illustrate that the longevity of women in the UK is greater than that of men.

The proportion of men to women has implications for the living arrangements of the older population. Table 3 shows that whilst the number of married or cohabitating men older than 75 years is above 60%, this percentage is just 28% for women of the same age. This means that higher proportions of older women (72%) aged 75 years and above live alone. In contrast only 39% of men aged 75 and above live alone. These statistics show that in the older age group (75+) the proportion of men and women living by themselves widens. This is most likely owing to women having a longer life expectancy (ONS, 2010).

Table 3 – Living Arrangements of People Aged 65+ in the UK (2007)

	Men		Women	
	65-74	75+	65-74	75+
Married	76	61	61	28
Cohabiting	2	1	2	0
Never Married	5	7	4	6
Widowed	11	27	23	61
Divorced	5	4	9	5
Separated	2	1	1	0

Source: ONS (2007: 32)

One commonly suggested implication of older people living in single occupancy households is disengagement. For example, 65% of a New York Times survey believed that older people are bored and lonely (Leventhal, 1997). More recent data presented in the Focus on Older People report showed that this stereotype was outdated since they are often more physically and socially active than in the past (ONS, 2005b).

This is not to say that disengagement does not exist. For example, single occupancy for an older person has been flagged as a strong antecedent of this (ONS, 2005b). Nonetheless, research has shown that many older people remain in regular contact with their families. Over 60% of them meet with their children on a weekly basis and more than 80% speak on the phone at least once every seven days (ONS, 2005b). In addition, a greater proportion of both men and women have driving licenses (ONS, 2005b). This affords a greater freedom to engage with friends and family.

2.4.2.2. Finance and Spending

Stroud (2005) suggested that the assumption that all older consumers are either rich or poor is misled. Nonetheless, in the New York Times survey discussed by Leventhal (1997), 50% of respondents believed that the majority of older people lived below the poverty line. This has been shown in the national censuses in America and the UK to be inaccurate (Moschis, 1992b). In the past, discussions tended to conclude that spending power of the group was limited to goods and services such as hearing aids and nursing care (Gelb, 1978). This is no longer the case as current and future older generations benefit from improved pension and retirement plans (Schewe, 1985; Linden, 1986; Metz and Underwood, 2005). In fact, Gunter (1998) noted that the biggest sources of expenditure, nowadays, are recreational services and food produce.

A study by the Office of National Statistics (ONS) in the UK called "Pension Trends" found that people of pensionable age have a gross income of approximately £250 per week (ONS, 2009b); of which investments and private

pensions supplement the state pension. In fact, average gross pensioner incomes increased by 39 per cent in real terms between 1994/95 and 2006/07, greater than the growth of average earnings (ONS, 2009b). This has reduced the number of people living in poorer situations. An ONS (2005b) report found that the percentage of pensioners living in households with an income below 60 per cent of the median in 2003/04 was lower (20%) relative to the entire population (22%). Pensioners tend to feel they are living comfortably, with just 2% claiming to find it “quite” difficult to get by. Nonetheless, it cannot be ignored that 15% of all pensioners are solely reliant on the state pension scheme (Metz and Underwood, 2005). As such, average incomes vary considerably between poorer and wealthier pensioners. In 2006/07, couples in the highest income quintile had a median net income 3.8 times greater than those in the lowest. Similarly, single pensioners in the highest quintile had a median net income 3.1 times higher than those in the lowest (ONS 2009b). It is also true that the under 75's, have a higher gross income than the over 75's. This is possibly the result of better work based pension schemes (ONS, 2009b).

Whilst there are currently income disparities between the younger (60-74 years) and older (75+ years) age groups, in future years, this is less likely to occur. Metz and Underwood (2005) provided characteristics for successive generations based on income trends. As a result, financial insecurity is less likely to be a burden to consumerism as each generation passes. The current generation, aged 50 years and above is important given that they will begin the transition into old age (60+) in the forthcoming years:

- **Over 75's** – many, particularly older women, have no financial wealth at all. There are considerable inequalities in income, more than 40% of

those aged 75 and over claiming some income-related benefits from the state. For many in this generation their most significant asset is a home, more than half owning the property outright.

- **Over 60's** – many have benefited from growth in occupational pension schemes. Levels of home ownership and equity ownership are higher than in the previous generation.
- **Over 50's** – the post war baby boom are likely to benefit from a further increase in pensioner income as they move into retirement. The majority will have belonged to occupational pension schemes and women are more likely to have a pension in their own right. Levels of home ownership and equity are higher than before.

As a consumer group, the over 60's represent a lower risk segment in a range of sectors. One reason is their dislike of credit based purchases (Gunter, 1998), opting to pay for products and services in full. They are also considered to be a "recession resistant market" (Chaston, 2009), mainly because their spending is often unaffected by employment and other financial commitments such as mortgages and other loans. Pensioners (aged 60 for females and 65 for males) are also considered to have higher household savings and wealth than non pensioners. Table 4 shows that 33% of households shared by couples, in which one or both is over the pensionable age, have £20,000 or more in savings. Likewise, 17% of single pensioners have the same value of savings. This is greater than younger, non pensionable aged households with 18% and 11% respectively.

Table 4 – Savings in Households without Dependent Children (%)

	No Savings	Less than £1,500	£1,500 but less than £10,000	£10,000 but less than £20,000	£20,000 or more
Households without Dependent Children					
One adult, over state pension age	20	23	28	12	17
One adult, under state pension age	31	28	23	7	11
Two adults, one or both over the state pension age	13	16	24	14	33
Two adults, both under state pension age	19	23	28	12	18

Source: ONS (2009a: 79)

In general, the older consumer segment has higher income than in the past. It also has higher monetary savings compared to other age groups with lower expenditures. This indicates a higher *disposable income*, which some academics consider to be the most important gauge of spending power (e.g. Dodge, 1958; Moschis, 1992b). It is suggested that greater outright home ownership (66% of over 60's), coupled with smaller households (ONS, 2005a), is the main contributing factor driving larger disposable incomes (Dodge, 1958; Longino, 1991). A comparison of expenditure between age groups is provided in Table 5. These figures clearly show that households with people aged 65 and upwards have, on average, lower weekly expenditures than younger age groups, presumably as a result of lower costs (e.g. mortgage, dependents, etc.).

Table 5 – Average Weekly Household Expenditure by Age in 2003

Age Group	30-49	50-64	65-74	75+
Average number of persons per household	3	2.2	1.7	1.4
Average weekly expenditure per person (£)	165.6	202.5	157.3	122.6
Total expenditure per week (£)	496.9	451.4	270.9	177.2

Source: ONS, 2005a: 41

2.4.2.3. Health and Recreational Activities

It is often suggested that older people are frail and in poor health. The New York Times survey conducted by Leventhal (1997) found that 75% of respondents believed the majority of older people live in care homes (Leventhal, 1997). However, being old is not necessarily synonymous with restriction. George Moschis used a quote by Arthur Anderson, a Scottish geriatrician to demonstrate this point:

“sick old people are sick because they are sick, not because they are old”

(cited in Moschis, 1992b: 22)

Nonetheless, despite Anderson’s assertion, the signs of reduced biological capabilities are more prevalent with age. For example, common ailments include arthritis in 50% of all people aged 60 years and above, mobility problems in 35% and dementia in 5% (ONS, 2005b).

However, research shows that often older people feel younger than their chronological age (Metz and Underwood, 2005; Mathur and Moschis, 2005; Myers and Lumbers, 2008). This is reflected in the perceptions they have of their own health. As such, only 18% of men and 20% of women above 60 years claim to suffer from “not good health” (ONS, 2005b). Whilst the percentage of

those suffering in this way tends to be evenly spread across the younger groups, by the age of 75 years this rises from 19% to 25% in men and 19% to 28% in women. This is in keeping with findings from the 2001 UK census (ONS, 2001), which reported that almost 20% more people in the 75-84 year age range claimed a long term illness limiting them from normal activities (i.e. approximately 58%), compared with those in the 65-74 year age bracket.

Despite these findings, the older population as a whole are far from being frail and institutionalised (Gunter, 1998). This has been evidenced by the uptake of greater physical activities and the emergence of the lifestyle philosophy of "healthy ageing" (Metz and Underwood, 2005). For example, increased free time, particularly following retirement, has been shown as a determinant in pursuing hobbies and interests. These include participation in social organisations, physical activities and relaxing at home. For example, over 15% of men and 26% of women are actively involved in a church or religious organisation. Similarly, following retirement over 15% of both men and women are involved in charitable organisations and 18% are members of sports clubs (ONS, 2005b).

The over 60's also dedicate a significant part of their day to television, radio, reading and household chores. On average, someone in the 65-74 age range will spend in excess of four and a half hours a day on these activities (ONS, 2005b). This rises as people move into the 75+ age bracket when physical activities become more difficult (Kelly, 1990). For some, travelling is a popular past-time in later years. Approximately 60% of the 60-64 age group travel abroad at least once a year. Kelly (1990) demonstrates the activity patterns of older people in the following quote:

“Age is seen as an index of multifaceted change rather than a cause. People do not do less because they are older. Rather age is correlated to a number of changes that impact leisure participation...different periods of later life may be characterised by different levels of activity.” (p.159)

2.4.2.4. Shopping Behaviour and Consumption

Shopping is a regular and enjoyable activity for many older people (Gunter, 1998). Often, however, their needs differ from the wider population. In the following chapter this is discussed regarding food shopping. However, there are some distinctive traits within the shopping and consumption behaviour of the segment.

In the main, older consumers tend to shop directly from the store (Moschis, 1992b). There is some evidence to suggest that in the future alternative methods, for example online shopping, will become more popular (Polyak, 2000). The Internet uptake is higher in the younger baby boomer age categories. For example, approximately 55% of the youngest cohort (50-54) approaching old age regularly go online, compared to less than 10% of those 80 years and above (ONS, 2005b). In their qualitative study, Myers and Lumbers (2008) found that in general, older people perceive themselves as “needing” to purchase relatively fewer products than younger people. Expenditure for the older segment is more focused on everyday items, eating out, financial services and travel. Nonetheless, the store environment provides an excellent forum for interaction and socialisation (Kang and Ridgway, 1996; Myers and Lumbers, 2008). In addition to the social aspect of shopping, Myers and Lumbers (2008) found that older consumers considered shopping a form of leisure. As such, mixed use trips, combining shopping and other recreational activities, were less frequently undertaken to concentrate on the former.

Older consumers also consider themselves to be experienced and successful shoppers of both products and services (Moschis et al, 2000). This means that they can be demanding and, if unable to find what they want, are content to go elsewhere (Moschis et al, 2000). There is evidence to suggest that older consumers share a strong sense of moral responsibility in their purchasing behaviour. Carrigan et al (2004) found that they place importance on ethics and are therefore willing to engage in affirmative purchasing and boycotting should they consider it necessary. Gunter (1998) suggested that loyalty is also extremely important to the older segment. Whilst as a consumer group they are willing to “shop” around for what they want, if their needs and expectations are met, they demonstrate a propensity to be loyal (Fox et al, 1984).

A well researched area involving the older consumer group is its heterogeneous composition. Academics have suggested that, whilst some traits and behaviours are consistent in older age, the segment remains multi-faceted and complex (Moschis, 1992b; Gunter, 1998; Myers and Lumber, 2008). Hence, ways in which groups of similar people can be classified has been attempted in a number of studies. This is addressed in the following section.

2.5. Segmentation

As the previous sections have demonstrated, the size and growth of the over 60 year old market is expansive. As such, researchers have contended the perception that this age group, drawn from a variety of demographic, psychographic and behavioural backgrounds is homogenous (Bone, 1991; Oates et al, 1996; Gunter, 1998; Ahmad, 2002, 2003; Clark, 2009). Clark (2009,

p.24) asserted that a “one-size-fits-all approach is turning consumers away...” Resultantly, academics and practitioners are advised to consider the wider older consumer group as heterogeneous, consisting of a number of smaller related segments (Moschis, 1992b; Moschis 1996). Nonetheless, finding the most appropriate segmentation strategy for putting this into practice is more difficult. Segmentation is defined as:

“the process of splitting customers into different groups, or segments, within which customers with similar characteristics have similar needs. By doing this each one can be targeted and reached with a distinct marketing mix”

McDonald and Dunbar (1995: p.10)

In general, there are two main approaches for segmenting: a priori and post-hoc. Wind (1978) suggested that in using a *priori* segmentation, the researcher first chooses variables of interest such as age, gender, etc, and classifies people accordingly. Therefore, the size and description of segments are known in advance. Conversely, in *post hoc* or response-based segmentation, the researcher chooses a battery of interrelated variables, by which person-by-variable scores are then clustered into groups. The researcher often has little idea of the size, number and type of segments in advance of this strategy.

Whilst both a *priori* and *post hoc* segmentation methods have their distinct strengths and weaknesses, the use of either should depend on the research questions employed. For example, the former is well suited to testing specific hypotheses related to individual variables, whereas the latter is more exploratory and inductive, incorporating a wide range of explanatory variables (Wedel and Kamakura, 2000). It is also true that *post hoc* strategies tend to be more statistically intensive (Wedel and Kamakura, 2000).

In recognition of heterogeneity in the older consumer population, a number of studies have applied segmentation strategies to identify smaller sub-groups. Table 6 presents some of the foremost.

Table 6– Previous Segmentation Studies Using the Older Population

Researcher(s)	Segmentation Type	Segmentation Variables	Emerging Segments/Typologies
Towle & Martin (1976)	<i>Post hoc</i>	Psychographics and buying style	Saver/planner, Brand loyalist, Information seeker, Economy shopper, Laggard, Conspicuous consumer
Neugarten (1975)	<i>A priori</i>	Age and Health	Young/old, Old/old
Bartos (1980)	<i>A priori</i>	Socioeconomic	Active affluent, Active retired, Homemaker, Disadvantaged, Poor health, Other
Timmerman (1981)	<i>A priori</i>	Age	55-64, 65-74, 75-84, 85+
Fox, Roscoe & Feigenbaum (1984)	<i>A priori</i>	Age and retirement status	55-64 retired, 65+ retired, 55-64 employed, 65+ employed
French & Fox (1985)	<i>Post hoc</i>	Adjustment to retirement	Reorganiser/focused, Succorance seeker, Apathetic, Holding on, Disengaged
Visvabharathy & Rink (1984)	<i>A priori</i>	Age	65-74, 75-84, 85+
Tongren (1988)	<i>A priori</i>	Workforce participation	Employed, Retired
Sorce, Tyler & Looms (1989)	<i>Post hoc</i>	Lifestyle	Self reliant, Quiet introverts, Active retirees, Young and secures, Solitaires, Family oriented
Bone (1991)	<i>Meta Analysis</i>	Demographic, lifestyle, psychological	Economic, Health, Activity, Discretionary time, Response to others
Moschis (1996)	<i>Post hoc</i>	Psychographics and lifestyle	Healthy hermits, Ailing outgoers, Frail recluses, Healthy indulgers
Sudbury and Simcock (2009)	<i>Post hoc</i>	Demographics, lifestyles, consumer behaviours and Psychographics	Solitary Sceptics, Bargain-hunting belongers, Self-assured sociables, Positive pioneers, Cautious comfortable

The first academic paper to attempt segmenting the older market was by Towle and Martin (1976). Noting six different buying behaviour characteristics, 33 demographic and psychographic variables were used in a *post hoc* cluster analysis. This revealed six clear segments which the authors proposed showed different types of buying style.

Following Towle and Martin (1976), a number of researchers investigated the role of specific demographic characteristics. For example, Neugarten (1975) considered the premise that following retirement – a major life change – people were either young-old or old-old. This was based on the perception that *health* changes were the major cause of differences between people in the segment. As such, illness has since been considered as a fairly critical criterion for behavioural activity.

Other researchers have chosen to use different criteria, including the more widely applied socio-economic (Bartos, 1980) and age-based segmentation (Timmerman, 1981; Visvabharathy & Rink, 1984). Both of these *a priori* approaches have been criticised when used independently (Stroud, 2005). Segmentation using chronological age is particularly ill-advised as people grow older biologically, psychologically and socially at different rates (Stroud, 2005). Some researchers have called for the use of *cognitive age* as a replacement. The groups are therefore segmented based on how old the person *feels*, as opposed to their true age (Johnson, 1996; Mathur and Moschis, 2005).

Alternative outlooks on segmentation were provided by Fox et al (1984) and Tongren (1988). These authors considered retirement as an integral changing

point in the lives of older people. This is related to *disengagement theory* in which a person removes themselves from society allowing for the next generation to come through (Gunter, 1998). In a slightly later study, French and Fox (1985) considered "adjustment" to retirement as being a more significant indicator. As such, it is not the literal transition into retirement that changes people, but psychologically the way in which it is embraced. By analysing people based on psychographical data using *post hoc* clustering methods, researchers have been able to segregate people into lifestyle and life-cycle groups. For example, Sorce et al (1989) clustered people based on the lifestyle they led, finding evidence for six distinct segments. Similarly, George Moschis adopted the psychographic approach when segmenting people based on a large amount of American data (Moschis, 1992b; 1996). Using the procedure he labels *gerontographics*, Moschis compiled a list of 136 life-cycle and psychographic questions. He then clustered the responses into four distinct segments. Moschis claims that these segments capture the most prominent stages of older life when aspects of *biological*, *psychological* and *social* ageing are considered. A similar, but less extensive, approach was more recently used by Sudbury and Simcock (2009). Using a variety of variables ranging across psychographic, lifestyle, demographic and consumer behaviour scales, the authors identified six distinct types of older person.

A number of different variables (and scales) have been used in past research to better understand the differences exhibited in, and by, older people. An aspect that both *a priori* and *post hoc* segmentation have in common, is that when they are used to measure variations in marketing constructs (e.g. shopping behaviour, satisfaction, etc.), it is necessary to firstly perform the segmentation

(e.g. cluster analysis) and then compare the marketing construct across the emerging segments (Wedel and Kamakura, 2000). The chronology of this two-step procedure can be problematic when the objective is to explore variation in the marketing construct. This is because it assumes that all heterogeneity is accounted for in the segmentation procedure. In this situation, a more logical and conservative approach would be to identify differences in the marketing construct and segment people into groups based on these variations. Essentially, this represents the two-step procedure in reverse as it firstly accounts for heterogeneity and then groups people using segmentation variables (Wedel and Kamakura, 2000). This tends to be the approach taken in many *shopping typology* studies in which respondents are classified into groups based on similarities in their perceptions of important aspects of a retail offering. Profiling will often follow as a result. This represents, in part, the *motives* people wish to gratify from shopping at their choice of retail store. They are thus an analysis of the *benefits* people wish to attain. As such, a number of studies have segmented respondents based on their orientation towards a particular shopping *type*. These include, for example, Tauber (1972), Westbrook and Black (1985), Jarratt (1996) and Arnold and Reynolds (2003) – this is discussed further in Section 3.3.1.

A recent addition to the literature has been the advent of finite mixture modelling (McLachan and Peel, 2000; Wedel and Kamakura, 2000). In these models a more specific segment structure can be tested. This tends to follow a similar logic to the shopping typologies mentioned above in that respondents are segregated based on similarities in their responses to questions. This has been most successfully applied when *benefits* desired by respondents are

represented in the model (see Jedidi et al, 1997; Hahn et al, 2002). The use of *finite mixture modelling* is discussed in greater depth in Section 5.6.7, with particular emphasis on segmenting respondents using structural equation models.

2.6. Calls for Further Research

Given the expansion of the older population, coupled with the growing influence they are perceived to have now and in the future (Ahmad, 2003), there have been several calls for more research to be undertaken. This is especially important in the UK where considerably less research has been conducted. The majority of studies, particularly towards the end of last century, have originated from the USA (see Long, 1998; Szmigin and Carrigan, 2001). As mentioned previously, the impact of the baby boomers was seen earlier in the USA than in the UK. What is more, the incoming generation of boomers is considered to be significantly different from the last (Myers and Lumbers, 2008). Selected comments made in UK-based studies are given in Table 7.

Table 7 – Selected UK Calls for Further Research into Older Consumers

Meneely et al. (2008), p.346	<i>“The older consumer segment warrants greater attention as a population segment with great potential for future profitability, and it is essential that their particular needs within the food and other service sectors are met”</i>
Grougiou and Wilson (2003), p.367	<i>“One can therefore conclude that more research on the financial service delivery requirements of the grey market is urgently needed”</i>
Ahmad (2002), p.358	<i>“From the demand side, how do ageing customers in the UK make their buying decisions? What are the factors that influence them to buy a particular product or service? Can words of mouth play an influential role? What are the factors that influence them to stay with or continue to patronize their suppliers of food and services? How can firms retain them?”</i>
Szmigin and Carrigan (2001), p.1012	<i>“Continued research, both qualitative and quantitative, will provide an ongoing longitudinal analysis of how populations are changing”</i>

2.7. Summary and Conclusions

The world's population is growing old. This is particularly true of the developed world in which birth rates are lower, medical enhancements have increased longevity and the dominance of the post war baby boomers are approaching retirement. As a market, the over 60 year old segment should naturally be considered as an important consumer group for managers and marketers. Nonetheless, it has been shown that the marketing and advertising industries operate in a manner in which older people tend to be neglected or badly portrayed.

Neglecting these consumers is surprising. This consumer segment is markedly different to previous generations in its level of income. In part this is attributed to the improvements in pensions, investments and savings. At the same time, older people are less disengaged and lonely than stereotypes suggest (Moschis, 1992b). Whilst the health of older people deteriorates with age, the emerging philosophy of "healthy ageing" encourages greater amounts of recreational and social activity (Metz and Underwood, 2005).

Segmentation was also considered a particularly important tool in identifying differences between members of the older consumer population. This is especially crucial given its purported heterogeneous composition. Whilst a number of studies have used different segmentation strategies, to date these approaches do not guarantee the identification of disparate segments when analysing marketing constructs such as customer satisfaction. A new and alternative approach which reverses the two-step segmentation procedure called finite mixture modelling was introduced and is discussed in Chapter 5.

This makes the explicit link between satisfaction and segmentation, clustering older people (in part) based on variances in the former. The following chapter introduces grocery retailing and store choice.

3. Food Retailing and Store Choice

3.1. Introduction

Grocery shopping represents an important activity in everyday life. Food provides vital nutrients required for the healthy functioning of the human body (Khan, 1981). In the UK, the contemporary retail arena has experienced prolific evolution since the 1990's. This has spawned a highly competitive market of multiple³ retailers and thus, fewer independent⁴ stores (Seth and Randall, 2001). Unsurprisingly, these changes have impacted upon the provision of grocery retailing, and consequently, store choice. As older people are biologically, psychologically and socially different to other age groups, their needs from a grocery store are considered as different (Moschis et al, 2000). As such, this chapter identifies and reviews the aspects of a grocery store most important to older people. Additionally, the general personal characteristics thought to influence this decision are considered. These include: household location, personal transport, physical mobility and wealth.

The chapter is structured as follows. Firstly an overview of the role of food in people's daily lives is given. This is followed by a synopsis of change in the UK's grocery market over the past century. The situation and composition of the current market is then provided, before finally, an overview of store choice

³ The term multiple retailers refers to one of several retail enterprises under the same management (Seth and Randall, 2001).

⁴ The term independent retailers are privately owned businesses (Seth and Randall, 2001).

factors, specifically concerning older people, is presented. Summary and conclusions are given at the close of the chapter.

3.2. Grocery Retailing

In the UK, mean grocery purchases for all ages account for £50.70 of the weekly budget and are the third largest expenditure in the average annual household (ONS, 2009c). This represents approximately 10% of average household expenditure. For the over 50 years age group, only “transport”, “housing” and “recreation and culture” costs absorb more of the average weekly expenditure than the purchase of food and non-alcoholic drinks. These figures are evidenced by the £5 billion increase in expenditure on groceries since 2003 (KeyNote, 2008). In 2009, the UK grocery sector was worth an estimated £146.3 billion (IGD, 2009). Approximately 70 percent of all purchases for groceries were made in supermarket chains⁵ during 2009 (ONS, 2009c).

As can be seen, groceries represent an important aspect of spending in the UK. The following section looks at why food is important as a form of nutrition. The review will then focus on food retailing in the UK, with specific regard to its evolution through time, the industry’s current market composition and, as a result, competition.

⁵ Supermarkets are large store selling groceries and household items and are normally part of a larger company with multiple stores. They are larger than the grocery store, but smaller than the superstore formats.

3.2.1. Nutrition

Grocery retailers play a specific and important role in the health of people. In his seminal paper on food selection and food preferences, Khan (1981) highlighted the importance that food has both in terms of physiological and psychological wellbeing:

“Food carries symbolic meanings and has psychological significance beyond its nutritive value, which becomes secondary for many consumers. In fact, a person selects food rather than nutrients for his/her diet” (p.129).

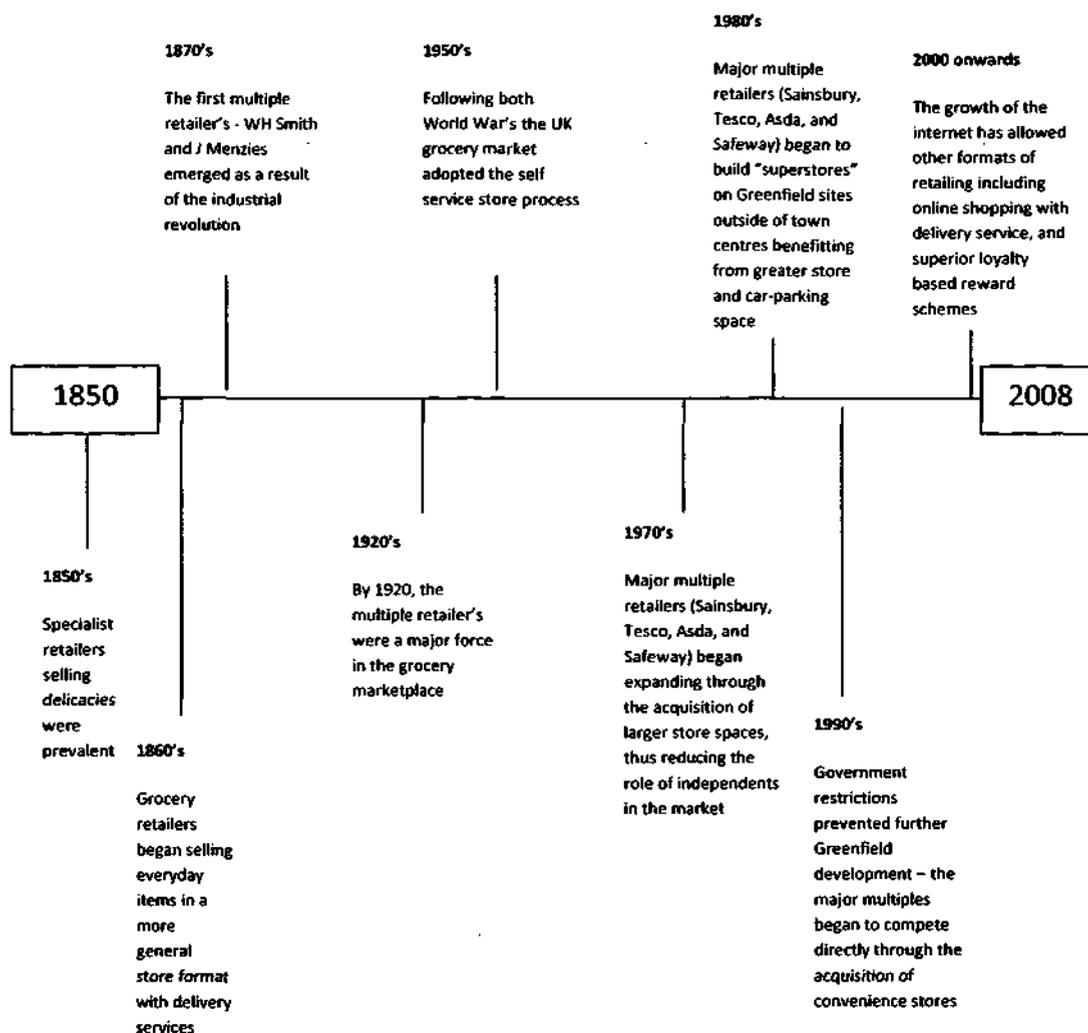
To encourage healthy eating, the British Government has introduced several initiatives to increase consumer education and advise the grocery industry (Davies and Worrall, 1998; Jones et al, 2006). Foremost bodies now include the National Advisory Committee on Nutritional Education and the Committee on Medical Aspects of Food Policy (see Wenlock, 1988; Wardle, 1993). Such agencies suggest that diet-related illnesses cost the tax payer approximately £2 billion in medical healthcare per year (Jones et al, 2006). It has thus become the corporate social responsibility of the grocery retailer to supply the necessary products and provide practical advice to customers about how to organise and manage a healthy nutritious diet. This includes guidelines such as “*Choosing Health*”, and “*Choosing a Better Diet*” - reports issued by the Government in the past decade (see Department of Health, 2004; 2005). This serves as a demonstration of how the grocery industry has been forced to change in recent years.

The following section reviews changes in grocery retailing, outlining how these have shaped its current composition.

3.2.2. Historical Evolution of Grocery Retailing

Like many retailing sectors, the grocery store format has evolved through time. In some periods this change has been gradual and in others more rapid. Little is known about grocery retailing practices pre-1850. However, it is believed that the most significant developments occurred between 1850-1900 and post World War II. The twenty-first century has brought similar change but on a larger scale (Seth and Randall, 2001).

Figure 2 - Timeline of Major Grocery Retailing Changes Since 1850



Source: Compiled from the work by Jefferys, 1953; Seth and Randall, 2001

3.2.2.1. Period 1850-1920

Until 1850, most urban and rural households grew and cooked their own food. The grocery store was for the wealthiest clientele, stocking a variety of imported goods such as dried fruits, spices, fine teas, coffee and sugar (Blackman, 1967). Housewives sourced flour from the mill and meat straight from the farm. The corner shop format emerged by 1850 and is generally regarded as the precursor of the food store in the UK (Jefferys, 1954). Even so, this format is not synonymous with that of today. Grocers were skilled craftsmen, specialising in their chosen trade. Farmers would sell cheeses, milk and eggs. Similarly, bakers would sell breads and greengrocers would offer produce from allotments (Seth and Randall, 2001). During the period 1850-70, retailers diversified stocking greater ranges of produce, and by the 1860s, most held general household items (Blackman, 1967).

Increased economic and technological advances in the latter part of the nineteenth century afforded the opportunity to import raw materials more cheaply from abroad, reducing the cost per item of most products (Seth and Randall, 2001). In response to the better trading opportunities presented by an industrial workforce and transportation, retailers began to grow their portfolio of stores – i.e. the rise of the multiple retailer (Jefferys, 1954). By 1920, there were more than 450 retailers with nine or more stores. However, at this stage, the “one-shop” grocery retailer was still the most representative of the grocery market.

3.2.2.2. Period 1920-1970

Between 1920 and 1946, the UK experienced one of its most damaging economic depressions (Seth and Randall, 2001). Seth and Randall (2001) suggest that this was a contributing factor towards the mass standardisation of grocery products. The multiple retailers continued to grow, although not at the rates seen in the lead up to 1920 (Jefferys, 1954). Nonetheless, store format changed markedly (Seth and Randall, 2001). Retailers became concerned with hygiene and promotion. Stores were kept immaculately clean and their windows installed with fresh produce to entice shoppers. Glass cabinets displayed product range, breadth and selection. As many shopkeepers stocked products from a small number of suppliers, price competition did not apply. Instead, retailers differentiated themselves using “service”, many offering deliveries for all clients (Seth and Randall, 2001).

Trading increased in the early 1950s as the population began to grow (Jefferys, 1954). The grocery retail market continued to look for ways to expand. One such method was the development of self-service shops and supermarkets (Seth and Randall, 2001). These had been successful in the USA, offering lower staffing costs and yielding higher profit margins. This was particularly attractive for the multiple retailers who used savings to offer greater product variety in more spacious stores. Smaller stores continued to serve the local community using the service quality principles developed during the 1930-40s (Seth and Randall, 2001). Nonetheless, it was the multiples which gained the greatest market share in the period 1950-1970.

3.2.2.3. *Period 1970-1990*

By the 1970s, most grocers had realised the potential that size offered in terms of cost savings and profits. In 1978 alone, the multiples bought and closed 350 smaller shops, opening a further 60 supermarkets of 10,000+ square feet (Tanburn, 1981). Whilst the number of grocery stores in the UK fell dramatically from 105,283 to 68,567 (Seth and Randall, 2001), the area of floor space occupied by grocery retailers saw a steady increase. In essence, the UK was being served by fewer retailers with greater product ranges and discounts (Seth and Randall, 2001). Independent retailers were still prominent at the beginning of this era, but began to lose dominance during the mid to late 1980s, when the multiples, led by Sainsburys, Tesco, Safeway and Asda (also known as the *big four*) increased their stakes in the market through acquisition and expansion.

3.2.2.4. *Period 1990 - 2000*

Bevan (2005) refers to the development of the grocery industry in the post-1990 era as the most rapidly changing and competitive yet. By the start of the 1990s, the 'big four' occupied the largest market share and were looking for ways of developing their position further. One strategy was the growth of "out-of-town" shopping centres; a grocery format started in the 1980s using greenfield sites. These offered greater store and car parking space. Often, such developments were either an anchored tenant in their own right, or adjoined to a similarly sized Marks and Spencer expansion (Fernie, 1995). The "out-of-town" stores were most often larger than the traditional supermarket composition and were labelled 'superstores' (25,000+ square feet) or 'hypermarkets' (50,000+ square feet) (Seth and Randall, 2001).

At the same time, an existing but growing format began to play a more dominant role (Hogarth-Scott and Rice, 1994). The “discounter” retailer broke into the UK market with a limited number of stores in the late 1960s. Offering “no frills” food and service, these promised the cheapest possible food (Hogarth-Scott and Rice, 1994). By the 1990s, the discounter market consisted of Kwik-Save, Netto, Aldi, Iceland and Lo Cost. In 1992, they shared a 7.8% stake of the UK grocery sector (Hogarth-Scott and Rice, 1994). The multiples realised the potential of the “discount” market and, without sacrificing their brand image, increased the quantity of products sold under their own label (Hogarth-Scott and Rice, 1994). A further development in the mid-nineties was the growth of the “premium” (high quality, high price) retailers, such as Marks and Spencer’s Food and Waitrose (Seth and Randall, 2001). The premium retailers offered a smaller selection of predominantly “own-label” products. Their differentiation was based on product and service quality, through targeted advertising campaigns and higher price premiums (Bevan, 2005). With the UK’s strong economy at the turn of the century, plus a stronger emphasis on health and diet-related responsibility through Government initiatives, the premium retailers capitalised on the opportunity to grow.

Towards the end of the century, the multiple retailers anticipated the market slowing, with profits diminishing. As a result, they implemented strategies to attain revenues through other means (Seth and Randall, 2001). Each of the “big four” set about the distribution of non-consumable product and service lines, which included magazines and newspapers, home entertainment products, white goods and household items, insurance packages, apparel, holidays, tailor and locksmith services and many others (Bevan, 2005; DataMonitor, 2005;

Moreau, 2008). This expansion diverted the potential risk of market saturation, allowing further growth (e.g. KeyNote, 2007).

Another factor causing change in the composition of the UK grocery market occurred in the mid-nineties. The “Gummer” effect relates to two amendments in the “Planning Policy Guidelines” made by the Department of the Environment (DOE). Under Note Six, *Town Centres and Retail Development* (DOE, 1993; 1996), and Note Thirteen, *Transport* (DOE, 1994), the future development of “out-of-town” supermarkets was debarred. At that time, the Government felt it necessary to preserve as many Greenfield locations as possible, whilst encouraging the re-vitalisation of town centre food shopping (Wrigley, 1998). The “out-of-town” developments had provided the opportunity for great amounts of growth, whilst allowing the “local” independents the advantage of *convenience* (Fernie, 1995). To continue their own growth, the multiples adapted to the DOE amendments through the acquisition of smaller convenience stores in inner-city locations (Baron et al, 2001; Bromley and Thomas, 2002; Wood and Browne, 2007). Popular sites included central positions on the high street, local neighbourhood communities and petrol station forecourts (Wrigley, 1998). The effect of competing for customers directly with the major multiples was too problematic for many independent retailers. This caused a decline from 24,000 stores operating in 1996, to 22,000 in just two years (Gordon and Wilson, 1999).

3.2.3. Current Market Composition in the UK

The development of the grocery market in the UK is, in part, a product of its evolution in the last century and a half. Since the turn of the twenty-first century,

the grocery market has continued to grow (see KeyNote, 2008). In 2009 a report written by IGD Research showed it to be worth over £146.3billion (see Figure 3).

Figure 3 – UK Grocery Market Composition



Source: IGD, 2009: 10

Figure 3 shows that the majority of grocery expenditure in the UK is spent in the hypermarkets, supermarkets and superstores multiples (£105.8billion). The multiples own £92.8bn of this market and also have a fairly significant stake in the £30.3billion a year convenience sector. Independent stores control £6.9bn

(i.e. 22.7%) of the convenience market. Symbol groups, such as Spar and Costcutter, composed of independent retailers trading under a franchised structure, control 37% of the convenience grocery market.

3.2.3.1. Competition

Owing to the size and dominance of the grocery market in the UK, the rivalry between competing retailers is fierce (Table 8). In 2009, Tesco was the outright market leader with 30.7% share. Asda, second in the market with 17.3% market share, has strengthened its policy of penetrative pricing since being acquired for £7 billion by USA market leader Wal-Mart in 1999 (Seth and Randall, 2001; Bevan, 2005). Additionally, Sainsbury's lost market share to both Tesco and Asda having been replaced as market leader in 1995 (Seth and Randall, 2001). Following its merger with Safeway in 2004, Morrisons joined the "big four", now having 11.7% market share. This move has helped extend the gap between fourth and fifth position in the market. The discounter companies (e.g. Aldi, Lidl, Iceland, Netto etc) have less than 10% between them. In total, all other co-operatives, as well as the independent retailers control a small proportion of the market (7.5% in total), providing evidence of how rapidly the grocery sector has changed (TNS, 2009). The present composition of the UK's grocery industry appears to be 1) extremely competitive, and 2) dense enough to adequately supply all consumer groups and locations. Both these assumptions have been questioned, raising legal, academic and media doubts over the sector's structure and ability to foster competition fairly. Researchers, such as Wrigley (1987, 1991) have indicated that the sector is bonded as an oligopoly in which inequitable competition is inevitable and commonplace.

Table 8 – Grocery Market Leaders in the UK

	Retail Formats	Trading Names	Number of Stores (2006)	Market Share (2009) 12 weeks to 1st November 2009
Tesco	Supermarket, Superstore, Hypermarket, Convenience, Online	Tesco, Express, Metro, Superstores, Extra, Tesco.com	1,898	30.7%
Asda	Supermarket, Superstore, Hypermarket, Convenience, Online	Asda, Asda Wal-Mart Supercentre	356	17.3%
Sainsbury's	Supermarket, Superstore, Hypermarket, Convenience, Online	Sainsbury's, Local, Sainsbury's.com	752	15.9%
Morrisons	Supermarket	Morrison	373	11.7%
Somerfield	Supermarket, convenience, online	Somerfield, Somerfield.com	1,424	2.6%
Waitrose	Supermarket	Waitrose	173	4.0%
Other Multiples (i.e. Iceland, Aldi, Netto)				8.7%
Other Co-ops				5.3%
Total Independents				2.2%

Source: Collated from figures in Bevan (2005); TNS (2009)

The oligopolistic nature of the UK grocery market has caused particular concern about the loss of control to suppliers and consumers (Wrigley, 1987; 1991). The power that the intermediary (i.e. the retailer) has over the price paid for products and its subsequent selling price has been especially highlighted as problematic (Clarke et al, 2002). Burt and Sparks (2003) pointed out that once the retailer has accrued enough market control to have power over suppliers, they are able to grow at a quicker rate than the competition. A monopoly situation ensues when one or sometimes two companies have grown to a size where competition is not possible on product price, quality and range (Burt and Sparks, 2003).

In May 2006, following a study into the UK grocery sector (see OFT, 2006), under section 131 of the 2002 Enterprise Act, the Office of Fair Trading (OFT) released an official report stating that the Competition Commission would be compiling a full investigation. The content of the report suggested that the “big four” supermarkets (particularly Tesco) had assumed excessive market power, depleting fair competition from outside retailers – especially independents. It drew attention to the recent move of multiples into the convenience store sector, as well as their facility to open extended hours (often 24 hours a day):

“...the four largest supermarkets have consolidated their share of total food retailing since 2000, and supermarkets (particularly Sainsbury’s and Tesco) have expanded into the convenience store sector, competing directly with smaller chains and independent stores.” (OFT, 2006:5)

The investigation began in 2006 and was completed in April 2008 (Competition Commission, 2008). The findings did not show any evidence of a “run-away” monopoly, despite Tesco’s significantly higher market share. There was similarly no evidence of them deliberately running smaller competitors out of business. The investigation did find, however, that the multiples (particularly the

“big four”) made unfair demands on suppliers and were competing unfairly at the local level. Hence, the Competition Commission (2008) has subsequently implemented the recommendation that multiples revise supply chain strategies and that no one retailer can open new outlets if they own 60% sales space in a locally designated catchment (DataMonitor, April 2008).

Given the nature of the grocery sector in the UK and the competition it fosters, it is hardly surprising that consumers are consequently affected by its composition. This is particularly the case when it comes to store choice. The following section considers the grocery shopping behaviour of older people and reviews some of the most important determinants impacting on where people shop. The specific aspects of the store most important in driving this decision, particularly to older people, are also considered (i.e. store image).

3.3. Grocery Store Choice of Older Shoppers

Shopping is an activity that extends beyond the acquisition of food. For example, grocery shopping provides a form of exercise for older people, keeping them mobile (Gunter, 1998). It also provides an outlet for independence, the opportunity to keep involved with the community and gives a level of social interaction between shop employees and other customers (Lumpkin et al, 1985; Hibbert and Tagg 2001).

Store choice is critical when measuring customer satisfaction. An established strand of marketing research relates store image to store choice, in which a shopper weighs aspects of the grocery store (i.e. attributes) by importance and evaluates whether shopping there meets personal needs. Previous studies

have also shown that the requirements of older shoppers, in regard to salient store attributes, differ from the wider population – in some cases owing to biological, psychological and social changes. As such, certain personal characteristics have been considered to influence store choice; i.e. household location, personal transport, physical mobility and wealth.

3.3.1. Store Image

When a consumer has a positive impression of a grocery store, they are more likely to frequent it (Megicks et al, 2008). Therefore store choice is, in part, the product of positive perceptions towards a retailer. These perceptions are generally based on a series of factors combining to provide a complete *image* of the store (Zimmer and Golden, 1988). *Image* relates to a global judgement (Dichter, 1985) whereby the overall impression is greater than the sum of its parts (Oxenfeldt, 1974). The overall retail store *image* is thus divided into aspects critical to the overall evaluation based on previous experience (Kunkel and Berry, 1968). These are referred to as *store image factors* and consist of “specific” attributes that are important in the context given (Lindquist, 1974). Hansen and Deutscher (1977) made an important distinction in classifying the components of image. They suggested that retail image consists of *attributes* (the narrowest, most specific constructs) and *dimensions* (the most general constructs). Hansen and Deutscher also asserted that attributes (and dimensions) with higher levels of importance assigned to them indicated the benefits desired by shoppers. These “benefits” are often referred to as *motives* and reflect the needs and wants of particular customers (Sheth, 1983). These originate from a perceived discrepancy between actual and desired states. They are believed to be overcome by shopping at a particular outlet (Morschett et al,

2005). As such, motives may differ between people and extend beyond the practical and utilitarian towards the hedonistic and social (Tauber, 1972; Bellenger and Korgaonkar, 1980; Westbrook and Black, 1985; Babin et al, 1994; Arnold and Reynolds, 2003). As such, Bellenger et al (1977) have explained store choice to be the product of firstly, the presence or fulfilment of aspects of the store considered most important to customers (i.e. salient store attributes), and secondly, performance for those attributes higher than other alternative stores. Store image factors have, in part, been the basis of the *motivational typologies* discussed in Section 2.5 (Morschett et al, 2005; Megicks et al, 2008). As such, shoppers are classified into groups representing similarities in the *benefits* they wish to attain from shopping at a store.

In the seminal typology study, Stone (1954) found that both economic and social motivations were important in his classification of department store shoppers. He categorised shoppers into Economic, Personalizing, Ethical, and Apathetic consumer types. Support for his typology was provided by Darden and Reynolds (1971) who implemented a quantitative methodology. Slightly different shopper types were identified by Williams et al (1978) who found evidence for the existence of low price, convenience, involved and apathetic shoppers. Jarratt (1996), in her study of Australian rural shoppers looked at motivational strength towards the shopping offer, environment and service. She identified the existence of practical, service, experiential, moderate and product-focused shopping types. Whilst completing a motivational typology such as the ones mentioned is not within the remit of the current study, they do serve to show how shoppers can differ in what they consider to be important in a retail store and therefore the benefits they wish to attain. This type of *post hoc*

segmentation was shown to be much more effective when the causes and extent of heterogeneity is largely unobserved (see Section 2.5). Accordingly, recognition of “important” factors and attributes delineating store image perceptions has created much academic attention in the past fifty years. Researchers have proposed many variations in this typology. This is classified as follows in Table 9.

Table 9 – A Typology of Store Image Factors

Physical Environment/Atmosphere	Westbrook, 1981; Kunkel and Berry, 1968; Zimmer and Golden, 1988; Mazursky and Jacoby, 1986; Lindquist, 1974; Bell et al, 1997
Sales Personnel/ Service	Hutcheson and Moutinho, 1998; Westbrook, 1981; Kunkel and Berry, 1968; Zimmer and Golden, 1988; Mazursky and Jacoby, 1986; Lindquist, 1974;
Merchandise Quality and Assortment	Westbrook, 1981; Dawson et al, 1990; Kunkel and Berry, 1968; Zimmer and Golden, 1988; Mazursky and Jacoby, 1986; Lindquist, 1974; Bell et al, 1997
Convenience	Hutcheson & Moutinho, 1998; Bellenger et al, 1977; Kunkel and Berry, 1968; Zimmer and Golden, 1988; Mazursky and Jacoby, 1986; Lindquist, 1974
Processes	Zimmer and Golden, 1988; Lindquist, 1974; Bell et al, 1997
Price/Promotions	Hutcheson and Moutinho, 1998; Westbrook, 1981; Kunkel and Berry, 1968; Zimmer and Golden, 1988; Mazursky and Jacoby, 1986; Lindquist, 1974; Bell et al, 1997
Additional Facilities	Hutcheson and Moutinho, 1998; Bellenger et al, 1977; Kunkel and Berry, 1968; Bell et al, 1997

The next sections look at the store attributes most important to older grocery shoppers. An attempt is made to present the most salient store attributes as found in past research. However, many studies have not contextualised these explicitly as store image attributes. Whilst the typology in Table 9 is given, empirical research is needed to extend this to the context of older people

3.3.1.1. Physical Environment/Atmosphere

The physical environment/atmosphere dimension incorporates a range of attributes which hold particular significance to the older segment. Hare et al (1999) found that older shoppers like consistency in the layout of the store. They do not like it when stores "reorganise" merchandise, as it makes items harder to find, thus extending the length of time allocated to the shopping trip (Lumpkin et al, 1985). Similarly, Johnson-Hillery et al (1997) found that when the *amount* of merchandise stored on shelving displays was high, older shoppers were uncomfortable with ensuing crowding in the aisles. It was also found that crowded aisles made it more difficult to find items. In general, it was desired that aisles were wider and better lit, making merchandise easier to see (Lumpkin et al, 1985). It was also preferred that items were placed in positions that would avert injury (Pettigrew et al, 2005). At the same time, Johnson-Hillery et al (1997) found it important that shelves were adequately marked with easy-to-see price labels (Tongren, 1988). In terms of the general atmosphere of the store, Mason and Bearden (1978) found that relaxing music, coupled with a pleasant smell, helped shoppers to feel more comfortable.

3.3.1.2. Sales Personnel/Service

Sales personnel and service quality are important considerations to older people. In some cases they are the most important aspects of the store (Pettigrew et al, 2005). Older shoppers have shown preference towards sales personnel of a similar age, or those with obvious experience or knowledge of their job (Johnson-Hillery et al, 1997). In addition to social interaction with shop staff, Hare et al (1999) and Pettigrew et al (2005) found that the provision of

assistance within the store to be very important. This included help with locating products, packing shopping bags and unloading trolleys in the car park.

3.3.1.3. Merchandise Quality and Assortment

The quality of merchandise is of significant importance (Burt and GAbbot, 1995). In general, older shoppers like to attain the highest level of quality within their budget (Lumpkin et al, 1985). They particularly like branded produce, as this is perceived to signal quality (Goodwin and McElwee, 1999; Moschis et al, 2004). It is also important that grocery retailers supply products tailored to specific needs (Johnson-Hillery et al, 1997). Hare et al (1999) identified the value of smaller package sizes which helps to prevent waste. Additionally, they do not want products that patronise, or make them feel “different” from other age groups (Lumpkin et al, 1985). It has also been suggested that the older segment are actively looking for ethically sourced or derived produce, considering this an important factor in their decision making (Carrigan et al, 2004).

3.3.1.4. Convenience

The convenience of the store is particularly relevant to older shoppers with mobility or transport difficulties. Moschis et al (2004) found that store proximity to home was far more important to the older segment than to younger shoppers. Access (Mason and Smith, 1974), good parking facilities (Goodwin and McElwee, 1999) and appropriate provision of disabled spaces for the frailest customers (Lumpkin and Greenberg, 1984) were all identified as important. For people without personal transport, it was imperative that the retailer was well served by bus and taxi facilities (Mason and Smith, 1974; Hare et al, 1999).

3.3.1.5. Processes

Pettigrew et al (2005) found that older people like to use trolleys that are in good working order and regularly cleaned. They also prefer stores carrying shallow depth trolleys which minimises excessive bending and are less inhibiting to push around. Equally important is the role of 'checkouts'. Goodwin and McElwee (1999) found that older shoppers preferred stores offering better facilities at the checkout such as a packing service. In terms of payment, Tongren (1988) found that older shoppers preferred not to carry cash and therefore opted to pay for goods using credit card facilities.

3.3.1.6. Price/Promotions

Several studies have flagged the importance of price and promotions. For example, Goodwin and McElwee (1999) found that many older shoppers are particularly attracted to stores where they believe they receive "value-for-money". Similarly, they like price discounts as opposed to quantity discounts (Lambert, 1979; Hare et al, 1999). There is also research suggesting that older shoppers look favourably towards stores offering senior citizen promotions (Lambert, 1979; Moschis et al, 2004). However, Tepper (1994) and Lumpkin and Greenberg (1984) suggest that senior discounts are not important as it portrays them as being less independent.

3.3.1.7. Additional Facilities

Lumpkin et al (1985) found that when undertaking a "larger" shop, older people wanted toilet facilities to be provided. Equally, it was found that seating throughout the store and a shop cafe helped to make the shopping experience less tiring.

The retail factors discussed here are by no means an exhaustive list of attributes salient to older people. This is especially true since the typology encompasses several decades of research. Further research was needed in this regard. Additionally, the retail attributes are presented as if they apply to all members of the older population. The reality is that the older segment is heterogeneous and certain store attributes are likely to be more (or less) important to some people than others (Gunter, 1998; Moschis et al, 2004), especially since people often seek different benefits. Store attribute salience, and consequently store choice, has been shown to be influenced by several general personal characteristics. This serves to illustrate that satisfaction may be associated with certain personal characteristics. Household location, transport access, health and wealth, is now discussed.

3.3.2. Household Location

There is evidence to suggest that where a person lives can have an influential role in store choice and shopping frequency. For example, McKie (1999) found that the frequency of grocery store visits differed between people living in urban and rural areas. This is not synonymous with old age and, therefore, applies to people of all age groups (Guy, 1985). In the main, urban shoppers have better transport routes to larger stores and therefore tend to shop more regularly than those in rural areas. In part, this may be as a result of “food deserts”, a concept that received much attention at the turn of the twentieth century (Wrigley et al, 2003). Kaufman (1999) found that people living in rural areas of the Lower Mississippi Delta in the United States were served by far fewer stores than their urban counterparts. This shortcoming suggested that residents were more reliant on smaller independent retailers offering a limited selection, often

charging higher prices. In fact, Kaufman predicted that rural residents paid upwards of four percent higher food prices and had to travel up to 30 miles before prices decreased. In a Scottish study undertaken in the Highlands, Skerratt (1999) found that a limited provision made the residents wholly reliant on their local village store. As such, many people did not receive the choice or quality of food to maintain a healthy diet.

Food deserts are not only exclusive to rural locations; much of the research has stated that certain urban areas also suffer from poor provision. In the 1990s, the British Government led a policy debate about the importance of reducing inequalities in health levels (DOH, 1996). The debate that ensued focused on the linkages between poor health, compromised diets and access to supplies of healthy affordable food (Wrigley et al, 2003). Since then, academics have assessed the existence of urban *food deserts* in selected UK locations – i.e. Cardiff, Leeds, Bradford and Glasgow (Cummins and Macintyre, 1999; Skerratt, 1999; Clarke et al, 2002; Guy et al, 2004; Wrigley et al, 2004). Often, where access to food is difficult, choice of outlet is limited, prices are higher and there is a lower selection of merchandise and services (Cummins and Macintyre, 1999).

3.3.3. Personal Transport

Having personal transport has also been found to influence grocery store choice (Bromley and Thomas, 1993). A lack of this not only restricts older people, but those of all age ranges (Guy, 1985). There are greater numbers of older people with access to personal transport than in the past (see Chapter 2). However, the over 75's, particular single women, experience less personal transport mobility

than many other demographic backgrounds (ONS, 2005b). According to Bromley and Thomas (1993), car ownership is the necessary distinction between exclusion and non-exclusion from the grocery market. Their viewpoint is corroborated in a report provided to the Minister of Public Health:

“Food deserts, the Minister of Public Health was told...are those areas of cities where cheap, nutritious food is virtually unobtainable. Car-less residents, unable to reach out-of-town supermarkets depend on the corner shop where prices are high, products are processed, and fresh fruit and vegetables are poor or non-existent.”

(cited in Whitehead, 1998:189)

With a sample of customers drawn from the Greater Swansea area, Bromley and Thomas (1993) showed that car access explained high amounts of variance in the elicited behaviour of grocery shoppers. This is especially prevalent in rural locations where people are more reliant on local stores (Kaufman, 1999). There was also evidence to suggest that city dwelling residents were similarly affected by the exodus of supermarkets moving to out-of-town locations (Clarke et al, 2002). It should be noted that Bromley and Thomas (2002) specifically asserted that ‘carlessness’ is only an issue when residential dwellings are poorly located and/or the public transport network is inadequate; people are not disadvantaged where transport mobility is good. Following Government rulings encouraged by the Competition Commission (2008) document, it is suspected that growth for the multiple retailers will be focused in city locations and relatively under-served areas of grocery provision (DataMonitor, April 2008). This may or may not limit the impact of lower choice on those without transport or a well served public transport network. Whilst related to the availability of personal transport and residential dwellings, physical mobility and health has also been considered as an important pre-requisite of social exclusion and thus store choice decisions.

3.3.4. Physical Mobility

Health, transport and household location are interrelated in influencing store choice. This is especially true for older people as ageing often leads to reduced physical mobility (ONS, 2005b). Westlake (1993) found that the physically disabled and those suffering from long term illnesses were less mobile and thus more reliant on local retailers offering accessibility advantages. In certain areas, specifically those considered to be “food deserts”, the store choices available were found to be very limited. In a study undertaken in the city of Leeds, Wylie et al (2004) found that health levels affected food choice and nutritional intake of elderly people. The authors found that many people responsible for their own shopping, particularly those living with limited food provision or without transport, had an inadequate diet. Williams and Hubbard (2001) received similar findings. In their study, they concluded that limited choice is really no choice at all for the physically disadvantaged. Using a regression analysis, the authors suggested that poorly provisioned areas, carelessness and health problems were all detrimental to the number of store choices available to grocery shoppers. What is more, when one or more of these personal factors are exhibited, the issue of store choice is further compounded. Williams and Hubbard (2001) also found that household income and wealth were relevant to choice.

3.3.5. Wealth

The suggestion that lower expenditure for food limits store choice was first found in a US based study by Sexton (1971). Sexton compared 15 studies using data collected regarding the cost of food for people of black and white ethnicity. He found that these studies provided evidence that the black community paid statistically higher prices for food relative to their white

counterparts. The reason, Sexton suggested, was that certain segments of the black community were obligated, as a result of restricted mobility, to shop at the local convenience store. Moreover, the selection and cost were less favourable and often the black community paid more for less (Sexton, 1971). In the United States this discussion extended beyond racial inequalities, finding it to be more an issue of wealth (e.g. Mayer and Scammon, 1993; Chung and Myers, 1999). In a study of grocery customers in California, Mayer and Scammon (1993) found that larger supermarkets directly competed through offensive pricing and service strategies. This resulted in supermarkets being more appealing than smaller local grocers. However, people from poorer areas without access to supermarkets could only shop at the more expensive local stores. Donkin et al (1999) looked at the price of food in different areas of London. Their findings suggest that whilst food outlets are common, in many areas the cost of a healthy diet is almost 50% in excess of the amount of money available to those in receipt of income support. Additionally, supporting studies by Chung and Myers (1999) and Leighton and Seaman (1997) confirmed that income and wealth only impacts elderly people when combined with restricted mobility and/or a limited provision of grocery stores.

Owing to instances where people suffer disadvantages such as poor household location, transport, physical mobility, wealth or combinations of the above, some authors have suggested that satisfaction with the grocery store should be lower than for those with more choice (see Leighton and Seaman, 1997; Williams and Hubbard, 2001). Woodliffe (2004, 2007) purported that this should not be pre-determined based on the existence of certain personal characteristics. Instead, she suggested that people are only disadvantaged when they feel this way and,

thus, satisfaction is more a product of meeting a person's needs. Similarly, store image and the four personal factors outlined can be considered as interrelated as the importance assigned to aspects of a store (e.g. store attributes) are often complexly intertwined between preferences and outcomes regarding personal characteristics (see Dawson et al, 1990). For example, those with lower income may place a greater importance in pricing policies. When measuring satisfaction, it is considered important that the personal characteristics discussed here, as well as others, are included to gain a better understanding. The role of store image in driving customer satisfaction is discussed at greater length in the following chapter.

3.4. Summary and Conclusions

This chapter has presented some of the most pertinent issues pertaining to the grocery industry in the UK. As food represents a vital feature of both psychological and physiological health, it is not surprising that grocery shopping is an important and regular activity in people's lives. Accordingly, food expenditure in the UK is in excess of 10% of most household's average income. This is even higher for older shoppers aged 60 years and above (10-15%).

The food industry has experienced considerable change and evolution in the past century. To demonstrate how this has shaped the current market composition, a timeline of events was provided and discussed. As a result of the dominance of multiple retailers, competition in the market is fierce and in need of careful scrutiny by commission authorities. This has implications for store choice.

Given the biological, psychological and social changes older people transcend, it is inferred that store needs differ between age groups. As such, the importance assigned to different aspects of the grocery store was considered to differ between older and younger people (Moschis, 1992b; Gunter, 1998). In keeping with this, store image factors with salient attributes found in past research were given. Since these represent the most important aspects of a grocery store to older people, it is believed that these will also be the most critical in evaluations of satisfaction. As studies which consider the most salient attributes to older people vary in focus (i.e. whether store image or not), the need for a re-evaluation was briefly mentioned. Certain personal characteristics, potentially influencing what shoppers (including older shoppers) consider as important were also described. These included household location, personal transport, physical mobility and wealth.

The following chapter presents the measurement focus of the current study, i.e. satisfaction. A proposed conceptual model and structural hypotheses are presented as a result.

'I am easily satisfied with the very best'

(Winston Churchill, 1942)

4. Customer Satisfaction, Conceptual Model Development and Hypotheses

4.1. Introduction

Achieving a high level of customer satisfaction has become increasingly relevant in both the business-to-consumer and business-to-business marketplace (Fornell, 2007). Satisfaction is important to both consumers and organisations. Consumers have been shown to benefit emotionally from a satisfying experience with a product or service (Oliver, 1997). Similarly, studies have shown that organisations can obtain monetary gratification from endeavouring to keep customers satisfied (Fornell, 1992; Fornell et al, 1996; Anderson et al, 2004). For organisations, the benefits leading to increased profits are manifested in several ways. This chapter shows that satisfying customers is critical, but measuring and estimating satisfaction is especially important if the product and service is to be maintained or improved. Given the context of this study, it is especially important that the factors responsible for improving the satisfaction of older shoppers are explored. It is therefore necessary that effective and predictive models of customer satisfaction are developed. To date, this has tended to be completed on a transactional (one time experience) or cumulative (repeated experiences) basis. However, both types of model must evolve if they are to remain useful (Johnson et al, 2001).

This chapter is structured as follows. Firstly, a definition of satisfaction is provided, linking its original meaning to our current understanding. Secondly, an

overview of the key benefits in satisfying customers is reviewed. This presents satisfaction as an important marketing variable. This is followed by a review of both transactional and cumulative satisfaction. Cumulative satisfaction is presented as appropriate in high-consumption situations. Using this paradigm, an innovative model for measuring satisfaction is presented with specific hypotheses detailed and justified.

4.2. Defining Satisfaction

As a concept, satisfaction has been studied in a variety of subject disciplines. Two foremost areas are life satisfaction (Neugarten, 1996) and job satisfaction (see Locke, 1976). In more recent times this has been extended into the consumer marketing literature with a predominant focus on customer satisfaction (Oliver, 1980).

The word “satisfaction” originates from the Latin words *satis* and *facere* meaning “enough” and “to do” (Rust and Oliver, 1994). These together make *satiation* which loosely relates to the current day expression: “enough to excess” (Rust and Oliver, 1994). The impression of the “mere fulfilment” of one’s needs is not necessarily aligned with its definition today. Satisfaction remains complex and has been the subject of many varied interpretations (Giese and Cote, 2002). The framework proposed by Oliver (1997) presents satisfaction as an emotional response to stimuli, i.e. products, services, outlets and salespeople. Defining satisfaction is also confused by whether or not it is seen as a process or an outcome (Yi, 1990). Certain interpretations suggest that satisfaction is simply an outcome – an end state (see Howard and Sheth, 1969). Nonetheless, there is an increasing consensus that satisfaction is an

evaluative process, one that the consumer regularly updates (Yi, 1990; Giese and Cote, 2002).

Satisfaction measurement is a complex area of marketing and remains fairly dependent on the stimuli in question and the person making the assessment (Yi, 1990). This definition by Oliver (1997) provides a thorough overview of these main issues:

“Satisfaction is the consumer’s fulfilment response. It is a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption related fulfilment, including levels of under- or over-fulfilment”. (Oliver, 1997:13)

In other words, satisfaction is the outcome of whether or not a consumer experience fulfils certain needs. Strength of satisfaction is then mediated by the level of affective pleasure (e.g. love, like, neutral, dislike, hate). This same definition has been substantiated through medical research (see Fornell, 2007). In the satisfaction process, the body releases the neurotransmitter chemical “dopamine” prior to the consummation period. Dopamine allows the motor systems in the body to realise the extent of fulfilment required in comparison to the personal effort expendable (e.g. time, money, situation etc). For this reason, dopamine is invariably referred to as a chemical enabling predictability – a judgement of what will happen in the future. When a satisfaction judgement is made, a person compares it to the state experienced when dopamine was first released.

For satisfaction to be worthy of interest, the benefits it accrues should be explored and evaluated. The following section outlines some of the foremost advantages of satisfying customers.

4.3. The Benefits of Satisfying Customers

Products, services and experiences that achieve high levels of satisfied customers is thought to give a substantial competitive advantage (Oliver, 1997). Fornell (2007) explained that in today's marketplace, the customer has more control over the products purchased than ever before. If customers are unsatisfied with an organisation, they often have the power or the means to go elsewhere. If they do not, satisfaction provides a gauge of disadvantage. Even in monopoly markets, it is unusual to find suppliers providing less than adequate service, as dissatisfied customers provide the impetus for competition to enter (Fornell, 2007). The driving benefit of satisfying customers is increased sales performance and revenues. For example, using data collected from a large sample of Swedish companies, Anderson et al (1994) modelled the effect on return-on-investment (ROI). Using an ascending ten-point Likert scale, the authors were able to show that, on average, an annual one-point increase in satisfaction was positively correlated to a net present value (NPV) increase of \$7.48 million over five years. Nonetheless, it should be noted that this does not necessarily infer that excessive investment into satisfaction yields greater profitability past a certain point (Gomez et al, 2004). Depending on the organisation, as well as the market structure and size, an equilibrium point will exist where inputs into satisfaction no longer supersede the returns (Fornell, 2007).

There are also wider benefits of producing a national economy with organisations capable of satisfying customers. Recent developments in the satisfaction literature suggest that the impact of satisfaction may be seen on both a micro (i.e. organisational) and macro level. As such, Fornell (2007) has

proposed that satisfaction is implicitly linked to economic performance on a local, national and global scale. He suggests that when satisfaction decreases, the economy suffers. This logic has been shown to predict the stock market to higher than average returns (see Fornell et al, 2006). Fornell's reasoning intertwines with economic theory:

"We don't often speak of economic performance and customer satisfaction in the same sentence, but the relationship is all too evident. In a competitive market, satisfied customers are more likely to come back for more, while dissatisfied customers are less likely to do so. When customers don't return, potential transactions go up in smoke, leading to excess inventories and unused service capacity. Layoffs and unemployment follow, bringing about a plunge in discretionary income and consumer spending." (p.17)

It follows that satisfaction is an extremely good predictor of wider financial performance. Therefore, the measurement, tracking and evaluation of customer satisfaction should be a central concern to organisations, academics and policy makers. The most pertinent issue, nonetheless, is how satisfaction should be measured.

4.4. Measuring Customer Satisfaction

Satisfaction data in consumer research has traditionally been collected via survey methods and tested using quantitative statistical procedures (Yi, 1990). This has tended to be accomplished through single item measures, which neglect how opinions are formed (Johnson and Gustafsson, 2000). In Section 4.2, satisfaction was defined as part of a process. Therefore, an understanding of the process leading to it is important. For this reason, a stream of empirical studies has emerged. These have notably been broken into two distinct types of service encounter; those measuring transaction-based experiences (i.e. single consumption) and those focusing on cumulative experiences over a greater

length of time (or experiences) (see Table 10). Although distinct in the 'type' of satisfaction they determine, both are intertwined and deserve deeper exploration. In general they differ both in focus and in the way satisfaction is operationalised as a measurement instrument. This part of the review begins with an overview of transactional satisfaction models. Cumulative satisfaction as an alternative paradigm is then presented.

Table 10 – Transactional and Cumulative Satisfaction

Service Encounter	Measurement	Example
Transactional	One experience at a time	A shopping trip to Sainsbury's on January 1 st .
Cumulative	More than one experience over a certain period of time	A series of shopping trips to Sainsbury's between January 1 st and January 31 st .

Source: Collated by the researcher

4.4.1. Transactional Satisfaction

Transactional evaluations of satisfaction were extensively researched throughout the 1980s and 1990s. Transactions relate to one-time consumer events (Fornell, 1992). In other words, they are satisfaction judgements made solely on a single specific experience of a product (Tse and Wilton, 1988), service (Bearden and Teel, 1983), store (Cadotte et al, 1987), or salesperson (Oliver and Swan, 1989).

Theories of transactional satisfaction are most often based on *discrepancy theory* (Oliver, 1997). In section 4.2, satisfaction was defined as the fulfilment of some prior requisite need, which is based on whether a performance is thought to be gratifying. In the job satisfaction literature, Locke (1976) described this evaluation as consisting of what one wants from their job and what one

receives. The proposed 'discrepancy' between judgements forms the basis of satisfaction. In the consumer literature, 'discrepancy theory' is referred to as *disconfirmation*. It has been argued that performance (e.g. product, service etc) delivered above the pre-conceived standard leads to satisfaction. Performance below the chosen standard leads to dissatisfaction (Howard and Sheth, 1969; Engel and Blackwell, 1982; Yi, 1990). Disconfirmation has three possible outcomes:

- 1) Positive: desirable outcomes occur; undesirable outcomes do not occur
- 2) Negative: undesirable outcomes occur; desirable outcomes do not occur
- 3) Zero: neither desirable nor undesirable outcomes occur

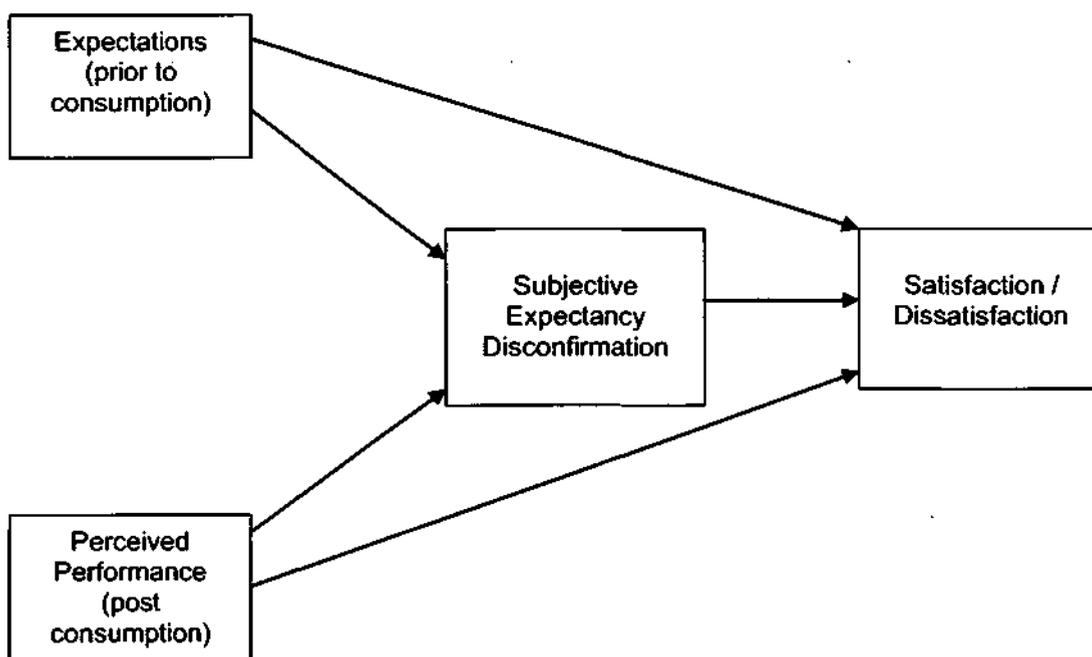
Disconfirmation can be segregated into two distinct categories: objective and subjective (Oliver, 1997). The former differs from the latter in that it collects actual scores for both the performance and pre-consumption standard before subtracting one from the other. The resultant score represents the size of the disconfirmation and, thus, the level of fulfilment provided by the product/service. Subjective disconfirmation tends to be preferred as it assumes that objective measures are not accurate enough to fully explain the process in practice (Oliver, 1997). Three types of disconfirmation have been suggested as measuring satisfaction and, therefore, the discrepancy scores in which the construct is measured; i.e. expectancy, ideal-as-standard and equity.

4.4.1.1. Expectancy-Disconfirmation

The expectancy-disconfirmation paradigm proposes that customers rate the performance of stimuli (Oliver, 1980) against their expectations of its performance. The full expectancy-disconfirmation model (see Figure 4)

encompasses four constructs: expectations, performance, disconfirmation and satisfaction (Oliver, 1997). Accordingly, consumers form pre-consumption expectations towards a product or service experience. Pre-determined expectations are then compared post-consumption and, as a result, viewed as either confirmed or disconfirmed (i.e. positive, zero, or negative). In the case of negative disconfirmation, the consumer can be considered as dissatisfied. When the expectations are confirmed or exceeded, 'positive disconfirmation' is achieved and satisfaction attained (Churchill and Suprenant, 1982; Rust and Oliver, 1994).

Figure 4 – The Expectancy-Disconfirmation Model



Source: Oliver (1997:24)

The expectations-disconfirmation model for satisfaction has been operationalised in a series of studies (Oliver 1980, 1981; Churchill and Suprenant, 1982; Bearden and Teel, 1983; Oliver and Bearden, 1983; Oliver and DeSarbo, 1988). Many of these differ in their findings. In a study about influenza inoculation in a South-Central American state, Oliver (1980) found that

disconfirmation was directly related to satisfaction. As positive disconfirmation increased, so did satisfaction. The hypothesis that higher expectations increased satisfaction levels was only found to be significant in one of the study's two subsamples. However, in a similar study conducted by Bearden and Teel (1983), the authors applied a longitudinal design to measure the affect that expectations, disconfirmation and satisfaction had on the intention of customers to return to an automobile garage. Their findings showed that both expectations and disconfirmation directly mediated satisfaction. There is some evidence to suggest that the importance of expectations and disconfirmation may be sensitive to the stimuli tested. Churchill and Suprenant (1982) found differences in the antecedents for satisfaction between durable and non-durable product types. For non-durable goods the findings were as hypothesised. As such, expectations and disconfirmation were significant predictors. However, with the durable product, the results indicated that only perceived product performance was directly linked to satisfaction. Whilst this finding could be due to the study's experimental procedure (Churchill and Suprenant, 1982), performance has been found in several studies to be a more significant indicator of satisfaction than expectations (see Swan and Combs, 1976; Cadotte et al, 1987; Myers, 1991).

4.4.1.2. Equity Theory

The equity model of customer satisfaction asserts that customers assess disconfirmation between the inputs (time, money) and outcomes (perceived performance) of a consumer experience (Myers, 1991). In the equity model, both disconfirmation and perceived performance play the same role as in the expectation-disconfirmation paradigm, with expectations exchanged for "inputs".

The notion of equity is central to *social exchange theory* in which two parties provide something of “value” to the other (Bagozzi, 1975). Equity, measured as a disconfirmation between inputs and perceived performance is thus an evaluation about the fairness of the exchange (Yi, 1990). The outcome of this evaluation is considered to be the basis of satisfaction and, whether or not, it is favourable or unfavourable.

Equity theory has been tested in several contexts. For example, Fisk and Young (1985) used an experimental design to measure perceived equity towards waiting times and price of an airline service. Their findings supported the hypothesis that inequity (negative disconfirmation) leads to dissatisfaction. This same result was identified in a study based at a car dealership by Oliver and Swan (1989).

4.4.1.3. Desires-as-standard

The desires-as-standard paradigm adopts a similar approach to the equity model by substituting “desires” for “inputs”. In this way, desires relate to the level of performance wanted, requiring no previous experience or knowledge of what is likely to occur (Spreng and Dixon, 1992). Spreng and Olshavsky (1992) have defined desires as:

“..the aspects of a product or service that the consumer judges will lead to higher-level values” (p.46)

In other words, desires are the goals that consumers want to accomplish through the acquisition and/or consumption of a product or service (see Gutman, 1982). In a conceptual paper by Spreng and Olshavsky (1992) the

authors argued that a customer is unlikely to choose a product or service that they perceive will not meet their expectations.

Only a small number of studies have empirically tested the impact of 'desires' on satisfaction. In a model containing both 'desires' and 'expectations', Spreng et al (1996) found that the 'desires congruency' measure was a significant predictor of overall satisfaction.

The disconfirmation methods discussed here have been successfully used in a variety of studies. However, whilst transactional models are suitable in "one-off" purchases (e.g. automobile or property), they tend to be overly simple and inappropriate in situations where the number of consumer experiences exceed one (Fornell, 2007). This is particularly the case in exchanges such as grocery retailing in which a shopper may have a number of experiences over a shorter period of time.

4.4.2. Cumulative Satisfaction

By definition, cumulative and transactional satisfactions differ. The former collects data relating to a person's overall experience with a service provider, rather than individual encounters (Johnson and Fornell, 1991). In this sense, cumulative satisfaction provides a more complete picture of attitudes towards a product/service provider. It also allows a more accurate prediction of future behaviour (Fornell, 1992). For example, in the transactional model, experience-specific satisfaction scores are recorded, but may not necessarily be representative of the 'norm'. In other words, a transactional experience may provoke varying satisfaction levels. In contrast, the cumulative model provides

an overview of the accumulated experiences. This is especially important in high frequency encounters, where the number of transactions over a short period of time is relatively high, e.g. supermarket retail (Johnson et al, 2001).

Transactional and cumulative models also differ in the way that questions are asked. Whereas transactional measures tend to require the recollection of a single time-point, cumulative is unrestricted by time or number of experiences. To date, the foremost cumulative satisfaction models have been applied in large scale *national satisfaction indexes* (such as Fornell, 1992; Fornell et al, 1996; Kristensen et al 2001; Eklof and Westlund, 2002; Chan et al, 2003). These are now reviewed giving specific attention to operationalisation and measurement practices.

4.4.2.1. *National Satisfaction Indexes*

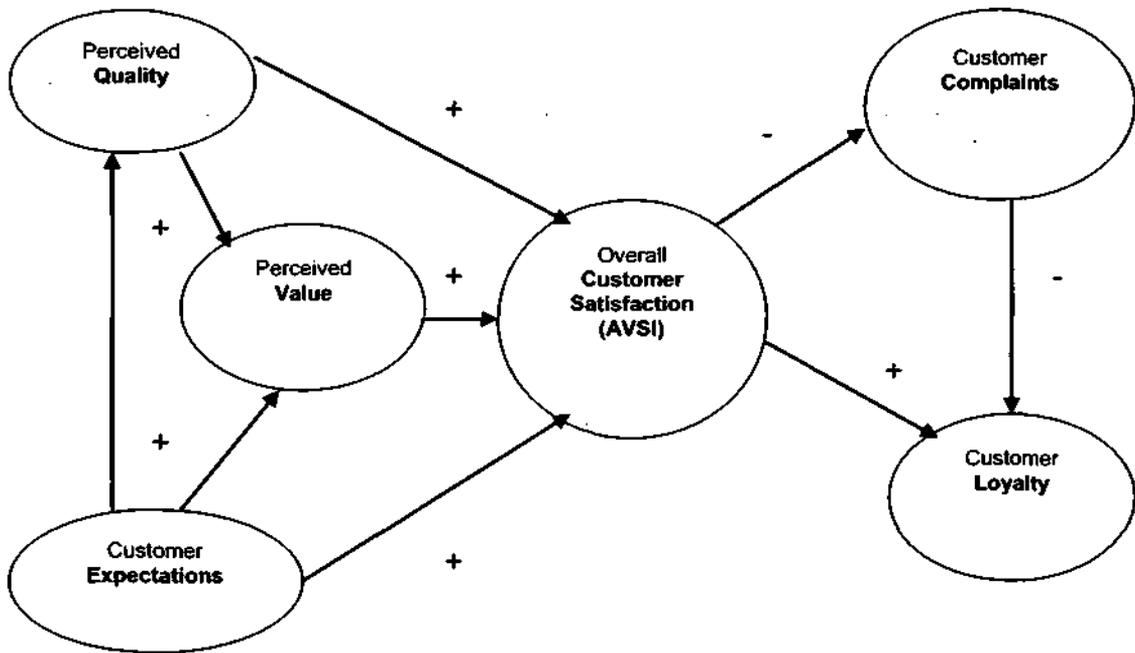
Cumulative satisfaction has been measured in a number of studies (e.g. Reynolds and Beatty, 1999; Tsiros and Mittal, 2000; Patterson and Smith, 2003). Nonetheless, development, in the most part, has been as a result of wide scale national satisfaction indexes. These tend to be *predictive* models encapsulating key drivers and consequences of satisfaction. Claes Fornell, pioneer of the Swedish Customer Satisfaction Barometer (CSB) asserted that:

“...if customer satisfaction is an indicator of a healthy company, CSB is a measure of performance that is oriented toward the future” (Fornell, 1992: 10)

As such, these indexes are forward looking, owing to the number and type of variables measured. The evolution of said models has played an important role in both identifying and testing constructs related to satisfaction.

The Swedish Customer Satisfaction Barometer (CSB) claimed to be the first cumulative satisfaction model, introduced in 1992 by Claes Fornell. The CSB gauges the level at which organisations satisfy their customers (Fornell, 1992). Data for the CSB was collected on a national scale from more than 100 organisations in approximately 30 different Swedish industries. It was measured using two antecedents of satisfaction (expectations, and perceived quality) and two consequences (complaining behaviour, and loyalty) (see Figure 5). Each construct was measured using a multi-attribute scale consisting of three items.

Figure 5 - The Swedish Customer Satisfaction Barometer



Source: Fornell, 1992: 6-21

The CSB follows three distinct principles (Fornell, 2007). Firstly, all variables within the model take on meaning depending on the context in which they are applied. Secondly, all variables are measured with some degree of error. Finally, customer satisfaction is not a directly observable construct and, therefore, needs to be measured to a minimal degree of error (Fornell, 1992). This is accounted for in the way that the model is organised. Accordingly, the

index is specified as a latent variable in a system represented by multiple equations. In other words, single-item measures are not considered accurate enough to sufficiently represent variance by themselves and are thus more valid when several different items measuring a similar underlying concept are used.

The major difference between a latent system and single item measures (see Johnson and Gustaffson, 2000 for examples of this) is that customer satisfaction is estimated in the context of other interrelated variables such as perceived quality, expectations and loyalty (i.e. structural equations). This improves the predictability of the model, as well as its validity and reliability (Fornell and Yi, 1992). Similarly, to improve internal consistency and, thus, the accuracy of the measures employed, each construct consists of multiple items. This is not typical in most satisfaction models, which tend to use a single item 'overall' measure (see Johnson and Gustaffson, 2000).

The satisfaction construct in the CSB model is largely developed from the principle of disconfirmation, as used in transactional models (Hausknecht, 1990). In keeping with the works of Oliver (1997), amongst others, satisfaction is measured as a product of three items (i.e. a composite using partial least squares estimation). These include:

- Expectations-Disconfirmation (Oliver, 1980; Swan et al, 1981).
- Ideal Congruence (Sirgy, 1984; Tse and Wilton, 1988).
- Overall Satisfaction (Oliver and Bearden, 1983).

As can be seen, the three items measure different but related aspects of customer satisfaction. As such, the scale developed by Fornell has since been applied in other studies (e.g. Hackl et al, 2000; Ball et al, 2004; Hsu et al, 2006). The data and scales have also been borrowed and used in a number of

research papers (e.g. Anderson et al, 1994; Anderson et al, 2004). What is more, the CSB has become the benchmark for subsequent national indexes (Fornell et al, 1996; Kristensen et al 2001; Eklof and Westlund, 2002; Chan et al, 2003). To date, an American (Fornell et al, 1996), European (Eklof and Westlund, 2002) and Hong Kong (Chan et al, 2003) satisfaction index has been implemented. These form a useful basis for studies measuring cumulative satisfaction.

Given that the current study measures the grocery store satisfaction of older shoppers, the following section reviews previous studies in this context.

4.5. Older Shoppers and Customer Satisfaction

There have been few studies explicitly measuring the satisfaction of older consumers with regard to retailing⁶ (Mason and Bearden, 1978; Bearden and Mason, 1979; Johnson-Hillery et al, 1997; Hare et al, 1999; Hare, 2003; Lu and Seock, 2008). Given the number of general satisfaction studies undertaken, it is somewhat surprising that so little attention has been afforded to the older consumer segment. That said a recent book chapter by Yoon et al (2010) has shown that considering older consumers to be more dissatisfied than other age groups is likely to be a misnomer given findings from the ACSI. This data has even shown age to be (albeit weakly) related to customer satisfaction in a linear context. These authors have suggested that a potential cause of this is that

⁶ This is not to say that studies haven't considered the older age bracket as part of larger studies. However, in their own right there has been less direct attention.

people in this generation were children of the great depression and thus have generally lower expectations. This infers an even greater need to understand the operationalisation of satisfaction and consequently identify groups exhibiting lower than average mean level scores.

Two papers by Bearden and Mason (1979) and Mason and Bearden (1978) explored the unique concerns and characteristics of the elderly segment in a retail environment. Using a small sample of 110 subjects, the authors asked a number of questions relating to positive and negative aspects of shopping. Whilst the authors did not measure satisfaction directly, they were able to conclude that certain items were the source of dissatisfaction. This approach is unsophisticated when compared with the advances made in present times. However, this study was conducted in advance of the significant contributions made by Richard Oliver and Claes Fornell since the 1980s.

Johnson-Hillery et al (1997) conducted research with retail sales personnel and older shoppers (65+). Testing the specific hypothesis that a congruency existed between the satisfaction experienced by older shoppers, and that which they were perceived to by staff, the authors concluded that retailers were ignorant of the needs and preferences of the elderly. As such, the satisfaction experienced by older shoppers was lower than that perceived by personnel.

A Scottish-based study of satisfaction with grocery shopping was presented in Hare et al (1999) and Hare (2003). In the earlier paper the authors generated a pool of items using qualitative interviewing; i.e. critical incidents technique (CIT). This revealed 248 incidents representing positive and negative drivers of

satisfaction/dissatisfaction. In the follow-up study, Hare (2003) measured the relationship of drivers with satisfaction. Having reduced the items into eight clear dimensions, the author analysed satisfaction for each using a five-point Likert scale. As a result, it was possible to specify areas of the grocery experience causing specific satisfaction and dissatisfaction. However, as regression analysis was not used to model these relationships, there were only limited inferences that could be used to guide policy. Despite having satisfaction scores for the factors, no evidence was provided inferring the importance of each in determining overall satisfaction.

In a study conducted in a US-based department store, Lu and Seock (2008) measured the impact of various service quality dimensions on satisfaction and loyalty. The authors used a combination of factor analysis and multiple regression. Of the service quality dimensions, they concluded that personal interaction was the most important. Interestingly, the authors did not consider other aspects of the retail experience, such as merchandise. Additionally, as the items for service quality were general and not specific to older people, it could be questioned whether the findings were completely relevant to the sample.

Whilst studies discussed in this section have been useful for addressing satisfaction, there remains a gap in knowledge. With the exception of Hare et al (1999) and Hare (2003), the majority of papers originate from the USA. What is more, satisfaction tends to be operationalised as a single-item construct, or as a rating scale by which specific attributes are assessed. Fornell (1992) has shown that satisfaction is more valid and reliable when measured using multiple indicators. Models are most useful when they are extended and satisfaction is

measured as both an outcome and as an antecedent of future behaviours/intentions. The following section presents the satisfaction model tested in this study.

4.6. Model Development and Hypotheses

In an earlier section, two approaches for measuring satisfaction were presented. In regularly occurring retail exchanges, such as grocery shopping, it was argued that transactional satisfaction is inappropriate. The cumulative approach has evolved as a result of national indexes. In a paper written for the *Journal of Economic Psychology*, Johnson et al (2001) asserted that customer satisfaction measurement can only advance if researchers adapt and improve models over time:

"Of critical importance to the validity and reliability... is that the models and methods used to measure customer satisfaction and related constructs develop to learn, adapt, and improve over time." (p.239)

Owing to the lack of satisfaction research involving older consumers, it was important that a new model was developed. In keeping with the Swedish CSB (Fornell, 1992), it was essential that the model incorporated both antecedents and consequences of satisfaction. In past research (such as those discussed in Chapter 3), store image has been used as an appropriate antecedent of satisfaction (Bloemer and De Ruyter, 1998). In other research, satisfaction has been modelled successfully as a driver of store commitment (e.g. Johnson et al, 2001), as well as loyalty intentions and behaviours (e.g. Brown et al, 2005). Previous research with older consumers has shown that the segment is heterogeneous (Gunter, 1998; Moschis 1992b) consisting of different backgrounds (Bone, 1991), needs (Hare et al, 1999; Moschis, 1992b) and wants (Lambert, 1979). As such, people were expected to differ in the way they

operationalised satisfaction; i.e. mean score and factor loading differences between sub-segments. The variables of interest proposed as part of the satisfaction model in this research are now introduced. The hypothesised relationships between the variables will then be presented.

4.6.1. Store Image

A comprehensive review of store image was provided in Chapter 3. Store image represents overall positive or negative feelings towards a store. Nonetheless, this holistic view is not necessarily helpful in research of this kind (Theodoridis and Chatzipanagiotou, 2009). For this reason, store image is most useful when presented on an attribute or factor level. Chapter 3 gave an overview of some of the most salient attributes to older shoppers. However, this list incorporated research spanning three decades and thus required updating.

4.6.2. Satisfaction

Satisfaction has been presented as an important marketing construct in this chapter and requires only a brief synopsis. As a construct, it has received wide recognition in marketing literature as both a consequence and antecedent of other variables (Luo and Homburg, 2007). As mentioned previously, many studies have tended to use single-item measures of satisfaction which lack credibility through reduced validity and reliability (Fornell, 1992). Multi-item scales are preferable to single-item measures.

4.6.3. Commitment

Cumulative satisfaction relies on the assumption that a customer has multiple dealings with a retailer, store, product or service. Over time, this extension

becomes a relationship (Johnson et al, 2001). There have been numerous studies conducted within this area. For a relationship to continue cumulatively there is often a level of “commitment” between two parties, e.g. customer and retailer (Gundlach et al, 1995). At the same time, “commitment” is mediated by other conditions. In one of the most important relationship marketing studies, Morgan and Hunt (1994) showed that customer commitment will increase when a benefit is perceived. They also proposed that commitment will increase when the cost of terminating the relationship increases. This position is referred to as *switching costs* in the academic literature (Jones et al, 2000; Burnham et al, 2003).

Fornell (2007) discussed commitment using the example of a mobile phone contract. Each month the customer receives a bill and considers whether to continue the relationship, thus staying committed to the firm. This decision, Fornell suggested, will initially be based on satisfaction. If high, defection to a rival company is unlikely. If low, the decision will be based upon the cost of switching as opposed to that of staying. With a mobile phone contract, a customer *not* fully satisfied will weigh up the cost of leaving. With standard 12-18 month contracts, the cost of leaving the mobile provider is high and often not worth the switching cost incurred. This situation clearly indicates two different types of commitment (Fullerton, 2003).

In a study looking at commitment as a driver of customer retention, Gustafsson et al (2005) segregated commitment into *affective* and *calculative* categories. This follows work by Allen and Meyer (1990) in the employee commitment

literature. They distinguished between two types of commitment employees have towards their employer. These are outlined below:

- *Affective commitment* – a genuine 'love' for the organisation. They feel a part of the company and 'want' to stay an employee.
- *Calculative commitment* – not a genuine 'love' for the organisation. The cost of switching/ability to switch to another organisation is too high/unavailable.

4.6.3.1. *Affective Commitment*

Affective commitment is built on the "*affective or emotional attachment to the organisation, such that the strongly committed individual identifies with, is involved in and enjoys membership to the organisation*" (Allen and Meyer, 1990: 2). It has also been described as a psychological attachment, based on loyalty and affiliation (Verhoef, 2003). Essentially, affective commitment relates to the identification, shared values, belongingness, dedication and similarity between the customer and organisation (Fullerton, 2003). It is essentially the genuine emotional attachment a customer feels towards a product or service provider, which they use in spite of alternatives (Allen and Meyer, 1990).

Although affective commitment has mainly been conceptualised and empirically tested in the organisational literature, it has only recently been separated from calculative commitment in the marketing literature (Gruen et al, 2000; Fullerton, 2003; Hansen et al, 2003 Gustafsson et al, 2005). As such, affective commitment has been empirically tested in few marketing studies. Hansen et al (2003) explored possible differences between affective and calculative commitment and future repurchase intentions. Similarly, Fullerton (2003)

acknowledged the difference between the two, modelling how behavioural intentions differ depending on a customer's level of either type of commitment.

4.6.3.2. *Calculative Commitment*

Contrary to *affective* commitment, which is built on a genuine "love" for the organisation, *calculative* commitment is built on switching costs and scarcity of alternatives (Allen and Meyer, 1990).

Switching costs have been separated into three distinct types (Burnham et al, 2003: 109):

- *Procedural switching costs*: consisting of economic risk, learning and setup costs. This type of switching cost primarily involves the expenditure of time and effort.
- *Financial switching costs*: consisting of benefits loss and financial-loss costs. This type of switching cost involves the loss of financially quantifiable resources.
- *Relational switching costs*: consisting of personal-relationship loss and brand relationship loss costs. This type of switching cost involves psychological or emotional discomfort due to loss of identity and breaking of bonds.

With one or more of the three reasons for not switching as listed by Burnham et al (2003), customers remain committed to the firm. The antecedents and consequences of calculative commitment may differ to affective commitment as they revolve around higher switching costs and lack of alternatives. Compared to affective commitment, calculative commitment has received very little

empirical attention in the marketing literature. This is due, in part, to its relatively recent development. Both calculative and affective commitments are conceptually important in the satisfaction-to-loyalty process. This has been demonstrated through their successful empirical testing in the organisational literature (see Allen and Meyer, 1990; Mayer and Schoorman, 1992).

4.6.4. Loyalty Outcomes

Oliver (1999) described loyalty as a “deeply held commitment to re-buy or repatronise a preferred product/service” (p.34). Similarly, Bolton et al (2000) simplified it as “repurchase intentions” or “repurchase behaviour”. As such, loyalty has often been measured using this definition.

The application of repurchase intentions/behaviour as the sole measure of loyalty is erroneous. As such, certain researchers have argued that *loyalty* must include, but be more than, repurchasing and retention (Chandon et al, 2005; Seiders et al, 2005). An approach gaining more conceptual support is that *loyalty* is a continuum (Bloemer and de Ruyter, 1998), existing at different levels (Dick and Basu, 1994; Reichheld, 1996; Oliver, 1999; Griffin, 2002). In behavioural terms this is harder to define. Griffin (2002) has proposed that completely loyal customers will firstly make regular repeat purchases, secondly make word-of-mouth recommendations to others and, finally, show tolerance towards price changes. This conceptualisation of *loyalty* was used in a study by Zeithaml et al (1996) which used five measures. Similarly, authors such as Cronin et al (2000) and Andreassen and Lindestad (1998) have applied these under the guise of one wider construct of loyalty (or behavioural intentions). Although it has yet to be widely applied in the literature, researchers such as

Soderlund (2006) have called for this “cocktail” approach to be dismissed. Empirically, he showed that loyalty outcomes are more accurately explained when they are independently assessed. This is, in part, because a person’s propensity to undertake one of the three behaviours (e.g. future intentions to purchase) does not necessarily imply a similar use of another (e.g. word-of-mouth). Each of the three components of loyalty is therefore independently tested in this study as suggested by Soderlund (2006).

4.6.4.1. Future Intentions

As a marketing concept, future intentions refer to the likelihood (or willingness) of a customer to continue using a given organisation (Griffin, 2002). Intention to repurchase from the same organisation was one of the measures of loyalty used in the CSB and ACSI satisfaction indexes (Fornell, 1992; Fornell et al, 1996). Repeat purchasing is an efficient way of achieving higher revenues. It is well publicised that attracting new customers is more expensive than retaining existing ones (Griffin, 2002). As such, repeat purchasing incubates the development of relationships (Griffin, 2002), whilst increasing the possibility of rising profit margins (Luo and Homburg, 2007). Nonetheless, the continued use of an organisation represents a specific form of loyalty, in which a genuine “liking” is not always necessary (Soderlund, 2006). This is discussed in section 4.6.6.3.

4.6.4.2. Word-of-mouth

Word-of-mouth marketing refers to the passing of information from person to person, specifically in the form of recommendations and endorsements.

Customers of this persuasion tend to talk freely about the organisation to friends and family (Reichheld, 2003).

The value of word-of-mouth recommendations as a component of loyalty has received scant attention. However, this is beginning to change. In an article in the Harvard Business Review, Reichheld (2003) advocated that loyalty should be measured using a single item, i.e. "intention to recommend". Although counter arguments have suggested that he overlooked the importance of 1) repurchase intentions and 2) resistance to counter-offers (see Keiningham et al, 2007), the article illustrated its potential as a construct. Reichheld's argument proposed that loyalty and word-of-mouth recommendations are almost synonymous, both involving a high level of sacrifice and effort on the part of the customer. This line of thought, although in place before Reichheld, led to the idea of 'Customer Voluntary Performance', which relates to a marketing philosophy in which customers are ambassadors for the organisation (Bettencourt, 1997). In this role, the customer employs him/herself as an active participator and co-operator in the success of the organisation. Similarly, Jones and Sasser (1996) referred to a customer with this level of loyalty as an "apostle".

4.6.4.3. Price Insensitivity

Price insensitivity refers to the extent to which customers would be willing (or not) to accept a rise in prices (Griffin, 2002).

As an independent measure, price insensitivity (or price tolerance) has been fairly under-researched. However, in the CSB Index, resistance to price

changes are seen as an extremely vital component of loyalty. Anderson and Fornell (1993) noted that price tolerance has been commonly overlooked in the marketing literature. This is surprising considering that the ability to 'charge price premiums' is often quoted as one of the most beneficial tenets of loyalty (see for example Rust and Oliver, 1994; Reichheld, 1996). Fornell (1992) suggested that the less resilient the customer is to price increases, the more loyalty he or she will demonstrate towards the organisation. This logic suggests that the more the customer is willing to "give up" financially, the more loyal they are overall.

The following sections present the hypothesised relationships between variables in the model.

4.6.5. Antecedents of Customer Satisfaction

Past research has indicated that satisfaction is preceded by constructs such as service quality, expectations and value (e.g. Fornell, 1992; Fornell et al, 1996; Cronin et al, 2000; Johnson et al, 2001). In studies using service quality, store level attributes tend to be modelled under the guise of a wider dimension. Two problems are inherent in this approach. Firstly, it is difficult to identify which aspects of service are most influential drivers of satisfaction and, secondly, service quality ignores crucial aspects of a store such as merchandise. In recent years, researchers have begun to see the value in modelling store image, as opposed to service quality, as a direct antecedent of satisfaction.

4.6.5.1. *Store Image and Satisfaction*

Several recent studies have attempted to understand the influence that store image has on customer satisfaction (Gail and Scott, 1995; Bloemer and de

Ruyter, 1998; Theodoridis and Chatzipanagiotou, 2009). Bloemer and de Ruyter (1998) followed the logic that a more favourable perception of image generated a higher valence towards the store. Using a small sample of 124 questionnaires, the authors found that store image, measured as an overall construct, directly influenced satisfaction. The latter was also critical in mediating the relationship between store image and behavioural intentions (loyalty). As such, the mediated model was better explained than when a direct relationship between image and loyalty was specified. Nonetheless, the specific relationships between store image attributes and satisfaction were not included in the study.

This weakness was redressed by Theodoridis and Chatipanagiotou (2009). Using data collected in the Greek supermarket sector, the authors firstly identified a number of salient store attributes, reducing them into a smaller set of six underlying factors. These were regressed on customer satisfaction and four factors were found to be significant drivers. These included *personnel*, *pricing*, *products* and *in-store convenience*. The authors concluded that using store image attributes as drivers was an effective method for explaining satisfaction. This was, in part, owing to the fact store image consists of the most salient store attributes as perceived by customers. A comprehensive overview of store image attributes for older grocery shoppers was not available in the literature, making an empirical investigation necessary (scale development). This is discussed in more depth in the following chapter. However, the hypothesis for n attributes/factors is:

H1a,..H1n = Satisfaction Drivers (store image factors) $n, n+1...$ will have a significant positive influence on satisfaction.

4.6.6. Consequences of Customer Satisfaction

In recent years a number of consequences of satisfaction have been posited in the literature. These range from the more common, such as loyalty (e.g. Fornell, 1992; Fornell et al, 1996; Johnson et al, 2001), behavioural intentions (e.g. Cronin et al, 2000; Anderson and Sullivan, 1993; Patterson and Spreng, 1997) and complaining behaviours (e.g. Hirschman, 1970; Fornell, 1992; Fornell et al, 1996).

Commitment has also been shown as a consequence of satisfaction but, as of yet, has not been separated into affective and calculative types. Similarly, loyalty has rarely been measured by its constituent parts: i.e. future intentions, word-of-mouth and price insensitivity. The following sections provide support for the use of these in the conceptual model.

4.6.6.1. *Satisfaction and Commitment*

The influence of satisfaction on commitment has been studied on several occasions (e.g. Garbarino and Johnson, 1999; Gustafsson et al, 2005). Nonetheless, only in a handful of studies has *affective commitment* been specified as an outcome of satisfaction. In a paper outlining the future direction of satisfaction indexes, Johnson et al (2001) showed that an increase in satisfaction naturally related to increases in affective commitment. In this article, the authors remarked that their finding was unsurprising since “satisfaction should be a major contributor to the strength of relationship and trust” (p.240). One notable impact was that affective commitment had a larger positive influence on satisfaction than that provided by calculative commitment (Johnson et al, 2001). A similar finding by Brown et al (2005) showed that as satisfaction

towards an automobile dealership increased by one-Likert point, affective commitment rose by 0.65-Likert points. In a similar way, Gustafsson et al (2005) concluded that satisfaction drove feelings of reciprocity towards the organisation. As such:

H2 = Satisfaction will have a significant positive influence on Affective Commitment.

Satisfaction has also been found to have an influence on calculative commitment (Johnson et al, 2001; Gustafsson et al, 2005). Given that calculative commitment is comparable to switching costs, it was considered likely that satisfaction influenced the economics involved in any calculative commitment judgement (Johnson et al, 2001). For instance, as higher satisfaction is preferable to lower, as it increases the feelings of being committed through necessity and scarcity of alternatives reduces, and calculative commitment perceptions decrease.

H3 = Satisfaction will have a significant negative influence on Calculative Commitment.

4.6.6.2. Satisfaction and Loyalty

The relationship between satisfaction and repurchase intentions has been widely studied. For example, Anderson and Sullivan (1993) found that satisfied customers are more easily retained. Similarly, Patterson and Spreng (1997) identified that a one-point metric increase in satisfaction led to a 0.88-point rise in repurchase intentions. Comparable findings were presented by Athanassopoulos et al (2001) who found that intentions to switch bank providers decreased as satisfaction increased. In addition, Caparo et al (2003) suggested that the more satisfied the customer becomes, the less he or she considers alternatives. It follows that:

H4 = Satisfaction will have a significant positive influence on Future Intentions.

A lesser researched, but equally important outcome of satisfaction is word-of-mouth communications (Reichheld, 1996). Anderson (1998) found that more satisfied customers were increasingly likely to engage in positive word-of-mouth. He also measured how dissatisfied customers behaved. Not surprisingly, satisfied and dissatisfied customers acted in a similar manner in terms of their word-of-mouth participation. In a meta-analysis, Szymanski and Henard (2001) showed that the evidence presented in previous studies indicated a strong negative association between satisfaction and negative word-of-mouth. In their study, Athanassopoulos et al (2001) stated that positive satisfaction experiences were more likely to subdue negative behavioural intentions leading to increased positive feedback. Therefore, it was suggested that:

H5 = Satisfaction will have a significant positive influence on word-of-mouth.

In a study by Anderson (1996), using data collected from the Swedish CSB, the author found that price inelasticity (the willingness of customers to pay higher prices) increased with satisfaction. The author noted that price tolerance varied between markets exhibiting different levels of competition. As such, more competitive industries recorded lower price tolerance levels, presumably because customers had more choice. In two experimental studies, Homburg et al (2005a) found that a tolerance of higher prices was directly related to satisfaction. They suggested that this was only *linear* to a certain point. Any subsequent higher levels of satisfaction have no further influence on willingness to pay more. Therefore, hypothesis six stated that:

H6 = Satisfaction will have a significant positive influence on Price Insensitivity.

4.6.6.3. Commitment and Loyalty

Commitment and aspects of loyalty have been found as related (Morgan and Hunt, 1994). Generally speaking, higher levels of commitment are associated with higher levels of loyalty behaviour (Johnson et al, 2001). For example, affective commitment was shown by Fullerton (2003) and Verhoef (2003) to positively influence customer retention. Those customers exhibiting higher levels of affective commitment were less likely to switch stores. For this reason, affective commitment was hypothesised to positively influence future intentions:

H7 = Affective Commitment will have a significant positive influence on Future Intentions.

Affective commitment has also been shown to positively influence word-of-mouth. As such, the more affectively committed a customer feels, the more likely he or she will be to engage in advocating activities. In their study, Brown et al (2005) showed that both satisfaction and commitment had a positive influence on word-of-mouth intentions and behaviour. In exploring the antecedents of word-of-mouth activity in a hair salon and veterinary practice, Harrison-Walker (2001) showed affective commitment to be the most important driver. This was expected by the author who noted that committed customers engaged themselves in a way which encouraged the organisation to reach its goals. Therefore, it was considered that affective commitment should have a positive influence on word-of-mouth behaviour:

H8 = Affective Commitment will have a significant positive influence on word-of-mouth.

It has been recognised that price tolerance is influenced by satisfaction. However, it has received less attention when affective commitment is specified as the driver (Fullerton, 2003). Morgan and Hunt (1994) found there to be a positive relationship between commitment and acquiescence, yet price rises remained only one such connection. An empirical study measuring this association was provided by Fullerton (2003) who found that a simple (linear) relationship between the two measures provided support for the proposition that consumers experiencing higher affective commitment were more willing to accept higher prices.

H9 = Affective Commitment will have a significant positive influence on Price Insensitivity.

In addition to affective commitment, calculative commitment has also been shown to influence loyalty – but in a different way. Lam et al (2004) suggested that as *switching costs* increased, the ability to search for an alternative store reduced. A study by Burnham et al (2003) supports this assertion. Researching telecommunication and insurance providers, the authors found that switching costs were more strongly related to repurchase intentions than satisfaction.

Therefore:

H10 = Calculative Commitment will have a significant positive influence on Future Intentions.

Word-of-mouth advocacy is a more voluntary activity than other types of loyalty. To date, only a handful of studies have explored the link between calculative commitment and word-of-mouth. Harrison-Walker (2001) found that customers committed in this way were less likely to advocate the store and more likely to remain passive. The findings by Fullerton (2003) suggest a similar outcome, although he suggested that under certain conditions calculative commitment

may even lead to negative word-of-mouth activity. Nonetheless, he concluded that this would be unlikely and unusual. It was hypothesised that:

H11 = Calculative Commitment will have a non-significant influence on word-of-mouth.

Customers committed to a store experiencing high switching costs are in a less favourable position to switch or defend themselves from price increases. Whereas word-of-mouth activity is voluntary and does not reflect a forced behaviour, price rises are often unavoidable for those unable to access alternatives. Expecting to find that price rises sacrificed too much for higher level calculatively committed customers, Fullerton (2003) found this hypothesis to be unsupported. Although, in general, price rises are tolerated more by higher satisfied and affectively committed customers, it was also expected that calculative commitment would have a positive influence through lack of alternative options on behalf of the customer.

H12 = Calculative Commitment will have a significant positive influence on Price Insensitivity.

4.6.7. Segmentation and the Conceptual Model

The final hypothesis related to the operationalisation of the conceptual model. In Chapter 2 a detailed review of segmentation practices within the older consumer literature was given. This revealed that the older consumer population is heterogeneous (Moschis, 1992b Gunter, 1998). With this in mind, it was suggested that a single homogenous model for operationalising satisfaction and its outcomes was likely to be erroneous and invalid. It was essential that any heterogeneity in the satisfaction model was acknowledged and characterised against the profile of the wider population (using personal characteristics and behaviours). Since it was expected that heterogeneity would

be evident and that no single cause responsible, this was put into practice using the innovative segmentation mentioned briefly at the close of Chapter 2 (finite mixture structural equation modelling). Therefore, hypothesis 13 was that:

H13 = Segmentation will identify differences between segments in factor means scores and structural weights for variables in the model.

Figure 6 presents the model as hypothesised in this section of the literature review. The relationships expected between the latent constructs chosen are also shown. Table 11 provides an overview of these hypotheses, as well as a review of the key literature supporting them.

Figure 6 - Study Conceptual Model

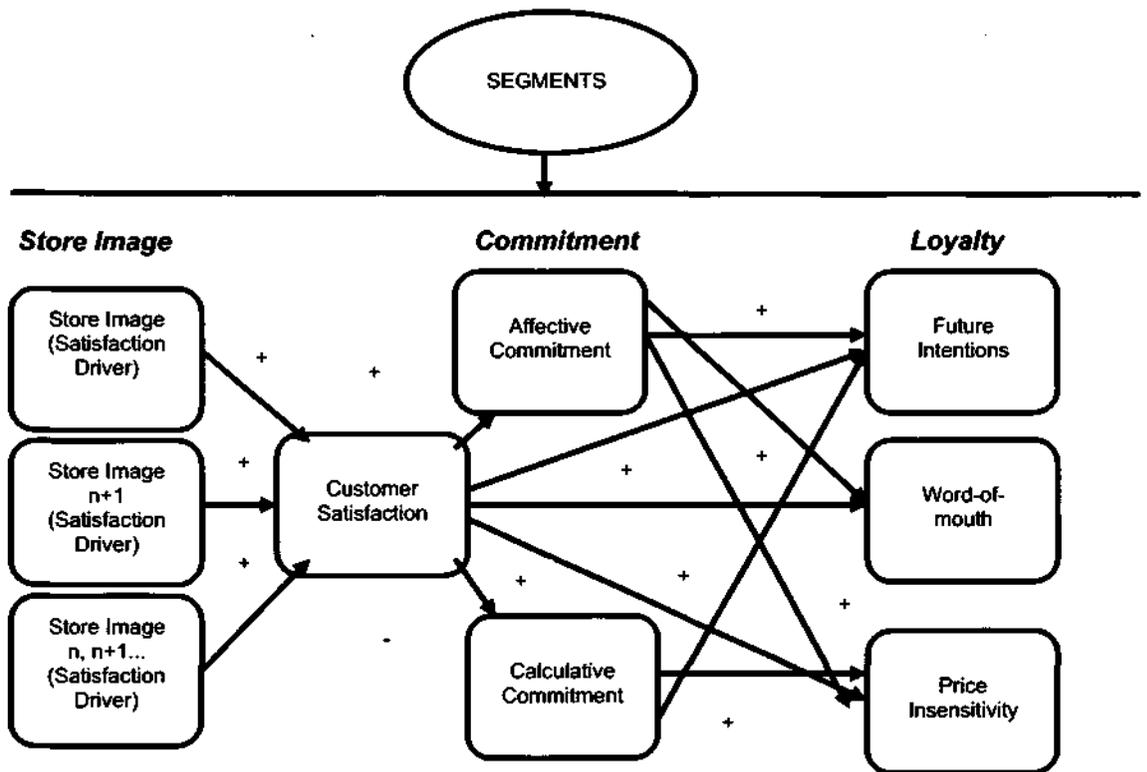


Table 11– Conceptual Model Relationships and Hypotheses

	Independent Factor	Dependent Factor	Hypothesis	Supporting Literature
Antecedents	Store Image Factors (Satisfaction Drivers)	Satisfaction	H1a, ...H1n = Positive <i>Satisfaction Drivers (store image factors) n, n+1... will have a significant positive influence on satisfaction.</i>	Bloemer and De Ruyter (1998); Theodoris and Chatzipanagiotou (2009)
Consequences	Satisfaction	Affective Commitment	H2 = Positive <i>Satisfaction will have a significant positive influence on Affective Commitment.</i>	Garbarino and Johnson (1999); Johnson et al (2001); Brown et al (2005); Gustafsson et al (2005)
	Satisfaction	Calculative Commitment	H3 = Negative <i>Satisfaction will have a significant negative influence on Calculative Commitment.</i>	Gustafsson et al (2005)
	Satisfaction	Future Intentions	H4 = Positive <i>Satisfaction will have a significant positive influence on Future Intentions.</i>	Anderson and Sullivan (1993); Patterson and Spreng (1997); Mittal et al (1999); Mittal and Kamakura (2001); Athanassopoulos et al (2001); Caparo et al (2003); Lam et al (2004); Homburg et al (2005a)
	Satisfaction	Word-of-mouth	H5 = Positive <i>Satisfaction will have a significant positive influence on Word-of-mouth.</i>	Bettencourt (1997); Anderson (1998); Athanassopoulos et al (2001); Szymanski and Henard (2001); Lam et al (2004)
	Satisfaction	Price Insensitivity	H6 = Positive <i>Satisfaction will have a significant positive influence on Price Insensitivity.</i>	Anderson (1996); Homburg et al (2005a); Homburg et al (2005b)

Tab 11 Cont...				
	Independent Factor	Dependent Factor	Hypothesis	Supporting Literature
Consequences	Affective Commitment	Future Intentions	H7 = Positive <i>Affective Commitment will have a significant positive influence on Future Intentions.</i>	Johnson et al (2001); Verhoef (2003); Fullerton (2003); Gustafsson et al (2005)
	Affective Commitment	Word-of-mouth	H8 = Positive <i>Affective Commitment will have a significant positive influence on Word-of-mouth.</i>	Bettencourt (1997); Garbarino and Johnson (1999); Johnson et al (2001); Harrison-Walker (2001); Fullerton (2003); Brown et al (2005);
	Affective Commitment	Price Insensitivity	H9 = Positive <i>Affective Commitment will have a significant positive influence on Price Insensitivity.</i>	Johnson et al (2001); Fullerton (2003)
	Calculative Commitment	Future Intentions	H10 = Positive <i>Calculative Commitment will have a significant positive influence on Future Intentions.</i>	Johnson et al (2001); Burnham et al (2003); Fullerton (2003); Lam et al (2004); Gustafsson et al (2005);
	Calculative Commitment	Word-of-mouth	H11 = No Relationship <i>Calculative Commitment will have a non-significant influence on Word-of-mouth.</i>	Harrison-Walker (2001); Fullerton (2003)
	Calculative Commitment	Price Insensitivity	H12 = Positive <i>Calculative Commitment will have a significant positive influence on Price Insensitivity.</i>	Johnson et al (2001); Fullerton (2003)
Segmentation	Segment	Conceptual Model	H13 = Positive <i>Segmentation will identify differences in factor means and structural weights between groups.</i>	e.g. Bone (1991); Gunter (1998); Moschis (2002a)

4.7. Summary and Conclusions

This chapter has provided an in-depth analysis of customer satisfaction with regard to its origins, definition, benefits and measurement. As a marketing construct, satisfaction was shown to be important for attaining higher revenues on a micro and macro level.

Two satisfaction measurement types were presented. Transactional satisfaction, which appeared first in the literature, was shown to utilise *discrepancy theory* in various forms (Oliver, 1997). Nonetheless, transactional satisfaction remains most useful in one-off single consumption situations (Fornell, 1992). The alternative, i.e. cumulative satisfaction, tracks customer opinion over multiple consumption episodes through time. As a measurement paradigm, cumulative satisfaction has been most advanced via gradual evolution in the national satisfaction indexes used in the USA, Europe and Far East. These tend to explicitly measure both antecedents and projected consequences of satisfaction.

Using the basic premise outlined in the cumulative approach, a new and innovative model, suitable for use with the older consumer sample was developed using the extant literature. Notable differences from past research models was the development of an updated store image scale as *satisfaction drivers*. Additionally, commitment, which has been used successfully in past research (see Brown et al, 2005), was sub-divided into affective and calculative components in line with the advice provided by Allen and Meyer (1990). Similarly, loyalty was segregated from its traditional 'cocktail' composition, into

future intentions, word-of-mouth and price insensitivity. Specific hypotheses relating the variables chosen in the model were formulated for empirical testing. The following chapter outlines the methods that were chosen to test the empirical model proposed here.

'Research serves to make building stones out of stumbling blocks'

(Arthur D. Little, 1886)

5. Research Methodology

5.1. Introduction

In the previous chapter, an innovative conceptual model for measuring the customer satisfaction process was presented. As such, the model included the antecedents and consequences of satisfaction when applied in the context of grocery shopping – specifically for the over 60 year age group. Since the model blended both new and pre-existing constructs for a new setting, empirical research was needed to analyse whether it was suitable. This addressed past research which has encouraged the further development and understanding of older consumers (e.g. Meneely et al, 2008; Thompson and Thompson, 2009). With this in mind, a further step identifying different *types* of shopper through response-based segmentation provided a more prescriptive analysis.

The chapter is structured as follows. Firstly the philosophical underpinning of the study is discussed. This shapes the mixed method research design proposed. Both qualitative and quantitative methods are presented and specific focus is given to sampling, data collection and analysis. A summary and conclusion is provided at the close.

5.2. Philosophical Underpinnings

More than 2400 years ago, Plato described philosophers as “those whose hearts are fixed on reality” (Blackburn, 2006: 95-102). As in *Republic*, Plato’s interpretation still embodies our common understanding of philosophy. This can be described as the search for knowledge, causes and explanations of reality (Williams, 2003). Philosophy is rarely interested in the knowledge that is found, but rather the methods used to find it (Kolakowski, 1993). Philosophy is thus a way of seeing the world – a perception of the reality Plato wanted to better understand. This is particularly relevant in the development of science and social science (Hammersley, 1993; Williams and May, 1996; Williams, 2003). In fact philosophy and science are theoretically and practically aligned concepts. We use our perception of the world to decide the methods by which it should be measured (Bryman, 2004). The philosophy (theory to method) that scientists follow in their research is most often distinguished between *epistemology* and *ontology*. Epistemology is concerned with the methodology of obtaining facts about the world and ontology describes the position of what we know about reality (Bryman, 2004). Easterby-Smith et al (2008) suggested that all researchers have their own philosophy (often subconsciously), demonstrated by the way they collect facts and information. Such philosophies are labelled *paradigms*. These provide a framework by which researchers and scientists can collate their perceptions of the world into generalised and consistent theories (Collis and Hussey, 2003). Morgan (1979) believed that the term *paradigm* can be used at three different levels:

- at the *philosophical* level, where it is used to reflect basic beliefs about the world,

- at the *social* level, where it is used to provide guidelines about how the researcher should conduct his or her endeavours,
- at the *technical* level, where it is used to specify the methods and techniques which ideally should be adopted when conducting research.

Using the logic offered by Morgan, the next section considers the main philosophical theories in science/social science. Traditionally, there have been two paradigms with disparate outlooks on reality - *positivism* and *phenomenology*.

5.2.1. Positivism

Positivism has its roots in French philosophy. The term is often attributed to Auguste Comte (see Hughes & Sharrock, 1997), but history suggests that it was whilst Comte was under the influence of Saint-Simon that positivism first began to grow (Bryant, 1985). Emile Durkheim (1858-1917) also advanced positivism as a legitimate scientific philosophy by combining the analysis of numeric data with writings emphasising the importance of observation. However, whilst both Comte and Durkheim are generally accredited for the advancement of positivism, it was Scottish philosopher David Hume who outlined the tenets associated with the paradigm today. Hume's scientific empiricism believed in collection via sense data, with a complete mistrust of anything not grounded in observation. This is demonstrated in the following extract from his book *Inquiry into Human Understanding*:

"If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion"

(Sec. Xii, Part iii)

Hume, like all positivists, believed in a form of empiricism in which the act of investigation has no impact on reality (Collis and Hussey, 2003). Essentially, humans are external to reality and thus have no means to impact upon it. For this to be the case, researchers accept being external to reality and ontologically approach matters of reality with *objectivity* (Williams, 2005). This requires the researcher to be value-free, neutral and without influence on the study. This view of the world is not agreed upon by all (Bryman, 2004) and has given rise to an alternative paradigm known as *phenomenology*.

5.2.2. Phenomenology

The phenomenological paradigm is significantly different to positivism in both epistemology and ontology. Phenomenology is the science of phenomena – derived from the Greek verb *to show/appear* (Allen, 1990:893). This is fitting as scholars of phenomenology believe that the world *appears* in the mind and is only real in the way in which we choose to perceive it (Collis and Hussey, 2003). The driving theory behind the phenomenological paradigm is that scientists are part of the social world and therefore cannot be *objective*. As such, they argue that objectivity is an untenable position and that positivism is full of error. Schutz (1963) clarified this belief:

“It is up to the scientist and him alone to define in accordance with the procedural rules of his science, his observational field, and to determine the facts, data, and events within it which are relevant for the problems or scientific purposes at hand...” (p.234)

In essence, he suggested that when a scientist conducts a piece of research – even with the best intentions of objectivity – it is impossible for values, past experiences and education to be kept entirely separate from methodological procedures. Rather, researchers should accept their role in the social world and

thus recognise the *subjective* influence they have on their research (Letherby, 2003). Nonetheless, with such contrasting epistemologies, it is not surprising that there are differences in following either paradigm. For example, the positivist approach tends to be closely aligned to quantitative measures through deductive means and causation. This relies on larger sample sizes with high probability scores. Alternatively, the phenomenological paradigm is most often associated with qualitative procedures, utilised for inducting theory. Smaller sample sizes, with specifically chosen respondents, are generalised through theoretical abstraction (see Hussey and Hussey, 1997). A longer discussion of quantitative and qualitative procedures is given later in the chapter.

With such distinctions, it has often been argued that positivism and phenomenology are incompatible. For example, Erzberger and Prein (1997) labelled discussions of either paradigm, in a related context, as the '*incompatibility thesis*'. As both paradigms are closely associated with either quantitative or qualitative methods, this has also led to the perception that these approaches conflict. Consequently, purists of both schools (Guba and Lincoln, 1989; Schrag, 1992) have contested the validity of using the two (qualitative and quantitative) in tandem.

Whilst the incompatibility thesis remained fairly resilient for a long period of time, certain researchers began to question whether science was suffering as a result (Howe, 1988). For example, award winning author of *Straw Dogs*, John Gray, asserted that, "to limit the practice of science by rules of method would slow the growth of knowledge, or even halt it" (p.21). To counter paradigmatic differences, i.e. restrictions to single method research designs, certain

academics have sought a philosophy that does not limit methodological practice (Tashakkori and Teddlie, 1998; Cresswell, 2003) - pragmatism.

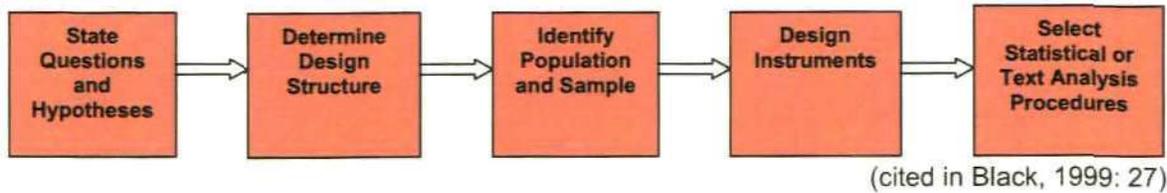
5.2.3. Pragmatism

The philosophy underlining pragmatism advocates that the problem is more important than the method, regardless of any paradigmatic or other assumptions (Howe, 1988). Pragmatism was first introduced by American philosophers Charles Peirce, William James and John Dewey (Cherryholmes, 1992). Early pragmatist philosophy was likened to Darwinian Theory in that it was more knowledge-orientated, unconfined by rules of logic and methodology. At the turn of the 20th century it received more attention in the social science literature (see Patton, 1990; Cherryholmes, 1992; Tashakkori and Teddlie, 1998). Patton (1990) discussed the relevance of putting research questions at the forefront of methodological practice. Tashakkori and Teddlie (1998) felt that this often required the application of pluralistic research procedures. As such, pragmatism is almost always associated with a combination of qualitative and quantitative methods (Tashakkori and Teddlie, 2003). Given the research objectives presented at the close of Chapter 1, it was proposed that a pragmatic research philosophy was adopted.

5.3. **Research Design**

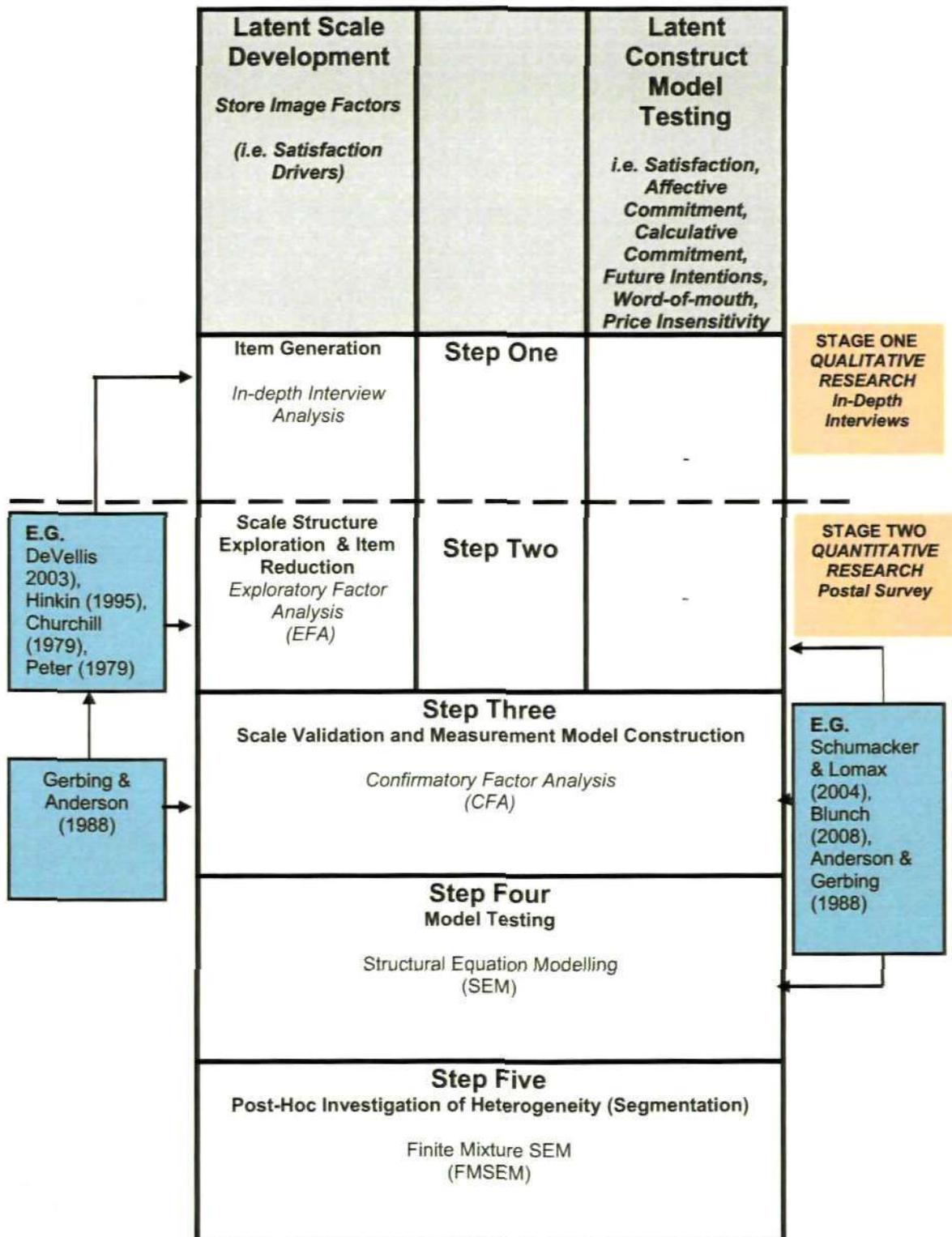
As the philosophical underpinning of this study was pragmatist, the methods chosen reflected the research objectives. In the classical research process (see Figure 7) empirical work is often sequential, incorporating, to some degree, the model suggested by Black (1999).

Figure 7 - The Generic Research Design Process



In this study, several adaptations to the model were made to better address the research objectives. One reason for this was that the conceptual model incorporated a grocery 'store image' scale for older people. This scale had yet to appear in the literature, whereas the remaining constructs could be borrowed from previous studies. It was thus required that both new and existing scales were intertwined in the development and specification of the model. Therefore, a more iterative procedure was used. Figure 8 presents the research design applied in this study.

Figure 8 – Study Research Design



The research design shows that the store image scale was developed in line with the procedures recommended by experts such as DeVellis (2003), Hinkin (1995), Churchill (1979) and Peters (1979). In the first instance, qualitative research is often used to generate a 'pool' of items for use in quantitative research. Qualitative research is important in this regard since it is often considered useful in fields of research that exhibit high complexity and has limited theoretical foundations (Bonoma 1985). In addition to this, Deshpande (1983) stated that qualitative research is the primary tool for the generation and construction of theory. Quantitative research methods using analytical statistical procedures, such as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were then used to define and validate a structure for the newly developed scale. As suggested by Cresswell (2002), the qualitative findings were further used to explain some of the results found in the quantitative research. This was in line with his sequential transformative approach.

The scales borrowed from the literature (see Section 5.6.2) did not require the same scale development procedures. In this study, satisfaction, affective commitment, calculative commitment, future intentions, word-of-mouth and price insensitivity were all considered to be well established measures. The process of selecting pre-existing scales is detailed more in Section 5.6.2. The objective with the borrowed scales was refinement and validation in line with experts such as Schumacker and Lomax (2004), Blunch (2008) and Anderson and Gerbing (1988). Normally, confirmatory factor analysis is used in advance and is then followed by model testing procedures such as latent factor regression or structural equation modelling.

In this study, as both new and existing scales were integrated together, a two-stage methodology was employed (qualitative and quantitative). Within this design, a five step analysis process was used. Stage one incorporated the first step in Figure 8 and represents the qualitative research. Stage two involved steps two to five and used quantitative research methods. In terms of analysis, steps one and two were specifically designed for the development of the new scale. Steps three to five were applied using both the new and borrowed scales. The quantitative stage of the research was (in part) determined by the findings of the qualitative. This is comparable to Lewin's (1946) 'Action Research Spiral' which suggested that researchers continue to learn from what has happened previously. A situation where qualitative and quantitative research is used together is referred to as *mixed method research* (Cresswell, 2002). Mixed method research designs are most often linked to pragmatist philosophy because they ignore paradigmatic tendencies in favour of practical application. As such, qualitative and quantitative methods, when combined, are often thought to be more informative than single method designs:

"...all methods of data collection have limitations. The use of mixed methods can neutralize or cancel out some of the problems associated with the disadvantages of certain methods" (Cresswell, 2002:4).

As such, priority was given to the sequential transformative approach in which an interpretation phase guided a subsequent aspect of the research in this case the qualitative guided the quantitative research (Plano Clark and Cresswell, 2008).

5.4. Research Ethics

In September of 2008, the research design was approved by the Ethical Committee for Social Research at the University of Plymouth. Owing to the

vulnerability of certain sub-groups of the target population (over 60's), specific care was given to the approach used to recruit respondents and implement data collection procedures in both stages of research. The ethical guidelines offered by the Market Research Society (MRS) were adhered to (www.mrs.org.uk). The researcher also acknowledged his role in the study and the difficulties incurred as a young male attempting to gain the trust and participation of candidates (Letherby, 2003). Where appropriate, the steps taken to ensure ethical standards were maintained are provided throughout the chapter.

The following section provides a greater depth of information pertaining to the two stages of research. Specific attention is afforded to the sampling strategy, collection and analysis. The research design process in Figure 8 is used as a reference for the latter.

5.5. Qualitative Research

Given the explorative requirement to generate items for the "store image" scale, qualitative research was selected as a precursor to the quantitative research effort (Johnson and Gustafsson, 2000; Bryman, 2004). Qualitative research often involves the collection of a variety of empirical materials, including case studies, biographies, interviews, historical and visual texts (Denzin and Lincoln, 2003). Qualitative researchers accept that their research is interpretive and naturalistic in its collection (Patton, 1990). Unlike quantitative methods which supply numerical data, qualitative research predominantly uses descriptions (Hair et al, 2007). Collected data tends to be in the form of words, phrases and, more recently, pictures or videos (Easterby-Smith et al, 2008). Some academics suggest that qualitative research need not even be analysed, but simply

presented, as the data often speaks for itself (see Gray, 2004). As such, qualitative research is most notably useful in marketing research for providing insights into problems that could not otherwise be found (Hague and Jackson, 1999). Essentially, it is emergent rather than tightly prefigured (Rossman and Rallis, 1998). This encourages inductive findings where theory is generated, often in areas where little, or no, knowledge exists (Bryman, 2004). Hair et al (2006) have listed salient properties of the qualitative approach (see Table 12):

Table 12 – Key Attributes of Qualitative Research

Purpose	Properties
More useful for discovering	More unstructured data
Provides depth information	Less concern for representativeness
Discovers hidden motivations	Small samples (e.g. 1-50)
Discovers hidden values	Relatively subjective

Source: Hair et al, 2006:152

Hair et al (2006) have also suggested that qualitative data is most often collected via interview or observational techniques. Interview techniques include in-depth, focus group, telephone and internet mediated methods. Observation can be human, electronic or mechanical, where the researcher interprets phenomena directly (Saunders et al, 2007). Observational research is particularly useful for identifying the behaviour of certain groups of people or events. However, it is less useful when the intention is to understand *why* the behaviour occurs (Hair et al, 2006).

Whilst the literature review provided *much* of the necessary theory for building the conceptual model, it was felt that to date, there remained less specific understanding of the store attributes most important to older grocery shoppers.

This has been referred to as *store image*. The starting point in any scale development procedure is item generation (see DeVellis, 2003; 63). A way in which this information was elicited was by using in-depth interviews (Hinkin, 1995).

5.5.1. Qualitative Interviews

Qualitative research interviewing is generally defined as a “conversation with a purpose” (Berg, 2001:66). Saunders et al (2007) differentiated between ‘one-to-one’ and ‘one-to-many’ interviews. The former can be face-to-face, telephone, or via the internet. One-to-many interviews are called *focus groups*. Whilst each of the collection techniques presented by Saunders and colleagues has theoretical and practical merits, it was felt impractical to conduct interviews using telephone or internet. Both these methods are only advantageous for reasons of convenience. Since Denzin and Lincoln (2003) advocated being amongst the data in its *naturalistic* form, interviews should be more personal. Focus groups benefit a group dynamic in which a number of ideas, feelings and opinions are generated and transferred (McDaniel & Gates, 2005). The group dynamic can, however, cause issues with bias. For example, Morgan (2002) suggested that people often comment in a way popular with other members of the group. Also, respondents have frequently been found to agree with dominant participants. It has been suggested that under certain circumstances people may feel inhibited on sensitive matters (Madriz, 2000).

Since this stage of the research required older people to discuss personal aspects of their shopping behaviour, it was felt that certain explanations might be inappropriate for a group format. Therefore, one-to-one interviews were most

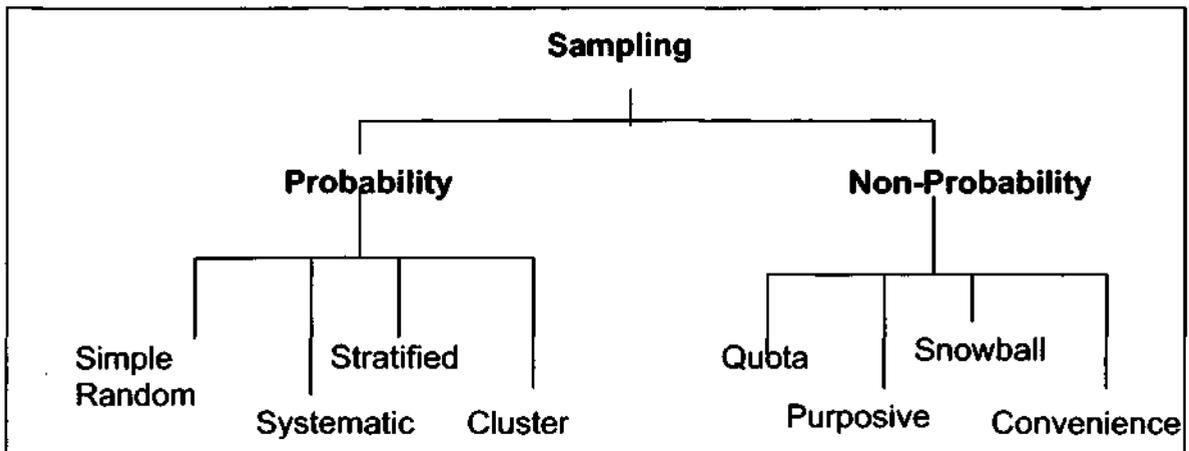
suitable for this study. They allow a deeper level of data collection and abstraction, vital in the collation of descriptive data (Rubin and Rubin, 2005). Whilst, other techniques have their benefits, interviews are particularly well suited to the development of scales in marketing (Johnson and Gustafsson, 2000). The next section details how participants were selected for the interviews; i.e. the sampling approach.

5.5.2. Qualitative Sampling

Sampling is the process of choosing research subjects from the target/sample population (Hussey and Hussey, 1997). Once the population has been defined, the objective is to obtain a relevant sampling frame (Wilson, 2006). Vogt (1993) defines the sampling frame as a list or record of the population from which individual respondents can be drawn. It is then a case of choosing the procedure for picking respondents (McDaniel and Gates, 2005).

Sampling techniques are normally sectioned into *probability* and *non-probability*. Figure 9 outlines the specific methods that fall under either type. In probability sampling each person in the defined target population has an equal chance of being chosen. Alternatively, non-probability sampling is not random. This means that *some* units in the target population have a greater chance of being selected than others (Bryman, 2004). Both probability and non-probability sampling can be applied through a number of independent techniques (see Figure 9).

Figure 9 - Sampling Techniques



Source: Saunders et al, 2007: 206

In advance of selecting a sampling method, it is critical to properly define the population (Wilson, 2006). As this study measured grocery shopping satisfaction, it was important that the sample had experience with the subject area. At the same time, geographically, the study was limited to people living in England. Therefore, those selected were aged 60 years and above and classified as the primary grocery shopper, i.e. responsible for the majority of shopping within each household. In situations where the shopping was shared, for example where it was equally divided between couples, the person with their birthday earliest in the year (i.e. closest to January 1st) was selected.

The recruiting of participants for interview presented some problematic and ethical issues. It was deemed inappropriate to solicit people directly. As a proportion of the sample population were of old age, being asked to take part in research could have been worrying to them. A non-probability approach combining both convenience and snowball sampling techniques was adopted. Convenience sampling represents those drawn from the overall population but selected for the convenience of the researcher (Black, 1999). Snowball sampling involves recommending other suitable participants (Black, 1999). Both

approaches allow the researcher a fairly inexpensive means of generating important preliminary information (Berg, 2001). As such, a number of organisations exclusively for people aged 60 years and above were contacted and invited to take part in the research. A total of six organisations agreed (further details in Section 6.2). These were:

- University of the Third Age (U3A) Plymouth
- University of the Third Age (U3A) Exeter
- University of the Third Age (U3A) Tavistock
- Plymouth Age Concern
- Bovey Tracey Activities Trust
- Autumn Club Newton Abbot

For convenience, each of the organisations was located in the Devon area of the south-west of England and maintained a listing on the county's local internet directory site. Conducting exploratory research in the south-west of England has been used in the past by Megicks et al (2008) and was considered an effective and economic strategy for obtaining a 'snapshot' of data representative of the wider population. In keeping with the approach taken by Megicks et al (2008), specific care was taken to ensure that groups from both city (urban) and market towns (rural) were involved. Once again, this ensured that people from a range of personal situations were included; especially since older people are known to reside in both urban and rural locations (Wrigley, 1998). For those showing an interest, an informal phone or face-to-face meeting was organised with the secretary. Flick (1998) stated that entering institutions can be problematic and that the first step is to gain the trust of the gatekeeper. In this

study the secretary acted in this role and once confident with the integrity of the study, assumed responsibility for recruiting participants (Hagan, 2006). Whilst this represented convenience sampling, in many cases snowballing was used in which subjects recommended other interested members of their group. Whilst it was not possible to strictly follow a quota, care was given to assure that people with different personal characteristics were involved. Therefore, the gatekeepers recruited a range of participants varying in age, gender, transport access and household composition (Moschis, 1992b; Gunter, 1998; Wrigley, 1998; Moschis et al, 2000). Overall, 36 subjects across the six organisations were interviewed. Further information pertaining to the respondents is found in Chapter 6.

5.5.3. Qualitative Data Collection

To meet the needs of members in each organisation, interviews were held in accessible locations. The researcher organised meetings in a public area such as a cafe or town hall. In keeping with ethical guidelines, interviews did not take place at the subject's home (Berg, 2001). No incentive was used for the interviews. However, a small gesture such as a cup of coffee and/or payment of parking was provided (Bryman, 2004).

Semi-structured interviewing was adopted to elicit answers to a blend of pre-determined questions regarding shopping habits and behaviour. In the latter part of the interviews, a more unstructured approach was used to identify salient store attributes (Berg, 2001). Respondents were encouraged to talk at length about the store they used most and aspects of it which they considered important. At certain points the researcher interjected to probe more deeply into

answers. This is a classical characteristic of semi-structured interviewing as it combines the most beneficial traits of structured and open techniques (Berg, 2001). An interview schedule used in this stage of the research is provided in Appendix 1.1a.

Permission was asked whether or not a voice recorder could be used. In all cases interviewees agreed to this. The researcher assured subjects that their answers would be kept confidential (Berg, 2001). Although signed consent was not requested, everyone received a one page summary of the research and was given the option to exit (Rubin and Rubin, 2005). In general, interviews typically lasted between 20-40 minutes.

5.5.4. Qualitative Analysis

The analysis of the interview data, and thus the compilation of salient store image attributes was critical to the study since it represented the first assessment of salient store attributes within the chosen context (i.e. grocery shopping and the older population). As advised by McDaniel and Gates (2005), the analysis of the data began during each interview. Following the interviews, an initial review of the key themes was written down in 'interview notes' on a case-by-case basis (see Appendix 1.1b). The audio recordings were then entered into qualitative software package NVivo 8. This type of software package has become an invaluable resource for classification and retrieval of key themes (Lewins and Silver, 2007). The audio files were listened to on several occasions to familiarise the researcher with the data. Each interview was then transcribed within the software (Lewins and Silver, 2007). This was undertaken after each interview (Heffernan, 2004). The electronic transcripts

were printed and analysed using the coding advice afforded by Miles and Huberman (1994:56-69), Cresswell (2002) and Ritchie and Lewis (2008: 237-240). As such, the analysis was conducted using “traditional” methods and was then electronically kept in the software for storing and retrieval of the data. The qualitative database (NVivo) is given in Appendix 1.1c.

Each transcript was subjected to a three stage coding procedure beginning with the specific and working towards a more general level of abstraction. Ritchie and Lewis (2008) referred to this as the *detection*, *categorisation* and *classification* process which complements Cresswell’s (2002) process for qualitative data coding and analysis (see Figure 10).

Figure 10 – The Qualitative Coding and Analysis Process

1. Initial read through text data	2. Identify specific segments of information (Detection)	3. Label the segments of information to create categories (Categorisation)	4. Reduce overlap and redundancy among the categories (Classification)
Many pages of text	Many segments of text	Many categories	A refined number categories

Source: Adapted from Cresswell (2002), Fig 9.4, p.266

Initially, every relevant part of the interview was coded in ‘chunks’ using a specific label. The chunks of data were separated between aspects relating to *shopping behaviour* and *salient store attributes* (i.e. satisfaction drivers). This constituted the *detection* aspect of the analysis and involved coding almost all parts of the transcripts with abstraction remaining very close to the original data (Ritchie and Lewis, 2008).

The second stage involved *categorisation* of the data, following a similar trawling process to the *detection* element. This also included attributing codes to the data based on the meanings assigned by respondents. In most cases this was explicit since respondents talked about “car park space” or “fresh produce”. An attempt was made to ‘recycle’ relevant codes from studies such as those mentioned in Section 3.3.1. These codes were entered into the code book.

In the final stage of the analysis, *classification*, the codes were compared with the original text. This involved a ‘polishing’ of the codes assigned to the data to make sure they were relevant and consistent between interviews. The coding frame was critically appraised and the relevance of each theme considered. Fereday and Muir-Cochrane (2006) refer to this as *connecting-the-codes*. As a result, a number were revised until a clear and practically usable framework was established. Attention was given to the *classification* labels, specifically to ensure that individual codes were indeed unique. When there was an overlap between two themes representing a similar meaning, careful consideration was given to the labelling. Once the *classification* stage had been finalised, and a clear set of labels representing the meanings expressed by respondents established, the individual themes were compared. As such, each of the salient attributes, representing *store image*, were reviewed and ‘provisionally’ placed under an over-arching wider dimension. This represented a tentative structure of eight store image factors to be tested via quantitative means. This provisional typology used, where appropriate, dimension labels borrowed from established store image studies (e.g. Kunkel and Berry, 1968; Lindquist, 1974; Zimmer and Golden, 1988; Bell et al, 1997) – see Section 3.3.1.

Throughout the analysis, special care was given to issues of *reliability, construct validity, internal validity* and *external validity*. Specific strategies were initiated to ensure these were achieved. This is shown in Table 13 and is further discussed below.

Table 13 - Strategies Implemented for Qualitative Reliability and Validity

Validity/Reliability	Strategy Implemented
Reliability	<ol style="list-style-type: none"> 1. <u>Data collection and analysis consistency</u> <ul style="list-style-type: none"> • The collection (i.e. interview schedule) and analysis procedure was consistent and structured. • Interviews were accurately recorded and transcribed. • Two analysts analysed the first ten transcripts.
Construct Validity	<ol style="list-style-type: none"> 1. <u>Triangulation of data</u> <ul style="list-style-type: none"> • Comparison of interview notes with the audio tape transcriptions. 2. <u>The identification of a clear chain of evidence</u> <ul style="list-style-type: none"> • Citations provided and saved in the database • Use of an interview schedule • Quotations used to demonstrate meanings
Internal Validity	<ol style="list-style-type: none"> 1. <u>Constant-comparative method</u> <ul style="list-style-type: none"> • Themes emerging from each transcript were compared with prior transcripts.
External Validity	<ol style="list-style-type: none"> 1. <u>Theoretical triangulation</u> <ul style="list-style-type: none"> • Themes compared with those found in previous studies • Cross-checking of transcripts to ensure 'original' themes weren't underlined in existing themes.

5.5.4.1. Reliability

The reliability of a study relates to whether the same findings would be produced if another researcher undertook the study using the same techniques and procedures (Lincoln & Guba 1985; Emory & Cooper 1991; Yin 1994). Therefore, if the interviews were replicated with the intention of identifying the most important grocery store attributes as determined by older shoppers, similar

findings should be reproduced (Emory & Cooper 1991; Zikmund 1991; Sekaran 1992).

Care was taken to safeguard consistency in both collection and analysis of the data. As such, an important procedure was to ensure that interviews were accurately recorded. These were transcribed by the researcher (and not a transcription specialist) to allow complete immersion within the data (Silverman, 2006).

Silverman (2006) suggested that another useful strategy is to use multiple (two or more) analysts and compare whether the same findings appear when the interviews and analyses are conducted independently. Owing to the number of interviews, this was not possible for all of the data. However, a second researcher (a member of the research supervisory team) re-analysed the first ten transcripts to make certain that the themes identified at that stage were consistent.

5.5.4.2. Construct Validity

Construct validity refers to the identification and development of appropriate operational measures for the constructs being researched (Emory & Cooper 1991; Yin 1994; Cooper & Emory 1995). Therefore, construct validity “testifies to how well the results obtained fit the theories around which the test is designed” (Sekaran 1992, p.173). Two strategies were identified in the literature to establish construct validity. These were: (1) triangulation using multiple sources of data and, (2) the presentation of a clear chain of evidence for how the data had been collected.

Triangulation was achieved by comparing emerging themes across several sources of data collection method. As mentioned previously, this refers to notes made by the researcher directly following each interview (Denzin 1978; Jick 1985; Miles & Huberman 1994) – see Appendix 1.1b. These were compared with the interview transcripts and audio files to qualify whether or not the emerging themes were consistent amongst the different sources. This process is a type of cross-validation to confirm that the interpretation of the analyst is in harmony with the meaning expressed by the respondent.

In the second instance, the specification of a clear chain of evidence was implemented which enables other researchers “to follow the derivation of any evidence from initial research question to ultimate case conclusion” (Yin 1994, pp. 34, 98-99). Three strategies were employed for this. Firstly, an interview schedule as discussed in Section 5.5.3 was recorded and followed. Secondly, themes emerging from the interviews were attributed to individuals. As such, the data was organised in the database which (1) provided a transcription relating to specific themes, and (2) provided the sound bites from the corresponding interviews. Finally, quotations lifted verbatim from the respondents were used to demonstrate the findings (Yin 1994). These, again, are found in the NVivo database in Appendix 1.1c and are also used in the presentation of the qualitative findings in Chapter 6.

5.5.4.3. Internal Validity

Internal validity is concerned with whether the research is actually investigating what it claims to be investigating (Ritchie and Lewis, 2008). Specifically, the

researcher should ask if their analysis accurately reflects the phenomena under study. Internal validity is used primarily in experimental, explanatory and causal research to identify possible errors or alternative explanations for the findings that arise despite attempts to institute controls (Zikmund 1991; Sekaran 1992). Consequently, this was not of critical concern within the current study, which was more exploratory in nature. Nevertheless, efforts were implemented to increase the internal validity of the analysed data.

Specific attention was given to data representation. The quality of the codes given to characterise concepts were examined to ensure they were consistent (Hammersley, 1992). To this end, the 'constant comparative' method prescribed by Glaser and Strauss (1967) was used. Codes given to emerging themes in one transcript were constantly compared to those identified in other interviews. This helped to ensure that the meaning behind themes truly reflected the responses (Silverman, 2006).

5.5.4.4. *External Validity*

External validity is concerned with the degree to which findings from the research can be generalised to outside persons, settings and times (Emory & Cooper, 1991). This was considered especially important in the current study since the qualitative data was to later be used in the survey instrument. Ritchies and Lewis (2008) advocated that *triangulating* data with other sources is an acceptable method for ascertaining whether external validity exists. One method, first suggested by Denzin (1978), is *theoretical triangulation* in which themes used in previous research are recycled. As suggested by Miles and Huberman (1994): "one method of creating codes – the one we prefer – is that

of creating a provisional start list prior to fieldwork” (p.58). For this to be achieved, a review of previous studies, as described in Section 3.3.1, was undertaken so that established labels were included. In instances where no precedence existed for the emerging themes, original labels best representing the underlying meanings were given to the data. Care was given to ensure that these themes were indeed unique and did not overlap with others emerging from the analysis.

5.6. Quantitative Research

Following completion of the qualitative research, the quantitative fieldwork commenced. The quantitative aspect of the study involved steps two to five of the research design process (see Figure 8). This section deals specifically with the organisation, collection and analysis of quantitative data.

Quantitative research differs from qualitative research in that it often works with large amounts of numeric data (McDaniel and Gates, 2005). Contrary to qualitative research, which is normally inductive (i.e. theory driven), quantitative research is mainly deductive (i.e. testing driven). It usually emphasises the quantification of its collection methods and the generalisability of its findings (Bryman, 2004). As such, it lends itself directly to statistical procedures which are mostly concerned with confirming or disproving theory. Hair et al (2006:152) have collated the most notable purposes of doing quantitative research and its most distinctive properties.

Table 14 – Key Attributes of Quantitative Research

Purpose	Properties
More useful for testing	More structured data
Provides summary information	High concern for representativeness
Tracks trends over time/groups	Large samples (e.g. over 50)
Useful for making comparisons	Objective measures

Source: Hair et al, 2007: 152

The primary outcome of this stage of the research was to further develop, and then test, the conceptual model outlined in Section 4.6. Since the objective was to assess whether the model was satisfactory for the purpose of generalisation, larger quantities of data were required. A survey questionnaire was chosen as the vehicle for collecting the information. It was considered more efficient than other methods such as experiments, observation and face to face interviews (Hair et al, 2007). The questionnaire development, the data collection strategy employed and the methods of analysis are all provided in the following sections.

5.6.1. Questionnaire Development

Questionnaire quality is important in determining sample response rates (Bryman, 2004). Dillman (1978) suggested a series of methods which increase the quality of a questionnaire survey. Questions should be well presented, neatly spaced, use an appropriate sized font and have a logical order. Clear and precise instructions should be given to avoid confusion. Attention should be given to selecting the right *type* of question for the data required. Generally speaking, there are four types of question: open-ended, nominal, ordinal and interval (Chisnall, 2005). A description and example of each is given in Table 15.

Table 15 – Types of Data and Questions

Level of Data	Description	Type of Question	Example Question
Open-ended	Descriptive data used when closed questions cannot be used	Open	What is your postcode?
Nominal	The lowest level of data. Provides closed categories that cannot be rank ordered.	Category	What is your gender? 1) Male 2) Female
Ordinal	Provides a moderate level of data. Categories are ranked in some kind of order, however, the differences between the categories remain unknown	Ranking	List your best friends in order? 1) Liz 2) Peter 3) Stacey
Interval	Provides the highest level of data. Variables are scored either by categories or numbers where the differences between them are given.	Rating Scales or Quantity	On a scale of 1 to 10, how much do you like music? 1,2,3,4,5,6,7,8,9,10 How much do you earn per week?

Source: Compiled by the researcher

The questionnaire in this study was broken into two distinct sections. The first aimed to identify respondent behavioural and personal characteristics. The latter focused on measuring key constructs pertaining to the conceptual model; i.e. store image factors, satisfaction, affective commitment, calculative commitment, future intentions, word-of-mouth and price insensitivity. Whilst the first section was based on a range of different question types, the model constructs used interval level rating questions based on seven-point Likert scales (e.g. Anderson and Gerbing, 1988; DeVellis, 2003, etc.). Despite some experts in satisfaction research advising the application of ten-point scales (e.g. Fornell, 1992; Fornell et al, 1996), a shorter scale was preferred in order to limit variance. It should be noted that collecting data relating to more than one store would have been intensive on the researcher and respondent. The decision was therefore taken to collect data pertaining to a respondent's most used store (i.e. where they undertook the highest percentage of shopping in the six months

prior to data collection). The store image factors were measured using a seven-point performance scale. The scales which were borrowed from previous studies retained their original metric. The following section presents how the borrowed scales used in the study were chosen.

5.6.2. Scale Selection

In causal models, constructs (such as satisfaction, etc.) are normally unobservable and are more reliable when taken over multiple measurements using a number of related indicators called items (Borsboom, 2008). The objective of developing a scale is to find a mix of items that can accurately measure the variance in a latent construct e.g. changes in *customer satisfaction* (DeVellis, 2003). For accomplishing this, the objective is to identify scales with a high demonstrated level of quality from previous studies. The *quality* of a scale is delineated by its internal consistency (i.e. reliability) and construct validity. Reliability is concerned with the homogeneity of items (DeVellis, 2003). There are several methods for measuring this. The most notable is Cronbach's coefficient alpha which requires a score of .70 or higher (Hair et al, 2006). Additionally, validity refers to the scale's representation of the construct intended. As such, the most commonly applied tests are convergent and discriminant validity (Fornell and Larcker, 1981). A well known procedure for measuring convergent validity is Average Variance Extracted (AVE). This tests the amount of variance in a latent construct attributable to its indicator items. Adequate construct validity is evidenced when AVE is above .50 and the squared correlations between latent factors are lower than the independent AVE scores. When the latter is satisfied, discriminant validity is said to be demonstrated (Fornell and Larcker, 1981).

Table 16 presents the scales taken from previous academic studies. It should be noted that the store image scale is not included because it was developed empirically using scale development procedures (Hinkin, 1995; DeVellis, 2003). An assessment of the reliability and validity (where available) is also given, along with the scale item wording. Some alternative scales are compared and contrasted against that chosen. The scales found in Table 16 are taken from studies in the highest tier of marketing journals, e.g. *Journal of Marketing*, *Journal of Retailing*, *Journal of the Academy of Marketing Science*, *Journal of Marketing Research* and the *Journal of Service Research*.

Table 16 – Scales Borrowed From Existing Studies

Construct	Chosen Studies	Reliability (α)	Validity	Scale Items	Alternative Studies	Reliability (α)	Validity	
Satisfaction	Fornell (1992) Fornell et al (1996)	N/A	Yes AVE >.75*	a) <i>Considering all your dealings to date with ABC, how satisfied are you with them overall?</i>	Reynolds and Beatty (1999)	$\alpha = .89$	Yes AVE (N/A)	
				b) <i>Considering all of your prior expectations of ABC, to what extent has ABC fallen short of this?</i>	Cronin et al (2000)	$\alpha = .85-.92$	Yes AVE .58-.70	
				c) <i>Consider your ideal ABC, how close does ABC match with your ideal?</i>	Tsiros and Mittal (2000)	$\alpha = .95$	N/A	
					Patterson and Smith (2003)	$\alpha = .91-.95$	Yes AVE .74-.90	
Affective Commitment	Fullerton (2003)	$\alpha = .82$	N/A	a) <i>I feel like part of a family as a customer of ABC</i>	Verhoef et al (2002)	$\alpha = .78$	Yes AVE (N/A)	
				b) <i>I feel emotionally attached to ABC</i>	Gruen et al (2000)	$\alpha = .95$	N/A	
	And	Gustaffson et al (2005)	N/A	Yes AVE .69	d) <i>I feel a sense of identification with ABC</i>	Bansal et al (2004)	$\alpha = .80$	N/A
					a) <i>I take pleasure in being a customer of ABC</i>	Lichtenstein et al (2004)	$\alpha = .80$	N/A
				b) <i>ABC takes the best care of their customers</i>				
				c) <i>There is a presence of reciprocity in my relationship with ABC</i>				
				d) <i>I have feelings of trust</i>				

Construct	Chosen Studies	Reliability (α)	Validity	Scale Items	Alternative Studies	Reliability (α)	Validity
Calculative Commitment	Fullerton (2003)	$\alpha = .88$	N/A	<ul style="list-style-type: none"> a) <i>It would be very hard for me to switch away from ABC right now even if I wanted to</i> b) <i>My life would suffer disruption if I switched ABC now</i> c) <i>It would be too costly for me to switch from ABC right now</i> d) <i>Right now, staying with ABC is as much a matter of necessity as choice</i> 	Verhoef et al (2002)	$\alpha = .75$	Yes AVE (N/A)
	And				Gruen et al (2000)	$\alpha = .85$	N/A
	Gustaffson et al (2005)	N/A	Yes AVE .63	<ul style="list-style-type: none"> a) <i>It pays off economically to be a customer of ABC</i> b) <i>I would suffer economically if the relationship were broken</i> c) <i>ABC has location advantages versus other companies</i> 			

Construct	Chosen Studies	Reliability (α)	Validity	Scale Items	Alternative Studies	Reliability (α)	Validity
Loyalty (Future Intentions/ Switching)	Fullerton (2003) Scale reversed from switching to be positive (i.e. future intentions)	$\alpha = .81$	N/A	a) <i>Do less (more) business with ABC in the next year</i>	Nijssen et al (2003)	$\alpha = .92$	Yes AVE .72
				b) <i>(Wont) take my business to a competitor of ABC</i>	Harris and Goode (2004)	$\alpha = .74-.78$	N/A
				c) <i>(Wont) switch from ABC to another service provider</i>	Brady et al (2005)	$\alpha = .92$	Yes AVE .63-.86
Loyalty (Word-of-Mouth/ Advocacy)	Fullerton (2003)	$\alpha = .81$	N/A	a) <i>Say positive things about ABC to other people</i>	Arnett et al (2003)	$\alpha = .90$	Yes AVE .75
				b) <i>Recommend ABC to someone who seeks my advice</i>	Brown et al (2005)	$\alpha = .95$	Yes AVE (N/A)
				c) <i>Encourage friends and family to do business with ABC</i>			
Loyalty (Price Insensitivity/ Tolerance/ Pay More)	Fullerton (2003)	$\alpha = .73$	N/A	a) <i>Continue to do business with ABC if its prices increase</i> b) <i>Pay a higher price than competitors charge for the benefits of using ABC</i> c) <i>Accept higher prices if ABC raises its prices</i>	Srinivasan et al (2002)	$\alpha = .77$	N/A

= Cronbach alpha coefficient; Yes = Validity in the form of construct validity was assessed in the paper; AVE = Average Variance Extracted used to demonstrate convergent validity

* in Fornell (1992); Fornell et al (1996) reliability and validity was not given, instead, AVE scores are an average across all industries given in the methodological paper by Anderson and Fornell (2000)

5.6.2.1. Satisfaction

The latent variable *satisfaction* was the focus point of the conceptual model. In the literature, the scale used by Fornell (1992) and Fornell et al (1996) is one of the most widely cited (ACSI Methodology Report, 1998). This might be owing to the fact that it draws upon satisfaction theories, including expectancy-disconfirmation (Oliver, 1980) and ideal congruence (Sirgy, 1984; Tse and Wilton, 1988). It therefore represents an evolution of the measure over time. Interestingly, due to its wide application (Fornell, 1992; Fornell et al, 1996), an accurate reliability and validity statistic was not provided by the authors. Nonetheless, in the methodological paper by Anderson and Fornell (2000), it was suggested that AVE scores are consistently above .75 (75%). Whilst other scales offer strong potential, most notably Patterson and Smith (2003), Fornell's scale was considered the most appropriate given its wide uptake.

5.6.2.2. Affective Commitment

Affective commitment was not included in the original cumulative satisfaction models proposed by Fornell and colleagues (Fornell, 1992; Fornell et al, 1996). However, as evidenced through the extant literature review, it has been recommended as an important mediator variable in models of satisfaction and behavioural intentions, such as loyalty (Gruen et al, 2000; Fullerton, 2003). Most studies using affective (and calculative) commitment refer to the original Allen and Meyer (1990) scale. Owing to the fact that commitment has not widely been adopted and tested in this context – particularly grocery shopping – it was felt that a conservative strategy would be implemented. Therefore the merging of two similar scales (i.e. Fullerton, 2003 and Gustafsson et al, 2005) was used

to improve the operationalisation of the construct were it not to initially fit the data and, therefore, require refinement. The two chosen scales were picked because they scored highly for reliability (Fullerton, 2003) and/or validity (Gustafsson et al, 2005). Whilst adapting and adding items to scales is commonplace (see Bruner et al, 2005), conjoining two existing ones is less so. Nonetheless, given that both scales were well established, it was seen as the best course of action. Other studies, such as Gruen et al (2000) were considered based on their reliability scores, but were rejected owing to their unrelated previous contextual application – i.e. professional associations (business-to-business).

5.6.2.3. Calculative Commitment

A similar strategy to that used in selection of the affective commitment scale was employed for calculative commitment. Once again, most alternative studies have, in some form or another, adopted similar items to Allen and Meyer (1990). As previously mentioned a conservative strategy which involved combining the scales proposed by Gustafsson et al (2005) and Fullerton (2003) was implemented. This approach created seven items which provided scope for refinement if necessary (see Table 16). Both studies scored significantly above the expected threshold for reliability (Fullerton, 2003) and/or validity (Gustafsson et al, 2005). Although the scales by Gruen et al (2000) and Verhoef et al (2002) could have been used, those chosen were perceived to have the right balance of items to measure the construct effectively in an older consumer context.

5.6.2.4. *Loyalty: Future Intentions, Word-of-Mouth, Price Insensitivity*

Most measures of loyalty contain, to some degree, elements of *future intentions*, *word-of-mouth* and *price insensitivity* – often with just one or two items for each (e.g. Fornell, 1992; Fornell et al, 1996). Evidence has suggested that this type of cocktail approach, where all items are considered under just one umbrella, is constrictive and unreliable (Soderlund, 2006). Therefore, in this study, individual scales were considered for all three *loyalty outcomes*. Although, loyalty is one of the most widely used scales (Bruner et al, 2005), constructs for its individual outcomes have been operationalised less. Where they have been applied separately, e.g. Srinivasan et al (2002), Nijssen et al (2003), Harris and Goode (2004), Brady et al (2005) and Brown et al (2005), few examples exist in which more than one scale was tested per outcome. The exception to this was Fullerton (2003) who named his scales as: *switching*, *advocacy* and *pay more*. These three constructs, when adjusted (i.e. switching was reversed to represent positive *future intentions*), closely resembled the three critical tenets of loyalty sought in the current study – *future intentions*, *word-of-mouth* and *price insensitivity*. Since Fullerton (2003) had obtained acceptable levels of reliability for all three (although he gave no validity assessment), these items were taken forward (see Table 16). Appendix 1.2 provides the study questionnaire.

5.6.3. Quantitative Sampling

In Section 5.5.2, it was explained that the qualitative sampling followed a blend of convenience and snowballing to recruit respondents. For the purpose of a better representation of the older population in England, a non-probability quota sampling method was applied (Hague, 2002). This method is most appropriate

when random sampling is not feasible, owing to procedural, financial, time, or any other costs rendering it difficult to implement (Hague, 2002). As such an 'interlocking quota' sampling technique was applied since data showed that the distribution of people aged 60 years and above was not equally spread amongst geographical locations or gender (ONS, 2005b). Interlocking quota sampling assured that the questionnaire survey was sent to people who were most representative of the English older population.

The sampling frame was drawn from a 2300 case list purchased from a marketing company. The list included people aged 60 years and above and was organised to reflect some of the characteristics of the entire older population in England. This was achieved through quotas of people using gender and geographical location. The sampling frame was broken into proportional groups (see Table 17) – e.g. 44.7% women, 5.3% from the North-East. Bradley (2010) advised that care should be given to interlocking quotas so that only important characteristics, most likely to improve the representation of the sample, are taken forward. It is also necessary that the interlocking quota cells contain enough cases so that they remain relevant (Bradley, 2010). It should be noted that the list was drawn from people who had agreed to be contacted for the purpose of research and marketing. The list contained the name, address, age and gender of subjects. Once the list had been configured, the data collection strategy was organised.

Table 17 – Sample Quota by Gender and Location (Thousands)

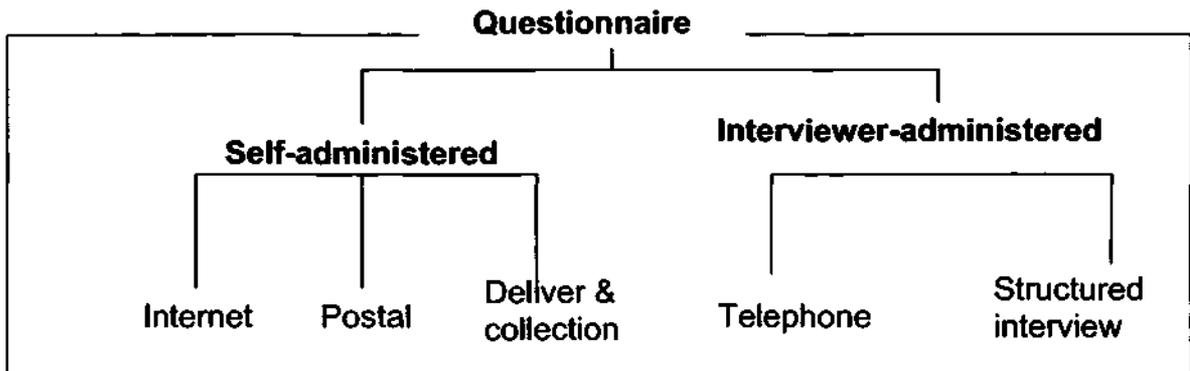
	Male	Female	Total	Percentage (%)
North East	252.3	316.1	568.4	5.3
North West	654.2	821.9	1,476.1	13.7
Yorkshire and The Humber	488.5	609.3	1,097.8	10.2
East Midlands	435.5	521.4	956.9	8.9
West Midlands	527.7	647.4	1,175.1	10.9
East	565.0	688.0	1,253.0	11.6
London	516.1	654.9	1,171.0	10.9
South East	805.6	1,005.9	1,811.5	16.8
South West	569.5	703.0	1,272.5	11.8
Percentage of men & women	44.7	55.3		

Source: ONS (2005b)

5.6.4. Quantitative Data Collection

Questionnaire data can be collected via two distinct methods: interviewer-administered or self-administered. Figure 11 shows the distinctive applications of both questionnaire methods. Each *type* has inherent strengths and weaknesses. An overview of the main characteristics of each is considered in Table 18.

Figure 11 – Types of Questionnaire



Source: Cited in Saunders et al, 2007: 363)

Table 18 - Quantitative Data Collection Methods

Attribute	Internet	Postal	Delivery & Collection	Telephone	Structure Interview
Population characteristics which are suitable	Computer literate individuals who can be contacted by email	Literate individuals who can be contacted by post, selected by name, household etc	Literate individuals who can be contacted by post, selected by name, household etc	Individuals who can be contacted by telephone, selected by name, household etc	Any; selected by name, household, etc
Confidence that right person has responded	High if using email	Low	Low but can be checked at collection	High	High
Likelihood of contamination	Low	May be contaminated	May be contaminated	Occasionally distorted by interviewer	Occasionally distorted by interviewer
Size of sample	Large	Large	Dependent on field workers	Dependent on interviewers	Dependent on interviewers
Likely response rate	30% reasonable	30% reasonable	30-50%	50-70%	50-70%
Feasible length of questionnaire	N/A	6-8 A4	6-8 A4	Up to half an hour	Variable
Time taken to complete collection	2-6 weeks	4-8 weeks	Dependent on sample size and field workers	Dependent on sample size and field workers	Dependent on sample size and field workers
Main financial resource implications	Web page design	Outward and return postage, photocopying	Field workers, travel, photocopying etc	Interviewers, telephone calls, clerical support, photocopying etc	Interviewers, travel, clerical support, photocopying etc
Role of the interviewer/fieldworker	None	None	Delivery & collection of questionnaires	Enhancing respondent participation, and answering questions	Enhancing respondent participation, and answering questions
Data input	Automated	Yes	Yes	Done at time	Done at time

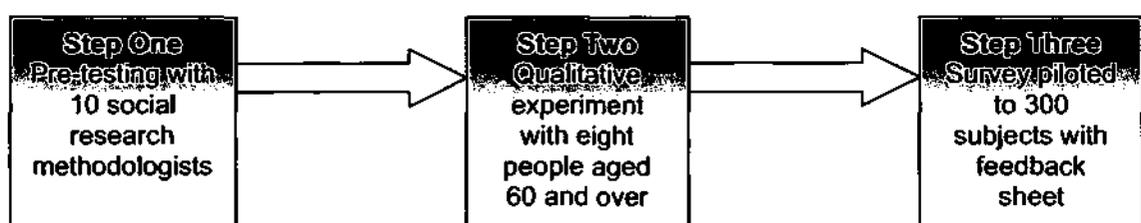
Source: Cited in Saunders et al, 2007: 200

Table 18 shows that there are significant differences between each of the five data collection methods. This study was reliant on obtaining a large sample size for the purpose of generalisability. However, the associated costs of attaining a sample large enough using drop & collect, telephone and structured interviews was considered too high to justify their use. Whilst it is often more convenient to use online questionnaires, it was felt that sampling error would be too high considering that certain sections of the sample population might not have had access to the internet (see Punch, 2005). The most tenable option, therefore, was using postal surveys, which can be manipulated to achieve higher response rates (Dillman, 1978). It was also felt that older people would have more time and thus a greater willingness to complete and return a postal questionnaire. Nonetheless, at this stage, it was undetermined how large the response rate would be and ultimately how generalisable the findings, as a result. Therefore, an initial pre-testing and piloting stage was conducted.

5.6.5. Postal Survey Pre-testing and Piloting

Before the questionnaire could be distributed, a comprehensive assessment of the survey instrument was undertaken in line with the suggestions of Dillman (1978). He found that pre-testing greatly improved the quality of the questionnaire and, therefore, increased the likelihood of response. As such, a three step approach was implemented (see Figure 12).

Figure 12 – Pre-test and Piloting Process



In step one, ten researchers in the School of Social Science and Business at the University of Plymouth were asked to read the questionnaire and make comments based on its structure, wording and content validity (Dillman, 1978). Dillman (1978) suggested that experts often “provide feedback not available from any other group” (p.157). This was a productive exercise, especially in changing the phrasing of individual questions and identifying problematic aspects of the questionnaire.

The second stage of pre-testing involved recruiting eight people aged 60 years and above via convenience sampling. All subjects were former teachers located in the city of Southampton, England. These people tested the questionnaire, and once completed, provided feedback based on the length, ease of answering and instructions provided. They were asked to highlight ambiguous questions and to make suggestions for improvement. This was especially important for observing respondent fatigue. Participants were also asked to time how long it took them to complete the survey. Overall, a couple of changes were made at this point.

The third stage used the revised questionnaire and was distributed to 300 cases randomly selected from the sample list. Freepost return envelopes were included in the package. Piloting in this way is often considered a useful exercise for identifying questions prone to non-response, as well as predicting response rates to wider sample sizes (Bryman and Bell, 2003). From the 300 cases, only seven percent were returned completed. This represented significantly lower rates of response than considered acceptable for the large scale collection stage. However, of the returned questionnaires, no noticeably

problematic variables or wording issues were found. Nonetheless, little could be gleaned regarding the quality of the data since the number of cases was so minimal. In restoration of the low sample response, a modified version of Dillman's (1978) Total Design Method was followed. The next section outlines the steps taken.

5.6.6. Total Design Method

The method for distributing the final questionnaire followed, in the most part, suggestions provided by Dillman (1978; p.161). In the first instance, the covering letter was re-written to commend the importance of participation in the survey. The Director of Age Concern Plymouth, Barbara Duffy, supplied a quotation encouraging subjects to this effect. Important messages concerning confidentiality and anonymity were also stated in the letter, which was autographed using a blue pen to show that letters had been hand-signed.

Once again the questionnaire and covering letter were accompanied by a pre-paid envelope. Each was marked with a designated number unique to each respondent enabling returned questionnaires to be tracked. For the purpose of encouraging responses, each subject was offered the opportunity to participate in a free prize draw to win high street vouchers. Additionally, each package contained a gift bookmark as small, yet practical incentives are considered acceptable and good motivators for postal surveys (Dillman, 1978). The mail-out, once again inspired by Dillman, followed a specific three-stage schedule. Figure 13 details the process undertaken.

Figure 13 – Data Collection Schedule



The data collection window was open for just over six weeks. Dillman (1978) stated “most people who answer questionnaires do so almost immediately after they receive them. A questionnaire that lies unanswered for a week or more is not very likely to be returned” (p.183). Therefore, two weeks after sending phase one, a follow up postcard was distributed to all subjects. It should be noted that any returned questionnaires, owing to the respondent being unreachable, were removed from the database. The postcard fulfilled two purposes. Firstly, it thanked those who had already responded and also encouraged those who had not yet done so. After a further two weeks, replacement questionnaires were sent to those who had still not replied. Dillman (1978) suggested that this cements the importance of the survey. The postcard ensured that if the initial questionnaire was mislaid, it would be unlikely to happen again.

Although the Total Design Method suggests one final phase (i.e. third mail out), this idea was rejected due to research costs. Nonetheless, it was felt that the adapted procedure was sufficient to obtain an adequate sample size of 524 – details of which are provided in Section 7.2. The following section moves on to present the methods of analysis.

5.6.7. Quantitative Analysis

It should be noted that the procedure of screening and cleaning the data was undertaken in advance of the analyses. This was necessary for checking multivariate assumptions and dealing with missing data, outliers and poorly inputted responses.

The analysis was undertaken in keeping with steps two, three, four and five of the research design (see Figure 8). This involved exploratory factor analysis (EFA) for the newly derived *store image* scale in order to delineate a tentative factorial structure for the scale (see Section 8.2). Both new and pre-existing scales in the conceptual model were then subjected to measurement model analysis via confirmatory factory analysis (CFA). Once a refined and well fitting measurement model was obtained, the conceptual model was tested via full structural equation modelling (SEM). This allowed the hypotheses in Section 4.6 to be validated. Only when the full model had been tested was step five implemented. This used finite mixture structural equation modelling to identify unobserved heterogeneity. As a result, a number of segments were established and profiled using personal characteristics and behaviours.

The following sections outline the key properties of each of the four analysis methods employed in the quantitative research (step one to step five in Figure 8). The statistical software programme Mplus 5.21 was used for all four analyses due to its advanced computing capacity. The explanation given here remains general and a full working description is given in the data analysis sections (i.e. Chapters 6-9).

5.6.7.1. Exploratory Factor Analysis (EFA) – Step Two

The EFA was specific to the newly developed *store image* scale shown in step two of the research design process (see Figure 8). The main objective was to delineate a preliminary structure for the scale.

Thompson (2004) explained that exploratory factor analysis (EFA) “can be used to summarize relationships in the form of a more parsimonious set of factor scores used in subsequent analyses” (p.5). As such, most often the researcher has only a tentative expectation about the number and/or nature of constructs underlined by a set of items. In fact, with EFA, any commitment to the number of factors and the relationship between items is not required. For this reason, EFA has been referred to as one of the most powerful methods for reducing variable complexity into greater simplicity (Thompson, 2004). Therefore, EFA is the ideal precursor to confirmatory factor analysis which is more stringent and conservative in the specification process.

Generally speaking, EFA uses the correlation matrix to assess the association between a set of items. Based on correlation theory where higher scores represent stronger relationships, a set of items may be accounted for by a small number of latent factors (Kline, 1994). A latent factor can be described as a dimension or construct which is a condensed statement of the relationships between variables (Kline, 1994). The strength of the relationship between items and a factor is known as a *loading*. Theoretically, a latent factor/construct is not measured directly and is the product of a combination of indicators (Hair et al 2006). This, when broadly considered, falls under the common factor model framework in which:

$$y_j = \lambda_{j1}\eta_1 + \lambda_{j2}\eta_2 + \dots + \lambda_{jm}\eta_m + \varepsilon_j$$

...when y_j represents the j th of p indicators (i.e. items loading on a construct) obtained from a sample of n independent subjects (e.g. 100 cases), λ_{jm} represents the factor loading relating variable j to the m th factor η_m , and ε_j represents the variance that is unique to indicator/item y_j independent of all other item variances.

When a series of items is reduced into a smaller set of factors, the objective is for 100 percent of variance in the observed variables to be explained (Kline, 1994). In practice, a more attainable target is for 60 percent or more of the variance to be explained by a delineated factor structure (Tabachnick and Fidell, 2007). Section 8.2.1 presents the results of the EFA for the store image scale, in which the step-by-step implementation is described in depth. The following section explains how confirmatory factor analysis (CFA) was integrated into the study.

5.6.7.2. Confirmatory Factor Analysis (CFA) – Step Three

In this analysis, the measurement model provided an assessment of how well the newly developed (store image) and borrowed (satisfaction, commitment, loyalty outcomes) scales fitted together – step three in Figure 8. This was achieved using confirmatory factor analysis (CFA). As such, the measurement model was used for the specification of latent factors (Hoyle 1995).

Confirmatory factor analysis is generally used to ensure that measurement aspect of a model works. This is operationalised by testing whether the latent

factors are sufficiently linked to each of their items (Hair et al 2006). Two types of measurement models are generally discussed in the literature; namely the key factor model and the composite latent model (Jarvis et al 2003). The difference between them relates to the application of *reflective* or *formative* indicators.

The key factor model uses the covariance between indicators to capture the variance explained by the latent factor and is often preferred in measuring human behaviours (Jarvis et al 2003). Alternatively, the composite latent model is used when specific indicator changes causally impact upon the latent factor, although this situation is more fitting in economic modelling (Jarvis et al 2003). Given the focus of the study, a CFA model using reflective indicators was considered more theoretically and practically aligned to the context.

As a rule of thumb, to ensure that the model was *identified*, three indicators or more were used to measure each factor (Blunch, 2008). In practice this meant that the number of variances and covariances in the measurement model were higher than the number of parameters needed for estimation. In other words, the total degrees of freedom should be positive. The general equation to determine whether the model is identified can be expressed as:

$$df = \{k(k + 1)\} \\ (2 - t)$$

...where k represents the number of indicators and t is the number of free parameters to estimate.

Confirmatory factor analysis allows the researcher to evaluate the quality of the

measurement model through model fit statistics and Lagrange modification indices (see Brown, 2006). One important principle in measurement theory is that indicators are unidimensional and therefore load on just one latent factor (Anderson and Gerbing, 1988). As such, it is important that factors are unique in the measurement properties they employ. A working discussion of this is provided in Chapter 8. The ultimate objective is to trim and/or re-configure the model, often using substantive information, until a good level of model fit is observed. Before the model is approved and considered ready for structural modelling, scales should be assessed for construct validity and reliability (Brown, 2006).

Constructs cannot be validated, by definition, without the presence of a theoretical network surrounding the concept (Carmines and Zeller, 1979). For example, satisfaction can only be validated as a measurement concept if its indicators are adequately supported by theory. In testing construct validity, convergent and discriminant validity tests are often used (Fornell and Larcker, 1981). This was discussed in section 5.6.2 in which the scale selection details were outlined.

In the measurement model, reliability can be defined as the degree to which a set of indicators are internally consistent in measuring their underlying construct (Hair et al 2006). As such, reliable measures are strongly interrelated. In assessing this, construct scales are most often subjected to Cronbach's coefficient alpha test. As previously mentioned, reliability is suitably high when the alpha score exceeds .70 (Carmines and Zeller, 1979). It should be remembered that a scale is not, in itself, sufficiently valid when only Cronbach

alpha is used. It is however, a necessary condition of model quality (Hair et al, 2006).

5.6.7.3. Structural Equation Modelling – Step Four

Once a measurement model is valid and reliable with acceptable model fit, the structural paths between factors are specified to test causality. This process is generally referred to as the two-stage method since it incorporates CFA and structural modelling into a wider structural equation modelling (SEM) framework (Anderson and Gerbing, 1988).

As specified in the conceptual model presented in Section 4.6, theory is used to hypothesise whether or not a relationship should exist between two or more constructs (Kline 2005; Hair et al 2006). Two types of latent factor are specified in structural modelling: i.e. exogenous and endogenous factors. The former are the latent, multi-item equivalent of independent variables in regression analysis (Hair et al 2006). In a structural model, they remain unexplained by other constructs and are assumed to be the product of factors external to the model (Hair et al 2006). In contrast, endogenous factors are the latent multi-item equivalent to dependent variables (Hair et al 2006). These constructs are theoretically determined by other factors within the model. In this study, the satisfaction drivers constituted the independent exogenous factors, whilst the remaining constructs were endogenous. Variance, not explained by the exogenous factors represented residual error (Blunch, 2008).

As with CFA models, SEM analysis provides goodness of fit statistics and modification indices. At this stage, only structural relationships are refined in

keeping with the common two-step CFA-SEM approach (Anderson and Gerbing, 1988).

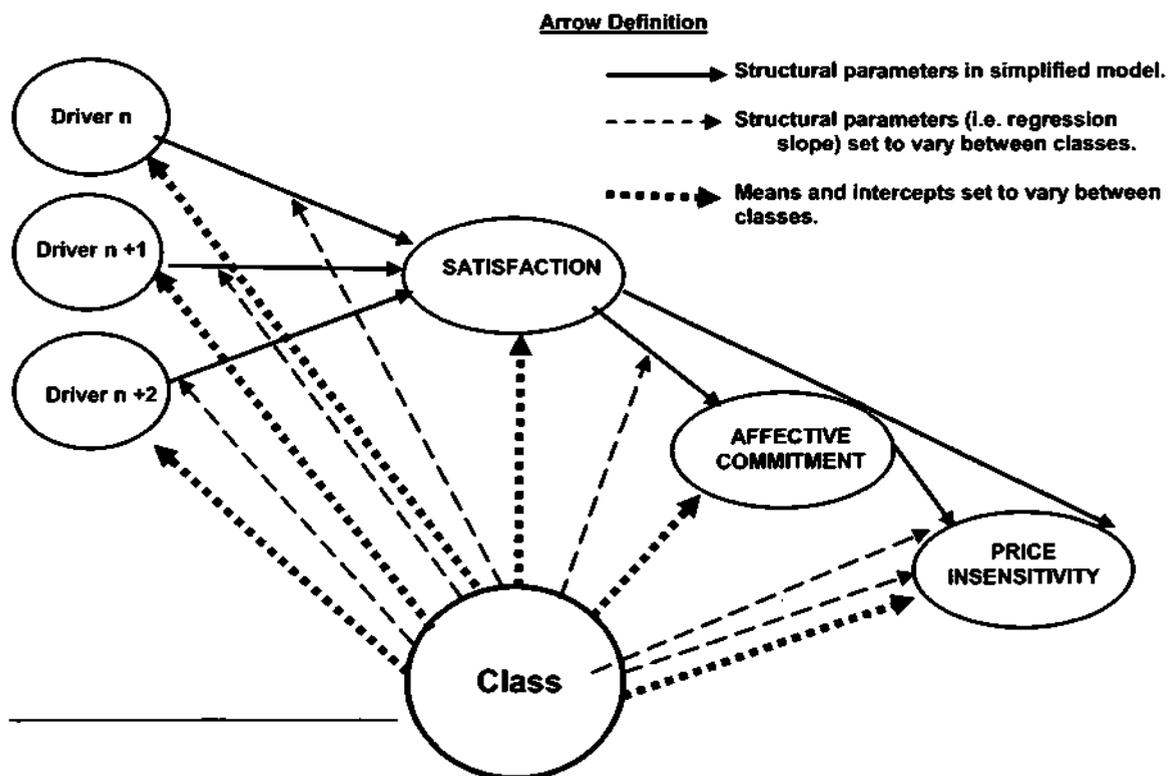
5.6.7.4. Finite Mixture Structural Equation Modelling – Step Five

Although often ignored, heterogeneity is evident in all structural equation models (Jedidi et al, 1997). A commonly used procedure for rectifying this problem is to use multi-group analysis (Schumacker and Lomax, 2004; Blunch, 2008) in which pre-specified sources of potential variance are compared (e.g. gender, age, etc.). Nonetheless, this approach is often limited because more than one source of variance is evident in social contexts (Jedidi et al, 1997). In the main, it has been found that true sources of variance are unobserved and therefore cannot be measured by a single variable or combination of personal characteristics (Hahn et al, 2002). As such, in structural equation modelling, variance often goes unnoticed causing inaccurate findings (Jedidi et al, 1997). This is particularly true in studies such as the current one in which heterogeneity is expected, yet a priori, little evidence points towards a single explainable source – i.e. unobserved heterogeneity.

A crucial development in statistical modelling has been the advent of mixture modelling (Lubke and Muthen, 2005). In the classical one latent factor measurement model, mixture modelling identifies statistically relevant differences between item response in factor means, intercepts and residuals (Gagne, 2006). These are presented as classes or segments. As such, a two-class model would indicate segments which differ substantially in the responses provided by subjects (Gagne, 2006). It represents a new and innovative method for segmenting populations based on participant responses (i.e. response-

based segmentation). Recently, the standard mixture model has been extended into the structural equation modelling framework to include heterogeneity in causal situations (Jedidi et al, 1997). Nonetheless, due to its computationally intensive requirements it has only been used in a handful of studies (see Hahn et al, 2002). In a finite mixture SEM, where the measurement model is found to be invariant⁷, factor means and factor regressions (i.e. structural paths) are assessed for differences between classes. This is the approach preferred by the literature as non-invariant measurement models make it more difficult to directly compare and contrast segments (Jedidi et al, 1997; Hahn et al, 2002). Figure 14 presents an extract of the conceptual model showing the parameters estimated in the finite mixture SEM.

Figure 14 - Example Finite Mixture SEM Specification



⁷Invariance refers to the situation in which the measurement model is considered acceptable for all segments, but the relationship between variables is allowed to differ (Blunch, 2008).

Each class allows the structural paths, factor means and intercepts to vary for a specified number of classes (n). This assures that truly disparate segments are found in the data. As with CFA and structural modelling, fit statistics are used to test which model, based on a varying number of classes (e.g. 2, 3, 4, etc.) is most appropriate. The data output provides estimates for the mean and structural parameters for each class which represent response-based segments exhibiting 'true heterogeneity'. This is used to identify which score higher (or lower) on certain constructs (e.g. satisfaction).

An important feature of finite mixture SEM is that the posterior probabilities for each class (i.e. likelihood of membership to n , $n+1$, etc.) can be used to profile segments by personal and behavioural characteristics. For this reason, it is more efficient and prescriptive than the simpler multi-group analysis approach. Jedidi et al (1997) provided a simulation of finite mixture SEM against other segmentation methods – e.g. cluster analysis SEM – finding it to be superior. As the data in this study assumed that older people were different in their operationalisation of satisfaction (i.e. drivers and outcomes), finite mixture SEM was considered the most suitable technique for segmentation.

To date, the use of finite mixture SEM is detailed in only a handful of articles (Jedidi et al, 1997; Hahn et al, 2002; Lubke and Muthen, 2005; Gagne, 2006). This is, in part, due to it being in its infancy as a segmentation method. For example, only Mplus, the software used for the most part in this study has the statistical capability to perform this type of analysis (Muthen and Muthen, 2009). A more detailed step-by-step description of the method is found in Chapter 9.

5.7. Summary and Conclusions

This chapter has specified the methodology implemented in the study. In so doing, a two stage research design, incorporating both qualitative and quantitative methods, was reviewed. Owing to the conceptual model blending both newly developed and existing borrowed scales, the sequential transformative mixed methods approach was chosen (Plano-Clark and Cresswell, 2008). The findings in the qualitative research were therefore used to guide and develop the quantitative element of the study.

The sampling and data collection strategies for both stages of the research were justified and discussed in detail. This involved qualitative interviews followed by quantitative postal surveys. For the latter, a tailored strategy mirroring Dillman's (1978) Total Design Method was used to obtain an acceptable response rate.

The analysis of data was broken into five distinct stages. These were shared across both qualitative and quantitative types using generic analysis of interviews in stage one, followed by exploratory factor analysis, confirmatory factor analysis, structural modelling and finite mixture structural equation modelling in stages two to five. This reconciled and brought together the scale development, scale validation and model testing guidelines from the literature (Churchill, 1979; Peters, 1979; Anderson and Gerbing, 1988; Hinkin, 1995; DeVellis, 2003; Schumacker and Lomax, 2004; Blunch, 2008). The innovative analysis technique of finite mixture SEM was used to identify truly unique segments in the conceptual model, thus representing a new approach to

segmentation of heterogeneous populations (Jedidi et al, 1997; Hahn et al, 2002).

The following chapters present analysis of the research. This begins with the qualitative research, in which the intention was to identify a pool of items to be tested via quantitative means.

6. Qualitative Data Analysis: Store Image Item Generation

6.1. Introduction

The previous chapter provided an outline of the research methods used in this thesis. This chapter presents the findings of the qualitative research. The main intention of this chapter is to present the store image attributes most important to older people when shopping for groceries. As such, the results given herein detail the *pool* of items generated for subsequent testing using scale development procedures. It also represents the first step in the research design process given in Figure 8. Although the main purpose of this stage of the research was to provide findings which would 'inform' the quantitative research effort, the data was considered integral to the overall project. It was therefore used to compare and, where necessary, validate the quantitative findings (see Chapter 10 and 11).

The findings presented in this chapter were collected from thirty-six participants using the semi-structured approach to interviewing (Seidman, 2006). The interview schedule is given in Appendix 1.1a. Following an initial exploration of shopping behaviours, questions were used to glean the most salient store attributes. In most instances, participants openly discussed the aspects of a store most important to them.

The current chapter begins with a review of participant characteristics and shopping behaviour. This is followed by an analysis of each of the store attributes. A section is provided which considers some of the additional findings

of this stage of the research. Lastly, a summary and conclusion of the chapter is provided.

6.2. Participant Characteristics and Behaviour

As discussed in Chapter 5, participants were recruited via established regional groups targeted at people in the Devon area. This was perceived as the most ethical method for gaining access to members of the sample population. To a certain extent, following this strategy relinquished much of the control over who was interviewed in the quota – i.e. the proportion of people with certain characteristics. As such, recruitment of participants was left to the gatekeeper of each group, usually the group President or Secretary. The groups agreeing to take part are provided in Table 19.

Table 19 - Breakdown of Participants by Group/Organisation

Group/Organisation	Location Type	Number of Participants
Age Concern Plymouth	Urban	1
Autumn Club Newton Abbot	Rural	5
Bovey Tracey Activity Trust	Rural	9
Exeter U3A	Urban	7
Plymouth U3A	Urban	4
Tavistock U3A	Rural	10

The University of the Third Age (U3A) was well represented, being made up of people from diverse backgrounds. In total, Plymouth U3A, Exeter U3A and Age Concern comprised urban located organisations, whereas Tavistock U3A, Newton Abbot Autumn Club and Bovey Tracey Activities Trust were from rural locations. Three of the groups were based in urban city areas (Plymouth U3A,

Exeter U3A and Age Concern Plymouth), and two were independent organisations (Autumn Club and Bovey Tracey Activities Trust). Unfortunately, Age Concern was able to find only one person for interview. Attempts to recruit people from sheltered accommodation and elderly person bus schemes in both urban and rural locations were unsuccessful. Nonetheless, what emerged from the six groups represented a reasonably diverse sample.

In Table 20, an overview of the personal characteristics of each participant is provided along with a 'respondent code'. It should be noted that initials were preferred to full names to protect each participant's confidentiality. The following subsections present the information collected in the initial stage of interviews. In the first instance, an overview of the personal characteristics of the sample is given. Specific attention is afforded to age, gender, health, transport availability and place of residence. In the second instance, the store choice and shopping behaviour of older shoppers is presented.

Table 20 - Interview Participant Personal Characteristics

Respondent Initials	Respondent Code	Location Interviewed	Age (years)	Gender	Transport	Location	Household Composition
LT	R1	Tavistock U3A	74	F	Yes	Urban	Single
FB	R2	Tavistock U3A	64	F	Yes	Rural	Single
EN	R3	Exeter U3A	62	F	Yes	Urban	Not Single
MS	R4	Tavistock U3A	72	F	Yes	Urban	Not Single
JF	R5	Bovey Tracey Activity Club	69	F	Yes	Urban	Not Single
KB	R6	Bovey Tracey Activity Club	64	F	Yes	Urban	Not Single
CP	R7	Bovey Tracey Activity Club	73	F	Yes	Rural	Not Single
MA	R8	Newton Abbot Autumn Club	85	F	No	Rural	Single
PS	R9	Bovey Tracey Activity Club	77	F	No	Rural	Single
MP	R10	Newton Abbot Autumn Club	77	F	No	Rural	Single
SW	R11	Plymouth U3A	72	F	Yes	Urban	Single
RT	R12	Newton Abbot Autumn Club	70	F	Yes	Urban	Not Single
MF	R13	Bovey Tracey Activity Club	61	F	Yes	Urban	Single
MB	R14	Tavistock U3A	67	F	Yes	Rural	Single
MC	R15	Tavistock U3A	69	F	Yes	Urban	Single
HH	R16	Bovey Tracey Activity Club	85	M	Yes	Urban	Single
EB	R17	Exeter U3A	73	F	No	Urban	Single
CL	R18	Tavistock U3A	64	F	Yes	Urban	Single
AM	R19	Plymouth U3A	76	M	Yes	Urban	Single
DB	R20	Newton Abbot Autumn Club	65	F	Yes	Rural	Not Single
SH	R21	Exeter U3A	66	F	Yes	Urban	Single
SF	R22	Exeter U3A	62	F	Yes	Urban	Single
RH	R23	Plymouth U3A	64	F	Yes	Urban	Not Single
NW	R24	Tavistock U3A	70	F	Yes	Urban	Not Single
MBT	R25	Tavistock U3A	75	M	Yes	Urban	Not Single
DJ	R26	Exeter U3A	79	F	Yes	Urban	Single

TF	R27	Bovey Tracey Activity Club	83	M	Yes	Urban	Not Single
SWE	R28	Bovey Tracey Activity Club	64	F	Yes	Urban	Not Single
PL	R29	Bovey Tracey Activity Club	66	F	Yes	Rural	Not Single
PH	R30	Plymouth Age Concern	70	F	Yes	Urban	Not Single
MSS	R31	Newton Abbot Autumn Club	74	F	Yes	Rural	Not Single
KB	R32	Tavistock U3A	64	F	Yes	Rural	Not Single
JP	R33	Exeter U3A	86	F	Yes	Urban	Single
JT	R34	Plymouth U3A	67	F	Yes	Urban	Not Single
DV	R35	Tavistock U3A	71	M	Yes	Urban	Not Single
BGS	R36	Exeter U3A	76	F	Yes	Urban	Single

6.2.1. Personal Characteristics

The age, gender, household transport and geographical location of the sample are shown in Table 21. Whilst there appears to be a fairly good spread of respondents by age, the over 75+ group was under-represented according to national figures. Additionally, the gender divide was heavily balanced towards females. It should be remembered that this sample population consisted of people responsible for doing the household shopping. Nonetheless, this might indicate that the generalisability of findings may be limited. It does, however, remain valid for the exploratory purpose it plays within the wider project.

Table 21 - Personal Characteristics of the Interview Sample

Personal Characteristic	UK Composition	Sample Composition
Age	60-64 = 26.3%	60-64 = 44.4%
	65-74 = 38.1%	65-74 = 44.2%
	75+ = 35.6	75+ = 11.2%
Gender	Male = 44.7%	Male = 13.9%
	Female = 55.3%	Female = 86.1%
Household Transport	Personal Transport= 70%	Personal Transport = 88.9%
	No Transport = 30%	No Transport = 11.1%
Geographical Location	Urban = N/A	Urban = 72.2%
	Rural = N/A	Rural = 27.8%

Source: Compiled from data presented in: ONS, 2001; ONS, 2007

6.2.2. Shopping Behaviour

To contextualise the subject, each participant was asked to talk a little about the main store at which they shopped. This formed the basis for the structured aspect of interviewing. It investigated where, how often, and why people shop at their chosen grocery store. This part of each discussion was useful for framing (i.e. setting the scene) the remainder of the interview i.e. store image attributes. However, it also proved valuable for gaining a better understanding of the

general behaviour of older consumers. A number of differences between how and where people chose to shop were evident, providing further support for the suggestion that the older consumer segment is heterogeneous (see Moschis, 1992b; Gunter, 1998). At the same time, this re-enforced the importance of the wider research project for identifying similarities and differences between members of the older consumer group, i.e. segmentation. The following sections address aspects of store choice and shopping frequency, before moving on to salient store attributes.

6.2.3. Store Choice

In general, the interviews revealed that many of the participants shopped in a variety of stores. A clear theme to emerge was the distinction between where people purchase the bulk of their groceries and where they top-up⁸ on everyday items. This is demonstrated in the following remarks:

"I go shopping at Sainsbury's once a month at the end. I usually go on a Tuesday morning. In between I go to Powder Home where they have a farm shop where I will buy perishables." (R31)

"(I go to) Sainsbury at Newton Abbot once a week. Locally (I shop) for newspapers and occasional vegetables. That would be Bovey here because it's close to us." (R6)

"I shop big with my husband every two weeks. He then shops in between for small things for the club and the house. Stuff like milk etc." (R31)

Some people separate their 'main' shopping between one regular store for the majority of items and another for specialised products such as organics, local vegetables and meat. Several participants claimed that this was a regular

⁸ Top-up shopping is the name used for everyday essentials that are consumed between main shops (Seth and Randall, 2001).

practice for them:

"I do the most part at Morrisons. I also have a (vegetable) box delivery scheme from Riverford. I use the Roborough farm shop, and the local farmers market for vegetables that I run out of." (R32)

"(I use) Sainsbury's for my main groceries and Marks and Spencer and local shops (for treats). I definitely use Sainsbury's more." (R17)

"I mostly shop at Tesco, but I get most of my vegetables delivered to me from an organic farm nearby. So I don't buy vegetables, I only buy other goods at Tesco." (R36)

As demonstrated above, people generally use a larger store for their main shop and a smaller, more convenient retailer for their 'top-up'. However, some people discussed their preference for always using a smaller store, despite having less variety. These people are then happy to go elsewhere if they require more specialist items.

"I mainly do the shopping in Tesco local, but if they don't have what I want then I go to Spar." (R5)

"I do all my shopping in the local Co-op. Not the national store, but the Devon and Cornwall one. I'm always in there to be honest. If I want good meat or anything then I go to the Butchers." (R15)

A small minority of the sample claimed to exercise no consistency or pattern in where they shop. However, when investigated further, these people tended to have more regularity in their choices than they first thought. They are willing to frequent other retailers when they consider it in their benefit to do so.

"I am terribly random. I shop where I happen to be. I don't like Morrison's very much, which is our local supermarket. They don't have food that is wrapped up all the time. I can go there, but I don't choose to. I occasionally go to Tesco because I go to the gym out at the Devonshire. I will go to Okehampton Lidl if I am that way." (R18)

"I go all over the place. I go to Tesco, Sainsbury, local shops, local market... I split my shopping between Tesco, Sainsbury, Lidl, Aldi. I like the German stores. They offer quality and price in one. The only problem is that they don't sell enough for me to be able to do all my shopping in one go...I probably do go to Aldi the most." (R34)

6.2.4. Shopping Frequency

Overall, there were some key differences in the frequency with which people shopped for groceries. At the same time, there were also variations in the reasons *why* some people shopped more often than others. Generally, people in the sample shopped fairly regularly, normally more than once per week. Shopping was considered a necessary activity for some people, food being the most important aspect:

"Shopping is a necessary chore. We get the necessities and then we go." (R6)

Conversely, to others it was seen to be an exciting activity which formed part of their social timetable, particularly with more free time. This allowed more choice in the times scheduled for shopping.

"I think I am quite unusual amongst men, in that I like shopping. I go into other places a fair bit and have a little stroll around. If there is anything going then I pick it up." (R19)

"We don't mind shopping actually. My husband and I both like it." (R31)

"We both go these days - my husband and I. I have to say - before I retired it was more of a mad dash around the supermarket at 7pm at night. Now it is a much more leisurely thing. We just decide that we need to go shopping and so we do." (R28)

The feelings older consumers had towards shopping were fairly consistent with the number of times they liked to visit the store. Therefore, participants who considered shopping to be a less enjoyable activity visited more infrequently compared to those who found it recreational.

"I'm not a big shopper. I don't go out a lot as a result. I do shopping minimalistic style I am afraid." (R16)

"I go shopping three to four times a week. I like shopping!!" (R34)

"I buy day-to-day depending on what I want to eat." (R1)

"I do my main shopping at Morrisons. I go down about three times a week - it's great!" (R24)

Shopping frequency was also found to vary between other personal traits and characteristics. For example, a reasonable level of access to the store influenced the number of trips. When access to personal transport was not available, these people talked about their alternative strategies for getting to the store. These included public transport and walking.

"I walk into Tavistock six days out of seven. I do my shopping in the local shops as much as possible because it is so easy for me." (R1)

"I will drive wherever to get the food that I want – and I shop a lot!" (R32)

"I spend the most money in Lidl which is on the main Torquay road – it is about twenty minutes in the car – having access to a car is imperative." (R20)

"I shop more often now that I am retired. I probably go once a week or more. I get on the bus because I get a free bus pass, and it takes me right where I want to go." (R26)

Nonetheless, some shoppers without personal transport considered themselves to be more constrained by the options available. This ultimately impacted upon the frequency of their shopping.

"I go to Tesco in Newton Abbot. I have a friend that takes me, and that is how it is regulated. If she goes after two weeks, then I go with her." (R9)

"I am reliant on public transport but it isn't regular enough to go whenever I want. I cannot be too choosy about when and how often I go." (R8)

It was also clear that older shoppers who lived in more remote areas were especially reliant on personal transport.

"Normally I go to Asda - probably about once or twice a week. I drive there. It is the most convenient store for me to get to. You have to take the car to get anywhere around here really." (R13)

Health related issues also impacted upon the frequency with which older participants shopped for groceries. Normally, such issues prevented regular shopping trips.

"I have arthritis and cannot bear to go shopping too regularly. Therefore, I usually opt to do one trip every fortnight or longer." (R5)

"My husband is in a wheelchair. It isn't constructive to push him round the store each week so I space out my trips." (R5)

On the other hand, for some people, regular shopping was considered as exercise and, therefore, important for their health.

"I like to go shopping every single day. Ever since my husband died, my doctor advised that I go into the town for shopping. I meet up with people and find food for that current day – it is very satisfying." (R10)

In the main, these findings have important implications for the overall study. Store choice and frequency is governed by factors such as health, transport, and store access. This has also been found in the wider literature (see Section 3.3). Nonetheless, whether or not lower levels of said characteristics are related to store satisfaction (i.e. lower satisfaction), had yet to be addressed by the research community.

In light of the early part of each interview, it was apparent that older people chose to shop at one regular store for the majority of their products and then 'topped-up' with specialised goods or items elsewhere. This was considered to be important since, potentially, older shoppers may have had different satisfaction levels between the store(s) used for "main" and "top-up" shopping. Since, at this stage, it was realised that collecting information for various types of shopping trip might lead to fragmented and difficult to collect data, a decision was made to specify just one type of trip. Therefore, the interviews focused on the store where participants conducted the "majority" of their grocery shopping. Since the main objective was to identify and compile a *pool* of store image attributes most important to older shoppers, this strategy was also considered

sensible, since respondents might have differentiated between “main” and “top-up” shops when making this decision.

The following section presents the pool of items collected for use in the quantitative questionnaire.

6.3. Store Image Attributes/Factors

Previous research has demonstrated that people are driven to shop at stores for different reasons and thus look for gratification in varied ways (Tauber, 1972; Westbrook and Black, 1985; Jarratt, 1996). Identification of salient attributes followed the process presented in Section 5.5.4. As mentioned in the same section of the methodology, each of the emerging themes, representing store image attributes, were coded under a provisional factor/dimension (e.g. Accessibility, Merchandise, etc.). The dimensions grouped attributes belonging to similar *aspects* of the store. Where it was appropriate, this categorisation adopted labels taken from previous store image typologies (e.g. Kunkel and Berry, 1968; Linqvist, 1974; Zimmer and Golden, 1988)

In total, 42 items were identified and carried through to the development of the quantitative instrument. The provisional typology is given in Table 22. The store image attributes are explained using relevant quotations taken from the interviews and linked to the respondents who made them. As mentioned in Section 5.5.4, emerging themes were labelled, where appropriate, using labels identified in previous studies.

Table 22 – A Provisional Typology of Store Image Factors

<p>Accessibility</p> <ul style="list-style-type: none"> • Store Location • Bus Access • Parking Facilities • Opening Times 	<p>Merchandise</p> <ul style="list-style-type: none"> • Branded Products • Product Freshness • Clear Information on Packaging • Non-Grocery Products • Product Availability • Product Quality • Product Variety • Product Sizes • Availability of Special Dietary Products 	<p>Physical Environment</p> <ul style="list-style-type: none"> • Easy to Reach Shelf Height • Aisle Width • In-Store Seating • Easy to Navigate Layout • Spacious/open layout • Price Signage/Labels • Additional Customer Facilities (e.g. toilets) • Trolleys & Basket Quality 	<p>Atmospheric Environment</p> <ul style="list-style-type: none"> • Cleanliness/Tidiness • Store Lighting • Pleasant Level of Noise • Pleasant Smells
<p>Price/Promotions</p> <ul style="list-style-type: none"> • Competitive Prices • Multi-Buy Promotions • Price Discounts • Reduced Clearance Item 	<p>Service Policies</p> <ul style="list-style-type: none"> • Additional In-Store Services • Complaints Handling • Efficient Checkouts • Home Delivery • Returns Policy 	<p>Personnel</p> <ul style="list-style-type: none"> • Available • Friendly • Helpful • Knowledgeable • Polite 	<p>Clientele</p> <ul style="list-style-type: none"> • Friendly Shoppers • Helpful Shoppers • Likeminded Shoppers

6.3.1. Accessibility

Four clear themes emerged from the interviews relating to the level of accessibility participants believed were important. These included; store location, opening times, car parking facilities, free car parking and bus access availability.

For some people, accessibility to the shop was regarded of utmost importance. This finding was prominent in many interviews, regardless of how the person travelled to the store (i.e. car, bus, walking, etc.). In the main, it was generally considered important that the store was located in a convenient location.

"Convenience is definitely a big point. I can't get to other stores that easily. I am happy as long as it is nearby to me." (R10)

"Tesco is close to where I live. I guess this is why I go there and like it I suppose." (R19)

"Where I shop is where I have the easiest access. Yes, that is very important despite me having a car. I could go further if I wanted to, but it is handy that it is so convenient!" (R21)

Visiting times were also important, with many people claiming to only enjoy shopping at times that were less busy. In some cases this involved early morning, and others, late nights.

"The shops are forever open. They are always open until gone eight. That to me, is very important because I am always going to places and then coming back and realising I need something." (R15)

Whilst general access to the store was important, older shoppers had specific requirements depending on their mode of transport. For example, those using buses demanded a conveniently and well served network to and from the store:

"We have a wonderful bus service in Plymouth so I can get a bus to the shops for free." (R34)

"Gosh, the buses are vital for me. It would be very difficult for me otherwise. I don't know what I would do without the buses. Bus routes are very important. Years and years ago I would walk, but I can't do it at my age with all that shopping." (R8)

"Sometimes my bag is very heavy and I need to catch the bus...Before I moved to here [small village in Devon] I was living in the country. One of my priorities when I moved was to go somewhere that I could get on the bus and shop easily – knowing this is very satisfying!" (R1)

In the same way, those who drive and have personal transport placed a premium on adequate parking facilities:

"I like the store mainly because it is easy to park. I go by car mainly...Problems with parking would deter me from going to certain stores." (R19)

"Easy parking is very important. As I say, some of these bigger stores have the disabled spaces which are very important to me ... but never enough for disabled people!" (R5)

"The availability of spaces in the car park is essentially very important to me. I need to get close to the store." (R29)

"I expect to be able to park!" (R22)

6.3.2. Merchandise

In total, nine attributes recurred. These included, product quality, product freshness, product variety, availability of special dietary products, on shelf availability, assortment of product sizes, branded products, clear information and availability of non grocery products.

Many of the participants discussed product-related attributes as being important. To a certain extent, merchandise-related conversations took up much of the time in many interviews. One notable theme was product quality.

"Top of my list is quality. I really believe that it is the quality of what you eat that is important. Quality is foremost...you must put quality into your body to be quality yourself." (R30)

"I would rather have quality than quantity and rubbish. I see quality as being better cuts. I try and buy free range chickens and I will always look to buy better meat, fruit, and vegetables." (R7)

"I always try and buy the best if you know what I mean. I always have a look at the food and buy what the best is. If it is rotten and miserable then I won't buy it." (R16)

"Basically, if I thought the quality was rubbish, then I would go somewhere else." (R15)

Several of the participants expressed that they would sooner pay more money than settle for lower quality products:

"I am not looking for the cheapest products...In fact I probably pay dearer – especially for meat." (R34)

"I like to have good quality and I don't mind paying a little more to get it!" (R14)

"Price isn't massively important to me. I will always put quality first above the price." (R36)

Nonetheless, quality remained a very difficult concept to define. In general, people thought of quality as being a personal appreciation:

"Quality for me is years of experience. My experience tells me when things are going to be nice and taste nice." (R28)

"I think high quality products are those that are fair-trade or organic." (R32)

With the importance of obtaining a good standard of quality, certain participants stressed the importance of 'fresh' produce, especially with perishable items such as meat, fish, vegetables, fruit, etc.

"If its fresh products it has to be ripe and not flagging. If its meat it has got to be the right smell and colour." (R28)

"I hate to buy something thinking it's good. The next day when you open it really gets on my nerves if it has gone off. You get that with these bags of lettuce. Asda are doing small packs of salad for one person. If you don't open it after one day, then the bag blows up and you have to throw it away." (R13)

"In Tesco they have a great display of fresh fruit and veg. They take it off the shelf or reduce it if it's getting a bit old. I eat fruit like a little monkey. I found that the fruit in Spar was getting a little sad looking. When Tesco came, I'm afraid they got my business." (R5)

Having a good variety of products to meet the wide and varied needs of different people was also seen as salient.

"The most important thing for me is that they have what I want – everything I need for each day." (R36)

"Although quality is important, I mainly want variety. I want to see certain products available that I wish to buy." (R17)

"It is really great when you can get everything you need under one roof. I don't have to shop around!" (R13)

If special dietary products were required, certain people found it to be very important that they had choice:

"I am a diabetic so I need to regulate what I eat. I need to have a healthy diet through a range of products!" (R9)

Whilst having a range of products was ultimately seen as critical, additionally, several respondents talked at length about being able to purchase items when they visited the store. Therefore having a high level of on-shelf product availability was considered imperative.

"A lot of people dislike Aldi because they pile it up. But I can't say that it is an issue to me. As long as the products are there and the price is sensible I'm happy!" (R19)

"I think that at certain times some stores are empty. You might see a certain offer and then you get there and nothing is there. At certain times, I think possibly on a Sunday the shelves are not stocked very well, and what is there looks ancient." (R36)

"It's annoying when you go for something that you always have had, and it's one of the reasons that we go there, and they take it away! So frustrating." (R6)

A range of product sizes was identified as being critical. In the main, this was most often discussed by participants living alone, requiring items of a smaller quantity with commensurate pricing. A potential reason given by interviewees was their dislike of wasting food, several suggesting this to be the result of grocery rationing during the war.

"I only eat a little. I don't want things in big kegs!" (R30)

"I get irritated because these days I can't find small enough bits. I am supposed to be watching my weight but I am not very good at it. Sometimes I think that I would like a smaller portion of butter or the like." (R22)

"When you are single, you are forced to look around a bit for what you want...there is no point starting something you have no intention of finishing. I always have to look for a smaller tin." (R16)

A common theme running across many interviews was the importance of branded products. Many participants intimated that they felt safer using well known brands.

"I also like good makes. I can't be doing with the average." (R17)

"I buy branded products. Anything that is well known. I was brought up like that. We didn't have all these cheap products when I was young." (R16)

"I like branded products because I think that the people who first made them, say like Heinz beans, can do it better than other people. And tomato ketchup and cereals, Kellogs and people like that have been doing it a long time, so I prefer to buy that - even though you have to pay for it." (R35)

"Usually I go for branded makes. I have more faith in them. Hopefully, they are better quality for me..." (R5)

"I like a name. When a product is branded, you know what you are getting. They have a name to it, and they then keep their standard up." (R13)

Food purchases were not the only important products desired by interviewees.

Some participants expressed their need for buying items/services less commonly associated with food stores.

"Having additional products is important here. In this area we don't have much choice for things like clothes. Most shops here only cater for the young." (R13)

"You can get your clothes, cards, and everything else there. All under one roof. That is very important to me now." (R13)

6.3.3. Physical In-Store Environment

In one form or another, many of the participants mentioned aspects relating to the internal store environment. Seven clear themes pertaining to the physical environment emerged, namely: a logical store layout, open layout, wide aisles, tidy aisles, appropriate shelf height, clear price signage and manageable trolleys and baskets.

One of the most discussed store attributes concerned the layout of the store.

Specifically, it was felt important that the store followed a logical design:

"The important thing is that I know where things are and that I can get to them easily." (R26)

It was especially evident that many older people followed shopping lists and were anxious that the store layout should be retained to avoid confusion.

"Very important – the layout. I have a list and I keep to it!" (R3)

"I need to know where things are. It is annoying when the store is moved around. I get my coffee from one place, and it annoys me if it isn't there." (R29)

As well as following a 'logical' layout, many of the respondents also mentioned the importance of the store feeling 'open' and 'spacious'. Participants spoke about feeling enclosed and cramped, which caused discomfort:

"I like it when it is spread out better. When the aisles are wider then it gives the impression of freshness. I don't like it when it is cramped. It feels better when it is open." (R31)

By the same token, particular emphasis was placed upon the width of aisles. It was evident that interviewees preferred wider aisles for two reasons. Firstly, so that they did not feel enclosed and, secondly, to enable them to pass other shoppers without difficulty, especially if they suffered from a physical disability.

"Having a man in a wheelchair with me I need to have the room to move around. Enough space for accommodating wheelchairs is important." (R5)

"Space is important. If the aisles are bigger then I think that it does look better. It is important when you have to get past people. Yes...it does make it a lot better when you have to get past." (R31)

"Our store has a lot more space than other [stores]. It makes it easier to get by and around the store fast!" (R6)

Several participants discussed the importance of the shelving system within the aisles. As such, shelves should be at a reachable level for people of all heights.

"I'm not short, but I have shrunk two inches. We all shrink. The top shelves are sometimes a bit high for people to reach." (R26)

"I feel sorry for people when the shelves are too high. I have had to stretch up and get things for people before." (R33)

"If it is low down I cannot get down to read what is says without getting on my knees!" (R9)

With reference to shelf height, several respondents talked about being able to read the price of items. This revealed that items were often poorly labelled for people with reduced eyesight; a common problem associated with ageing.

Additionally, there was also the concern that misreading prices could lead to picking up products above their price range:

"I think there is a lot to learn when pricing things. When the food is stocked on the shelves it is hard to actually find out how much it is. There are times when prices are not displayed effectively at all." (R27)

"I am always afraid the butcher is going to cut me off a piece of meat bigger than I can afford. I prefer to see the price before I pick it up!" (R24)

Other salient aspects of the physical store environment included provision of trolleys and baskets suitable for older people. Additionally, seating facilities around the store was also seen as a priority:

"When you are old and you don't want that much stuff, you don't need an enormous big trolley." (R11)

"I think there should always be trolleys available for us [over 60's]." (R22)

"As I don't have my own car I tend to do a fair bit of waiting around. It is really good that I am able to have a rest before going home!" (R17)

"There are seats that you can sit on while waiting for the bus – that makes all the difference for where I choose to shop." (R10)

6.3.4. Atmospheric In-Store Environment

Alongside aspects of the physical environment, many participants referenced various parts of the atmospheric environment as important. Four conditions were discussed throughout the interviews. Predominantly, respondents desired a 'clean and tidy' store, which had a pleasant 'smell', was 'well lit' and was relatively 'quiet' and noise free.

A clean and tidy interior was found to be important. In this respect, *freshness* was a driving theme. It was especially critical that food was prepared and stored in sanitised conditions/places.

"The one thing that I need is store cleanliness. I just need it to be neat, tidy and clean. There "have been times when I have dropped into places and it just doesn't look good." (R28)

The decoration of the food as a whole needs to be clean, but especially the way the food is laid out.” (R35)

Several interviewees pointed out that they were more comfortable shopping in a pleasant scented store. In the main, a pleasant smelling store was likened to being clean and tidy.

“I always think that if it smells [at Morrisons] there must be something wrong with their hygiene.” (R18)

“In the same regard that I need the shop to be clean...it can't smell either.” (R23)

The lighting of the store was found to be a consideration. In general, respondents suggested that the store should be well lit, especially those with sight difficulties.

“I must say, it is important to have lots of daylight coming in. I don't like places without lighting because they appear dark and dingy.” (R7)

“It has to be light! It's depressing going to a dull store!” (R29)

“If it is too dark, I can't see!” (R17)

Finally, several respondents talked about store noise. Commonly, older shoppers preferred to be in an environment where the level of noise is low, enabling them to concentrate. Loud music tended to be unwelcome. However, pleasant sounds can be enjoyable.

“I can't say that I am too keen on having lots of noise evident when I go shopping. I hate stores that play all this modern music. I avoid them like the plague.” (R20)

“To be honest, I stay away from any loud music.” (R33)

“If it is the right noise, I am comfortable and happy.” (R9)

6.3.5. Price/Promotions

A different but recurring theme related to aspects of price and promotions. For a few, it was of prime consideration, but for the majority it was less so. Emergent

themes included: competitive pricing, price discounts, multi-buy discounts and reduced item discounts.

Whilst a large number of participants had spoken about obtaining a high standard of quality, placing this above price, a number rated competitively priced products as critical. In essence, these respondents wanted prices cheaper than elsewhere:

"You have to watch the price of things. We are not poor, but you still have to be careful." (R29)

"I think we are conscious of quality, but as pensioners we have to be economic creatures." (R27)

"Price is important! It has to be at this stage of life." (R8)

Many of the interviewees also suggested that various types of promotion were important to them; namely multi-buy, price discounts, and clearance items. Several people pointed out that promotions tend to be poorly executed for older people – especially those living alone. One older shopper asserted that:

"I think that having promotions are good, but they are more for a family. Three for two is fine when you are in a family, but when you are alone and you haven't tried something before, buying it becomes a risk!..." (R13)

Nonetheless, certain other participants talked about the feeling they get when they acquire a bargain:

"I like the feeling of getting a bargain!" (R26)

"It's a great feeling getting more than you should for the same money!" (R25)

To some people, multi-buy promotions (i.e. 3 for 2, 2 for 1 etc) were seen as extremely important, especially if they had the space or means to store excess products:

"If they are selling three for two or BOGOF and I use it then I will buy it." (R26)

"Sometimes I get 2 for 1. That appeals because we have a freezer in the back that stores a lot of things." (R31)

At the same time, price discounts were also a consideration. For some people these were preferable to multi-buy offers. It was evident that older shoppers were unhappy about food wastage. Consequently they preferred to have prices reduced. One shopper stated that:

"I prefer money off to be honest. Very often they put money off from products that I wouldn't use – they don't think of us you see! Getting cash off makes me feel good about what I buy." (R30)

Those who were 'bargain' oriented talked about 'clearance items' and 'bargain bins'. Interest in these products did not necessarily indicate monetary constraints. One participant recalled the enjoyment of shopping in the clearance section:

"One of the most exciting parts of the shopping trip is going to the reduction counter. There is always a flock around the things that are reaching their sell-by-date. I had a lovely supper the other night of prawn cocktail. Normally I wouldn't dream of eating this sort of thing, but for half price I just snapped it up." (R11)

6.3.6. Service Policies

Participants discussed a variety of store attributes relating to service policies. Themes emerging included: efficient checkouts, complaints handling, returns policy and home delivery.

Interestingly, many of the interviewees felt that having fast checkout systems were critical. Often, older shoppers expected to be served quickly and efficiently.

"We like to get through the till pretty quickly." (R6)

"I don't like waiting for long in a queue. If there are not enough tills open then they should open some other ones." (R22)

Older shoppers discussed having a competent complaints procedure. Although no one admitted taking enjoyment from complaining, several felt more

comfortable shopping in a store where grievances were dealt with. In the main, it was felt that strong complaints management reduced the risk of problems. Additionally, older shoppers wanted to see managers treat their feedback seriously.

"If you take something back, they need to change it. I have written a lot of letters to Tesco about things but to be honest nothing changes." (R7)

"If you have a complaint then they need to deal with it. I don't want to be fobbed off with excuses if they appear not to be interested or whatever!" (R8)

At the same time, being able to return unwanted items reduced, for them, the risk of losing money on products.

"I like to take things back. It's reassuring you see. With oranges and things you obviously cannot see how good they are. Taking them back, you obviously want something to be done about it." (R4)

Some participants asserted that stores should work towards policies which encourage food delivery services. One person suggested that she would like to see...

"...a big push towards a greater delivery service...If I cannot move around easily any longer then I would be happy to use the internet for ordering things." (R18)

A small minority of the sample felt strongly about shopping somewhere that provided additional services. Facilities such as fuel, dry cleaning, travel and insurance services were mentioned less often, but were still considered as important to some shoppers.

"It is really handy to be able to pick up dry cleaning at the same time as getting my groceries. Talk about two birds and one shot." (R24)

6.3.7. Personnel

Participants freely discussed how the different personal traits shown by staff mattered to them. Clearly, positive experiences were important enough to

change their overall feelings towards the store. As such, one shopper suggested that shopping is all about...

"People, people, people! That's good retailing..." (R3)

Five traits emerged from the interviews, including being available, friendly, helpful, knowledgeable and polite. Some participants defined good service as having staff available to deal with any issues. It was seen as vital that the personnel were on hand when required.

"There should be enough staff to be able to find someone fairly easily." (R34)

"When you go around the shop and you cannot find something is there anyone to ask? Lots of shops that you go into have no one to be seen." (R30)

"One thing that I do think is important but is frustratingly absent is when you go into a store and can't find somebody." (R30)

Another dominant theme was staff friendliness. Generally speaking, many of the participants suggested that having friendly and approachable people working at the store made them feel comfortable when shopping.

"It's nice when they give you a smile. I know sometimes it must be difficult. We as customers aren't always the best sort of customers. I try to reap what I sow" (R2)

Certain participants thought it good to have a friendly 'relationship' beyond the general formalities. These people wanted to be known and remembered by staff.

"It is really nice to have people that know you and are nice to you when you are shopping." (R35)

"I get to know the store owners and the people that work there each week. It is a lot better than being anonymous where no one knows you!" (R5)

"I like the Co-op because it's small with friendly people. The shopkeeper and assistants know me. It is nice, you know, to be known." (R15)

As well as being friendly, many participants discussed the helpfulness of staff. Some considered themselves as needing more assistance than others. They expected that personnel members meet their requirements.

"The staff needs to be excellent. I like it when they try and help you despite me being a bit scratchy. I especially like it when they drop everything to help you." (R5)

"You really need the staff to be helpful and not look put out when you ask them for help!" (R13)

Some of these shoppers also demand that personnel are knowledgeable as well as friendly and helpful. Employees should have a working knowledge of the products they sell, comfortably answering any questions.

"At the store I go to I can ask their advice. One of the employees is an ex-army chef so he really knows his food." (R4)

"They always know the type of food I like and will advise me. That is important to me." (R4)

Finally, many of the participants discussed the politeness of staff as being important to them. Specifically, it was considered vital that personnel were courteous.

"Staff is important! Politeness is all you really need. If you are polite to them, then they will be good to you. You have to treat them how you would want to be treated." (R11)

"I expect people to be polite. I expect them to acknowledge me as a person." (R22)

6.3.8. Clientele

The final themes related strongly to the type of people who frequent the store. Although the attributes in this category were discussed less than other aspects of grocery retailing, three clear themes emerged. These were; friendly, helpful and likeminded shoppers.

Some people considered grocery shopping as a social activity and therefore prioritised comfort and enjoyment. Having genial and friendly people around them was central to their experience. Not surprisingly, those participants who

considered friendly shoppers as salient tended to be slightly older, normally living by themselves. One such interviewee stated that:

"It has to be sociable. I live on my own. I come down; I have a cup of coffee and a chat. I meet my friends...it can take half an hour or three hours depending on whom I actually meet." (R1)

The importance of having likeminded fellow shoppers was seen as critical to people wanting to feel comfortable and secure in their surroundings. This was particularly the case with people needing additional help around the store.

"I am not going to shop in a place where I feel uncomfortable having to ask other shoppers for a hand." (R1)

"I think it is to do with the other shoppers. Asda, for example, I find a little bit off-putting. It's an awful thing to say, but it's true!" (R34)

6.4. Additional Findings

A main part of this stage of the research was to generate a *pool* of store image items. It became apparent that older shoppers differed widely in what they considered to be the most important store image attributes. As discussed in Section 3.3, this may indicate differences in preferences and needs (i.e. benefits desired), either separately or interwoven with variations in personal circumstances (e.g. household location, expenditure available, transport, etc.). Certain store image factors are more important to some people than to others, thus potentially having a stronger effect on customer satisfaction. This is thoroughly tested, quantitatively, in Chapter 9. However, since there were clear differences between respondents emerging from the interviews, some of these are now briefly considered.

To many in the sample, merchandise was considered the most important aspect of the store. To some extent, people were prepared to overlook the negative

aspects of a store for higher levels of merchandise (e.g. lower quality store environment). In the main, these shoppers preferred having specific or better quality food and were willing to relinquish other things as a result. Some respondents talked about their need for obtaining certain products, sacrificing other aspects; for example, accessibility and prices and promotions:

"All I am interested in is eating. So, food is really my main thing. I don't go to other stores, although there are some on my doorstep, because they don't really have the things that I go for" (R11)

"Quality is the main thing...quality is number one, oh yes. I hang on to the guarantee that Marks and Spencer is good quality stuff." (R12)

For others, this was not the case. Whilst the produce and merchandise were invariably still important, others put a greater emphasis on aspects of the store environment.

"I can't stand these big shops. Up until I was 60 I would go to the big stores and I would carry it all around. But I just can't do it anymore. I have had two new knees, a bit of arthritis - the store itself dictates what I can manage." (R8)

"I have been a business lady all my life. But these days, I can't bear all the crowds. I just cannot be dealing with it. You don't want all those people when you get older." (R8)

Others respondents placed the highest level of importance in aspects of convenience and accessibility. In some cases this was because they did not wish to travel too far to go shopping, whereas others didn't have the means to do so.

"Location. Being near to the store to do my big shop is important. I don't want to travel too far to be honest." (R36)

"Convenience is important. In fact it is probably the most important. I live close to the store I shop at." (R17)

For some people transportation was the most important factor. For example, one respondent without access to personal transport recognised the necessity of convenient bus services:

"I don't know what I would do otherwise without a bus. Bus routes are very important." (R8)

To other respondents, price and promotions was considered more critical than merchandise and store quality. Some people were financially worse off than others and therefore needed to shop in stores offering 'more' for 'less. One respondent who admitted being less financially flexible stated that:

"Price! It has become very important. There has been a dramatic change in the way I shop since becoming retired." (R11)

Other shoppers just enjoyed the feeling of getting what they considered to be a bargain:

"I love the hustle and bustle of trying to get a bargain. I never buy full price wine, only half price. I have the time to look around you see." (R25)

This section has provided a brief insight into the different perceptions older shoppers hold concerning salient store attributes. Whilst outside the scope of this stage of the research, it should be remembered that the data presented is only a snap-shot of the variation between older people. Nonetheless, it does serve to demonstrate heterogeneity in the older population. In many ways this reinforces the need for segmentation, as discussed in Section 2.5.

6.5. Summary and Conclusions

These findings have some useful implications for the quantitative part of the study, as well as the research project as a whole. Through the more open semi-structured approach employed, insights were provided into key behaviours such as shopping frequency, store format choice and resultantly, salient attributes (i.e. store image). An interesting finding was that older shoppers tended to distinguish between larger shopping trips and more frequent 'top-up' shops. Top-up shopping was undertaken more regularly for essential items (milk, eggs, etc.). This is generally conducted at a more convenient store. Participants were

asked to focus on the store in which they purchased the majority of their shopping.

In total, the interviews revealed 42 store image attributes considered salient to older people. Provisionally, pending further quantitative analysis, the store attributes were placed into eight over-arching dimensions, namely: accessibility, merchandise, physical in-store environment, atmospheric in-store environment, service policies, staff and other shoppers. This, where possible, adopted the dimension labels from previous studies (see Section 3.3). The viability of this factorial structure is addressed using quantitative methods in Chapter 8.

An interesting but important finding was that older people showed clear differences between attributes considered most important to them. This suggests the importance and potential benefit that segmentation has for better understanding how satisfaction is driven (see Section 1.2). This is examined in more detail, via quantitative means, in Chapter 9.

In the following chapter the data collected using questionnaires is introduced. Details pertaining to the preparation of data is given. The personal and behavioural characteristics of respondents are also provided.

7. Quantitative Data Analysis One: Data Preparation and Sample Characteristics

7.1. Introduction

This chapter presents the first of three detailing the results of the questionnaire distributed to 2000 older people throughout England. In this chapter, important information such as the questionnaire response rate is provided. Insights into the personal characteristics and shopping behaviours of the sample are also included. Throughout the chapter, specific attention is given to testing the most common assumptions of multivariate data analysis (i.e. normality, linearity, homoschedasticity). Various causes of potential bias, such as missing data and case non-response, are examined. In this way, it provides a platform for the organisation, analysis and presentation of data in the following two chapters.

The chapter is organised into the following sections: Questionnaire sample response, non-response bias, data screening, missing data analysis, sample characteristics, summary and conclusions.

7.2. Questionnaire Sample Response

One of the most important issues in questionnaire research is the survey response rate. This is the term used to describe the count and overall percentage of completed questionnaires. It is generally seen as a basic parameter for evaluating a data collection effort (Fowler, 2009). The overall goal is to attain as high a response as possible. For many statistical techniques an

adequate number of cases are necessary. The exact number of cases required tends to vary between statistical tests⁹. It is often suggested that 200 cases is an acceptable number for any regression based technique (Pallant, 2005). Groves (2006) suggested that as the response rate rises, sources of error, such as bias, which are often evident in a survey procedure, are greatly reduced. It is therefore important that researchers actively adopt strategies to increase response rates and reduce the potential for sources of bias (e.g. non-response). The following sections present the response rate for the questionnaire survey and, then, assess whether non-response bias was evident.

7.2.1. Response Rate

As discussed in Section 5.6.6, the strategy used for the questionnaire in this study followed, in the most part, the advice provided by Dillman (1978). As such, the execution followed a structured process, incorporating two delivery waves and a reminder postcard sent during the interim period. The first questionnaire, which was sent to a total of 2000 people aged 60 and above, was distributed in the first week of July 2009. The data collection window remained open for six weeks.

Of the 2000 people in the sample, a total of 171 (8.5%) were returned as unreachable. Many of the returned envelopes were accompanied by notes stating that the intended recipient had either moved or died. In several

⁹ Bivariate tests such as t-tests require fewer cases than more complicated analyses such as multilevel modelling. Similarly, in multiple-group tests, larger sample counts are required to supplement divided samples (Pallant, 2005).

instances the recipients returned the letter because they were too ill to do their shopping and were reliant on an agency or family member. This exempted them from the sample population¹⁰ and reduced the 'effective' sample size to 1829.

After both waves, 555 people returned the questionnaire. Of these, 31 responses showed evidence of only partial completion. In these instances, substantial parts of the questionnaire had been left incomplete. Whilst item non-response on certain questions is treatable (see Section 7.5) and not uncommon in marketing research (Johnson and Gustafsson, 2000), high levels can be detrimental to the analysis. Cases with high non-response (>20%) were therefore excluded leaving a response of 524 questionnaires - a response size of 28.6%. The number of returns were spread across both waves with 374 early responders (wave one) and 150 late responders (wave two). This was considered an acceptable response given that questionnaire saturation has negatively affected return rates in recent years (Groves, 2006). Importantly, 28.6% represented a vast improvement on the pilot stage (7%). Also, 524 cases was an acceptable number for the statistical techniques used in this study; e.g. exploratory factor analysis, confirmatory factor analysis, structural equation modelling and finite mixture modelling (see Jedidi et al, 1997; Schumacker and Lomax, 2004; Blunch, 2008).

¹⁰ Respondents needed to be over 60 years old and responsible for doing their household's shopping.

7.3. Analysis of Non-Response Bias

The percentage of people who do not respond to questionnaires and the extent to which they exhibit evidence of bias is an area of concern in survey research. Non-response bias is evident when non-responders are systematically different to the wider population (Fowler, 2009). Armstrong and Overton (1977) suggested that analysing non-response bias is often difficult and that estimating the *effects* of non-response may be more easily achieved. They suggested that an effective method for accomplishing this is *extrapolation*. Extrapolation works on the principle that the probability of a person responding to a questionnaire is based on their interest in the subject and/or the extent to which they believe their input is relevant. Armstrong and Overton (1977) thought that this principle also applies to the speed at which people respond to a survey. Subjects who respond less readily are considered as more like non-respondents (Pace, 1939). As with this study, the use of extrapolation is best when successive waves are administered to the same sample. An independent two-tailed test (*t*-test for continuous and chi-square for categorical data) can then assess whether the first and second wave – early and late responders – are significantly different from each other (Pallant, 2005).

In the first instance, all of the data was entered into the Statistics Package for Social Science (SPSS) version 17.0. Simultaneous independent sample *t*-tests were then used on the continuous variables in the dataset. Cross tabulations with chi-square (X^2) were used for categorical variables. Independent sample *t*-tests are a parametric analysis used for comparing the means of two groups (e.g. successive waves) using a continuous variable (Pallant, 2005).

Comparably, cross-tabulation with chi-square is a non-parametric test for which the proportion of responses to a certain question differs between two groups.

The data was firstly checked to make sure it satisfied the assumptions of the two tests. In most instances, the data showed evidence of homogeneity of variance. However, in several cases this assumption was not satisfied and the alternative t-test for non-equality of variances was used (Pallant, 2005). This situation occurs when the null hypothesis that Levene's equality of variance is rejected at the $p < .05$ level. With the chi-square test, the more flexible Independent Statistic was preferred as it carries no assumptions. Appendix 2.1 and 2.2 present the full t-test and chi-square tests for each variable in the dataset. The results indicated that only six of the variables differed between the two waves (see Table 23). The t-test results showed that responders in the first wave rated the parking facilities, checkout policy and politeness of staff to be lower than respondents in the second wave. Additionally, people in the first wave had on average shopped for 2.59 years longer at their grocery store than the second wave. The chi-square tests in Table 24 revealed that household income and working status of respondents was significantly different between waves one and two; although it is likely that household income and working status are related concepts. Overall, in a database of this size, differences on six variables are very minimal. In essence, six items (from 122) represents less than 5% of all items. For this reason, no further action was taken as non-response bias was considered to be minimal and thus unproblematic.

Table 23 – Independent Samples T-Test for Continuous Variables in the Dataset

Variable	Levene's F Statistic	Significance (p)	T-Test Statistic	Degrees of Freedom (df)	Significance (p)	Mean Difference
Parking Facilities	4.977	.026	-1.971	492	.049	-.193
Checkout Policy	2.465	.117	-2.256	517	.024	-.238
Polite employees	.000	.991	-2.094	520	.037	-.173
Years Shopping at Store	6.410	.012	2.939	369.942	.004	2.599

Table 24 – Independent Chi-Square Test for Categorical Variables in the Dataset

Variable	Chi-Square (X^2)	Degrees of Freedom (df)	Significance (p)
Household Income	14.058	5	.015
Working status of CIE	10.404	4	.034

7.4. Data Screening

Data screening is an important procedure within the early stages of analysis (Tabachnick and Fidell, 2007). Unscreened and/or untreated data may cause a variety of problems if not dealt with correctly. Tabachnick and Fidell (2007) advised that distorted correlations and covariances, reduced sample sizes and decreased statistical power are potential outcomes of unscreened data. As a process, data screening can be segregated into three distinct stages; 1) checking for errors, 2) finding the errors, and 3) correcting the errors (Pallant, 2005: 40).

Once again, the data was tested using SPSS version 17.0. The Explore command within SPSS provides a number of useful univariate test statistics.

This was mainly used to identify out-of-range scores using a combination of frequency tables and score minimum/maximum results. This also showed any out-of-range values, which were promptly removed (Pallant, 2005). The next task was to test the data against some of the most common assumptions of multivariate data analysis; namely normality, linearity and homoscedasticity.

7.4.1. Analysis of Normality, Linearity and Homoscedasticity

Underlying many multivariate procedures is the assumption that data is normally distributed (Tabachnick and Fidell, 2007). Multivariate normality assumes that each variable and any linear combination of others are distributed consistently across their scale (e.g. Likert responses). Essentially, when this assumption is met, confidence in the predictability and inferences drawn from the statistical analyses is greater. Tabachnick and Fidell (2007) stated that when multivariate normality is present, linearity and homoscedasticity assumptions will also be met. Nonetheless, it is a cumbersome and impractical task to test for multivariate normality as this requires that linear combinations of all variables in the dataset are tested. A more conservative strategy is to perform independent tests for normality and specific tests for both linearity and homoscedasticity.

Screening continuous and some ordinal variables is often a good first step when beginning assumption tests (Tabachnick and Fidell, 2007). In assessing for normality, the main objective is to identify whether the data follows a normal

distribution. As such, when this is the case, the variable's residuals¹¹ are randomly spread with no obvious pattern. Bradley (1982) reported that statistical inferences are less robust when departures from normality are observed. Two tests for non-normality are commonly used in applied research; kurtosis and skewness. Problems with kurtosis can be manifested in two forms. Positive kurtosis delineates a distribution that peaks too much in the centre around the mean suggesting a low variance. Conversely, negative kurtosis is evident when the distribution is short and broad across the entire distribution. Skew is also manifested in two forms. Positive skew represents a distribution that is bunched at the lower end of the distribution. Equally, negative skew represents a bunching at the higher end of the distribution scale (Black, 1999). Although, statistics can be used to ascertain whether deviations from normality are present, one of the most appropriate methods is to use a histogram with a normality line. An example of a normal distribution against skewness and kurtosis is shown in Appendix 3.1.

The assumption of linearity, whilst related to normality, inextricably asserts a straight line relationship between two variables. In other words, a one-point increase in one variable evokes a constant change in the other. This is important in causal research designs, such as regression analysis, where Pearson's r captures linear relationships but ignores non-linearity¹². Tabachnick

¹¹ Residuals are the remains or errors between predicted and observed scores. When these don't follow any specific pattern it implies that normality exists

¹² Pearson's r is a test for correlation, i.e. shared variance, between two linearly distributed variables (Tabachnick and Fidell, 2007)..

and Fidell (2007) suggested using the plotted standardised residuals from a bivariate regression analysis which indicates whether the linearity assumption can be accepted.

The assumption of homoscedasticity asserts that variability (i.e. variance) is roughly the same for all other variables in the analysis. In this way, it is also inextricably linked to normality and linearity as it relies on the data to be similarly distributed (Pallant, 2005). However, whilst normality is a good indication of homoscedasticity, the reverse is not the case as a set of variables with a similar variance may represent comparable levels of non-normality (e.g. negative skewness). In fact heteroscedasticity, contrary to homoscedasticity, is often the resultant relationship between normally distributed and non-normal variables (Tabachnick and Fidell, 2007). Appropriate tests for homoscedasticity are therefore the same as those for normality and linearity (Tabachnick and Fidell, 2007).

Regarding the current dataset, four separate graphical tests were performed to ascertain normality, linearity and homoscedasticity (see Table 25). These can be found in Appendix 3.2. Following the advice of Tabachnick and Fidell (2007), histograms were used to test normality, alongside a Normal and Detrended probability plot (P-P) for each of the variables. Both P-P's assess residuals against an expected or predicted line analysing whether the predicted scores deviate from true normality. In the Normal P-P the observed scores should follow the normal line, whereas the Detrended version should follow an identical

symmetrical path either side of the line. Linearity can be tested in a similar way, but requires a separate variable to make the test bivariate¹³. The 'satisfaction scale' was chosen as the reference variable because it represented the focal variable within the study. The three items underlying the satisfaction scale were therefore transformed into a composite dependent variable (i.e. the three items were combined into one variable). Each scale item in the questionnaire was then regressed against it. A randomly distributed spread of residuals equally above and below the zero deviation line indicates normality and linearity. It is also a good exercise for identifying outliers in the dataset (Tabachnick and Fidell, 2007).

Table 25 - Analyses for Testing Normality, Linearity and Homoscedasticity

Analysis Type	Assumption(s) Tested
Histogram with Normality Line	Normality
Normal Probability Plot	Normality
Detrended Probability Plot	Normality
Bivariate Standardized Residual Plot	Linearity, Normality, Homoscedasticity

Source: Authors own interpretation of screening data process

It was found that most histograms indicated a slight deviation from normality in the direction of negative skew, with a higher number of responses to the

¹³ Bivariate tests require the use of two variables within the same analysis, compared to univariate tests which are single variable analyses (Pallant, 2005).

positive end of the scale. Given the context of the research, this finding was expected. Peterson and Wilson (1992) found that negative skew in satisfaction research is the result of positive perceptions towards a product or service. This same finding has been seen in a variety of "satisfaction" based studies across numerous disciplines. For example, in life satisfaction research Diener (1984) observed that respondents always gravitated towards the positive end of the scale. Headey and Wearing (1988) suggested it to be normal to feel above average when rating things, whilst Peterson and Wilson (1992) posed the question: "what rational customer would knowingly purchase a product or service that will not satisfy some need?" (p.62). Other items within the dataset (demographics and behaviour) showed evidence of normality as expected. The Normal P-P and Detrended P-P further demonstrated this finding. The former showed that on nearly all variables, Likert scores of three, four, five, six and seven (on a seven-point scale) were distributed along the normal line. Only at lower levels of response (one and two) did the residuals deviate from normal. Linearity was assessed by the bivariate residual scatterplots. The result was satisfactory in almost all cases. Residuals in nearly all items were randomly distributed around the zero deviation line, suggesting that linearity and homoscedasticity assumptions were satisfied. This also indicated that non-normality was not an extensive problem. At this point, several outliers were also identified, checked and when necessary rectified.

On completion of the four tests outlined previously, it was decided that the data was satisfactory enough to meet the three assumptions. It should be noted that items exhibiting a negatively skewed distribution can be transformed using a logarithmic function (Tabachnick and Fidell, 2007). Nonetheless, this is

sometimes ill-advised, especially when skew is not extensive (Pallant, 2005). Therefore the data remained untransformed.

7.5. Missing Data Analysis

An important issue with many questionnaire surveys is missing data (Allison, 2002). As previously mentioned, 31 cases were removed from the dataset because they exhibited high levels of non response. This is also known as case non-response (Allison, 2002). Whilst the favoured solution for high levels of case non-response is deletion (Tabachnick and Fidell, 2007), a more difficult situation is item non-response – i.e. data missing on a specific variable. Data may be missing for a variety of reasons. For example, respondent error is common when there are a large number of variables and the participant skips a question by accident. Additionally, the respondent may not know the answer to the question or deem themselves as not applicable to answer (Allison, 2002). In all of these situations (and any others), missing data causes a problem because the vast majority of statistical tests rely on full information (i.e. no missing data).

It is important to address missing data. In the first instance, the theoretical underpinning of missing data analysis is reviewed. This helps to organise the most appropriate strategy for rectifying missingness in the dataset.

7.5.1. Missing Data Theory

In recent years, the problems associated with missing data have been reduced owing to developments within the field of statistics. Nonetheless, rectifying missingness relies heavily on satisfaction in one of two assumptions; Missing Completely at Random (MCAR) and Missing at Random (MAR).

The theory of MCAR was placed on a solid foundation by Rubin (1976) who asserted that data missing on a certain variable (say Y) is manageable as long as the "missingness" is distributed randomly. In other words, missing data on Y is completely unrelated to the value of Y , or that of any other variable in the dataset. Rubin (1976) demonstrated MCAR using the variable *income*. If people who do not report their income in a questionnaire are younger with lower educational levels, it can be concluded that the data is not missing completely at random and that there is some pattern. In this situation, the assumption of MCAR is violated.

In recent years, other experts have suggested that MCAR is often unrealistic and prefer the alternative Missing at Random (MAR) assumption (Graham et al, 2003; Allison, 2002). The MAR assumption states that data on Y is only missing at random if the probability of missing data is unrelated to its actual value. In other words, data is *not* Missing at Random (NMAR) if individuals tend to have lower (or higher) values on a missing variable than those where values are present (Little and Rubin, 1987). Unsurprisingly, the MAR assumption is not empirically testable because it is impossible to know true missing values, or to compare them to the non-missing (Allison, 2002). This differs from MCAR where Little's test can analyse the structure of "missingness". A sound knowledge of the data is needed to assert that it is not MCAR or MAR. In this situation, the data is defined as *nonignorable*. In recent years, *nonignorable* missing data can be dealt with, although it requires a move away from conventional methods.

7.5.2. Missing Data Analysis in the Dataset

In the study dataset, the first objective was to understand the quantity of missing data. Preliminary analyses in SPSS using descriptive statistics (see Appendix 4.1) revealed that nearly all variables contained at least one or more missing cells. Most missing data was evident in the “store image attributes” and “demographic information” sections of the questionnaire. Four variables had over 25% of the data missing. These were in the “store image attributes” section which rated the store in terms of its performance. The four variables were:

- Dietary products,
- Access via bus routes,
- Home delivery service, and
- Additional in-store services.

There could be several reasons for such high levels of item non-response. For example, it may be that respondents do not use any of the listed variables and are therefore not able to answer. Whilst normally this qualifies as MCAR or MAR and can be dealt with via imputation¹⁴ (Schafer, 1997; Graham et al, 2003), high levels of missingness make accurate estimates difficult to obtain. It was decided that more than 25% was an unacceptable quantity of missing data. Therefore the four variables were removed from the dataset bringing the total

¹⁴ Galina Borisyuk advised that missingness was not related to the value of missing answers. To demonstrate, the reason that an answer was not known or was marked “not applicable” was because respondents were not able to give an answer to the question.

number of store image attributes to 39¹⁵. The remaining variables were then subjected to an analysis of missing data. This identified whether there were any patterns in the distribution of missingness, against the aforementioned assumptions (MCAR, MAR). This was achieved using Missing Value Analysis in SPSS version 17.0. This revealed no significant differences between the answers that were provided and those missing (Tabachnick and Fidell, 2007). Little's MCAR statistic, which tests the null hypothesis that data is Missing Completely at Random, confirmed this finding ($\chi^2 = 11880.03$; $df = 11970$; $p = .719$). The null hypothesis that data was NMAR is rejected at the $p < .05$ level. Thus, the results indicated that the distribution of "missingness" was completely random and that the assumptions of missing value analysis were satisfied (see Table 26).

Table 26 - Little's MCAR test

Little's MCAR Test Chi-Square (χ^2)	Degrees of Freedom (df)	Two-Tail Significance (p)
11880.03	11970	.719

The choice of method for dealing with missing data was the next decision. Allison (2002) recommended that the main consideration should be the type of analysis for which the data will be used. In this study, there were three requirements, as follows:

¹⁵ Professor Michael D Johnson of Cornell University advised that in this particular study 20-25% of missingness was acceptable, but any more should be deleted from the analysis.

1. All cases (524) and statistical power were retained in the analysis,
2. Values were imputed as raw data, and
3. Advanced statistical tests such as finite mixture modelling were compatible with the imputed missing data.

Using these requirements as the basis of the decision, the EM algorithm was selected. It was deemed a preferable method to alternatives such as listwise and pairwise deletion, mean imputation and regression imputation since it is sophisticated enough to retain statistical power (Enders, 2006). It also replaces raw estimates for missing values, unlike approaches such as Full Information Maximum Likelihood (FIML) which uses the covariance matrix to estimate, but not impute, parameter estimates. Raw data is preferable when sub-groups (segments) are to be explored. The most appropriate alternative to the EM algorithm is multiple imputation (MI). However, owing to its high computing requirements, the EM algorithm was selected over the more restrictive MI procedure (Enders, 2006).

For the EM imputation, all variables in the dataset were used to predict values for missing data. Enders (2006) suggested that estimates will be more accurate with maximum information (i.e. relevant variables). The largest drawback to using the EM algorithm is that only interval¹⁶ (e.g. scale and continuous) variables can be rectified. This meant that categorical variables, whilst being used to estimate the values of missing data in continuous variables, could not

¹⁶ Through definition interval variables are measured on a continuous scale. Bryman (2004) defines it as a variable that has “distances between the categories that are identical across its range of categories” (P.540).

be directly imputed. Descriptive statistics for variables in the imputed dataset are in Appendix 4.2. Table 27 presents the pre and post descriptive information for a selection of the variables. As would be expected when missing data conforms to the MCAR or MAR assumptions, only marginal changes in the means and standard errors were evident after the imputation (Graham et al, 2003).

Table 27 - Descriptive Statistics Pre and Post EM Imputation

Variable	Pre- Imputation			Post EM Algorithm		
	Mean	Mean S.E	S.D	Mean	Mean S.E	S.D
Product Quality	5.937	.0350	.801	5.938	.035	.800
Store Location	6.085	.0400	.913	6.085	.040	.910
Product Discount	5.040	.054	1.235	5.035	.054	1.226
Shelf Height	5.346	.052	1.197	5.346	.052	1.196
Distance to the Store	3.017	.139	3.128	3.003	.136	3.112
Age	71.626	.362	8.234	71.754	.347	7.934

Mean S.E = Standard Error; S.D = Standard Deviation

Once the imputation had been completed, the scale items and all demographic and behavioural variables had a full number of cases (n=524). Since only a small number of cases were missing on categorical variables (see Appendix 4.1), this was not seen as problematic.

7.6. Sample Characteristics

This section presents relevant information pertaining to the lives of the 524 respondents. Specifically, it concentrates on a combination of personal characteristics and shopping behaviours. Where relevant, consideration is given to how the sample population compared to the wider population aged 60 years and above in England.

7.6.1. Sample Personal Characteristics

This section provides an overview of the personal characteristics of respondents using output generated in SPSS version 17.0. Specific attention is given to respondent location, age, gender, marital status, car ownership, mobility, education, income, working status, occupation and household ownership. For many characteristics, the differences between respondents are also compared by age groups (60-64, 65-74, 75+).

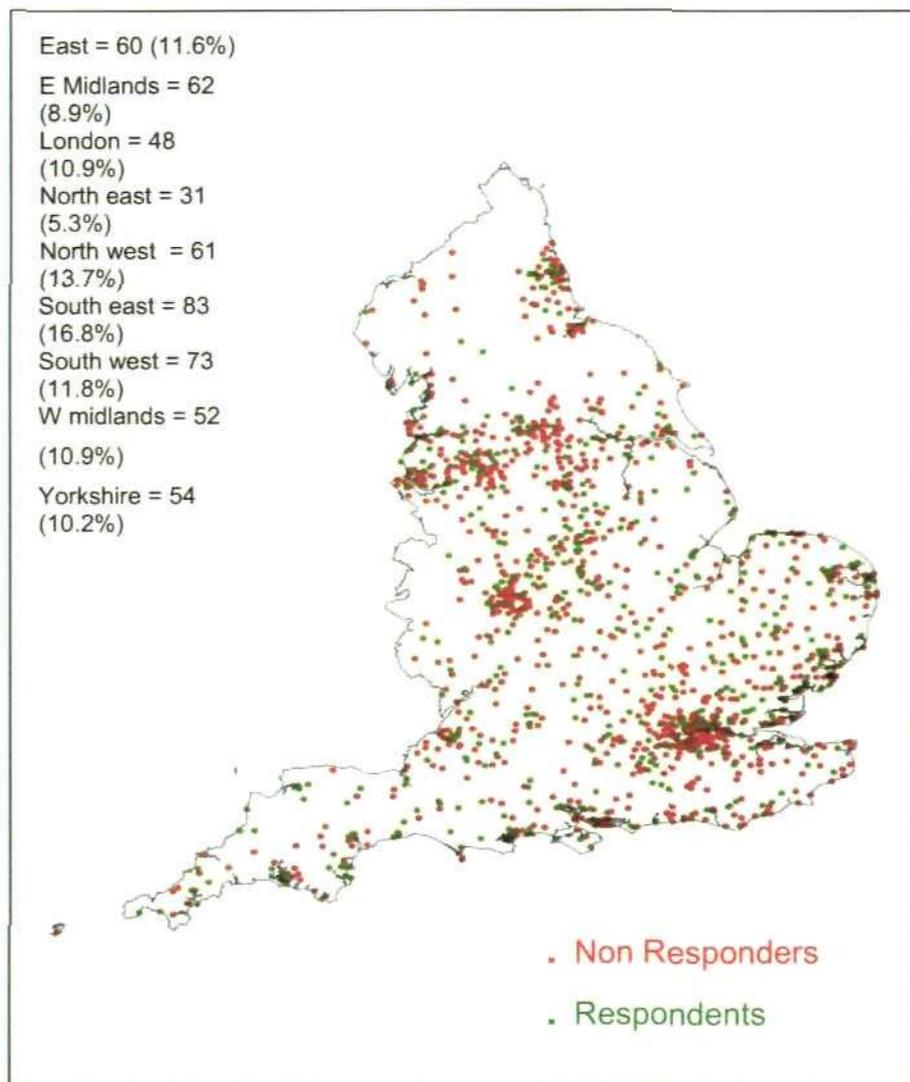
7.6.1.1. Respondent Location

Based on geographical location, the proportion of older people varies by region. Consequently, the sample was drawn to mirror this trend. The exact breakdown by region is provided in Section 5.6.3. Figure 15 shows the distribution of respondents and non-respondents based on their residential location using ARC GIS geospatial software. The map shows a good spread of responses with no specific geographical areas of non-response¹⁷. Commensurate with the

¹⁷ On the map, specific areas of non response would be evident by large clusters of red with no green.

wider population of over 60's (see Section 5.6.3), the majority of respondents lived in the South East (16.8%) and North West (13.7%) of England. Similarly, the North East was the area with the least respondents (i.e. 5.3%); both in the sample and wider population. It can be concluded that the sample was geographically representative.

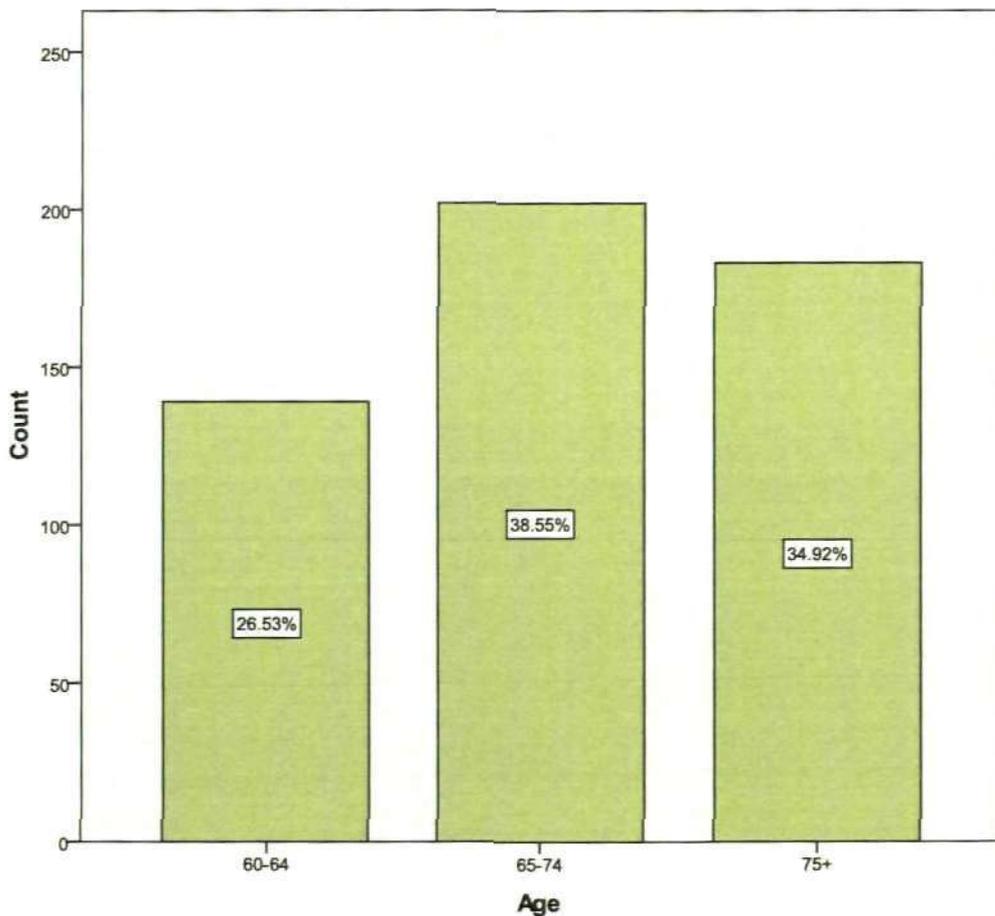
Figure 15 – Geographical Distribution of Respondents and Non Respondents



7.6.1.2. Age

Respondents ranged in age by 41 years; the youngest aged 60 and the oldest 101 years old. The mean age of the sample was approximately 72 years. The variable used to measure age was re-coded into one of three categories in keeping with the UK national census; 60-64, 65-74 and 75+. In total 26.5% of people were between 60-64, 38.5% were in the middle stages of older age (65-74) and 34.9% were over 75 years old and can be classified as being in the later stages of older age. This classification was very closely related to the wider population in England which is stated in Table 21 (see Section 6.2.1).

Figure 16 - Respondents by Age Groups



7.6.1.3. Gender

The sample consisted of 197 (37.4%) men and 328 (62.6%) women. There were also differences in the ratio of men to women as age increased. The cross-tabulation (Table 28) shows that the proportion of male respondents was highest in the 75+ age group. The highest proportion of female respondents was in the 65-74 age range (i.e. 41.2%). This also corresponded with National Statistics. This possibly indicates an imbalance in older ages owing to women having a longer life expectancy (see Section 2.4.2.1).

Table 28 - Proportion of Male and Female Respondents by Age Group

		Gender			
		Male	Female	Total	
Age (yrs)	60-64	Count	51	88	139
		% within Gender	26.0%	26.8%	26.5%
		% of Total	9.7%	16.8%	26.5%
	65-74	Count	67	135	202
		% within Gender	34.2%	41.2%	38.5%
		% of Total	12.8%	25.8%	38.5%
	75+	Count	78	105	183
		% within Gender	39.8%	32.0%	34.9%
		% of Total	14.9%	20.0%	34.9%
Total	Count	196	328	524	
	% within Gender	100.0%	100.0%	100.0%	
	% of Total	37.4%	62.6%	100.0%	

7.6.1.4. Marital Status

A total of 52.8% of respondents reported being married or living as a couple. The marital status of the remaining respondents was organised between those who were single (11.8%), divorced or separated (8.8%) and widowed (27.3%). As expected, with increased age, the proportion of respondents who were

married, or living as a couple, decreased. Also, the rate of being widowed rose from 10.5% in the 60-64 age group, to 30.1% in the 65-74 group, to 59.4% of those aged 75 and over, reflecting the trends seen in National Statistics data (see Section 2.4.2).

Table 29 - Proportion of Respondents by Marital Status and Age

		Marital Status (MS)				Total	
		Single	Married/ Living as Couple	Divorced/ Separated	Widowed		
Age (yrs)	60-64	Count	15	90	19	15	139
		% within MS	24.2%	33.0%	41.3%	10.5%	26.5%
		% of Total	2.9%	17.2%	3.6%	2.9%	26.5%
65-74	Count	29	110	20	43	202	
	% within MS	46.8%	40.3%	43.5%	30.1%	38.5%	
	% of Total	5.5%	21.0%	3.8%	8.2%	38.5%	
75+	Count	18	73	7	85	183	
	% within MS	29.0%	26.7%	15.2%	59.4%	34.9%	
	% of Total	3.4%	13.9%	1.3%	16.2%	34.9%	
Total	Count	62	273	46	143	524	
	% within MS	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	11.8%	52.1%	8.8%	27.3%	100.0%	

7.6.1.5. Mobility

Respondents were asked to rate their level of mobility using four categories: very restricted, restricted, a little restricted and not restricted. From all respondents, 301 (57.4%) claimed not to be restricted. Of those remaining, 23.3% claimed to be a little restricted, 12.6% restricted and 6.7% very restricted. As the cross-tabulation shows (Table 30), the proportion of people in each category increased by age. Consequently, the number of respondents reporting 'no restriction' decreased with age.

Table 30 - Proportion of Respondents by Level of Mobility and Age

		Mobility (MOB)					
		Very Restricted	Restricted	A Little Restricted	Not Restricted	Total	
Age (yrs)	60-64	Count	3	14	21	101	139
		% within MOB	8.6%	21.2%	17.2%	33.6%	26.5%
		% of Total	.6%	2.7%	4.0%	19.3%	26.5%
	65-74	Count	9	22	37	134	202
		% within MOB	25.7%	33.3%	30.3%	44.5%	38.5%
		% of Total	1.7%	4.2%	7.1%	25.6%	38.5%
	75+	Count	23	30	64	66	183
		% within MOB	65.7%	45.5%	52.5%	21.9%	34.9%
		% of Total	4.4%	5.7%	12.2%	12.6%	34.9%
Total		Count	35	66	122	301	524
		% within Mobility	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	6.7%	12.6%	23.3%	57.4%	100.0%

7.6.1.6. Car Ownership

Overall, 74.4% of the sample had access to at least one car or motor vehicle. Although this variable was measured on a continuous scale, it was re-coded in order to be dichotomous: i.e. access to car; no access to a car. The high percentage of older people with car access is not surprising for two reasons. Firstly, the Office for National Statistics (ONS) have suggested that approximately 70% of people aged 60 and above drive in the UK (ONS, 2005b). Secondly, having access to a car has become more necessary as a result of out-of-town shopping centres (Wrigley, 2003). The cross tabulations (Table 31 and Table 32) show that as age and level of immobility increases, car ownership decreases. For example, in the 60-64 age group 11.1% of people reported having no access to a car/vehicle, compared with 42.1% in the 75+ age category (see Table 31). Similarly, 80.1% of people who reported having no

physical restriction had a car/vehicle, in comparison to 51.4% of people who were very restricted. This indicated that the more aged and restricted respondents become, the less likely they are to travel via their own transport.

Table 31 - Proportion of Respondents by Car Access and Age

		Age				
			60-64	65-74	75+	Total
Car Access	No	Count	16	41	77	134
		% within age	11.5%	20.3%	42.1%	25.6%
		% of Total	3.1%	7.8%	14.7%	25.6%
	Yes	Count	123	161	106	390
		% within age	88.5%	79.7%	57.9%	74.4%
		% of Total	23.5%	30.7%	20.2%	74.4%
Total	Count	139	202	183	524	
	% within age	100.0%	100.0%	100.0%	100.0%	
	% of Total	26.5%	38.5%	34.9%	100.0%	

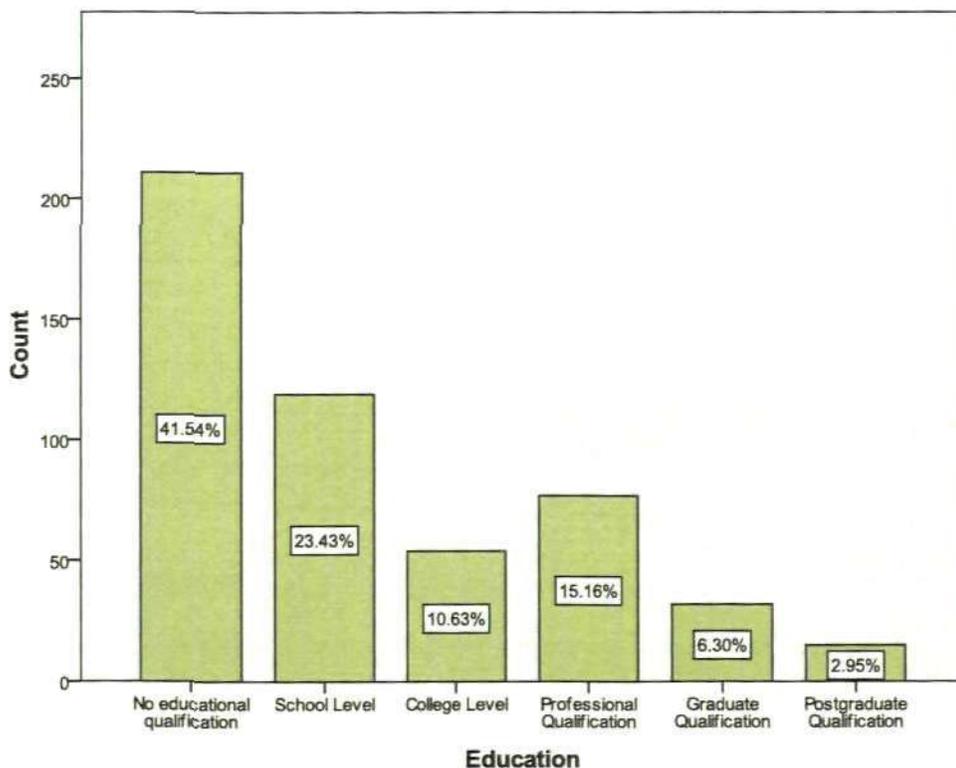
Table 32 - Proportion of Respondents by Car Ownership and Level of Mobility

		Mobility (MOB)					
			Very Restricted	Restricted	A Little Restricted	Not Restricted	Total
Car Access	No	Count	17	26	31	60	134
		% within MOB	48.6%	39.4%	25.4%	19.9%	25.6%
		% of Total	3.2%	5.0%	5.9%	11.5%	25.6%
	Yes	Count	18	40	91	241	390
		% within MOB	51.4%	60.6%	74.6%	80.1%	74.4%
		% of Total	3.4%	7.6%	17.4%	46.0%	74.4%
Total	Count	35	66	122	301	524	
	% within MOB	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	6.7%	12.6%	23.3%	57.4%	100.0%	

7.6.1.7. Education

The most common highest level of qualification was 'no formal qualification' (i.e. 43.3%). At the opposite end of the spectrum, a much smaller percentage of respondents stated that they continued into higher education (graduate or postgraduate). Only 9.25% attained a graduate or postgraduate level qualification (see Figure 17). Age was also related to qualification level, with more of the younger 60-64 age group tending to have higher qualifications than those older (see Table 31). With regard to gender, fewer older women (aged 75+) had higher qualifications than men; 8.9% of men had a graduate or postgraduate degree compared to 4.8% of women. However, in the younger age group more women (15.6%) had a graduate qualification or higher than men (9.8%) of the same age (see Appendix 5.1).

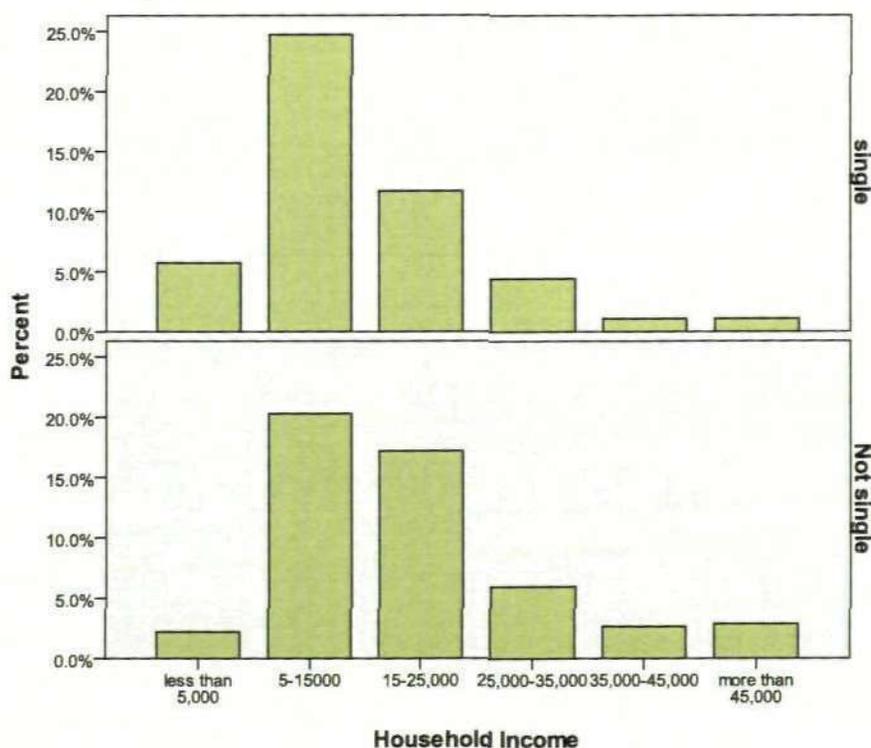
Figure 17 - Bar Chart of Highest Educational Qualification



7.6.1.8. Income

Income represented one of the few categorical variables without full information (i.e. all 524 cases). In total 453 respondents answered this question with 71 missing. The majority of people (52.9%) stated an income of between £0 and £15,000 per year. A further 28.9% reported that they earned between £15,000 and £25,000. The remaining 17.2% stated an income of over £25,000. Household income is not informative as an isolated measure as it is often reliant on the number of people in the household and their employment status. Figure 18 shows income relating to household composition based on 'single' or 'not single' dichotomous categories. Those living alone reported a lower household income than those who were 'not single', probably as a result of lower combined pension and benefits provision. For example, 61.5% of single people had an income of £15,000 compared to 44% of those 'not single' (see Figure 18).

Figure 18 - Bar Chart of Household Income by Single and Not Single Household Composition



With regard to age and employment status, respondents in the 60-64 age category reported higher incomes than older age groups, possibly because they were under state retirement age and remained in paid employment. Appendix 5.2 shows that respondents with incomes in the higher categories (£35,000+), reported themselves as being in employment and, therefore, part of the youngest age group (60-64).

7.6.1.9. Occupation of the Chief Income Earner

Based on their current or previous occupation, each respondent was classified using the Standard Occupational Classification 2000 (HEFCE, 2007). This utilises the National Statistics Socio-economic Classification (NS-SEC) which is a seven-point scale ranging from NS-SEC1 to NS-SEC7. NS-SEC1 is the highest category containing senior managerial and professional occupations. NS-SEC2 consists of lower managerial and professional occupations, NS-SEC3 is for intermediate occupations, and NS-SEC4 is for small employers and account workers. The lower level occupations are organised into lower supervisory roles (NS-SEC5), semi-routine occupations (NS-SEC6) and routine jobs (NS-SEC7).

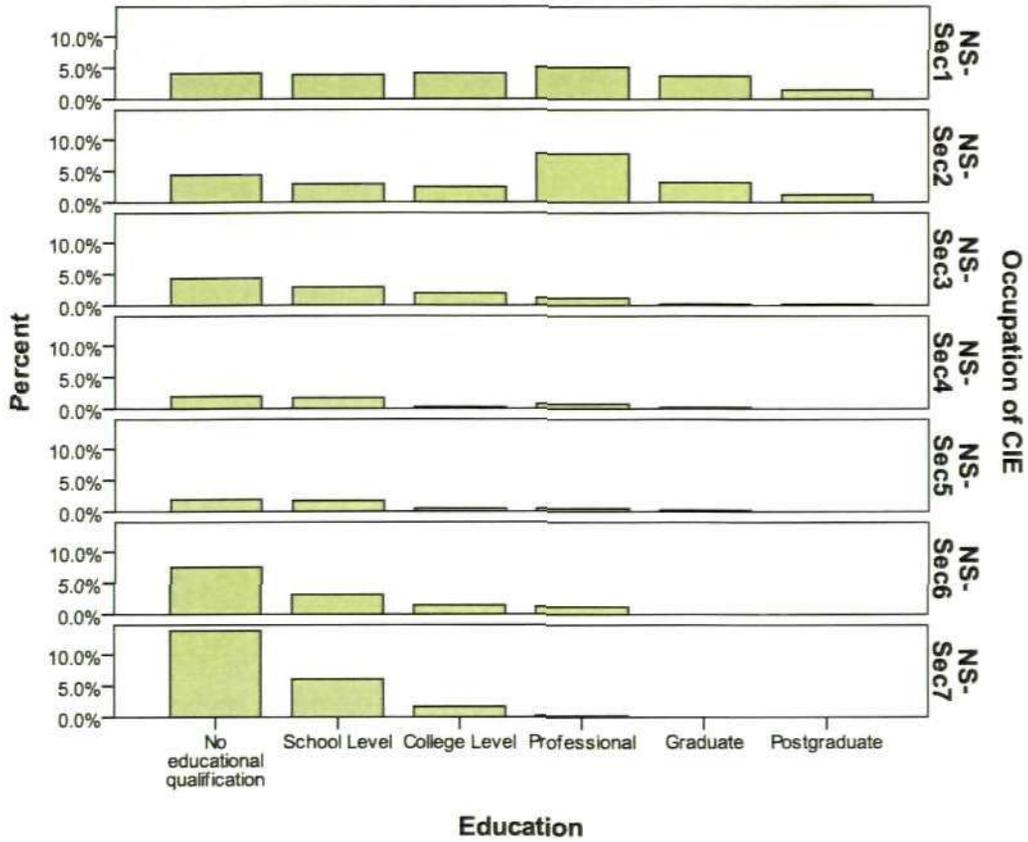
Similar to income, only 412 cases of data were available for this question with 112 missing (Table 33). Table 33 shows that with the exception of NS-Sec 5, respondents fell uniformly into each of the NS-SEC groups. It was found that people in the higher level NS-SEC occupations, such as NS-SEC1 and NS-SEC2, consisted of those with a range of higher educational qualifications. Contrarily, lower NS-SEC groups (e.g. NS-SEC6, NS-SEC7) were predominantly made up of people with school level or no formal qualifications

(see Figure 19). This suggests that for the sample, high educational qualifications were not a pre-requisite to work in higher level professions. Nonetheless, attaining higher qualifications may have precluded people from working in lower NS-SEC occupations. This is evidenced by Figure 19 which shows that people with a graduate or postgraduate qualification rarely work(ed) in occupations outside of NS-SEC1 or NS-SEC 2.

Table 33 - Breakdown of Respondents Based on their NS-SEC Occupation

	Frequency	Percent (%)
NS-Sec1	92	17.6
NS-Sec2	90	17.2
NS-Sec3	45	8.6
NS-Sec4	20	3.8
NS-Sec5	20	3.8
NS-Sec6	55	10.5
NS-Sec7	90	17.2
Missing	112	21.4
Total	524	100.0

Figure 19 - Clustered Bar Chart of Highest Educational Qualification by NS-SEC Occupation



7.6.2. Sample Behavioural Characteristics

In the previous section, a synopsis of the respondents and their personal characteristics was provided. This section builds upon the last by focusing on their shopping behaviours. Specifically, key themes investigated include: Where do people shop? How often do people shop? How much do people spend? And, how do older people travel to their grocery store? Attention is also given to identifying whether behaviour differs as a result of variations in certain personal characteristics.

7.6.2.1. Where Do People Shop?

Despite the increase in the number of convenience stores in the UK, the majority of older respondents reported that they did most of their shopping in a supermarket store. In total, 94.8% claimed to shop in a supermarket compared to 4.6% in convenience stores. The remainder answered "other" (.4%) or were missing (.2%) (see Table 34).

Table 34 - Grocery Store Type used by Respondents

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percentage (%)
Convenience Shop	24	4.6	4.6	4.6
Supermarket	497	94.8	95.0	99.6
Other	2	.4	.4	100.0
Total	523	99.8	100.0	
Missing	1	.2		
Total	524	100.0		

The most popular store amongst respondents was Tesco. In total, 126 people, accounting for 24% of the entire sample, shop there. Sainsbury's was the second most popular choice, accounting for 20.2% of the sample. Morrisons was the third most used retailer (19.7%) and Asda the fourth (13.7%). This is in contrast to the wider population where Asda holds the third largest market share and Morrisons the fourth (see Section 3.2.3). Co-op, Waitrose, Somerfield and Marks & Spencer as well as the major discounters (e.g. Lidl, Iceland, Aldi) all hold less than 10% of the market share. Together they total 22.3% (see Table 35).

Table 35 - Most Frequently Used Grocery Retailer

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percentage (%)
Tesco	126	24.0	24.0	24.0
Sainsbury	106	20.2	20.2	44.3
Asda	72	13.7	13.7	58.0
Morrisons	103	19.7	19.7	77.7
Co-op	33	6.3	6.3	84.0
Waitrose	18	3.4	3.4	87.4
Marks and Spencer	3	.6	.6	88.0
Somerfield	17	3.2	3.2	91.2
Discounters	33	6.3	6.3	97.5
All others	13	2.5	2.5	100.0
Total	524	100.0	100.0	

Most respondents reported having shopped at their chosen store for somewhere between 5 and 10 years (i.e. 32.3%), with a further 137 respondents (i.e. 26.1%) claiming to have shopped at the store for less than 5 years. Overall, 12.8% of respondents have shopped at the store for more than 20 years. Where they have been shopping at the store for a longer period of time, Sainsbury's has a larger percentage of customers than other retailers. For those who have shopped at their store for a shorter period of time, Tesco and Morrisons have a larger proportion of customers (see Appendix 5.3). To illustrate, 11.3% of Sainsbury's shoppers have been shopping there for less than five years, compared to Morrisons with 41.7%. In contrast, for those shopping at their chosen store for more than 20 years, Sainsbury's had 15.1% of the sample and Morrisons had only 3.1%. Further investigation showed that age had only a minor relationship with store choice. Similarly, in regard to gender, there is little evidence to suggest men and women differ in where they shop (see Appendix 5.3 and 5.4). However, household income appears to be related to store choice. In lower income households (i.e. less than £5000 per

year), people reported shopping in stores such as Tesco (33.3%) and Morrisons (19.4%). Fewer elected to shop with retailers such as Sainsbury's (8.3%) or Waitrose (0%). Outside of the two lowest income bands, the proportion of people shopping at different stores is fairly equally distributed. The exception was households with an income in excess of £45,000. These reported a preference for shopping more at Waitrose relative to other income categories. For example, 17.6% of all Waitrose' older shoppers were from this income bracket, compared with 6.1% of Tesco's (see Appendix 5.5).

7.6.2.2. Shopping Frequency

The majority of respondents reported that they shopped between one and four times per month (50.6%), whilst 32.4% claimed to shop more regularly; between four and eight times per month. A smaller number, i.e. 7.3% shop more regularly than once every other day, with 2.7% of these visiting the store more than 20 times per month (see Table 36).

Table 36 - Frequency of Shopping Trips (per month)

		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Shopping trips per month	1-4	265	50.6	50.6	50.6
	5-8	170	32.4	32.4	83.0
	9-12	45	8.6	8.6	91.6
	13-16	6	1.1	1.1	92.7
	17-20	24	4.6	4.6	97.3
	21+	14	2.7	2.7	100.0
	Total	524	100.0	100.0	

As with store choice, frequency of shopping is distributed fairly equally across age categories with most shopping between one and eight times per month

(see Appendix 5.6). Similarly, there are no major differences between men and women in how often they shop. One finding is that people without their own personal transport shop only slightly more frequently than those who do have transport. In total, 8.9% of respondents without personal transport stated that they shop over 16 times per month, compared to 6.7% of people who do. Any other differences were negligible (see Table 37).

Table 37 - Cross Tabulation of Shopping Frequency by Car Access

		Car Access			
		No Car	Car	Total	
Frequency of shopping trips taken per month	1-4	Count	59	206	265
		% within Frequency of trips	22.3%	77.7%	100.0%
		% within Car Access	44.0%	52.8%	50.6%
		% of Total	11.3%	39.3%	50.6%
	5-8	Count	44	126	170
		% within Frequency of Trips	25.9%	74.1%	100.0%
		% within Car Access	32.8%	32.3%	32.4%
		% of Total	8.4%	24.0%	32.4%
	9-12	Count	19	26	45
		% within Frequency of Trips	42.2%	57.8%	100.0%
		% within Car Access	14.2%	6.7%	8.6%
		% of Total	3.6%	5.0%	8.6%
13-16	Count	0	6	6	
	% within Frequency of Trips	.0%	100.0%	100.0%	
	% within Car Access	.0%	1.5%	1.1%	
	% of Total	.0%	1.1%	1.1%	
17-20	Count	7	17	24	
	% within Frequency of Trips	29.2%	70.8%	100.0%	
	% within Car Access	5.2%	4.4%	4.6%	
	% of Total	1.3%	3.2%	4.6%	
21+	Count	5	9	14	
	% within Frequency of Trips	35.7%	64.3%	100.0%	
	% within Car Access	3.7%	2.3%	2.7%	
	% of Total	1.0%	1.7%	2.7%	
Total	Count	134	390	524	
	% within Frequency of Trips	25.6%	74.4%	100.0%	
	% within Car Access	100.0%	100.0%	100.0%	
	% of Total	25.6%	74.4%	100.0%	

7.6.2.3. Getting to the Store

The majority of respondents reported that they normally travel to the store by car. Overall, 72.5% of the sample used this form of transport; whilst 13.9% walk and 10.3% catch a public bus (see Table 38).

Table 38 - Modes of Transport to the Grocery Store

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Walk	73	13.9	13.9	13.9
Cycle	6	1.1	1.1	15.1
Drive	380	72.5	72.5	87.6
Public Bus	54	10.3	10.3	97.9
Free Shopper Bus	6	1.1	1.1	99.0
Taxi	3	.6	.6	99.6
Other	2	.4	.4	100.0
Total	524	100.0	100.0	

Having access to personal transport does not necessarily mean that it will be used for shopping. The cross tabulation in Appendix 5.8 reveals that only 88.2% of respondents with access to a car use it whilst the remainder use the bus or walk. Of those without a car, 26.9% travel with somebody else (relative or friend), 34.3% walk and 31.3% use a public bus (see Appendix 5.8).

There is a strong relationship between the mode of transport and the distance travelled to the store. For those living within one mile, 88.1% walk. This reduced as the store distance increased. Of people who drive, 22.1% reported living under one mile, 27.9% between one and two miles, 24.2% between two and four miles and 20% between four and eight miles. In general, more people travel less than one mile than any other distance (30.7%) and 79.2% stated

that they travel less than four miles. Only 2.3% travel further than 12 miles (See Appendix 5.9).

7.6.2.4. Spending Behaviour

Respondents reported an average spend of £48.34 per week on grocery shopping. This ranged between £7.76 and £325. In total 39.5% of respondents spend between £40-80 per week with a further 39.1% spending between £20-40. A total of 44 respondents, accounting for 8.4%, spend more than £80 per week (see Table 39).

Table 39 - Average Amount of Money Spent per week at Most Used Grocery Store

		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Money spent per week on shopping	£10 and Less	9	1.7	1.7	1.7
	£10-20	59	11.3	11.3	13.0
	£21-40	205	39.1	39.1	52.1
	£41-80	207	39.5	39.5	91.6
	£81+	44	8.4	8.4	100.0
	Total	524	100.0	100.0	

The amount of money spent on groceries is related to the working status of the household's chief income earner (CIE) and the household composition. For example, 52.9% of employed respondents spend between £40-80 per week, compared to 36.1% who are retired (see Table 40). Similarly, approximately 50% of single person households spend between £20-40 per week, whereas the same proportion of two person households spend between £40-80 (see Appendix 5.10).

Table 40 - Cross Tabulation of Money Spent on Grocery Shopping (per week) by Working Status of Chief Income Earner (WSCIE)

		Working status of chief income earner (WSCIE)				
		Employed	Retired	Unemployed	Total	
Money spent at shopping per week	£10 and less	Count	1	8	0	9
		% within Spent	11.1%	88.9%	.0%	100.0%
		% within WSCIE	1.0%	1.9%	.0%	1.7%
		% of Total	.2%	1.5%	.0%	1.7%
	£11-20	Count	10	49	0	59
		% within Spent	16.9%	83.1%	.0%	100.0%
		% within WSCIE	9.8%	11.7%	.0%	11.3%
		% of Total	1.9%	9.4%	.0%	11.3%
	£21-40	Count	21	182	2	205
		% within Spent	10.2%	88.8%	1.0%	100.0%
		% within WSCIE	20.6%	43.5%	50.0%	39.1%
		% of Total	4.0%	34.7%	.4%	39.1%
	£41-80	Count	54	151	2	207
		% within Spent	26.1%	72.9%	1.0%	100.0%
		% within WSCIE	52.9%	36.1%	50.0%	39.5%
	% of Total	10.3%	28.8%	.4%	39.5%	
£81+	Count	16	28	0	44	
	% within Spent	36.4%	63.6%	.0%	100.0%	
	% within WSCIE	15.7%	6.7%	.0%	8.4%	
	% of Total	3.1%	5.3%	.0%	8.4%	
Total	Count	102	418	4	524	
	% within Spent	19.5%	79.8%	.8%	100.0%	
	% within WSCIE	100.0%	100.0%	100.0%	100.0%	
	% of Total	19.5%	79.8%	.8%	100.0%	

In addition to their chosen store, respondents reported that they also shop at alternative stores. Based on 522 cases and 2 missing, respondents stated that 22.3% of their grocery shopping is completed at other stores. As such, only 19% of the sample claimed to “rarely” or “never” shop elsewhere, whilst 33.9% “regularly” and 46.9% “occasionally” shop at other places (see Table 41). This suggests that “top-up” shopping is a common activity with older people.

Table 41 - Frequency of Shopping at Alternative Grocery Stores

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Regularly	177	33.8	33.9	33.9
Occasionally	245	46.8	46.9	80.8
Rarely	72	13.7	13.8	94.6
Never	28	5.3	5.4	100.0
Total	522	99.6	100.0	
Missing	2	.4		
Total	524	100.0		

7.7. Summary and Conclusions

This chapter is the first of three devoted to the quantitative component of the research. The chapter presented many of the foundations that will be built upon in those that follow. It also addressed research objective one in providing an up-to-date and current analysis of shopping behaviours within the older age group.

In the first instance, the sample response rate – 524 cases – was discussed in regard to the two collection waves. This number of cases represented an effective response of 28.6% which far exceeded the 7% attained in piloting. It was felt that 524 cases of data was an acceptable quantity. The superior response rate also helped to reduce non-response bias. Using the *extrapolation* approach discussed by Armstrong and Overton (1977), independent sample t-tests revealed that early and late responders did not differ significantly in the majority of their answers. On this basis, it was concluded that non-response bias represented little problem within the current study.

Consideration was given to the assumptions of multivariate data analysis, as defined by Tabachnick and Fidell (2007). This included the assumptions of

normality, linearity and homoscedasticity. The results indicated that many of the scale items suffered from negative skew. This is a persistent issue in satisfaction research, as Peterson and Wilson (1992) testify. The problem lies in the lower representation of response in cells at the bottom end of a scale. An option, as briefly considered, is to logarithmically transform each of the affected variables. Nonetheless, the value in this is often not realised, nor needed when the level of skew (or kurtosis) is minimal. It was decided that the data would be left untransformed.

Missing data was approached in the following section. Descriptive statistics showed that several items had a high incidence of non-response (>25%). As a precaution for retaining the quality of the data, these items were removed. Nonetheless, many of the remaining variables suffered from at least one or more cells of missing data. To rectify this problem, six methods were compared against three criteria. Based predominantly on the need to retain full information (all cases), the EM algorithm was preferred. Reliable estimates satisfying Little and Rubin's (1987) MCAR assumption were then imputed for the missing data.

The final section of Chapter 7 used descriptive and simple cross tabulation statistics to explore the personal characteristics and shopping behaviours of survey respondents. The findings indicated that the wider population was well represented in the sample. Some of the more important behaviours, such as store choice, were investigated by differences in personal characteristics. These variables helped to explain more about the lives of older people and will be used in Chapter 9 for profiling the sample into response based finite segments.

8. Quantitative Data Analysis Two: Scale Development, Measurement Model Construction and Model Testing

8.1. Introduction

This chapter will present the structural model hypothesised in Chapter 4. This provides important insights into the full satisfaction process of older grocery shoppers, ranging from drivers of satisfaction (i.e. store image factors) through to components of loyalty (future intentions, word-of-mouth, and price insensitivity).

However, in attaining this objective, a number of steps were followed. This involved step two through to step five in the research design process stated in Chapter 5.3. As such, this built upon the findings of Chapter 6 which examined the qualitative interviews. The interviews were used to pool important store attributes to serve as satisfaction drivers in the conceptual model. A preliminary structure/framework for the 42 store image attributes specified eight dimensions for review via quantitative methods. In keeping with the scale development procedures outlined by authorities such as DeVellis (2003), Churchill (1979) and Peters (1979), the satisfaction drivers (i.e. store image attributes) were subjected to an exploration of scale structure and item reduction (step two) using exploratory factor analysis (EFA). The results take precedence over the preliminary framework delineated in Chapter 6.

The store image attributes were then subjected to the extended scale development/validation procedure for unidimensionality suggested by Gerbing and Anderson (1988). This was achieved by employing a measurement model

using confirmatory factor analysis (CFA). At this stage, each of the borrowed scales (i.e. satisfaction, affective commitment, calculative commitment, future intentions, word-of-mouth, and price insensitivity) were introduced to the measurement model and tested for unidimensionality. This integrated each of the constructs into the full model, in preparation for evaluation as a series of latent paths, or as it is technically referred, a structural equation model (SEM).

This chapter is organised into the following sections: scale structure and reliability assessment, scale development and measurement model construction, model testing, summary and conclusions.

8.2. Scale Structure and Reliability Assessment

In the previous chapter (i.e. Chapter 7), an overview of the data screening procedure was given. Owing to high item non-response (>.25%), four store image attributes (from 42) were removed (Hair et al, 2006). The remaining 38 items were subjected to the scale development procedure outlined in step two and step three of the research design process (see Figure 8). This was necessary as, unlike the borrowed scales (e.g. satisfaction etc.), these represented a new entity without a known underlying structure (DeVellis, 2003). As such, the 38 items were reduced into a smaller set of manageable factors representing common variance between similar attributes (Hinkin, 1995). Gerbing and Anderson (1988) suggested that exploratory factor analysis (EFA) is a suitable scale development technique for reducing a large number of indicators into a more manageable set. They stated that "it is particularly useful as a preliminary analysis in the absence of sufficiently detailed theory about the relations of the indicators to the underlying constructs" (p.189). The EFA was

therefore considered as the most appropriate next step in the scale development process. The following sections outline how the 38 items were reduced into factors delineating the store image scale as satisfaction drivers.

8.2.1. Exploratory Factor Analysis

In exploratory factor analysis, observed items 'load' on to an unobserved latent factor (Kline, 1994). Factor loadings are the Pearson's (r) correlation between observed items and a latent factor. Stronger relationships, indicated by higher factor loadings, imply a more valid solution (Kline, 1994). The objective is to attain a solution in which factors are highly related within and unrelated between (Kline, 1994). Factors are extracted based on shared common variance. The first factor retains the highest amount of variance and subsequent factors are extracted until no more common variance remains. In general, direct extraction is not enough. Adjustments to the frames of reference by rotation methods improve the interpretation of factor loadings by reducing some of the ambiguity. Rotation turns the reference axes on their origin until some substantive and explainable position has been reached (see Kline, 1994: 56-79).

In employment of EFA, the dataset was transferred into the MPLUS statistical programme which is syntax driven (Muthen and Muthen, 2009). EFA is an iterative procedure which requires the fulfilment of several guidelines. Tabachnick and Fidell (2007) provided a *checklist* (see Figure 20). The procedure applied in this analysis followed their suggestions.

Figure 20 - Checklist for Exploratory Factor Analysis

1. Limitations & Assumptions
 2. Analyses
 - a. Method for analysis and rotation
 - b. Number of factors retained
 - c. Nature of factors
 - d. Importance of factors
 - e. Internal consistency of factors (reliability)
-

8.2.1.1. Limitations and Assumptions

The first assumptions are sample size and missing data. EFA will only function when all data is present. Otherwise, cases are deleted *listwise*, reducing the effective sample¹⁸. Comrey and Lee (1992) suggested that any sample with over 200 cases is considered *fair*. As the dataset had 524 cases with *full information*, neither sample size nor missing data was considered as a problem.

A second issue flagged by Tabachnick and Fidell (2007) was normality, linearity and the absence of outliers. These tests were conducted in Chapter 7.4.1. Where necessary, outliers were removed. However, many of the items showed evidence of negative skew. Although logarithmic transformation was an option, the data was left untransformed as skew was not extensive, nor considered suitably problematic to severely breach the assumption (Tabachnick and Fidell, 2007).

¹⁸ It is possible to delete cases using the pairwise method in some statistical programmes, although this is ill advised (Tabachnick and Fidell, 2007).

8.2.1.2. Method for Analysis and Rotation

In the first instance, a researcher must decide whether they wish to apply Principal Component Analysis or Factor Analysis (Kline, 1994). The fundamental difference is that the former defines the factor as a linear combination of observed items (Kline, 1994), whilst factor analysis entails extensive analysis of variance. Factor analysis is particularly suited to the role of scale development and was preferred in this context (DeVellis, 2003).

Within the factor analysis family, extraction of underlying themes can be achieved via the application of several methods. Whilst there are many, the foremost include: *principal axis factor analysis*, *minimal residual factor analysis*, and *maximum likelihood factor analysis*. Choosing between methods presents a challenge as the relative strengths and weaknesses of each are rarely discussed in the literature (Costello and Osborne, 2005). Fabrigar et al (1999) argued that the principal axis method is the most stable in situations where breaches of normality exist. This has also been the finding of Diamantopoulos and Souchon (1999) who used principal axis factoring in the scale development of 'export information use'. With rotation, as with extraction, there are a number of choices. Varimax, quartimax and equamax are the most common from the orthogonal umbrella. Direct oblimin, quartimin and promax are oblique. Orthogonal rotation differs in that extracted factors are uncorrelated and unidimensional, whereas oblique rotation is not. This makes orthogonal rotation especially appropriate for scale development (Kline, 1994; DeVellis, 2003). Of the orthogonal rotation techniques, varimax is the most common choice amongst researchers (Costello and Osborne, 2005).

For this study, principal axis factoring was chosen followed by varimax rotation. Eigenvalues were initially set to equal 1.0. An *eigenvalue* represents the amount of information captured by a factor (DeVellis, 2003). Each eigenvalue corresponds to the information (or portion of information) identified. The objective is therefore to attain an eigenvalue score as high as possible. A scree plot was also requested from MPLUS. This uses eigenvalues as a criterion for determining the number of factors to retain (DeVellis, 2003).

8.2.1.3. Number of Factors Retained

In the first attempt (see Appendix 6.1 for full output), the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was significant at the $p < .001$ level with a value of .951 indicating that factor analysis was appropriate for the data (Pallant, 2005). A total of seven factors with an eigenvalue of greater than 1.0 were extracted. The seven factor solution explained 61.46% of the variance in the items. The scree plot was also assessed (see Appendix 6.1). A change in the shape of the plot reveals the most appropriate number of factors to extract (Pallant, 2005). This showed that the seven factor solution was inconclusive and further information was sought. The rotated component matrix provided the item loadings for each of the seven factors (See Table 42). For ease of interpretation, items with factor loadings smaller than .4 were suppressed. Any factor loading less than .4 is considered to be weakly related to the underlying factor (Tabachnick and Fidell, 2007).

Table 42 - Rotated Component Matrix for the Seven-Factor EFA Solution

* problematic variables	Factor One	Factor Two	Factor Three	Factor Four	Factor Five	Factor Six	Factor Seven
Approachable employees	.836						
Polite employees	.816						
Friendly employees	.815						
Helpful employees	.787						
Knowledgeable employees	.676						
Product availability		.668					
Product variety		.668					
Product freshness		.644					
Product quality		.630					
Product sizes		.586					
Branded products		.584					
Product info		.510					
Parking			.555				
Returns policies			.555				
Additional Facilities			.536				
Complaints handling			.434				
Non grocery products			.425				
Opening times			.423				
Efficient checkouts			.410				
Store location *							
Helpful shoppers				.877			
Friendly shoppers				.863			
Likeminded shoppers				.793			
Price discount					.830		
Reduced to clear discount					.694		
Multi-buy discount					.578		
Competitive pricing					.426		
Seating areas*							
Spacious layout						.787	
Aisle width						.721	
Easy-to-navigate						.587	
Clean & tidy *						.551	.432
Pleasant smells							.625
Store lighting							.573
Reachable shelf height							.508
Pleasant sounds							.505
Trolley & basket quality							.464
Clear pricing labels *							

Four of the items in the store image scale were highlighted as problematic. Pallant (2005) suggested that for items with low factor loadings (<.40) and/or high cross-loading on two or more factors (>.40), two resolutions are available. The items can be retained but ignored, or deleted. As the objective was to identify an underlying structure for the scale, it was deemed appropriate that the four items were deleted (Hair et al, 2006). Therefore, *store location, seating areas, pricing labels, and clean and tidy*, were removed (See Table 43).

Table 43 - Items Deleted From the Store Image Scale

Item	Reason for Deletion
Store Location	Low factor loading score (<.40)
Seating Areas	Low factor loading score (<.40)
Pricing Labels	Low factor loading score (<.40)
Clean and Tidy	Cross-Loading on factor 6 (.55) and factor 7 (.43)

A second exploratory factor analysis was conducted with the four items omitted (see Appendix 6.2 for full output). The scree plot indicated a four or six factor solution based on the change in direction of the line. Given that the eigenvalue for the sixth factor was 1.20, the initial six-factor solution was retained over the four. Once again the varimax rotated component matrix was assessed for its substantive adequacy (see Table 44). With factor loadings suppressed to >.40, the six factor solution was stable with all items loading significantly on just one factor – no cross-loadings. This also explained a high proportion of the variance in the observed items. In total, 61.93% of variance was explained; ranging from 13.08% in factor one to 7.66% in factor six.

Table 44 - Rotated Component Matrix for the Six-Factor EFA Solution

	<i>Factor One</i>	<i>Factor Two</i>	<i>Factor Three</i>	<i>Factor Four</i>	<i>Factor Five</i>	<i>Factor Six</i>
Spacious layout	.714					
Aisle width	.676					
Store lighting	.647					
Easy-to-navigate	.643					
Pleasant smells	.611					
Reachable shelf height	.529					
Trolley & Basket quality	.517					
Pleasant sounds	.490					
Approachable employees		.835				
Polite employees		.819				
Friendly employees		.815				
Helpful employees		.785				
Knowledgeable employees		.676				
Product availability			.659			
Product variety			.658			
Product freshness			.629			
Product quality			.622			
Product sizes			.583			
Branded products			.573			
Product info			.500			
Helpful shoppers				.880		
Friendly shoppers				.858		
Likeminded shoppers				.796		
Returns policy					.632	
Complaints handling					.526	
Additional facilities					.506	
Non grocery products					.439	
Parking					.435	
Efficient checkouts					.426	
Price discounts						.849
Reduced to clear discount						.655
Multi-buy discount						.583
Competitive pricing						.435
Variance Extracted	13.08	12.98	11.50	8.71	7.98	7.66

8.2.1.4. Nature of the Factors

Tabachnick and Fidell (2007) suggested that factors are only tenable if the items underlying them are feasible in practice. Items retained in a factor should be substantively explainable and share more than just variance with other items. In the solution presented in Table 44, the six factors were assessed to show clear relationships. It should be noted that the factors were fairly similar to those delineated in the typology provided in Chapter 6. Overall, the proposed eight factor structure was replaced by six, with physical and environmental factors merging and accessibility disbanding. The working structure is now explained.

Factor one consisted of the items: *spacious layout, aisle width, store lighting, an easy-to-navigate store, pleasant smells, reachable shelf height, trolley and basket quality and pleasant sounds*. These items all related to the aesthetics and tangible quality of the store and its components (i.e. shelves, trolleys etc). Therefore factor one was labelled as **Store Environment**.

Factor two had the following loading items: *approachable employees, polite employees, friendly employees, helpful employees and knowledgeable employees*. Each of the items related to the quality of staff within the store. Accordingly, factor two was labelled as **Personnel Quality**.

Factor three consisted of the following items: *product availability, product variety, product freshness, product quality, product sizes, branded products, and clear product information*. These referred strongly to the selection,

availability and quality of products available. Therefore, factor three was labelled as **Merchandise**.

Factor four consisted of the items: *helpful shoppers, friendly shoppers and likeminded shoppers*, all of which related to the *type* of people who used the store. Subsequently this factor was referred to as **Clientele**.

Factor five included the items: *returns policy, complaints handling policy, additional facilities, non-grocery products, car-parking, and checkout policies*. These related to the characteristics of the store that have little to do with the environment or produce. They included aspects of the store's functional policy. This factor was labelled as **Services**.

Finally, factor six consisted of the following: *price discounts, reduced-to-clear discounts, multi-buy discounts, and competitive pricing policies*. Overall, these items referred to the availability and quality of promotions within the store, as well as its general pricing structure. Factor six was referred to as **Prices & Promotions**.

8.2.1.5. Reliability of Exploratory Factors

Following exploratory factor analysis, it was important to assess the *quality* of the factor structure. Testing the internal consistency of the scale is therefore advised (DeVellis, 2003). To this end, the most popular test is Cronbach coefficient alpha (α). This gives an indication of the proportion of variance in the scale scores attributable to the true score (DeVellis, 2003). Various problems

associated with factor analysis, including negative correlations and poor variability is identified in coefficient alpha scores.

Coefficient alpha ranges from 0 to 1.0 with higher values representing more desirable scales. Nunnally (1978) suggested that instruments used in basic research should have reliability of about .70 or higher. He added that increasing reliability beyond .80 is not necessary for instruments used in basic research. When coefficient alpha is below .70, it can be raised by 'dropping' items with low inter-item correlations (correlations with other items in the scale). However, DeVellis (2003) warned against this when coefficient alpha is already acceptable. Additionally, coefficient scores can increase as items are added to a scale. The same principle applies – if alpha is adequate, there is no need to attempt to improve it.

The six factors were subjected to an analysis of Cronbach coefficient alpha in SPSS version 17.0. Table 45 presents the reliability for store image and its corresponding factors. All of these had reliability scores above the recommended .70 threshold. As this was sufficient, no steps were taken to improve the coefficient scores in line with the suggestions of Nunnally (1978) and DeVellis (2003). It should be noted, however, that Cronbach coefficient alpha is not a sufficient gauge of scale quality. Further analysis for unidimensionality and construct validity was therefore needed (Gerbing and Anderson, 1988). At this stage, the reliability testing was primarily used to 'flag up' initial causes of concern, none of which were forthcoming.

Table 45 - Coefficient Alpha for the Store Image Scale

Scale (Factor)	Coefficient Alpha (α)
Store Environment	.90
Personnel	.95
Merchandise	.89
Clientele	.94
Services	.80
Prices & Promotions	.83
Overall	.96

The next section builds upon these findings by presenting the steps taken to further validate and purify the scale. The specification of a measurement model unites the store image and remaining scales using confirmatory factor analysis.

8.3. Scale Validation and Measurement Model Construction

In the previous section, the store image scale was assessed for its underlying structure. From this, six clear factors emerged. As the borrowed "model" scales, such as satisfaction, affective commitment, calculative commitment, future intentions, word-of-mouth and price insensitivity were already established in the marketing literature, it was not necessary to subject them to exploratory factor analysis. In this section, all scales are merged in specification of the hypothesised model. This was in line with step three of the research design process (see Figure 8), and incorporated the scale validation procedures advised by Gerbing and Anderson (1988), for new (Peters, 1979; Churchill, 1979; DeVellis, 2003) and existing scales (Anderson and Gerbing, 1988; Kline, 2005; Blunch, 2008; etc.). As such, confirmatory factor analysis was applied to validate and ultimately devise a measurement model for subsequent testing using structural equation modelling.

8.3.1. Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is often used in the later stages of scale development; usually following EFA. It is also a pre-cursor to structural equation modelling. This is called the *measurement model*, specifying the number of factors and ways in which the various indicators are related to them (Brown, 2006). Once the *measurement model* is satisfactory, the *structural model*, i.e. the relationship between factors, can be tested using structural equation modelling (Brown, 2006). This is a well accepted two-stage procedure in causal model research (Anderson and Gerbing, 1988).

Brown (2006) suggested that there are four stages in confirmatory factor analysis. These are model specification, estimation, evaluation and re-specification/re-evaluation. Stage four is only necessary when the model is not acceptable in the first instance. Each of these stages are now discussed with regard to the study dataset, which was analysed using MPLUS version 5.21.

8.3.1.1. *Model Specification*

In the first instance, the CFA model was specified using the scales developed and/or those established from the literature. An important assumption is model identification which imposes that the number of parameters to be estimated is less than the amount of information available in the covariance matrix. In the congeneric¹⁹ (i.e. unrestricted) CFA model, MPLUS estimates item factor

¹⁹ Congeneric models represent the standard in model development and validation. No cross-loading or residual correlations are specified.

loadings, factor variances and error residuals. Blunch (2008) suggested that the three-indicator rule assures that identification is evident. Every factor has at least three indicators, none of which are set to load on other factors. Error residuals should not be correlated; i.e. no association exists between residuals of any two indicators as this suggests an unmeasured relationship.

A second issue identified by Brown (2006) is the metric used for each latent variable. He states that, "by nature latent variables are unobserved and thus have no defined metrics (units of measurement)" (p.62). Therefore the units of measurement must be set by the researcher. The most popular method is to fix the metric to be the same as one of its indicators. When an indicator is specified like this, a portion of its variance is passed on. Typically, the first indicator in the scale is fixed to 1.0.

The measurement model was specified following Brown's advice. In keeping with this, each of the factors had a surfeit of indicators to achieve identification. Only the scales for *clientele*, *satisfaction*, *future intentions*, *word-of-mouth* and *price insensitivity* had three items²⁰. Items were set to load *only* on those constructs intended, with no cross-loading. The first item on each factor was used as the "marker" and set to 1.0. None of the error terms were correlated. In addition to estimating the loadings, variances and error residuals, the measurement model assessed the correlation between each of the factors. Brown (2006) suggested that strongly correlated factors (>.80) are sometimes

²⁰ The technical term for an observed variable in the latent context is indicator or item. These are used interchangeably.

found to be measuring a similar phenomenon and thus require intervention, i.e. deletion, or modification. Having specified the measurement model, the analysis was run with Maximum Likelihood (ML) estimation using raw data.

8.3.1.2. Model Evaluation

Brown (2006) asserted that the model should be evaluated on the basis of three major aspects. Firstly, overall goodness of fit statistics should be consulted. Secondly, areas of local strain should be identified in the model and thirdly, the interpretability and statistical significance of the model's parameters should be checked for untenable solutions. The latter two have immediate implications for re-specification should it be needed.

In the first instance, as a preliminary check, the correlation and covariance matrix for all variables was consulted. None of the factors were considered as 'too' strongly correlated to require intervention. The factor loadings for each of the items with standard errors and statistical significance at the $p < .05$ level are shown for unstandardised and standardised parameters in Table 46.

Global measures of fit were next assessed to analyse the appropriateness of the measurement model. Goodness of fit statistics represents several 'families' of fit indices based predominantly on the chi-square (X^2) test (Hooper et al, 2008). Broadly speaking, different statistical packages select the fit indices and researchers are obliged to use these. In general, tests are split between 'absolute' and 'incremental' fit indices. The former measures how well the data fits the model in comparison to having no model at all (Joreskog and Sorbom, 1993). Conversely, the latter does not use the chi-square test evaluated against

no model, but compares it to a baseline (McDonald and Ho, 2002). In the MPLUS statistical package, Muthen and Muthen (2009) provide the incremental fit indices: CFI, NFI, and absolute indices: Chi-Square, RMSEA.

Table 46 - Factor Loadings and Significance Tests for the Measurement Model

	Unstandardised Loadings	Standard Error	Two-Tailed P-Value	Standardised Loadings	Standard Error	Two-Tailed P-Value
Store Environment						
Spacious Layout (q15b)	1.000	0.000	N/A	0.802	0.018	0.000
Aisle Width (q15d)	1.011	0.053	0.000	0.741	0.022	0.000
Store Lighting (q15i)	0.764	0.039	0.000	0.789	0.019	0.000
Navigation Ease (q15a)	0.912	0.044	0.000	0.793	0.019	0.000
Pleasant Smells (q15j)	0.904	0.048	0.000	0.766	0.020	0.000
Reachable Shelf Height (q15h)	0.882	0.058	0.000	0.643	0.028	0.000
Trolley & Basket Quality (q15g)	0.797	0.045	0.000	0.730	0.023	0.000
Sounds (q15k)	0.907	0.054	0.000	0.696	0.025	0.000
Personnel Quality						
Helpful (q16a)	1.000	0.000	N/A	0.808	0.016	0.000
Friendly (q16b)	1.035	0.040	0.000	0.916	0.009	0.000
Knowledgeable(q16c)	1.052	0.042	0.000	0.904	0.010	0.000
Polite (q16d)	0.995	0.039	0.000	0.907	0.009	0.000
Approachable (q16e)	1.034	0.040	0.000	0.917	0.009	0.000
Merchandise						
Availability (q12d)	1.000	0.000	N/A	0.790	0.019	0.000
Variety (q12c)	0.973	0.053	0.000	0.750	0.022	0.000
Freshness (q12b)	0.846	0.049	0.000	0.729	0.023	0.000
Product Information (q12i)	0.789	0.044	0.000	0.748	0.022	0.000
Size Assortment (q12f)	1.036	0.057	0.000	0.741	0.022	0.000
Branded Ranges (q12e)	0.987	0.055	0.000	0.733	0.023	0.000
Quality (q12a)	0.884	0.052	0.000	0.707	0.024	0.000
Clientele						
Friendly Shoppers (q17a)	1.000	0.000	N/A	0.943	0.008	0.000
Helpful Shoppers (q17b)	1.016	0.025	0.000	0.939	0.008	0.000
Likeminded Shoppers (q17c)	0.949	0.029	0.000	0.874	0.012	0.000
Services						
Returns (q14h)	1.000	0.000	N/A	0.793	0.021	0.000
Complaints Handling (q14f)	1.146	0.062	0.000	0.761	0.022	0.000
Additional Facilities (q15l)	1.116	0.085	0.000	0.581	0.032	0.000
Non-grocery Products (q15h)	0.929	0.078	0.000	0.538	0.034	0.000
Parking Facilities (q13b)	0.659	0.057	0.000	0.520	0.035	0.000
Checkout Efficiency (q14g)	1.055	0.059	0.000	0.755	0.022	0.000

Prices & Promotions							
Price discounts (q14d)	1.000	0.000	N/A	0.853	0.018	0.000	
Reduced-to-clear Items (q14e)	0.951	0.049	0.000	0.755	0.023	0.000	
Multi-buy (q14c)	0.792	0.042	0.000	0.774	0.022	0.000	
Competitive Pricing (q14a)	0.604	0.042	0.000	0.618	0.031	0.000	
Satisfaction							
Sat 1 (q20a)	1.000	0.000	N/A	0.811	0.017	0.000	
Sat 2 (q20b)	1.148	0.049	0.000	0.877	0.013	0.000	
Sat 3 (q20c)	1.291	0.054	0.000	0.894	0.012	0.000	
Affective Commitment							
AC 1 (q22a)	1.000	0.000	N/A	0.837	0.014	0.000	
AC 2 (q22b)	0.708	0.040	0.000	0.516	0.010	0.000	
AC 3 (q22c)	1.107	0.040	0.000	0.911	0.009	0.000	
AC 4 (q22d)	1.144	0.040	0.000	0.926	0.008	0.000	
AC 5 (q22e)	1.001	0.040	0.000	0.854	0.013	0.000	
AC 6 (q22f)	0.850	0.037	0.000	0.809	0.017	0.000	
AC 7 (q22g)	0.846	0.037	0.000	0.808	0.016	0.000	
AC 8 (q22h)	0.810	0.039	0.000	0.766	0.019	0.000	
Calculative Commitment							
CC 1 (q22i)	1.000	0.000	N/A	0.736	0.023	0.000	
CC 2 (q22j)	1.143	0.059	0.000	0.835	0.017	0.000	
CC 3 (q22k)	1.144	0.060	0.000	0.856	0.015	0.000	
CC 4 (q22l)	0.914	0.060	0.000	0.682	0.026	0.000	
CC 5 (q22m)	0.896	0.055	0.000	0.756	0.022	0.000	
CC 6 (q22n)	1.046	0.061	0.000	0.786	0.020	0.000	
CC 7 (q22o)	0.734	0.057	0.000	0.582	0.031	0.000	
Future Intentions							
FI 1 (q23a)	1.000	0.000	N/A	0.791	0.019	0.000	
FI 2 (q23b)	1.599	0.066	0.000	0.933	0.010	0.000	
FI 3 (q23c)	1.680	0.076	0.000	0.872	0.013	0.000	
Price Insensitivity							
PS 1 (q23g)	1.000	0.000	N/A	0.843	0.016	0.000	
PS 2 (q23h)	1.055	0.047	0.000	0.846	0.016	0.000	
PS 3 (q23i)	1.062	0.044	0.000	0.875	0.014	0.000	

Overall, CFI (comparative fit index) is preferable to NFI (normed-fit index) because it is less sensitive to smaller sample sizes. Similarly, the RMSEA (root mean square error of approximation) is considered a useful statistic because it is able to approximate how well the model with unknown, but optimally chosen, parameter estimates would fit the population covariance matrix. The chi-square test is a useful statistic, but remains very sensitive to sample size, often suggesting insignificant models when other fit indices suggest otherwise. It is regularly ignored, therefore, in applied research (Brown, 2006). In this analysis, the fit statistics indicated that the model was unsatisfactory (see Table 47). The chi-square test ($X^2 = 4883.772$; $p \leq 0.001$) revealed that the model was not significantly better than 'no model', because the null hypothesis could not be rejected at the $p > .05$ level (Kline, 2005). However, this result was not of concern given the weaknesses of the test (Blunch, 2008). The CFI and TLI tests did provide cause for concern, revealing statistics of .88 and .87 respectively. It is widely accepted that a minimum of .90 is the cut-off for acceptable fit (Hu and Bentler, 1999). The RMSEA is acceptable at the recommended cut-off value of $< .06$ (Hu and Bentler, 1999). Overall, the fit indices suggested that the model did not fit the data at an acceptable level. This indicated that some areas of local strain were evident. The next section looks at modification and re-specification to improve model fit.

Table 47 - Model Fit Indices for the Initial Measurement Model

Model Fit Statistic	Recommended Level	Model Fit
<i>Chi-Square Test (X^2)</i>	$P \geq .05$	$X^2 = 4883.772$ ($df = 1644$) $p \leq 0.001$
CFI, TLI	CFI ≥ 0.90 TLI ≥ 0.90	.88 .87
RMSEA	RMSEA $\leq .06$.061

8.3.1.3. Model Modification and Re-estimation

Brown (2006) suggested that when the parameters in the measurement model do not perform as expected, or if the indices indicate a poor solution, it should be revised. In most statistical packages, a modification index is provided which locates areas of local strain. Modification scores provide an approximation of how much the chi-square statistic will decrease if a parameter is unconstrained (i.e. set to be free). In scale development and validation, this often identifies indicators that do not conform to the unidimensional assumption, or error residuals that share variance (Schumacker and Lomax, 2004). Researchers are advised to follow two tactics when modifying their model. The first is to consult the modification index and work through changes beginning at parameters with the largest modification scores. Secondly, changes should only be made if substantive and theoretical explanations are available (Boomsma, 2000). Purely data-driven modifications are often indefensible, sometimes resulting in poorly specified models (Kaplan, 1990). Additionally, a purely theory-driven method can sometimes result in the retention of poorly fitting parameters on the basis that they are substantively sound.

The modification index provided in MPLUS was assessed with the standardised residual covariance matrix. The latter is useful for identifying items in which the expected and observed scores do not match. In general, standardised residuals larger than 2.0 tend to suggest extra parameters should be added to the model (Brown, 2006). Modification indices (MI) also identify discrepancies with higher MI scores representing a larger change in model fit. In this analysis, MPLUS was asked to provide modification indices of 20 or higher. Potential modifications are given for factor loadings and residual covariances (i.e.

variance explained by some shared source other than the specified factor). The modification index revealed a small number of areas within the model that were affected by misspecification. As numerous modifications were provided by MPLUS, specific attention was given to parameter changes with scores exceeding 40, as long as they were theoretically tenable.

Any type of modification should be made iteratively; one step at a time (Boomsma, 2000). Very often, making changes to one problematic variable will affect other areas of strain in the model (Brown, 2006). However, it is important that the essence of the scales is not lost by modifications. Whether adding or removing parameters, the model should retain what it is supposed to measure. After reviewing the nature and cause of the eleven problematic indicators, it was decided that modifications were required to improve the validity of the measurement model. In total, eleven problematic items were identified. Table 48 presents a list of the items referred for modification, the reason for the problem, a substantive explanation as to why the problem may exist and how this was resolved in the current model. Five of the problematic items were distributed across the six store image factors: namely *spacious layout*, *clear product information*, *employee helpfulness*, *non-grocery products*, and *parking facilities*. With these items, two issues were evident: low factor loadings and/or high cross loadings on one or more unspecified factors. As a result, the parameters for these items were set to zero and removed from the analysis (Gerbing and Anderson, 1988).

In the originally specified model, the following items: *clear product information*, *spacious layout*, *employee helpfulness*, and *non-grocery products* were

assigned to load on the merchandise, physical environment, personnel and services factors. In all three cases, the modification index indicated that the model fit would be significantly improved if the constraint to load on alternative factors, i.e. allowed to cross-load, were lifted. In other words, this inferred that variance in the three indicators was also explained by an alternative factor/scale. As each of the cross-loading items could not be explained from a substantive point of view (see Table 48), these items were removed from the model to preserve unidimensionality. Anderson and Gerbing (1988) recommended this practice when simply swapping the offending indicator to an alternative scale fails to make a significant improvement. A further issue with the '*non-grocery products*' item, as well as the '*parking facilities*' indicator, was the strength of the factor loading. In both cases, the standardised factor loading was .52. This indicated, that very little of the variance in either indicator was explained by its specified underlying factor. Additionally, modification indices did not justify the re-specification of either item on an alternative factor. Whilst low factor loadings do not compromise the unidimensionality requirement (Anderson and Gerbing, 1988), they can compromise the construct validity – this will be discussed in more detail in Section 8.3.2. Based on the approximate cut-off value of <.60, the two indicators were subsequently removed from the model (Hu and Bentler, 1999).

The remaining modifications originated in the affective and calculative commitment scales (Allen and Meyer, 1990). In total, three items from each were omitted. In the affective commitment scale, AC2 and AC6 showed evidence of cross loading (see Table 48). Likewise CC1 and CC5 were found to share variance with factors other than the one specified. Subsequently, the

parameters for these items were set to zero and removed (Anderson and Gerbing, 1988). The modification index for the remaining two items, AC3 and CC2, suggested that the residuals for both items shared common variance. This implied that the specified factor was not able to explain some of the variance in the indicators. In some situations a resolution can be to separate items into a new factor (Brown, 2006). Brown (2006) suggested that residuals are allowed to correlate to resolve the high modification index. Nonetheless, Anderson and Gerbing (1988) asserted that this type of re-specification is only tenable when sufficient evidence for the relationship is known *a priori*. In all other situations, residual correlations should not be used “because they take advantage of chance, at a cost of only a single degree of freedom” (p.417). The action taken was to remove the highest scoring offenders from their respective scales (see Table 48). Making modifications to well established scales is not normally advised. However, in this context, both affective and calculative commitment was the resultant of combining scales from Fullerton (2003) and Gustafsson et al (2005). This decision was predominantly followed as neither construct had received wide uptake in the literature. A conservative strategy in which a larger number of items could be modified was therefore chosen.

Table 48 - Items Modified in the Measurement Model

Problematic Variable:	Highest Modification Index	Reason For Problem:	Substantively Explained?	Action:
Spacious Layout (Q15b) <i>Factor One: Store Environment</i>	<u>92.765</u>	Cross-loading The modification index indicated that there was a strong cross-loading for the Spacious Layout indicator on both Factor One (Store Environment) and Factor Five (Services).	YES: It could be plausible that respondents consider the layout of the store to be both part of the services offered by the store and the environment of the store itself. In this regard, respondents may consider the spaciousness of the layout to be a service tailored to specialist needs rather than solely an aspect of the environment.	Parameter set to zero (i.e. removed) to preserve unidimensionality
Product Information (Q12i) <i>Factor Three: Merchandise</i>	<u>47.254</u>	Cross-loading The modification index indicated that the Product Information indicator cross-loaded on Factor Two (Personnel).	YES: It could be tenable that the product information indicator is not considered as completely part of the store's merchandise offering. To some degree it is possible that respondents consider clear product information to initiate from the members of staff as well.	Parameter set to zero (i.e. removed) to preserve unidimensionality
Employee Helpfulness (Q16a) <i>Factor Two: Personnel</i>	<u>40.011</u>	Cross-loading The modification index indicated that the Employee Helpfulness indicator also cross loaded on Factor Five (Clientele)	POSSIBLY: It is probable that when judging the help that they receive in the store, respondents liken this in some way to the help from other clientele and not just staff.	Parameter set to zero (i.e. removed) to preserve unidimensionality
Non-Grocery Products (Q12h) <i>Factor Five: Services</i>	<u>46.533</u>	Low factor-loading The item loaded below acceptable levels (.54) on its specified factor (Services). The modification index indicated that the item could be explained by the Merchandise factor although it also loaded poorly on this.	YES: Non-grocery based products may be considered by many respondents as a non-conforming facet of their shopping. In other words, it may be so unique as a store attribute, that it doesn't relate to any other aspect (i.e. factor) of the store.	Parameter set to zero (i.e. removed) to preserve unidimensionality

Parking Facilities (Q13b) Factor Five: Services	<u>N/A</u>	<u>Low factor-loading</u> The item loaded below acceptable levels (.52) on its specified factor (Services). The modification index did not indicate it to be sufficiently related to any other factor.	NO: Theoretically (and statistically), the parking facilities indicator is unrelated to other aspects of the store (i.e. factors). This suggests that it is not appropriate within the Services Factor or any other.	Parameter set to zero (i.e. removed) to improve scale properties
Affective Commitment 2 (AC2)(Q22b) <i>"I feel emotionally attached to my store"</i>	<u>N/A</u>	<u>Low factor-loading</u> The factor loading for AC2 on the Affective Commitment factor was surprisingly low (.52). This indicates that the variance in the item was not well explained by the underlying factor. This also implied that the item did not fit effectively amongst the other items in the scale.	YES: It could be argued that grocery shopping is a low involvement process. As such, an emotional attachment to the grocery store may not be considered as a necessary feeling for being affectively committed in this context.	Parameter set to zero (i.e. removed) to improve scale properties
Affective Commitment 3 (AC3) (Q22c) <i>"My store has a great deal of personal meaning to me"</i>	<u>48.073</u>	<u>Untenable residual covariance</u> The modification index indicates that the error residual for AC3 covaries with other indicator residuals from the Affective Commitment scale/factor. This suggests that the factor could not explain some of the variance shared between other items, and that the errors could be correlated. This is an unfavourable action in scale development and scale validation.	NO: It is difficult to ascertain what is causing the residual error in AC3 and its covariates to not be explained by the common factor.	Removed from the Affective Commitment Scale to improve model fit.
Affective Commitment 6 (AC6) (Q22f) <i>"I think that my store takes the best care of its customers"</i>	<u>90.255</u>	<u>Cross-loading</u> The modification indices suggest that the variance in AC6 was explained well by several other factors in the model (store environment, personnel, merchandise, clientele, satisfaction etc.). This indicated that the item cross-loaded on other factors.	YES: It is plausible that affective commitment and the perception of how well a store cares for its customers are not as strongly related in the grocery context as in other industries. In what is essentially a product driven environment where customer "care" is not necessarily as critical, it could be argued that affective commitment is formed by other means.	Parameter set to zero (i.e. removed) to preserve unidimensionality

<p>Calculative Commitment 1 (CC1) (Q22i) <i>"It would be hard for me to swap stores even if I wanted to"</i></p>	<p><u>41.890</u></p>	<p><u>Cross-loading</u> The modification index suggested that CC1 is strongly related to (i.e. cross-loads on) Factor Seven (satisfaction) and Factor Eight (Affective Commitment). This indicates that the variance in CC1 is explained by more than just the calculative commitment factor it was specified to.</p>	<p>YES: It is possible that respondents do not consider calculative commitment as the only reason why it would be hard to swap stores. Plausibly, respondents may believe that there satisfaction level and affective commitment to a store determines how difficult (or easy) it is to swap.</p>	<p>Parameter set to zero (i.e. removed) to preserve unidimensionality</p>
<p>Calculative Commitment 5 (CC5)(Q22m) <i>"It pays economically to be a customer of my current store"</i></p>	<p><u>112.727</u></p>	<p><u>Cross-loading</u> The modification index indicated that CC5 cross loaded on both Factor Six (Promotions and Prices), Factor Seven (Satisfaction), and Factor Nine (Calculative Commitment) as specified. This suggests that some of the variance in CC5 was attributable to the other factors.</p>	<p>YES: It could be argued that shopping at a store which "pays off economically" may not necessarily indicate that the person is calculatively committed to that store. Satisfaction may also explain a proportion of the variance in this item because shoppers judge the implication of their economic investment to be a trade off with the satisfaction they will attain from doing so.</p>	<p>Parameter set to zero (i.e. removed) to preserve unidimensionality</p>
<p>Calculative Commitment 2 (CC2)(Q22j) <i>"My life would suffer disruption if I switched stores now"</i></p>	<p><u>43.727</u></p>	<p><u>Untenable residual covariance</u> The modification index indicated that the error residual for CC2 covarys with CC6. This suggests that the factor does not explain some of the variance shared between the two items, and that the errors could have been allowed to correlate. This is an unfavourable action in scale development and scale validation.</p>	<p>Possibly: The two items (CC2 and CC6) are very similar and it could be argued that substantial amounts of residual error – i.e. variance not explained by the calculative commitment factor is explained by a shared common cause. Nonetheless, this relationship was unexpected and decreases model fit.</p>	<p>Removed from the Calculative Commitment Scale to improve model fit.</p>

Following the modifications outlined in Table 48, the measurement model was reduced by eleven items. Nonetheless, all of the factors retained at least three or more indicators (Blunch, 2008). Several scales; namely clientele, prices and promotions, satisfaction, future intentions, word-of-mouth and price insensitivity, required no refinement whatsoever. Although the affective and calculative commitment scales required substantial modifications to attain unidimensionality, this was expected. Before the re-specifications were estimated, an expert panel of four methodologists from Plymouth Business School assessed the trimmed model. Specific attention was given to whether the factors had retained the essence of what they were aiming to measure. For example, both affective and calculative commitment was examined to make sure the underlying facet of commitment was evident in the reduced set of items. The original paper by Allen and Meyer (1990) was used as a reference for this. In all cases, it was concluded that the factors still represented the intended measures. The model was re-estimated for a second time, under the same conditions as before (e.g. MPLUS, 524 cases etc.). Initial inspection of the correlations and the standardised residual matrix revealed no significant problems.

The fit statistics showed that the measurement model was acceptable at established levels (see Table 49). Once again the chi-square test ($\chi^2 = 2439.584$; $df = 1061$; $p \leq .001$) was significant, suggesting that the null hypothesis – i.e. the modified model is not significantly better than no model – should be accepted. The sensitivity problems associated with chi-square have been discussed previously (Blunch, 2008). Additionally, the remaining statistics indicated good fit. For example CFI and TLI (.93 and .92) were above the

established .90 threshold. Similarly, the RMSEA was .05; significantly lower than the .06 recommended level.

Table 49- Fit Statistics for the Re-specified Measurement Model

Model Fit Statistic	Recommended Fit	Current Model Fit
<i>Chi-Square Test (χ^2)</i>	$P \geq .05$	$\chi^2 = 2439.584$ ($df = 1061$) $P \leq 0.001$
CFI, TLI	CFI ≥ 0.90 TLI ≥ 0.90	.93 .92
RMSEA	RMSEA $\leq .06$.050

The modification indices were also assessed and no high modification scores were evident. The majority of scores ranged between MI = 20 and MI = 30. The model was therefore left unchanged. The model parameters were then analysed. Appendix 7.1 provides the intercepts, residuals and factor variances. The factor loadings for the unstandardised and standardised measurement model are provided in Table 50. With the exception of one item in the calculative commitment scale (CC7), all indicators load on their corresponding factor above the threshold (.60). In addition, all indicators were significant at the $p \leq .01$ level. Nonetheless, whilst the model demonstrated a good level of fit, this alone should not be considered as acceptable validity or reliability. The following section presents the tests for these.

Table 50 - Final Measurement Model with Factor Loadings, Standard Errors and Significance

	Unstandardised Loadings	Standard Error	Two-Tailed P-Value	Standardised Loadings	Standard Error	Two-Tailed P-Value
Store Environment						
Aisle Width (q15d)	1.000	0.000	N/A	0.679	0.026	0.000
Store Lighting (q15i)	0.847	0.051	0.000	0.810	0.018	0.000
Navigation Ease (q15a)	0.927	0.059	0.000	0.746	0.022	0.000
Pleasant Smells (q15j)	1.012	0.063	0.000	0.793	0.019	0.000
Reachable Shelf Height (q15h)	0.981	0.071	0.000	0.662	0.027	0.000
Trolley & Basket Quality (q15g)	0.844	0.057	0.000	0.749	0.022	0.000
Pleasant Sounds (q15k)	1.017	0.068	0.000	0.722	0.023	0.000
Personnel Quality						
Knowledgeable(q16c)	1.000	0.000	N/A	0.813	0.016	0.000
Friendly (q16b)	0.990	0.040	0.000	0.883	0.011	0.000
Polite (q16d)	1.011	0.037	0.000	0.928	0.008	0.000
Approachable (q16e)	1.043	0.039	0.000	0.932	0.008	0.000
Merchandise						
Availability (q12d)	1.000	0.000	N/A	0.804	0.018	0.000
Variety (q12c)	0.962	0.051	0.000	0.754	0.022	0.000
Freshness (q12b)	0.782	0.048	0.000	0.685	0.026	0.000
Size Assortment (q12f)	1.036	0.056	0.000	0.754	0.022	0.000
Branded Ranges (q12e)	0.992	0.053	0.000	0.749	0.022	0.000
Product Quality (q12a)	0.866	0.051	0.000	0.704	0.025	0.000
Clientele						
Friendly Shoppers (q17a)	1.000	0.000	N/A	0.943	0.008	0.000
Helpful Shoppers (q17b)	1.017	0.025	0.000	0.940	0.008	0.000
Likeminded Shoppers (q17c)	0.950	0.029	0.000	0.875	0.012	0.000
Services						
Returns Policy (q14h)	1.000	0.000	N/A	0.806	0.021	0.000
Complaints Handling (q14f)	1.148	0.060	0.000	0.755	0.022	0.000
Additional Facilities (q15f)	1.037	0.084	0.000	0.550	0.034	0.000
Checkout Efficiency (q14g)	1.050	0.059	0.000	0.764	0.022	0.000
Prices & Promotions						
Price discounts (q14d)	1.000	0.000	N/A	0.851	0.018	0.000
Reduced-to-clear Items (q14e)	0.952	0.049	0.000	0.755	0.023	0.000
Multi-buy Promotions (q14c)	0.795	0.042	0.000	0.775	0.022	0.000
Competitive Pricing (q14a)	0.606	0.042	0.000	0.618	0.031	0.000

Satisfaction						
Sat 1 (q20a)	1.000	0.000	N/A	0.812	0.017	0.000
Sat 2 (q20b)	1.146	0.049	0.000	0.877	0.013	0.000
Sat 3 (q20c)	1.290	0.054	0.000	0.893	0.012	0.000
Affective Commitment						
AC 1 (q22a)	1.000	0.000	N/A	0.821	0.016	0.000
AC 4 (q22d)	1.096	0.045	0.000	0.870	0.013	0.000
AC 5 (q22e)	1.058	0.043	0.000	0.885	0.012	0.000
AC 7 (q22g)	0.897	0.039	0.000	0.839	0.015	0.000
AC 8 (q22h)	0.878	0.040	0.000	0.814	0.017	0.000
Calculative Commitment						
CC 3 (q22k)	1.000	0.000	N/A	0.854	0.018	0.000
CC 4 (q22l)	0.811	0.049	0.000	0.691	0.027	0.000
CC 6 (q22n)	0.942	0.046	0.000	0.809	0.020	0.000
CC 7 (q22o)	0.644	0.049	0.000	0.582	0.033	0.000
Future Intentions						
FI 1 (q23a)	1.000	0.000	N/A	0.791	0.019	0.000
FI 2 (q23b)	1.600	0.066	0.000	0.934	0.010	0.000
FI 3 (q23c)	1.679	0.076	0.000	0.871	0.013	0.000
Word-of-Mouth						
WOM 1 (q23d)	1.000	0.000	N/A	0.878	0.012	0.000
WOM 2 (q23e)	1.019	0.033	0.000	0.928	0.010	0.000
WOM 3 (q23f)	1.094	0.042	0.000	0.851	0.015	0.000
Price Insensitivity						
PS 1 (q23g)	1.000	0.000	N/A	0.843	0.016	0.000
PS 2 (q23h)	1.054	0.047	0.000	0.845	0.016	0.000
PS 3 (q23i)	1.063	0.044	0.000	0.876	0.014	0.000

8.3.2. Construct Validity and Reliability Assessment

When measurement scales have been developed or verified, the confirmation that they are valid and reliable is important for asserting their relevance to theory (Carmines and Zeller, 1979). Validity and reliability are distinct concepts. Reliability determines whether a measuring instrument performs consistently on repeated occasions (Fowler, 2009). On the other hand, validity refers to the ability of a measuring instrument to measure what it is intended to measure. It is worth noting that this is not achieved by validating the instrument itself, but in relation to the purpose for which it is being used (Carmines and Zeller, 1979). Construct validity is an important form of validity in model development and scale validation. Fundamentally, it is concerned with the extent to which a particular measure relates to others consistent with theoretically derived hypotheses; i.e. the measurement model (Carmines and Zeller, 1979). Construct validity can be partitioned into two defining tests; *convergent validity* and *discriminant validity*.

8.3.2.1. *Convergent Validity, Discriminant Validity and Internal Consistency*

Convergent validity requires that the indicators in a factor/construct correlate positively with other items in a scale (Peters, 1981). Essentially, the observed items should all work together to explain the underlying factor. Convergent validity is statistically measured, but relies on the *content validity* of the scale; i.e. the scale does actually relate to the measure claimed (Carmines and Zeller, 1979). As an expert panel had been used to verify that the content in the model was valid, this was not a primary concern. Contrary to convergent validity, discriminant validity confirms that a factor/construct does not correlate strongly

with substantively unrelated factors. As discussed previously, a popular method for confirming that convergent validity exists is the Average Variance Explained (AVE) equation - first suggested by Fornell and Larcker (1981). They emphasised that a factor/construct can only be deemed valid if it is able to explain 50% or more variance in the indicators. Average Variance Extracted (AVE) for factor X with indicators x_1, x_2, \dots, x_n is measured by:

$$AVE = \frac{\sum[\lambda_i^2]\text{Var}(X)}{\sum[\lambda_i^2]\text{Var}(X)+\sum[\text{Var}(\varepsilon_i)]}$$

where $\rho_{vc(n)}$ is the Average Variance Explained, λ_i is the loading of x_i on X, Var denotes variance, ε_i is the measurement error of x_i , and Σ denotes a sum (Fornell & Larcker, 1981).

Each of the factors in the measurement model was subjected to the AVE test (see Table 51). Discriminant validity was analysed in a similar way. Using the definition given by Fornell and Larcker (1981), the squared correlations between factors were compared to the AVE scores. Discriminant validity is believed to exist when the AVE score is higher than the squared correlation for that factor with any other. Table 51 shows that the AVE for every factor in the measurement model is above the .50 threshold. What is more, the newly developed 'store image' scale showed excellent convergent validity with all factors explaining more than 54% of the variance in the observed items. Discriminant validity was also evident in all factors. The correlation matrix in Table 52 provides the factor and squared correlations. For each of the factors, the AVE was larger indicating discriminant validity was attained.

The internal consistency (reliability) of the factors was also assessed using Cronbach coefficient alpha. In all cases, the coefficient alpha (α) scored above the traditionally accepted threshold of .70 (DeVellis, 2003). This indicated that the factors were internally consistent (see Table 51).

Table 51 - Construct Validity in the Measurement Model

Latent Construct	Convergent Validity	Discriminant Validity	Scale Reliability
Store Environment	Evident (AVE= .56)	Evident	Evident $\alpha = .87$
Personnel Quality	Evident (AVE =.79)	Evident	Evident $\alpha =.94$
Merchandise	Evident (AVE= .55)	Evident	Evident $\alpha =.88$
Clientele	Evident (AVE = .84)	Evident	Evident $\alpha =.94$
Services	Evident (AVE = .54)	Evident	Evident $\alpha =.78$
Prices and Promotions	Evident (AVE= .58)	Evident	Evident $\alpha =.83$
Satisfaction	Evident (AVE= .74)	Evident	Evident $\alpha =.89$
Affective Commitment	Evident (AVE= .71)	Evident	Evident $\alpha =.93$
Calculative Commitment	Evident (AVE= .72)	Evident	Evident $\alpha =.82$
Future Intentions	Evident (AVE= .75)	Evident	Evident $\alpha =.88$
Word-of-Mouth	Evident (AVE= .78)	Evident	Evident $\alpha =.91$
Price Insensitivity	Evident (AVE= .73)	Evident	Evident $\alpha =.89$

Table 52 - Correlations and Squared Correlations in the Measurement Model

1	1.000	.438	.560	.299	.540	.403	.550	.387	.032	.216	.331	.160
2	.662**	1.000	.310	.264	.446	.210	.386	.284	.023	.155	.290	.118
3	.750**	.557**	1.000	.186	.536	.444	.576	.346	.018	.187	.311	.168
4	.547**	.514**	.431**	1.000	.247	.166	.226	.280	.049	.099	.188	.157
5	.736**	.668**	.732**	.497**	1.000	.446	.498	.327	.029	.207	.321	.143
6	.635**	.458**	.666**	.408**	.668**	1.000	.360	.256	.055	.142	.257	.106
7	.746**	.621**	.759**	.475**	.706**	.600**	1.000	.560	.085	.288	.527	.256
8	.622**	.533**	.588**	.529**	.572**	.506**	.748**	1.000	.212	.334	.576	.430
9	.174**	.150**	.134**	.221**	.172**	.235**	.291**	.460**	1.000	.283	.158	.360
10	.465**	.394**	.433**	.314**	.455**	.377**	.537**	.578**	.532**	1.000	.436	.425
11	.576**	.539**	.558**	.434**	.567**	.507**	.726**	.759**	.398**	.660**	1.000	.363
12	.401**	.343**	.329**	.396**	.379**	.325**	.506**	.656**	.600**	.652**	.603**	1.000
	Store Environment (1)	Personnel (2)	Merchandise (3)	Clientele (4)	Services (5)	Price & Promotions (6)	Satisfaction (7)	Affective Commitment (8)	Calculative Commitment (9)	Future Intentions (10)	Word-of-Mouth (11)	Price Insensitivity (12)

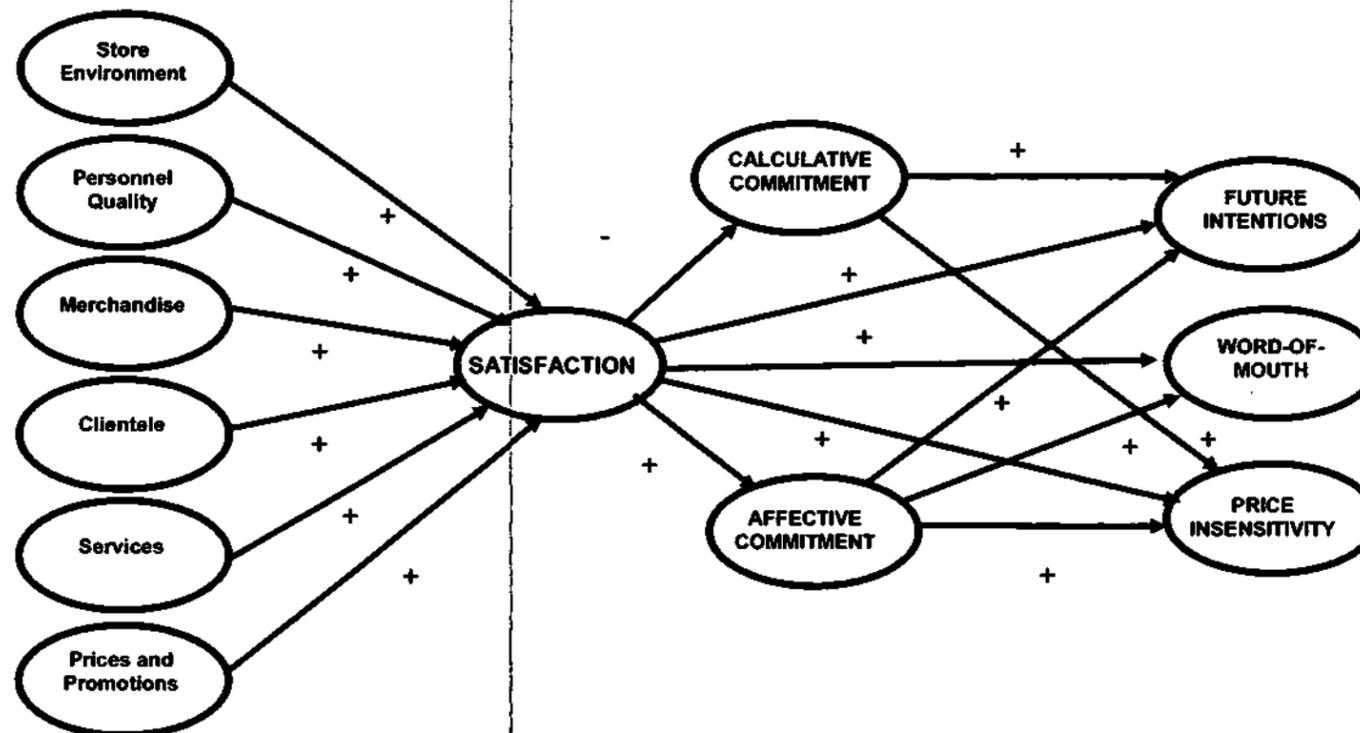
(** Significant at the $p < 0.01$ level; Bottom diagonal = correlations; Top diagonal = squared correlations)

The confirmatory factor analysis in this section achieved three goals. Firstly, the store image scale was further developed and refined into six clear and unique constructs. Ambiguous and misbehaving items were dropped from the factors. Convergent and discriminant validity confirmed that the constructs were valid and Cronbach coefficient alpha showed high levels of internal consistency in the newly developed scale. Secondly, the existing scales *borrowed* for use in the hypothesised model were tested for construct validity and reliability. With the exception of the affective and calculative commitment factors which were modified, the satisfaction, future intentions, word-of-mouth and price insensitivity constructs behaved as expected. Finally, and overall, the measurement model synergising all of the factors showed an acceptable level of fit, indicating its appropriateness for structural modelling.

8.4. Model Testing

In this section, the causal associations between factors are analysed in line with the hypotheses formulated in Section 4.6. This represents stage six in the research design process discussed in Section 5.3. Figure 21 presents the hypothesised model. The model is tested using structural equation modelling (SEM), which directly incorporates the CFA measurement model and structural model frameworks (see Schumacker and Lomax, 2004; Kline, 2005; Blunch, 2008).

Figure 21 - Hypothesised Structural Model with Direct Hypothesised Effects



8.4.1. Structural Equation Modelling

Structural equation modelling (SEM) combines factor analysis and causal modelling (Hox and Bechger, 1998). Based on the formation of latent constructs through CFA, causal relationships, similar to those used in multiple regression, are tested between latent constructs. As Hox and Bechger (1998) observed, SEM is often more complex than multiple regression in that it incorporates both latent factors and observed variables.

SEM follows an almost identical procedure to CFA incorporating specification, estimation and modification stages (Schumacker and Lomax, 2004). Nonetheless, when the CFA measurement model has been effectively derived, modification to the measurement aspects (i.e. *measurement parameters*) of the model (factor loadings, error residuals, intercepts) need not be adjusted (Schumacker and Lomax, 2004). Any changes are reserved for the *structural parameters*²¹. This process will now be discussed in the context of the hypothesised model.

8.4.1.1. *Model Specification*

The measurement part of the model was organised as before. The fundamental difference, however, was that regression paths were specified between factors (see Figure 21). Once again, MPLUS version 5.21 was used for the analysis. Both unstandardised and standardised output was requested. Similarly, the

²¹ Structural parameters refer to the factor regressions between constructs.

default maximum likelihood estimation was preferred over partial least squares, generalised least squares, etc. The full sample (524 cases) was used in the analysis. As in CFA, empirical identification of the model was tested beforehand to ensure *identification* (Schumacker and Lomax, 2004). The assumptions of multivariate analysis, discussed in Chapter 7, also applied to the SEM. It should be noted that deviations from multivariate normality are rarely problematic in SEM if they are not severe (Blunch, 2008). For this reason, issues of negative skew were not considered significant enough to compromise the analysis.

8.4.1.2. Model Estimation

The model executed normally and was assessed using the same fit indices as before; model chi-square test, CFI, TLI and RMSEA. The structural model showed a level of fit (CFI = .92; TLI = .92) above minimum thresholds. The RMSEA statistic was .051, significantly below the .06 cut off value. The model chi-square test ($\chi^2 = 2578.218$; $df = 1092$; $p \leq 0.001$) was once again significant. Nonetheless, the chi-square test is renowned for being sensitive to sample size and was thus ignored (see Table 53). The model otherwise showed a good level of fit to the data.

Table 53 - Fit Statistics for the Full Structural Model

Model Fit Statistic	Recommended Fit	Current Model Fit
Chi-Square Test (χ^2)	$P \geq .05$	$\chi^2 = 2578.218$ ($df = 1092$) $p \leq 0.001$
CFI, TLI	CFI ≥ 0.90 TLI ≥ 0.90	.92 .92
RMSEA	RMSEA $\leq .06$.051

An important aspect of causal modelling is to identify how much variance is explained by the factors. For this, the R^2 statistic was used. The main emphasis is on measuring the variability in a dependent variable(s) explained by a theoretical meaningful set of independent variables/factors (Huberty, 2003). For example, satisfaction was hypothesised as being explained by the six store image factors.

Table 54 - Analysis of R2 for Endogenous Factors in the Structural Model

Latent Construct	R-Square (R^2)	Factor Residual Variance
Satisfaction	.69**	0.306**
Affective Commitment	.59**	0.407**
Calculative Commitment	.10**	0.901**
Future Intentions	.45**	0.547**
Word-of-Mouth	.64**	0.360**
Price Insensitivity	.52**	0.479**

** = significant at the $p < .01$ level

Table 54 shows that the construct best explained in the model was customer satisfaction. As such, 69% of the variance in customer satisfaction was attributed to the variance in: store environment, personnel, merchandise, clientele, services and prices and promotions. The word-of-mouth construct was similarly well explained by satisfaction, affective commitment and calculative commitment (64%). Affective commitment was also well explained in the model. In total, customer satisfaction explained approximately 59% of the variance in affective commitment. The least explained factors were calculative commitment (10%) and future intentions (45%). In the model, satisfaction was the only predictor of calculative commitment, although not at a strong level. This was not entirely surprising since calculative commitment is often bound by a number of

influences outside of satisfaction, e.g. mobility, geographical location, etc. Similarly, the 'future intentions' of older shoppers were less predictable. Whilst much of the variance (45%) was explained by satisfaction, affective commitment and calculative commitment, other factors may also be in control of what older shoppers intend to do in the future. For example, some people may be looking to move to a new area, some may feel that their health will deteriorate making shopping at their current store difficult, whilst others may be reliant on transport that they are unsure will be available in the future.

8.4.1.3. Model Evaluation

Following the estimation of the model, the next objective was to review the specific relationships between constructs. Table 55 shows the unstandardised and standardised solutions. Standard error estimates and significance values are also given. For ease of interpretation, focus was given predominantly to the standardised estimates. It should be remembered that this model was specified for the entire sample (i.e. pooled data) and was therefore an overview of the total dataset.

In determining satisfaction, store environment (0.244), personnel quality (0.147), merchandise (0.346) and services (0.113) were all significant predictors. However, clientele and prices and promotions were both found to be insignificant. This implied that a one-point increase²² in either construct had an insignificant effect on customer satisfaction. On the contrary, the model shows

²² A one-point increase in the independent factor relates to the scale it was measured with. In this study, a 7-point scale was used.

that merchandise had the greatest influence on satisfaction. As such, a one-point increase in merchandise led to an increase in satisfaction of 0.346-points. Store environment also had a large influence on satisfaction. A one-point increase led to a 0.244 point increase. Quality of the personnel had the third largest influence and services the fourth. Overall, this pointed towards merchandise and store environment being the most important drivers of satisfaction. Similarly, clientele and prices and promotions were the least.

Satisfaction had a greater influence on affective commitment (0.770) than calculative commitment (0.315) – both significant at the $p \leq .01$ level. This indicated that a one-point increase in satisfaction had a 0.77-point increase in affective commitment and a 0.32-point increase in calculative commitment. As such, improving satisfaction had more than twice the effect on affective commitment than on calculative commitment.

Regarding shoppers future intention to use the grocery store, satisfaction (0.291), affective commitment (0.209) and calculative commitment (0.359) all had a significant positive influence. Of these, the intention to use the same store in the future was most strongly influenced by calculative commitment. A one-point increase in calculative commitment led to a 0.36-point increase in future intentions. Having a stronger affective commitment only increased the intention to use the store in the future by 0.21-points.

The word-of-mouth construct was significantly and positively influenced by satisfaction (0.399), affective commitment (0.415) and calculative commitment (0.099). Both satisfaction and affective commitment had four times more

influence on word-of-mouth communications than calculative commitment. For example, a one-point increase in affective commitment led to a 0.42-point increase in positive word-of-mouth comments compared to .09-point increase with calculative commitment.

Affective commitment (0.458) and calculative commitment (0.404) had a significant positive influence on price insensitivity. However, satisfaction did not have a significant effect and was therefore not a reliable predictor of how sensitive older respondents were to potential price increases. Nonetheless, an increase in the relationship between customer and store, either affective or calculative, had a positive impact on willingness to pay higher prices. The greatest influence on price insensitivity was affective commitment.

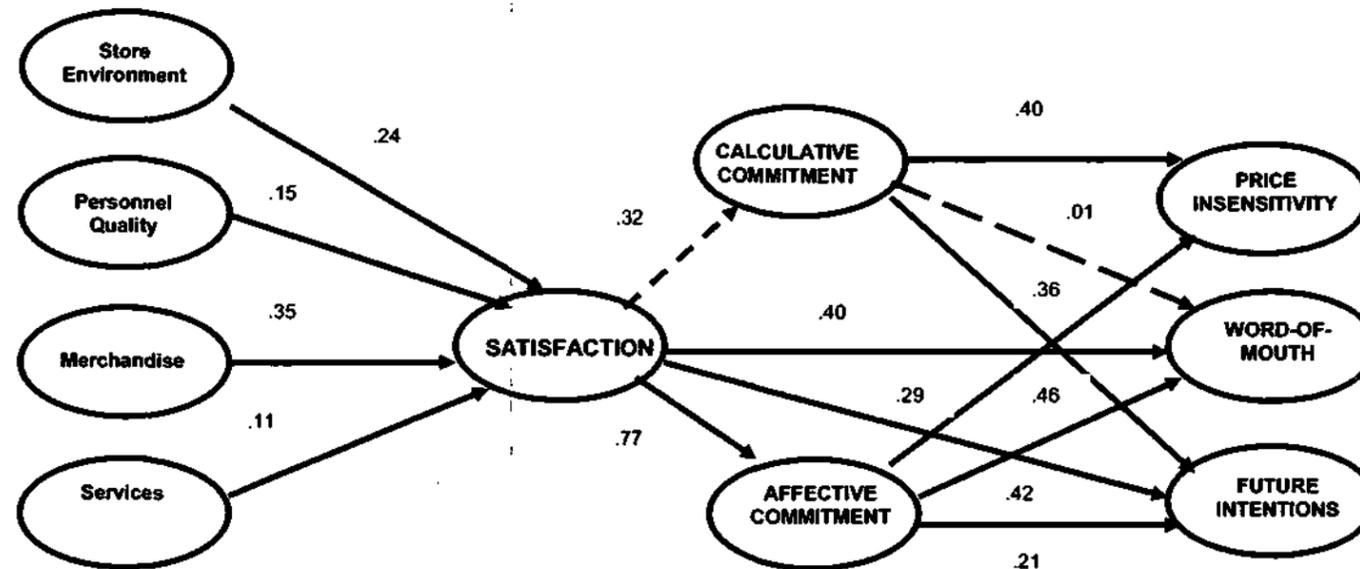
Table 55 - Direct Path Estimates for the Structural Model

Direct Structural Paths		Un- standardised Estimates	Standard Error	Two-Tailed P-Value	Standardised Estimates	Standard Error	Two-Tailed P-Value
Store Environment	→ Satisfaction	0.251	0.066	0.000	0.244	0.063	0.000
Personnel Quality	→ Satisfaction	0.150	0.048	0.002	0.147	0.046	0.001
Merchandise	→ Satisfaction	0.371	0.067	0.000	0.346	0.060	0.000
Clientele	→ Satisfaction	0.056	0.032	0.076	0.067	0.038	0.076
Services	→ Satisfaction	0.114	0.069	0.045	0.113	0.067	0.045
Prices & Promotions	→ Satisfaction	0.046	0.040	0.246	0.059	0.050	0.244
Satisfaction	→ Affec Commitment	1.170	0.072	0.000	0.770	0.022	0.000
Satisfaction	→ Calc Commitment	0.593	0.093	0.000	0.315	0.045	0.000
Satisfaction	→ Future Intentions	0.283	0.065	0.000	0.291	0.064	0.000
Satisfaction	→ Word-of-Mouth	0.591	0.084	0.000	0.399	0.053	0.000
Satisfaction	→ Price Insensitivity	0.095	0.106	0.371	0.057	0.064	0.369
Affec Commitment	→ Future Intentions	0.134	0.044	0.002	0.209	0.068	0.002
Affec Commitment	→ Word-of-Mouth	0.405	0.058	0.000	0.415	0.056	0.000
Affec Commitment	→ Price Insensitivity	0.498	0.075	0.000	0.458	0.066	0.000
Calc Commitment	→ Future Intentions	0.185	0.024	0.000	0.359	0.042	0.000
Calc Commitment	→ Word-of-Mouth	0.078	0.029	0.007	0.099	0.037	0.007
Calc Commitment	→ Price Insensitivity	0.353	0.040	0.000	0.404	0.041	0.000

In Section 4.6, a series of hypotheses were specified regarding the model and the predicted relationships between constructs. These were formulated using theory. The findings presented in the previous section showed how constructs in the model were related. This will now be discussed using the original hypotheses.

Figure 22 presents the final model highlighting each of the structural parameters. In the diagram three different lines are illustrated. The thick bold lines represent relationships that were hypothesised and were significant. The thin dotted lines represent relationships which were hypothesised but not supported by the data. Finally, the thick dotted lines indicate significant relationships that were not hypothesised in the model, as well as significant relationships that were wrongly specified. The path between calculative commitment and word-of-mouth is the only path that was not initially expected. Similarly, the relationship between satisfaction and calculative commitment was specified as negative, but was revealed as positive.

Figure 22 - Full Structural Model with Significant and Insignificant Paths



Relationship Key

- Significant Hypothesised Relationship
- - - - -> Significant Non-Hypothesised Relationship

Table 56 illustrates each of the hypotheses. It can be noted that the majority of the hypothesised relationships were supported by the model. However, there were several exceptions in which they were not supported. For example, H1 stated that the store image factors would have a significant positive influence on satisfaction. The findings suggested that this assertion can only be partially supported as two factors, clientele and prices/promotions, did not have a significant effect. Another relationship that did not behave as expected is captured by H6. It was expected that satisfaction would directly and positively influence price insensitivity. In other words, as satisfaction rises, sensitivity to higher prices falls (insensitivity increases). The model shows that the influence was not directly significant. The final two rejected hypotheses were H3 and H11. The first related to the influence of satisfaction on calculative commitment. A negative relationship was hypothesised. However, the data suggested that the influence was actually positive. Secondly, H11 stated that an increase in calculative commitment would have no influence on word-of-mouth. This was not supported by the data, indicating a significant positive influence.

Table 56 - Hypotheses Outcomes

Hypothesis	Statement	Actual Relationship Between Constructs	Hypothesis Outcome
H1, H1a-H1n...	<i>Satisfaction Drivers n, n+1... will have a significant positive influence of satisfaction.</i>	H1a Store Environment = +ve H1b Personnel = +ve H1c Merchandise = +ve H1d Clientele = N.S H1e Services = +ve H1f Price & Promotion = N.S	Accepted Accepted Accepted Rejected Accepted Rejected
H2	<i>Satisfaction will have a significant positive influence on Affective Commitment.</i>	+ve	Accepted
H3	<i>Satisfaction will have a significant negative influence on Calculative Commitment.</i>	+ve	Rejected
H4	<i>Satisfaction will have a significant positive influence on Future Intentions.</i>	+ve	Accepted
H5	<i>Satisfaction will have a significant positive influence on Word-of-Mouth.</i>	+ve	Accepted
H6	<i>Satisfaction will have a significant positive influence on Price Insensitivity.</i>	N.S	Rejected
H7	<i>Affective Commitment will have a significant positive influence on Future Intentions.</i>	+ve	Accepted
H8	<i>Affective Commitment will have a significant positive influence on Word-of-Mouth.</i>	+ve	Accepted
H9	<i>Affective Commitment will have a significant positive influence on Price Insensitivity.</i>	+ve	Accepted
H10	<i>Calculative Commitment will have a significant positive influence on Future Intentions.</i>	+ve	Accepted

H11	<i>Calculative Commitment will have a non-significant influence on Word-of-Mouth.</i>	+ve	Rejected
H12	<i>Calculative Commitment will have a significant positive influence on Price Insensitivity.</i>	+ve	Accepted

8.5. Summary and Conclusions

This chapter has made some significant contributions to fulfilling the objectives stated in Chapter 1 (i.e. objective 2). Notably, the store image scale was reduced into six independent constructs; namely store environment, personnel, merchandise, clientele, services and prices & promotions. It should be noted that this finding was similar to the provisional scale structure resulting from qualitative interviews, with the exception of two differences discussed earlier in this chapter. Further validation using confirmatory factor analysis refined the store image and borrowed scales in to an extended measurement model. This showed that the synergy between the twelve factors was acceptable at established levels of model fit. Analyses for scale construct validity and reliability indicated all were above recognised standards. This showed that, on the whole, the borrowed scales appeared to be adaptable and efficient, thus behaving as expected. The only exceptions to this were the affective and calculative commitment scales. Following factor trimming via scale modification in CFA, these constructs were refined to a level of acceptable construct validity and reliability.

The full structural model, hypothesised in Chapter 4, was also analysed using structural equation modelling. This involved the testing of structural parameters between specified constructs. In line with the hypothesised relationships stated in Section 4.6, the model showed a good level of fit with the majority of parameters behaving as expected. Interestingly, of the six store image factors, only four were shown to significantly influence customer satisfaction. The clientele and prices and promotions constructs were found not to have a

significant influence. A second unexpected finding was that calculative commitment was found to significantly and positively influence the word-of-mouth factor. Other unexpected findings included satisfaction not having a direct influence on price insensitivity and satisfaction positively affecting calculative commitment.

Although the model developed and tested in this chapter produced some notable theoretical, substantive and managerial implications (discussed in Chapters 10 and 11), several issues remained. Firstly, the structural model revealed the relationship between constructs for the entire sample. This is useful when making general assertions about the satisfaction process. However, previous research has suggested that the older population consists of more than just one segment, i.e. it is heterogeneous. This implies that one *overall* model may not accurately depict the wider situation. It also prevents the identification and analysis of specific segments that are more or less satisfied. The following section presents an innovative solution which segments and compares the sample using full structural equation modelling.

9. Quantitative Data Analysis Three: Segmenting using Finite Mixture Structural Equation Modelling

9.1. Introduction

In Chapter 8, a full structural model was developed and tested. The model was estimated using the total sample and a number of general findings were identified. Nonetheless, whilst the model showed a good level of fit, it assumed that only one population was distributed within the data. The potential that two or more subpopulations exist in widely scoped groups must be taken into consideration (Bryman, 2004). This is especially true when conducting research involving the older population given that a number of studies have claimed homogeneity to be naive (e.g. Moschis, 1992b; Gunter, 1998; etc.). As structural and mean comparisons are redundant when only one sample exists, decisions regarding policy, as well as targeting and positioning strategies, cannot be accurately achieved.

As discussed in Section 5.6.7, unobserved heterogeneity represents the differences between people and groups (e.g. variations in a structural model) that cannot be attributed to measurable (hence unobservable) sources. This is especially prominent in marketing research where decision process models are popular (Day, 1977). In such cases, a priori segmentation may not be feasible (Moore, 1980). This type of problem has led to research methods such as cluster analysis which provides a *response-based* method of segmentation. When incorporated into an SEM methodology (i.e. clustering followed by multi-group SEM), cluster analysis has been shown to be unsatisfactory due to the absence of measurement error (Jedidi et al, 1997; Lubke and Muthen, 2005).

Consequently, an alternative approach has been postulated in recent years. Finite mixture structural equation models (see Jedidi et al, 1997) locate the sources of variation in the distribution of factors in a model and classify respondents into groups based on their membership to each distribution. Respondents are segmented using all the information available. Variations in demographic, socio-economic etc. can all be compared in relation to the assigned class. The finite mixture structural equation model (SEM) benefits from being more precise than aggregated single population models²³. It is also more prescriptive for managers and policy makers (Lubke and Muthen, 2005).

Given the issues outlined, Chapter 9 builds upon the structural equation model tested in the previous chapter. In so doing, subsamples of the wider population were analysed. This addressed the third and final research objective as stated in Chapter 1. It also addressed hypothesis 13 in Section 4.6.

The structure of the chapter is as follows. An overview of the steps taken in the specification and estimation of the finite mixture SEM is given. The selection of classes/segments is explained and presented. This is followed by a review of the structural parameters for each class, the structural means and an overview of the personal and behavioural characteristics of each. A review of each of the established classes/segments is then given, before an overview of the entire chapter is provided in the summary and conclusions.

²³ Although, only when more than one subsample truly exists. A subsample is when two or more groups exist within a wider sample population.

9.2. Finite Mixture Structural Equation Modelling

Mixture modelling derives from the analysis of samples where two or more populations are inherent, i.e. subsamples (Gagne, 2006). Generally speaking, mixture modelling describes the analysis of parameter estimates across these subsamples. Whilst it acknowledges that a given number of populations (i.e. *k*-samples) exist within one dataset, it does so without the availability of a classification variable or other such *a priori* information with which to sort the data (McLachan and Peel, 2000).

When data is drawn from two or more separate populations, mixture modelling identifies how the distribution differs for the parameters of interest (means, variances, factor loadings, etc.). In the simplest of cases, a mixture analysis for a single item would “reverse engineer” the estimated sample distribution to identify a (pre-specified) number of unique distributions in which the means and variances significantly differed, yet remained a good fit to the data (Gagne, 2006). Model fit statistics can then ascertain whether one, two, or more populations or *classes* provide the best solution. A finite mixture structural equation model follows the same logic, although additionally analyses structural regression loadings (Gagne, 2006).

9.2.1. Model Specification

To date, MPLUS is one of only a handful of programmes able to deal with the computing requirements of finite mixture SEM (Muthen and Muthen, 2009). The full dataset (524 cases) was consequently analysed in this programme. The measurement and structural model was specified in exactly the same way as in the previous chapter. The measurement model used identical items and the

structural model was organised so that all the hypothesised relationships remained constant. Calculative commitment was set to load on word-of-mouth given the positive relationship found in the aggregate model in Chapter 8. In the same way, the two store image factors which did not significantly influence *satisfaction* in the aggregate model (all 524 cases) were retained in the mixture model (clienteles and prices/promotions). Jedidi et al (1997) showed that factors found to be insignificant in aggregate models may be relevant to certain subsamples. In an identical strategy as before, the first loading for each factor was set to 1.0 to situate the metric.

When specifying a finite mixture SEM analysis, it is important to choose the type of restriction that will be placed on the measurement model (Lubke and Muthen, 2005). This is commonly referred to as *measurement invariance*. Lubke and Muthen (2005) asserted that if subpopulations are to be compared, one has to ensure that the observed variables on which the comparison is made are measurement invariant. This was the approach taken by Jedidi et al (1997) and Hahn et al (2002), the seminal authors in the field. In the syntax for this type of model in MPLUS (Muthen and Muthen, 2009), an *invariant* measurement model is the default. Muthen and Muthen (2009) suggested that the use of this default is retained. In keeping with this advice, the measurement model was restricted in order to be equal across classes (whether two or more). The structural loadings were set to vary, as were the factor means.

The final aspect of the specification involved the loading of each of the store image factors on satisfaction. In the paper by Hahn et al (2002), they suggested that if there is good substantive reasoning for specifying the model it should be

applied. In their model, the factors influencing *satisfaction* were constrained to load positively. The authors argued that their experience had shown that negative loadings on satisfaction were untenable. As all of the survey questions were valenced in the same direction, with higher values for the drivers indicating an increase in performance, negative loadings on *satisfaction* would have been difficult to interpret. For example, if this were to occur, it would have implied that an increase in the performance of one of the factors led to a decrease in satisfaction. In keeping with the advice afforded by Hahn et al (2002), the coefficients for these parameters were constrained to zero or higher. This ensured that the most substantively interpretable solution was attained.

9.2.2. Model Estimation

The estimation used in finite mixture SEM can be either maximum likelihood (Jedidi et al, 1997) or partial least squares (Hahn et al, 2002). Using the strategy in Chapter 8, maximum likelihood estimation using the EM (expectation-maximization) algorithm was preferred. Jedidi et al (1997) suggested that the EM method provides important advantages when completing this sort of analysis. For example, EM gives monotone increasing values of the log-likelihood. A higher log-likelihood value indicates that the model is a better fit to the data. Jedidi et al (1997) suggested that when this is the case, "we can show convergence to at least a locally optimum solution using a limiting sums argument" (p.44). This is important since the objective of mixture modelling (SEM or otherwise) is to reach a global solution which represents the best fitting model across different classes. This is known as convergence. Unfortunately, with the EM algorithm, convergence can be slow and is not always guaranteed

(McLachan and Basford, 1988). Thus, during the estimation (E) stage of the algorithm, the solution often gets caught on a local optimum.

To limit the probability of attaining a local maximum, models for two, three, four and five classes (i.e. segments) were each estimated ten times. This increased the chance of attaining a global maximum indicated by a higher log-likelihood value. As advised by Jedidi et al (1997), different starting values were chosen for each of the factors to increase the probability of convergence. As there was no plausible estimate for the starting values, these were chosen completely at random (Hahn et al, 2002). Overall, the two, three and four class solutions responded as expected on each of the ten occasions. The five class solution was abandoned because convergence was problematic owing to model non-identification. Each of the analyses took between two and fifteen hours to compute. Unfortunately, MPLUS does not automatically stop when (or continue until) convergence is achieved. It was therefore necessary to increase the number of *iterations* (i.e. the number of attempts at converging) to enable the algorithm to finish. Convergence was quicker in the simpler two class model, but slower in the three and four class. Once each of the classes had attained ten converged solutions (i.e. the M-maximization of the EM algorithm), the models were compared to find the best fitting solution. This is referred to as model selection.

9.2.3. Model Selection

In confirmatory factor analysis (CFA) and basic SEM, models are simply selected or rejected based on tests pertaining to the likelihood ratio e.g. chi-square, CFI, etc. Jedidi et al (1997) asserted that with finite mixture SEM this is

not possible since regularity conditions are violated. Nonetheless, they suggested that researchers use different means of comparison based on the Akaike Information Criteria (AIC) and the Bayesian Information Criteria (BIC). Lubke and Muthen (2005) explained that these are the most commonly used tests for finite mixture model selection. However, they warned against basing decisions solely on statistical criteria, opting for substantive explanation when it is available. In explanation of this, they stated that "an additional class may reveal an interesting subpopulation...the utility of an additional class with respect to substantive theory can be assessed by comparing classes with respect to factor means or intercepts" (p.31).

In the first instance, the ten models for each class were compared to identify the best model. This was achieved by comparing the log-likelihood value of each. The highest score solution denominated the closest to a global maximum (see Table 57). The Entropy statistic which measures the degree of separation or the individuality of each of the classes was also estimated. Table 57 shows that the 'model runs' with the highest log-likelihood statistic, representing convergence, were numbers eight and ten in the two class model, number seven in the three class and number two in the four class. The Entropy statistics for each model was also satisfactory, with values closer to 1.0 representing perfect separation between the classes. As the models with the highest log-likelihood ranged in Entropy from 0.727 to 0.767, it could be concluded that the classes were fairly independent and unique. This allowed the main differences in the population to be identified. These three models were ultimately chosen and taken forward in the analysis.

Table 57 - Finite Mixture Model Selection

Number of Classes	Starting Values Attempt Number:	Log-likelihood Statistic	Entropy
Two	1	-32076.450	0.716
Two	2	-32076.450	0.768
Two	3	-32076.449	0.594
Two	4	-32072.920	0.735
Two	5	-32108.305	0.709
Two	6	-32077.781	0.767
Two	7	-32079.235	0.729
Two*	8	-32071.515	0.767
Two	9	-32086.359	0.716
Two*	10	-32071.515	0.767
Three	1	-32003.128	0.848
Three	2	-31992.398	0.725
Three	3	-32004.750	0.665
Three	4	-31997.676	0.659
Three	5	-32003.128	0.848
Three	6	-31990.695	0.725
Three*	7	-31990.637	0.724
Three	8	-31990.694	0.725
Three	9	-31997.747	0.734
Three	10	-31990.694	0.725
Four	1	-31914.171	0.759
Four*	2	-31910.272	0.767
Four	3	-31912.442	0.744
Four	4	-31912.179	0.789
Four	5	-31948.485	0.789
Four	6	-31941.256	0.734
Four	7	-31910.929	0.734
Four	8	-31915.260	0.764
Four	9	-31914.696	0.764
Four	10	-31911.647	0.744

* = Highest Log-likelihood statistic within class

The next task was to directly compare the chosen models within the two, three and four class solutions to identify which represented the best fit to the data. This was achieved by seeking the *lowest* AIC and BIC statistics as suggested by Jedidi et al (1997). It also considered the substantive properties of each model as asserted by Lubke and Muthen (2005), revealing that the lowest AIC and BIC scores differed between the classes. This situation is not unusual (Lubke and Muthen, 2005). Jedidi et al (1997) suggested giving preference to the BIC statistic in this situation. Using their recommendation, the three class solution (BIC = 65296.554) was the best fitting model. This indicated that

segmentation based on the full structural model yielded three distinct subpopulations (i.e. classes) with Entropy of 0.724, higher than that found in both Jedidi et al (1997) and Hahn et al (2002); i.e. 0.70 and 0.43 respectively.

Table 58 - Comparison of the Three Finite Mixture Models

Classes	Model	Log-likelihood Statistic	Free Parameters	AIC	BIC	Entropy
Two	Invariant	-32071.515	212	64567.030	65470.466	0.767
Three*	Invariant	-31990.637	242	64465.273	65296.554*	0.724
Four	Invariant	-31910.272	272	64364.545	65523.671	0.767

* = Best fitting model to the data

Each respondent in the sample was duly allocated to one of the three classes²⁴. This was based on the posterior probability of membership, which is the basis of the Entropy statistic. The breakdown of the sample into the three classes to a given class of over 50% is given in Table 59. It was shown that that the three segments represented different sizes and proportions of respondents. Segment one was the largest segment with 303 people and 57.8% of the population. Segment two was the smallest segment with 88 respondents and 16.8% of the sample. Finally, segment three was of a medium size with 133 people and represented 25.4% of the sample. One of the strengths of this 'breakdown' was that all of the segments were of reasonable size. Jedidi et al (1997) limited their class membership to subpopulations of 13.3% and higher. The structural

²⁴ Classes and segments are used interchangeably to explain the subpopulations.

parameters were assessed for each segment and are now presented along with a comparison of the latent construct means.

Table 59 - Class Counts Based on Most Likely Class Membership

Segment Number	Population Count (n)	Proportion of Population (%)
1	303	57.8%
2	88	16.8%
3	133	25.4%

9.3. Evaluation of the Segment Structural Paths

In the previous chapter, store environment, personnel, merchandise and services all positively and significantly influenced customer satisfaction. Two insignificant factors were left in the model to ascertain whether finite mixture SEM would reveal a segment-specific influence of either. Table 60 provides the standardised coefficients for the *direct* paths. The significance of each of the relationships is also given. The results showed that the segments are much more specific than the aggregate model (Chapter 9). In other words, satisfaction was operationalised with different drivers and outcomes between segments. The results will now be discussed.

Table 60 - Direct Structural Paths by Finite Segments

		Standardised					
		Segment 1	Standard Errors	Segment 2	Standard Errors	Segment 3	Standard Errors
Store Environment	→ Satisfaction	0.234*	0.117	0.000	0.000	0.415**	0.137
Personnel Quality	→ Satisfaction	0.223**	0.077	0.106	0.110	0.000	0.000
Merchandise	→ Satisfaction	0.281*	0.136	0.517**	0.167	0.501**	0.126
Clientele	→ Satisfaction	0.000	0.000	0.325**	0.104	0.000	0.000
Services	→ Satisfaction	0.147*	0.144	0.000	0.000	0.021	0.184
Prices & Promotion	→ Satisfaction	0.027	0.086	0.121	0.153	0.000	0.000
Satisfaction	→ Affec Commitment	0.711**	0.054	0.755**	0.056	0.643**	0.082
Satisfaction	→ Calc Commitment	0.642**	0.107	0.086	0.222	-0.680**	0.062
Satisfaction	→ Future Intentions	0.332**	0.130	-0.300	0.248	1.062**	0.236
Satisfaction	→ Word-of-Mouth	0.438**	0.111	1.129**	0.133	0.617*	0.267
Satisfaction	→ Price Insensitivity	-0.307	0.158	0.115	0.159	0.465**	0.180
Affec Commitment	→ Future Intentions	0.111	0.124	0.214	0.241	0.097	0.282
Affec Commitment	→ Word-of-Mouth	0.284**	0.107	-0.333	0.243	0.982**	0.139
Affec Commitment	→ Price Insensitivity	0.467**	0.126	0.419*	0.189	0.264	0.174
Calc Commitment	→ Future Intentions	0.230	0.120	0.876**	0.083	0.946**	0.221
Calc Commitment	→ Word-of-Mouth	0.079	0.095	-0.158	0.112	-0.406	0.272
Calc Commitment	→ Price Insensitivity	0.578**	0.130	0.342*	0.111	0.661**	0.175
Mixing Proportions		57.8%		16.8%		25.4%	

** Significant at the p<.01 level; * Significant at the p<.05 level

9.3.1. Segment One

In segment one, satisfaction was driven by the store environment (0.234), personnel quality (0.223), services (0.147) and merchandise (0.281). This suggested that merchandise was the most important aspect of the store for driving satisfaction. However, the influence of each of the four factors was fairly similar, at a low-medium level of effect. It was found that the clientele and prices and promotions factors had no significant influence on satisfaction. This was a similar finding to the aggregate model (Chapter 8), in which merchandise was the most important satisfaction driver.

Satisfaction was found to have a strong positive influence on affective commitment (0.711), calculative commitment (0.642), future intentions (0.332) and word-of-mouth (0.438). Whilst satisfaction was important to the behaviour and intentions of segment one, only affective (0.467) and calculative (0.578) commitment significantly influenced price insensitivity directly. This indicated that calculative commitment was more influential than affective commitment and satisfaction in determining the willingness of segment one to pay more in the future.

9.3.2. Segment Two

The satisfaction of segment two was entirely driven by merchandise (0.517) and clientele (.325). The influence of merchandise on satisfaction was greater in segment two than in segment one. Unlike the aggregate model, clientele was important to satisfaction in segment two.

Satisfaction had a strong positive influence on affective commitment (0.755) indicating that a one-point increase had a significant effect on the emotional relationship with the store. The same path with calculative commitment was not significant. This suggested that calculative commitment was not related to satisfaction in segment two and that an increase in satisfaction was not the cause of any fiscal or otherwise calculative relationship.

Directly, satisfaction did not influence either future intentions or price insensitivity. It did, however, drive word-of-mouth communications very strongly (1.129). As satisfaction increased by one point the likelihood of segment two talking positively about the store increased by 1.129 points. Of the three subsamples, this indicated that segment two was the most vocal following a satisfying experience.

As found in segment one, price insensitivity was not directly influenced by satisfaction but required a relationship to be present. A one-point increase in satisfaction led to a 0.419-point increase in price insensitivity. The direct effect of calculative commitment on price insensitivity was significant (0.342). Although people in segment two were mostly influenced by affective commitment in their decision to pay higher prices, this showed that calculative commitment also had a role. As such, when making the decision of whether or not to shop at the store in the future (i.e. future intentions), calculative commitment was the only significant driver (0.876).

9.3.3. Segment Three

In segment three, satisfaction was driven by store environment (0.415) and merchandise (0.501). Store environment was more important to segment three than to either of the other two segments. As such, a one-point increase influenced a 0.415-point increase in satisfaction. Whilst merchandise was important, other aspects of the store, such as personnel, clientele, services and prices and promotions, had no influence.

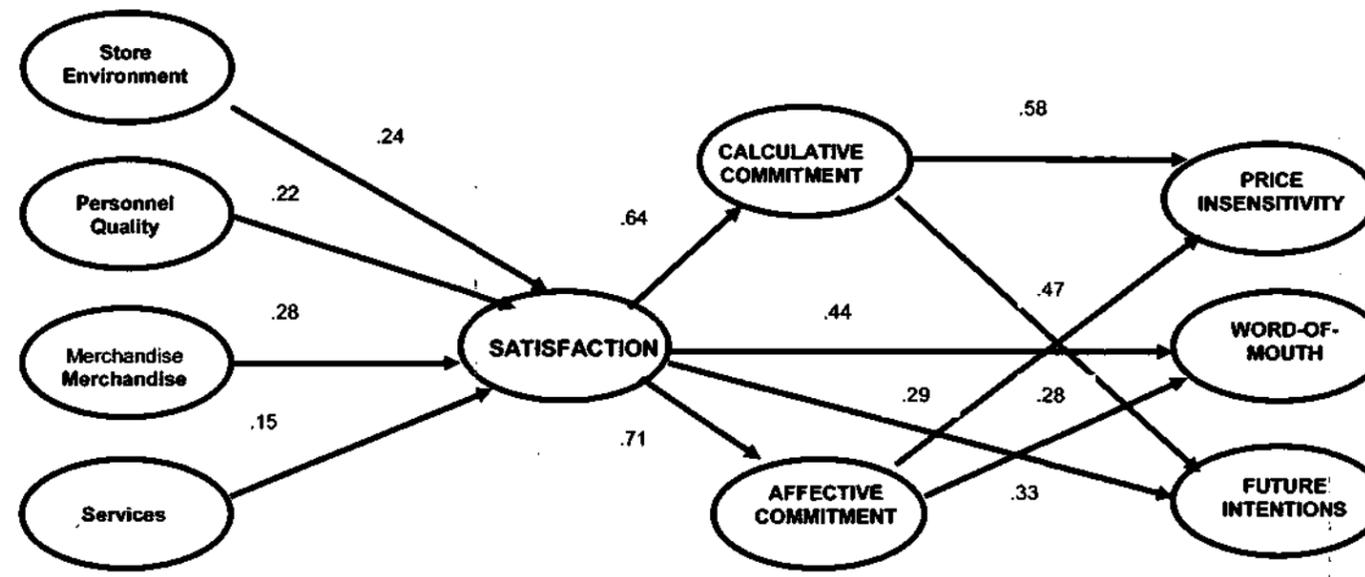
Satisfaction had a strong positive influence (0.643) on affective commitment in segment three, although not as strong as in segments one and two. Uniquely, satisfaction had a negative effect on calculative commitment. As such, a one-point increase led to 0.68-point decrease in calculative commitment. This differed from the other segments in which calculative commitment either increased (segment one) or had no effect (segment two) as a result of a rise in satisfaction.

In regard to future intentions, satisfaction had a strong positive influence (1.062), as did calculative commitment (0.661). Affective commitment did not show a significant effect on future intentions. On the other hand, word-of-mouth was shown to be the most influenced by affective commitment (0.982) and satisfaction (0.617). Once again, in all segments, calculative commitment did not increase the likelihood of speaking positively about the store. This indicated that as feelings of emotional attachment rise, so does word-of-mouth. As with segments one and two, the greatest influence on price insensitivity was calculative commitment (0.661). Satisfaction also had a positive influence on

price insensitivity (.465) indicating that these people would be willing to pay higher prices linked to higher satisfaction.

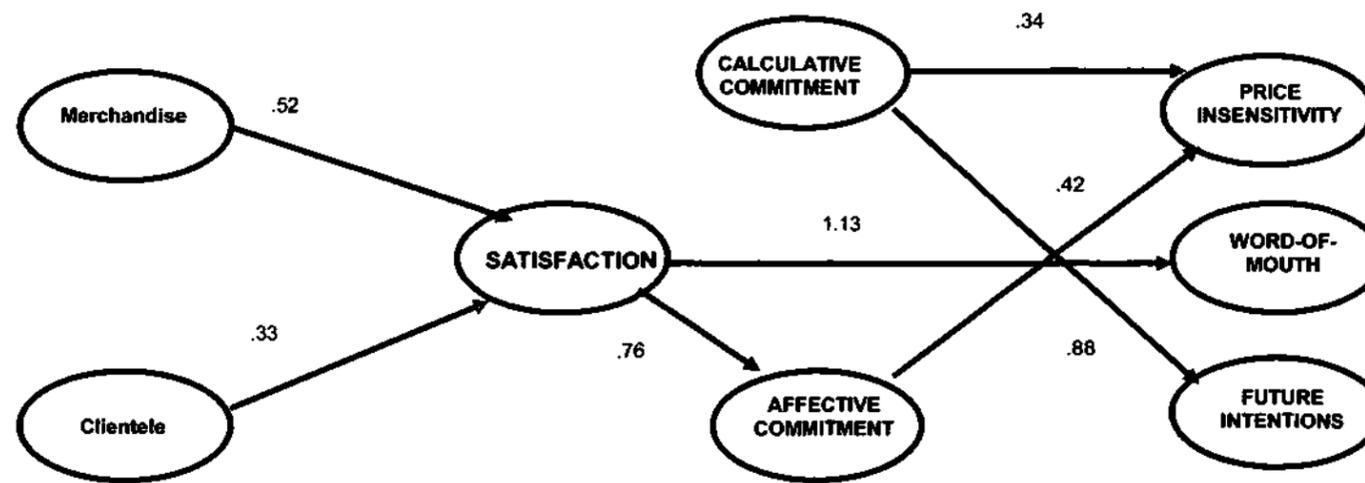
Overall, segments one, two and three showed some strong similarities and differences in their operationalisation of the satisfaction process. For example, in all segments satisfaction was driven by different aspects of the store, although in all three merchandise remained the most important. Personnel quality was only important to segment one, whilst clientele only influenced satisfaction in segment two. There were also many differences in the influence of satisfaction on commitment and loyalty outcomes. To illustrate, satisfaction had a strong effect on the future intentions of segment three, but no influence in segment two. Alternatively, satisfaction had a very strong positive influence on word-of-mouth in segment two and a lower effect in segments one and three. Calculative commitment was also driven by different forces between the segments. Satisfaction had a positive influence for segment one, a negative effect in three, but no impact at all in segment two. This suggested that a three segment approach was much more diagnostic than an aggregated equivalent (see Figure 23).

Figure 23 - Structural Parameters for the Three Finite Segments



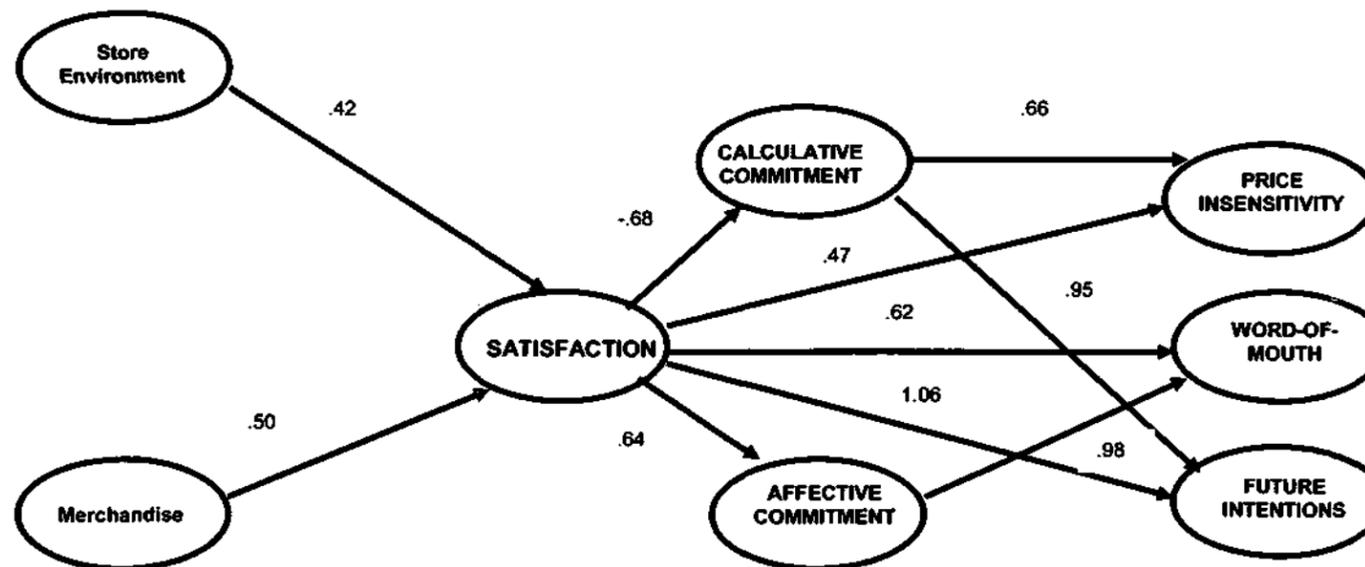
Segment One

Figure 24 - Structural Parameters for the Three Finite Segments (continued)



Segment Two

Figure 25 - Structural Parameters for the Three Finite Segments (continued)



Segment Three

9.4. Evaluation of the Segment Factor Means

In finite mixture SEM a fundamental equation gleaned from the variance-covariance matrix contains the factor mean scores (Lubke and Muthen, 2005). In the MPLUS programme, the factor means for the final segment (i.e. segment three) is automatically fixed to zero (Gagne, 2006) and is thus treated as a reference group. This allows the factors for the remaining segments to be directly compared against the reference. This is commonly found in multi-group structural equation modelling (Schumacker and Lomax, 2004; Blunch, 2008). Table 61 presents the factor means for each of the three segments. Statistics are given to represent a significant difference in relation to factor three, but not the relationship between segments one and two.

Table 61 - Mean Factor Scores for Finite Segments

	Mean Scores		
	Segment 1	Segment 2	Segment 3
Store Environment	0.432**	-0.681**	-
Personnel Quality	0.439**	-0.487	-
Merchandise	0.464**	-0.475	-
Clientele	0.410**	-0.430*	-
Services	0.430**	-0.789	-
Prices & Promotion	0.482**	-0.500	-
Satisfaction	0.775**	-0.235	-
Affective Commitment	0.564	-0.298	-
Calculative Commitment	0.273	0.040	-
Future Intentions	0.656*	-1.188**	-
Word-of-Mouth	0.876**	-0.333	-
Price Insensitivity	0.296	-0.308	-

- = Segment 3 was the reference category; ** = significantly different than segment 3 at p<0.01 level; * = significantly different than segment 3 at p<0.05 level;

9.4.1. Segment One

Segment one had the highest mean scores for all factors in the model. With the exception of affective commitment, calculative commitment and price insensitivity, each factor was significantly higher at the $p \leq .05$ level than the reference category (segment three). Of the satisfaction drivers, merchandise had the highest mean score. Overall, merchandise was 0.464-points higher than segment three and 0.939 (0.464 + 0.475) higher than segment two. Satisfaction was significantly higher in segment one. In relation to three, satisfaction was 0.775-points higher and 1.10-points higher than segment two. Whilst having the highest affective commitment, segment one also had the highest calculative commitment (0.273-points higher than segment three). In regard to the loyalty outcomes, segment one considered themselves to be more likely to shop at the same store in the future and to talk positively to friends and family. Those in segment one were higher than segment three in regard to word-of-mouth by 0.876-points and segment two by 1.209-points.

9.4.2. Segment Two

Segment two had the lowest mean score of all three segments on many of the factors. Calculative commitment was the only exception to this. In comparison to segment three, only the store environment, clientele and future intentions constructs were significantly lower. In the store image scale, store environment and services showed the biggest discrepancy between factors. Segment two rated the store environment as 0.681-points lower than segment three and 1.13-points lower than segment one. Similarly, the services factor was 0.789-points lower than segment three and 1.219-points lower than segment one. Across the board, store image factors were rated lower in segment two.

Of the three segments, segment two had the lowest affective commitment. Calculative commitment rated slightly higher than segment three (0.040-points), but lower than segment one. With reference to loyalty outcomes, segment two was much less likely to continue using the grocery store in the future. Ultimately, future intentions were 1.188-points lower than segment three and 1.844-points lower than segment one. Both word-of-mouth and price insensitivity factors were lower. This reflects the decreased performance of the store in comparison to the other segments.

9.4.3. Segment Three

With just one exception, segment three was the middle scoring segment on all factors. Satisfaction was higher than segment two but represented a non-significant difference between them. The only factor in which segment three rated the mean score as lower was calculative commitment. As such, they considered themselves to be marginally lower in calculative commitment than segment two (-0.040) and segment one (-0.273).

Each of the three segments will now be profiled via their posterior probability of membership using personal and behavioural characteristics.

9.5. Evaluation of Personal Characteristics by Finite Segments

The demographic information collected in the survey and presented in Chapter 7 was used to identify whether differences existed between the segments. In their study, Hahn et al (2002) followed the same procedure, testing to see if any of their five segments revealed significant differences in demographics and behaviour. To this end, a combination of one-way ANOVA and chi-square tests

were applied to the data. ANOVA tests were used to compare the differences between segments based on interval²⁵ level data, whilst the chi-square tests were used for ordinal and nominal²⁶ (Pallant, 2005). For the interval level data, Levene's Analysis for Homogeneity of Variances was used to compare the mean scores. In instances when variances were not equal across the groups, the alternative F-statistic was preferred (Pallant, 2005). For this part of the analysis, the data was moved back into SPSS Version 17.0. Table 62 presents the ANOVA test, whereas Table 63 shows the chi-square test results for the nominal and ordinal data. Specific attention is predominantly afforded to the variables that are found to be significantly different (at the $p \leq .05$ level) across segments. Data is also provided for the aggregate sample for ease of comparison. Clustered and divided bar charts are used to illustrate the findings.

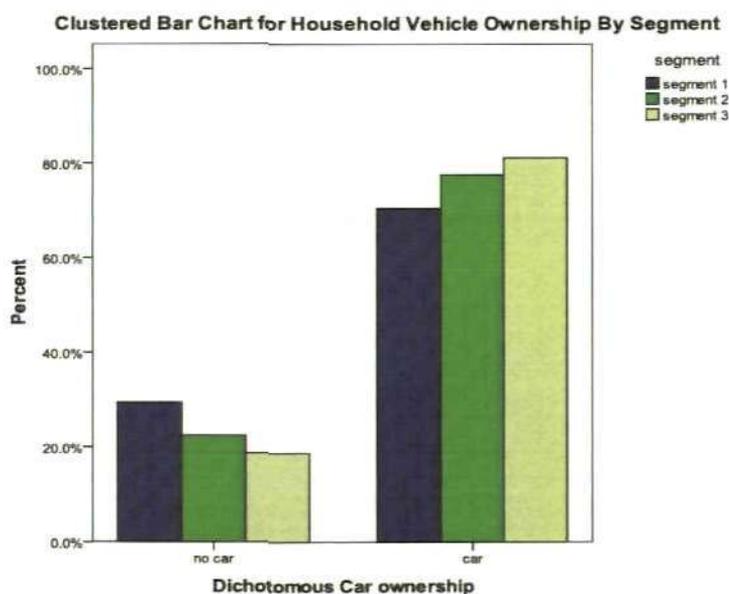
The data showed that none of the interval level data for age, cognitive age and number of persons in the household differed across segments. The average age for all three groups was approximately 71-72 years, commensurate with the overall sample (see Table 62). The nominal and ordinal data showed significant differences between the segments in the variables for transport, education, household income, working status of chief income earner and geodemographics.

²⁵ Interval data is collected on a continuous scale – e.g. age

²⁶ Ordinal and nominal data is categorical – e.g. gender, education level, etc. (Pallant, 2005)

The chi-square test for transport (see Table 63), measuring household access to transport using a dichotomous scale, revealed significant differences between the segments ($X^2 = 6.288$; $p = .044$). This is visually shown in Figure 26. The graph shows that segment three had the highest proportion of respondents with vehicle transport (81.2%), whilst segment one had the lowest (70.5%). Additionally, 77.5% of segment two had access to transport indicating that segment three were, on the whole, more flexible in their transport arrangements. This is confirmed by the fact that the resulting percentage of people with transport was higher than the average for the sample (see Table 63). Segment one was the least mobile as a result of transportation constraints since 29.5% do not have vehicle access within their household.

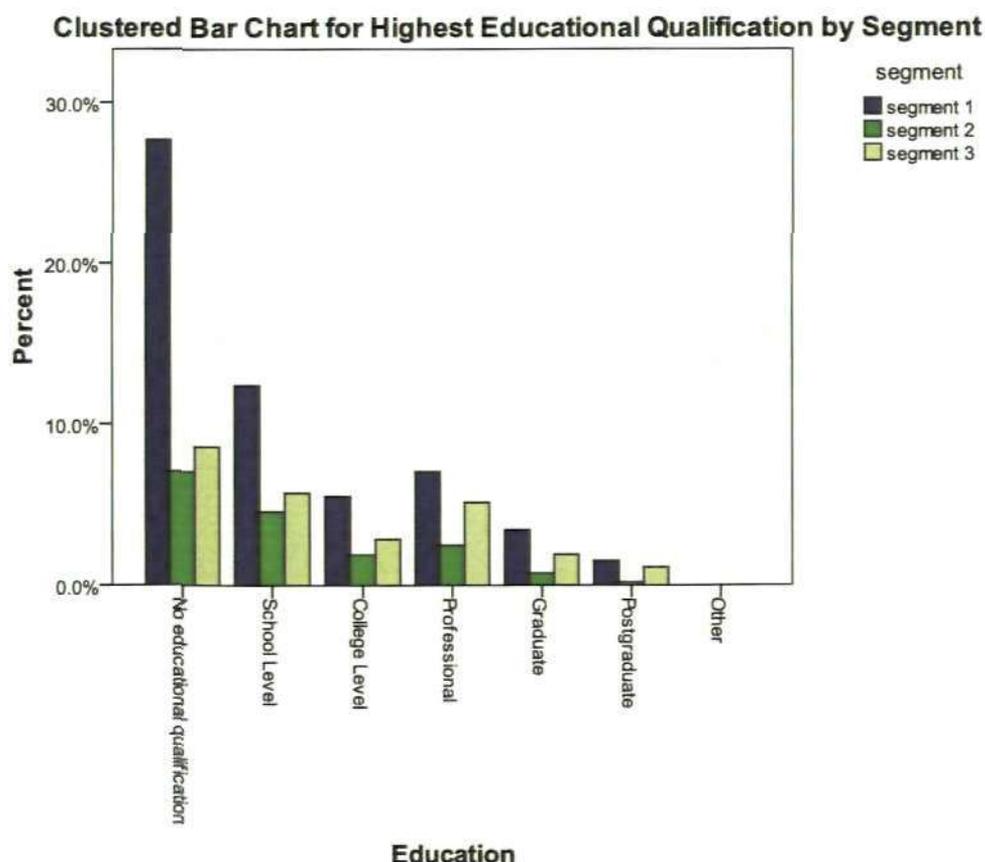
Figure 26 - Household Transportation by Finite Segment



The second significant difference between the segments was *educational level*. Respondents were asked to indicate their highest level of educational attainment. The chi-square test (see Table 63) revealed that each of the three segments differed in this regard ($X^2 = 12.757$; $p = .038$).

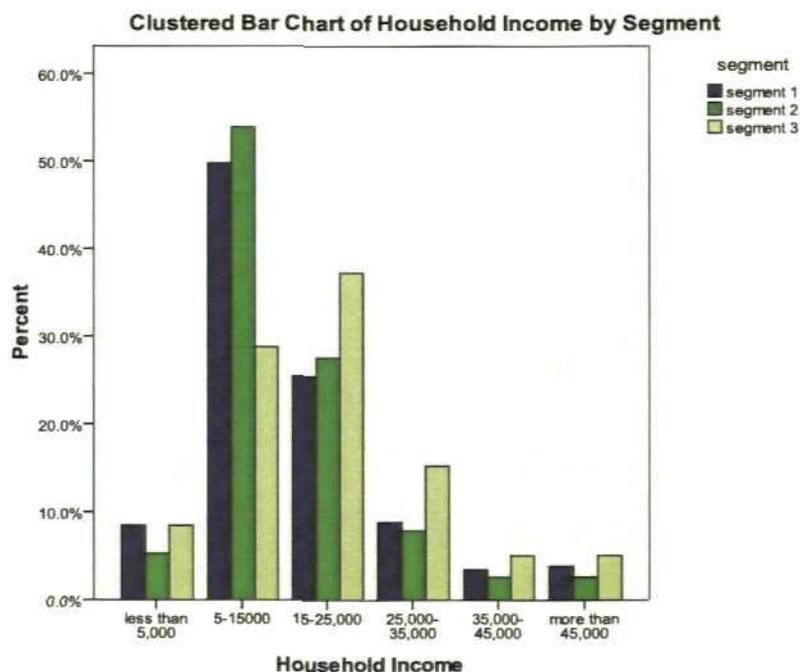
The biggest difference was between segment three and segments one and two. This is shown in Figure 27. Whilst segment one and two were fairly comparable, segment three had the lowest proportion of people with no formal education (33.8%). In comparison, segment one had 48% and segment two 41.6%. Additionally, segment three had 32.3% of people with a professional, graduate or postgraduate qualification. In comparison, segment one had 20.9% and segment two 20.2%. Segment three attained a significantly higher educational level than segment one and segment two. The highest proportion in all three segments claimed to have no formal qualification. In terms of professional, graduate and postgraduate qualifications, both segment one and two were below the average for the aggregate sample (see Table 63).

Figure 27 - Highest Educational Qualification by Finite Segment



The *household income* variable revealed a similar finding. This used six categories for respondents to choose their gross household incomings. The chi-square test (see Table 63) revealed differences between the segments ($X^2 = 20.138$; $p = .028$). Figure 28 shows that segments one and two had a comparably lower income to three. In segment three, 62.8% reported an income of £15,000 or higher. In contrast to this, only 41.8% of segment one and 40.7% of two had this income. Segment three was therefore *better off* financially. A possible explanation for this may be that a higher proportion of chief income earners remain in some type of paid employment ($X^2 = 6.911$; $p = .041$). Whilst segments one and two were comparable in terms of those who were retired (82.5% and 80.9% respectively), segment three had 26.3% still working. Nonetheless, for categories ranging from £15,000 per year and upward, segment one and two were consistently below the average for the aggregate sample.

Figure 28 - Household Income by Finite Segment



The final significant difference between the three segments is shown by the geodemographic ACORN listing of each participant (see Figure 29). This used the postcode of respondents to classify them into one of five categories: wealthy achievers, urban prosperity, comfortably off, moderate means, hard-up. Once again the main difference was found between segment three and the others ($\chi^2 = 10.366$; $p = .044$). A total of 40.6% of segment three were found to be in either wealthy achievers or urban prosperity categories. Equivalently, just 33.6% of segment one and 32.6% of segment two belonged to these groups. Segment two had the highest proportion of people classified in the hard-up category (28.1%), whilst segment three had the fewest (18.1%). Overall, it can be concluded that segment three was systematically higher than one and two in the ACORN classification. It should be noted, that in terms of the aggregate average, segment three was only higher (albeit considerably) in the wealthy achievers category.

Figure 29 - Bar Chart of Geodemographic Grouping by Finite Segment

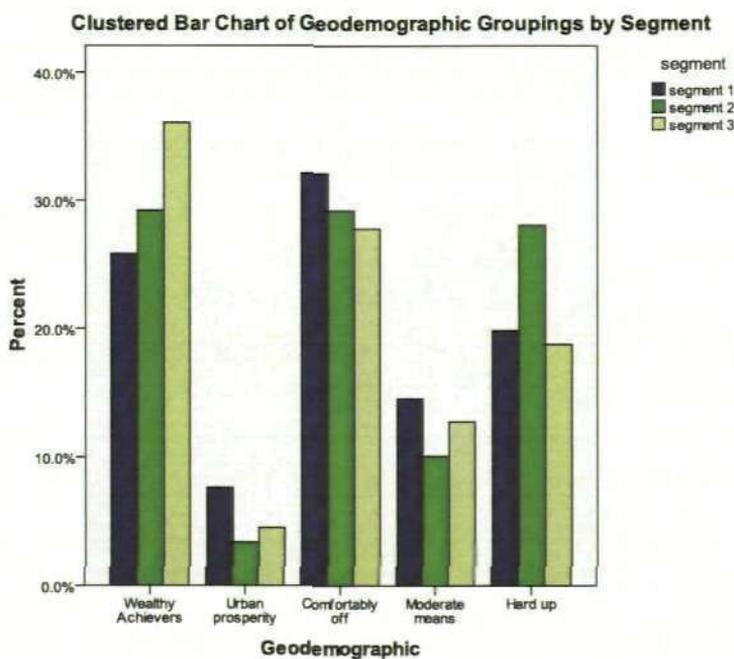


Table 62 - One-way ANOVA Tests for Interval Level Personal Characteristics

Demographic Variable	Levene Statistic for Homogeneity of Variances	Segment One Mean	Segment Two Mean	Segment Three Mean	ANOVA	Aggregate Model Mean
Age	.119 $p = .888$	72.18	71.02	71.26	F-statistic = 1.085 $p = .339$	71.75
Rank		+++	+	++		
Cognitive Age	.369 $p = .692$	61.98	60.80	61.20	F-statistic = .903 $p = .406$	61.20
Rank		+++	+	++		
Persons in Household	.276 $p = .759$	1.58	1.61	1.64	F-statistic = .411 $p = .663$	1.61
Rank		+	++	+++		

+++ = Highest Rank Score; ++ = Middle Rank Score; + = Lowest Rank Score

#Data is missing on the demographic variable; * Significant difference between segments; +++ = Highest Rank Score; ++ = Middle Rank Score; + = Lowest Rank Score

Table 63 - Chi-square Tests for Nominal and Ordinal Level Personal Characteristics

Demographic Variable	Categories	Segment One % (Count)	Segment Two % (Count)	Segment Three % (Count)	Likelihood Ratio Chi-Square (χ^2)	Aggregate Model % (Count)
Household Income*#	<£5000	8.5% (22)+++	5.3% (4)+	8.5% (10)+++	$\chi^2 = 20.138^*$ $p = .028$	7.9% (36)
	£5000-15000	49.8% (129)++	53.9% (41)+++	28.8% (34)+		45.0% (204)
	£15000-25000	25.5% (66)+	27.6% (21)++	37.3% (44)+++		28.9% (131)
	£25000-35000	8.9% (23)++	7.9% (6)+	15.3% (18)+++		10.4% (47)
	£35000-45000	3.5% (9)++	2.6% (2)+	5.1% (6)+++		3.8% (17)
	>£45000	3.9% (10)++	2.6% (10)+	5.1% (6)+++		4.0% (18)
Working Status of Chief Income Earner*	Employed	16.6% (50)+	19.1% (17)++	26.3% (35)+++	$\chi^2 = 6.911$ $p = .041^*$	19.5% (102)
	Retired	82.5% (249)+++	80.9% (72)++	72.9% (97)+		79.8% (418)
	Unemployed	1.0% (3)+++	0.0% (0)+	0.8% (1)++		
Occupation of Chief Income Earner#	S-Sec 1	18.1% (41)+	26.8% (19)++	28.1% (32)+++	$\chi^2 = 14.364$ $p = .278$	22.3% (92)
	S-Sec 2	21.1% (48)++	19.7% (14)+	24.6% (28)+++		21.8% (90)
	S-Sec 3	10.1% (23)+	11.3% (8)++	12.3% (14)+++		10.9% (45)
	S-Sec 4	4.8% (11)++	4.2% (3)++	5.3% (6)+++		4.9% (20)
	S-Sec 5	6.6% (15)+++	1.4% (1)+	3.5% (4)+		4.9% (20)
	S-Sec 6	14.1% (32)+++	12.7% (9)++	12.3% (14)+		13.3% (55)
	S-Sec 7	25.1% (57)+++	23.7% (17)++	14.0% (16)+		21.8% (90)
Household+ Ownership	Owns outright	73.4% (218)++	71.6% (63)++	76.9% (100)+++	$\chi^2 = 9.906$ $p = .272$	74.0% (381)
	Owns with a mortgage	5.1% (15)+	9.1% (8)++	10.8% (14)+++		7.1% (37)
	Rents from Association	7.4% (22)+++	5.7% (5)++	4.6% (6)+		6.4% (33)
	Rents from Council	11.8% (35)+++	10.2% (9)++	6.2% (8)+		10.1% (52)
	Rents Privately	2.4% (7)++	3.4% (3)+++	1.5% (2)+		2.3% (12)
Geodemographics	Wealthy Achievers	25.8% (78)+	29.2% (26)++	36.1% (48)+++	$\chi^2 = 10.366$ $p = .044$	29.0% (152)
	Urban Prosperity	7.6% (23)+++	3.4% (3)+	4.5% (6)++		6.1% (32)
	Comfortably Off	32.1% (97)+++	29.2% (26)++	27.8% (37)+		30.5% (160)
	Moderate Means	14.6% (44)+++	10.1% (9)+	12.8% (17)++		13.4% (70)
	Hard-Up	19.9% (60)++	28.1% (25)+++	18.8% (25)+		21.0% (110)

9.6. Evaluation of Shopping Behaviour Characteristics

The shopping behaviour characteristics of each of the segments was analysed in exactly the same way as the previous section. One-step ANOVA and chi-square tests were used to identify any significant differences between the three groups. Overall, just two disparities were found between the three segments. These were on the variables for *percentage of shop completed* and *store choice*. Table 64 provides the results for the interval level data (ANOVA) and provides the chi-square tests for the ordinal and nominal data. Comparisons against the aggregate sample are also given attention.

The *percentage of shop completed* variable was the first significant difference. This item asked respondents to state the percentage of shopping they completed at their chosen store. In the first instance, the ANOVA test (see Table 64) revealed a significant difference between the segments ($F = 9.076$; $p \leq .01$). Further analysis using Tukey's Post-Hoc Difference Test revealed that the disparity existed between segments one and two. It was established that segment one tended to do 80.13% of grocery shopping in their chosen store, 8.5% more than segment two. This suggested that segment two was more inclined to shop at different stores than segment one. Segment three, although not significantly different from either segment, had the middle score, opting to do 76.25% of shopping at their chosen store.

The second, and only other, significant difference between the segments was the *store choice* variable. This nominal level item asked respondents to state the name of their chosen store. This was also where they had shopped most in

the previous six months. The chi-square test (see Table 65) exposed the differences between the three segments ($X^2 = 33.792$; $p = .013$). As the graph in Figure 30 shows, the most prominent of these disparities was in the proportion of people using the top four market leaders. For example, segment three reported that they shopped mainly at Tesco (30.8%) or Sainsbury's (25.6%). Although fewer in segment two shopped at these stores (28.1% and 19.1% respectively), an even smaller proportion of segment one did so (Tesco = 19.9%; Sainsbury's = 18.2%). Segment one had the highest proportion of people who shopped at stores such as Asda (15.9%), Morrisons (20.2%) and the Discounters (8.9%). Segment three had far fewer respondents who shopped at these. This situation is well represented in the divided bar chart in Figure 30.

Figure 30 - Bar Chart for Store Choice by Finite Segment

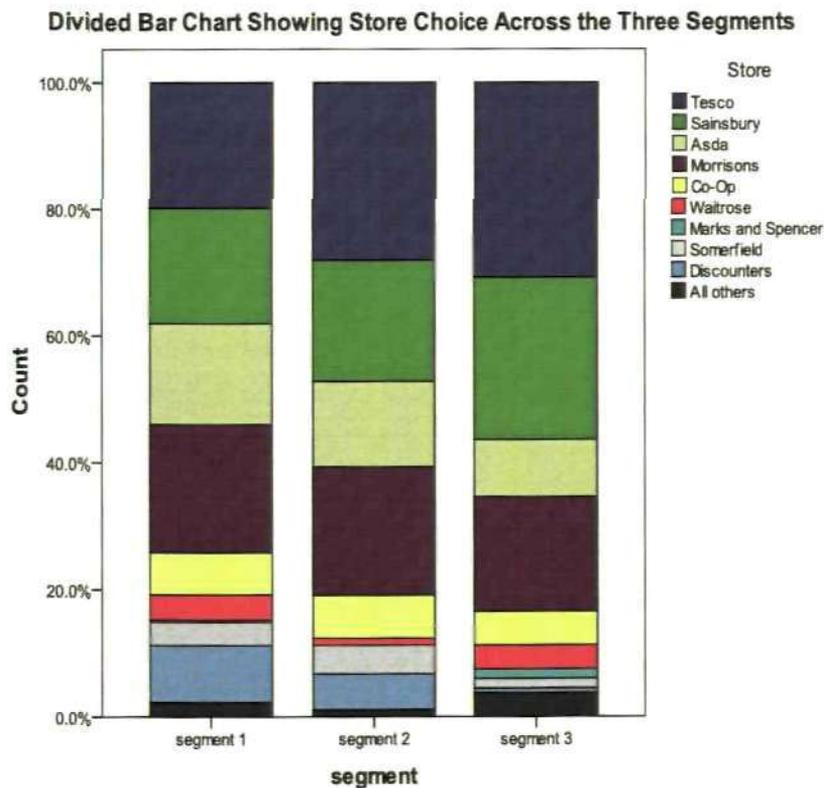


Table 64 - One-way ANOVA Tests for Interval Level Behavioural Characteristics

Behaviour Variable	Levene Statistic for Homogeneity of Variances	Segment One Mean	Segment Two Mean	Segment Three Mean	ANOVA	TUKEY Post-Hoc Difference Test	Aggregate Model Mean
Time Shopping at Store	.651 $p = .522$	12.81	11.49	13.18	F = .753 $p = .471$	N/A	12.82
Rank		++	+	+++			
Frequency of Visits	2.193 $p = .113$	6.89	5.93	6.77	F = 1.216 $p = .297$	N/A	6.69
Rank		+++	+	++			
Distance to Store	1.246 $p = .288$	2.97	2.94	3.12	F = .136 $p = .873$	N/A	3.00
Rank		++	+	+++			
Percentage of Shop	5.333 $p = .005$	80.13	71.63	76.25	F = 9.076 $p = .000$	Seg 1 > Seg 2 MD = 8.50; $p = .000$	77.70
Rank		+++	+	++			
Money Spent	.025 $p = .975$	47.73	45.58	51.56	F = 1.257 $p = .285$	N/A	48.34
Rank		++	+	+++			

#Data is missing on the demographic variable; * Significant difference between segments; +++ = Highest Rank Score; ++ = Middle Rank Score; + = Lowest Rank Score

Table 65 - Chi-square Tests for Nominal and Ordinal Level Behavioural Characteristics

Behaviour Variable	Categories	Segment One % (Count)	Segment Two % (Count)	Segment Three % (Count)	Likelihood Ratio Chi-Square (X^2)	Aggregate Model %
Store Choice*	Tesco	19.9% (60)+	28.1% (25)++	30.8% (41)+++	$X^2 = 33.792^*$ $p = .013$	24.0% (126)
	Sainsbury's	18.2% (55)+	19.1% (17)++	25.6% (34)+++		20.2% (106)
	Asda	15.9% (48)+++	13.5% (12)++	9.0% (12)+		13.7% (72)
	Morrisons	20.2% (61)+++	20.2% (18)+++	18.0% (24)+		19.7% (103)
	Co-Op	6.6% (20)++	6.7% (6)+++	5.3% (7)+		6.3% (33)
	Waitrose	4.0% (12)+++	1.1% (1)+	3.8% (5)++		3.4% (18)
	Marks and Spencer	0.3% (1)++	0.0% (0)+	1.5% (2)+++		0.6% (3)
	Somerfield	3.6% (11)++	4.5% (4)+++	1.5% (2)+		3.6% (17)
	Discounters	8.9% (27)+++	5.6% (5)++	0.8% (1)+		6.3% (13)
All Others	2.3% (7)++	1.1% (1)+	3.8% (5)+++	2.5% (3)		
Type of Store	Convenience Store	5.3% (16)+++	3.4% (3)+	3.8% (5)++	$X^2 = 3.146$ $p = .534$	4.6% (24)
	Supermarket	94.0% (283)+	96.6% (86)+++	96.2% (128)++		95.0% (497)
	Other	0.7% (2)+++	0.0% (0)+	0.0% (0)+		0.4% (2)
Getting to Store	Walk	15.9% (48)+++	10.1% (9)+	12.0% (16)++	$X^2 = 13.008$ $p = .368$	13.9% (73)
	Drive	69.9% (211)+	70.8% (63)++	79.7% (106)+++		1.1% (6)
	Cycle	0.3% (1)++	0.0% (0)+	1.5% (2)+++		72.5% (380)
	Public Bus	10.9% (33)++	13.5% (12)+++	6.8% (9)+		10.3% (54)
	Free Shopper Bus	1.3% (4)+++	1.1% (1)++	0.8% (1)+		1.1% (6)
	Taxi	0.3% (1)++	2.2% (2)+++	0.0% (0)+		0.6% (3)
	Other	0.3% (1)+	1.1% (1)++	3.8% (5)+++		0.4% (2)
Shop With	Alone	51.3% (55)++	50.6% (45)+	51.9% (69)+++	$X^2 = 4.497$ $p = .810$	51.3% (269)
	Spouse/Partner	31.1% (94)+	36.0% (32)+++	33.1% (44)++		32.4% (170)
	Children	4.6% (14)+++	1.1% (1)+	3.0% (4)++		4.4% (23)
	Friend	4.6% (14)+++	1.1% (1)+	3.0% (4)++		3.6% (19)
	Other Family Member	8.6% (26)++	9.0% (8)+++	6.8% (9)+		8.2% (43)
N-Segment Size		57.6% (302)	17% (89)	25.4% (133)		

#Data is missing on the demographic variable; * Significant difference between segments; +++ = Highest Rank Score; ++ = Middle Rank Score; + = Lowest Rank Score

9.7. Summary and Conclusions

This chapter built upon the last by analysing the structural equation model using a finite mixture approach. This addressed objective 3 stated in Chapter 1. In relation to this, hypothesis 13 was accepted since segmentation provided evidence of groups of different respondents in the factor means and operationalisation of the satisfaction model.

The findings of this chapter provide further evidence for the usefulness of finite mixture SEM in isolating segments within a wider population (Jedidi et al, 1997). As such, it has been suggested as superior to other simpler segmentation methods as it allows a structural model with latent constructs to be accounted for. Even more importantly, it is a response-based segmentation approach which uses an algorithm to find the greatest distinction between participants (Lubke and Muthen, 2005). This guarantees (given the assumption that the population is truly heterogeneous) the identification of meaningful classes. To date, only a handful of studies have used the finite mixture SEM approach in substantive research²⁷. Therefore, the current work contributes to the otherwise small number of empirical pieces.

One of the greatest strengths of finite mixture SEM is that it allows segments which operationalise different psychological processes (e.g. store image on satisfaction) to be measured. This means that structural models fit the data at

²⁷ To date, just one marketing application can be found by Bart et al (2005), published in the *Journal of Marketing*.

higher levels of accuracy (Jedidi et al, 1997). One further advantage is that previously undetected relationships in models may be established. This focuses the researcher to a more specific view of their investigation, with more exacting implications for theory and practice. For example, in this study, the role of the clientele factor was found to be an insignificant driver of customer satisfaction in the aggregate model. Conversely, in the finite mixture SEM, it was identified as one of two key influencers of satisfaction in segment two. This evidences the comments from previous researchers such as Jedidi et al (1997) and Hahn et al (2002) who spoke about important relationships being dismissed in aggregate models. A further advantage of the finite mixture SEM approach is its ability to compare the mean scores on factors across segments. Whilst this is commonly used in multi-group SEM, the benefits of being able to compare and contrast post-hoc segments are critical in substantive issues (Gagne, 2006).

The following chapter will provide a discussion of the study's findings, linking them where relevant to the extant literature.

*'Each man must reach his own verdict, by weighing
all the relevant evidence'*

(Leonard Peikoff, 1933-present)

10. Discussion

10.1. Introduction

In the previous chapters, a new and innovative model for measuring the grocery store satisfaction of older shoppers was developed through literature and empirically tested. The model was evaluated using quantitative analysis procedures; i.e. confirmatory factor analysis and structural equation modelling. It also incorporated a new scale for store image which was developed via both qualitative and quantitative methods. As research suggested that the older consumer segment should not be treated as homogenous (e.g. Moschis, 1992b; Gunter, 1998), a new 'response-based' segmentation method based on the principle of unobserved heterogeneity was used. This was applied to the satisfaction model and identified three segments. This chapter discusses the key findings, qualifying them where appropriate with the results of previous research, much of which is referred to in Chapters 2 to 4 of the literature review.

The chapter is structured to provide a discussion surrounding each of the objectives and sub-objectives. As such, attention is firstly given to some of the key grocery shopping behaviours found through analysis of the questionnaires (Objective 1). Secondly, the satisfaction model is discussed (Objective 2) with a specific emphasis placed on the *drivers* and *outcomes*. The measures (scales) used in the model are reviewed and their position (i.e. relationship) in the model assessed. In the third part of this chapter, heterogeneity within the sample is

considered (Objective 3). Specifically, this provides a review of the three segments, isolating how they differ from each other. Attention is also given to the usefulness of finite mixture structural equation modelling as a response-based segmentation approach.

10.2. Objective One – Grocery Store Behaviour

To date, few studies have addressed the grocery shopping behaviour of older people. Whilst Bearden and Mason (1979) and Moschis (1992a) devoted a short section to this subject, their data was collected in the USA, and therefore, not necessarily appropriate for describing English subjects. In contrast, authors such as Gunter (1998) and Myers and Lumbers (2008) have discussed this in general terms, but have not focused on grocery shopping specifically. For this reason, the first research objective was formulated, stating that the study would:

- 1) Explore and identify the grocery shopping behaviours of older people in England.*

To achieve this objective, both qualitative semi-structured interviews and quantitative survey methods were used. As might be expected given the properties of these methods (see Chapter 5), the qualitative research was used to inform the quantitative, with the latter giving more generalisable data (as discussed in Section 7.6). The quantitative data relating to grocery shopping behaviour was therefore given precedence for gaining insight into the lives of older people. Where relevant, reference is made to the qualitative findings to support the data identified in the quantitative research.

In general, most people in the sample selected a *supermarket* sized store as the venue for their main shop in the past six months. This finding is reflected, to

some extent, in the qualitative research in which many participants considered the supermarket format to be more convenient for “main” shopping trips as opposed to “topping up”. This format of store was thought to be convenient to people with regard to both the location and selection of products and services available. In total, 95% of respondents shopped in supermarkets, with 4.6% doing the most part in convenience stores. This loosely corresponds with data collected from the Office of National Statistics in 2009. The ONS (2009c) study suggested that over 70% of all purchases in the grocery sector are made in supermarket stores (i.e. shops with an approximate size of 45,000 square feet) – see Section 3.2. In part, this also indicates how powerful larger retailers, who often occupy supermarkets, have become. For example, independent retailers have seen a steady decline in sales, possibly as a result of the major retailer’s ability to attract a wider client base (Wrigley, 1987; 1991). This may also suggest that older people like to shop in locations where they can acquire a wide variety of products. Alternatively, it may indicate a lack of store choice with fewer options (Gordon and Wilson, 1999) - see Section 3.2.3. This poses a fairly important question. Nonetheless, given the scope of the research (i.e. satisfaction), further exploration of this may be needed in future studies.

It was found that members of the sample shopped fairly regularly, with 50% of them claiming to do so more than once per week. In some cases, respondents stated that they shopped over 20 times in one month. This suggests that grocery shopping is an important and regularly undertaken activity for many older people. In the qualitative research, the findings suggested that higher frequency shoppers tended to enjoy the activity more than lower frequency ones. This variation in the number of shopping trips undertaken by older people

has also been recognised in several British-based research studies (Hare et al, 1999; Myers and Lumbers, 2008). An important finding was that shopping frequency can be governed by the availability of personal transport. In this study 74% of respondents claimed to have access to transport in their household. This is (loosely) comparable to the wider population in which 70% of older people now hold valid driving licenses (see Section 6.2.1). Similar to the findings of Moschis (1992b), people without access to personal transport tended to shop more frequently than those with. One possible explanation for this might be difficulties carrying larger quantities between the store and home, leading to the need for more regular visits. Whilst greater access to personal transport may indicate a trend towards older people being wealthier, fitter and more active (see Section 2.4.2), it also indicates the reliance on car travel for accessing grocery stores. This reliance may be the result of many supermarkets occupying out-of-town locations (Seth and Randall, 2001). As such, the majority of people in the current study were found to travel in excess of one mile to their chosen store (69.2%). Of those who claimed to walk, 88% lived within a single mile. This same finding was identified in the qualitative stage of research in which many of those respondents who stated travelling on foot did so because their store was within walking range. This activity was often because subjects had no alternative choice. Nonetheless, this does present them with the opportunity to exercise.

The findings of the questionnaire also showed that, on average, respondents spent approximately £48 per week on household groceries. This is not dissimilar from the wider population where estimates suggest an average household spends £50.70 (ONS, 2009c). Given that older households are often

composed of fewer members, it can be inferred that the older segment is no less important to the revenue streams of grocery retailers than any other age group. This provides further support for those studies discussed in Section 2.4.2, in which the older population was promoted as an important segment. This finding contradicts research by Stitt et al (1995) entitled "Old, Poor and Malnourished" in which the author claimed that *most* older people eat an inadequate diet due to monetary constraints.

Following this review of key shopping behaviours, the next section will discuss the main findings relating to objective two and, hence, the development and analysis of the satisfaction model.

10.3. Objective Two – Satisfaction Model Development and Testing

In Section 4.3, the measurement of satisfaction was introduced as a critical activity for practitioners and academics. As such, a number of thorough and well formulated satisfaction models have been presented and empirically tested in the extant literature; e.g. The Swedish Customer Satisfaction Barometer (Fornell, 1992). Nonetheless, these 'generic' models can become quickly outdated and, therefore, require updating of equivalent models (Johnson et al, 2001). This is especially true of models measuring satisfaction within a specific context or using a particular sample – e.g. gender or age group (Johnson et al, 2001). In Section 4.5, the literature linking older consumers with grocery store satisfaction was shown to be outdated (Mason and Bearden, 1978; Lambert, 1979), geographically inappropriate; i.e. American (Mason and Bearden, 1978; Lambert, 1979; Pettigrew et al, 1997; Lu and Seock, 2008), and/or limited in its inferences (Mason and Bearden, 1978; Lambert, 1979; Pettigrew et al, 1997; Hare et al, 1999; Hare, 2003; Lu and Seock, 2008). Given the last point in particular, it was seen as essential that a new and innovative model be devised specifically for older grocery shoppers. This is reflected in the second objective, which was:

2) ...to develop and evaluate an empirical model for measuring the customer satisfaction of older grocery shoppers.

In most cumulative satisfaction models both drivers and outcomes of satisfaction are often used. This approach was retained in the current study. Satisfaction was measured using the three-item scale used in the Swedish, American, Hong Kong and European satisfaction indexes (Fornell, 1992; Fornell et al, 1996; Kristensen et al, 2001; Eklof and Westlund, 2002; Chan et al, 2003). This approach revealed high levels of construct validity (convergent and

discriminant) and reliability, with levels similar to those suggested by Anderson and Fornell (2000) – see Section 5.6.2. This provides further support for the scale first introduced by Fornell (1992), especially given the fact that the current study estimated the satisfaction construct using maximum likelihood (ML), as opposed to the more commonly applied partial least squared procedure (PLS).

The fully specified model was tested on a sample of 524 people (representing 28.6% response rate) previously agreeing to take part in marketing research. A mixture of exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM) was used in the development and testing of the model. Overall, the model showed a *good* level of fit to the data, above the statistical thresholds considered acceptable by experts (e.g. Hu and Bentler, 1999). This provided evidence for the proposed model being effective in its objective of measuring customer satisfaction, as well as its independent drivers and outcomes. This is important since it shows both an attempt and success in the development of an innovative satisfaction model. It should be noted that “equivalent” models were not sought.

The following sections look specifically at these drivers and outcomes, referencing the relationship of each with satisfaction. This, therefore, provides some reflection on the hypotheses formulated in Section 4.6.

10.3.1. Objective 2a - Drivers of Customer Satisfaction

Previous research by authorities such as Fornell (1992) and Johnson et al (2001) showed that the independent variables *driving* satisfaction were important for isolating areas in which investments in change would be most

beneficial (see Section 4.6). This was considered an important aspect of the cumulative satisfaction model. Objective 2a was:

2a) ...to develop and evaluate the factors driving (antecedents of) customer satisfaction.

Given the advances made in recent studies, satisfaction was specified to be *driven* by store image (Bloemer and de Ruyter, 1998; Theodoridis and Chatzipanagiotou, 2009). In separate pieces of research, Bloemer and de Ruyter (1998) and Theodoridis and Chatzipanagiotou (2009) used store image perceptions as exogenous variables of customer satisfaction. In these studies, the authors either used a collated measure of store image or segregated it into components, in keeping with similar classical studies such as Kunkel and Berry (1968), Lindquist (1974) and Zimmer and Golden (1988).

Since store image perceptions consist of the aspects of a store viewed as most important to shoppers, borrowing generic scales from previous studies to describe the perceptions of older people was considered inappropriate. This tactic was followed by Lu and Seock (2008), resulting in the omission of valuable information (see Section 4.5). It was therefore necessary to conceptualise a new scale comprising the most salient store attributes. Whilst, as shown in Section 3.3.1, this has been considered by certain authors on an attribute-by-attribute level (e.g. Bearden and Mason, 1979; Lumpkin et al, 1985; Pettigrew et al, 1997), no holistic typology for grocery store image existed. As such, a full scale development procedure was followed in line with the advice of Hinkin (1995) and DeVellis (2003)

A two stage research strategy was adopted in which semi-structured interviews and questionnaires were implemented. The interviews used 36 people belonging to groups for older people located in Devon, UK (see Section 5.5.2). This approach yielded a total of 42 salient store attributes which were provisionally coded under eight underlying factors: i.e. atmospheric store environment, physical store environment, accessibility, merchandise, personnel, price/promotions, services and clientele.

The provisional delineation of the 42 store attributes differed very little to that found in previous studies involving the wider population (see Section 5.5.2). Similarly, many of the attributes replicated studies such as those by Kunkel and Berry (1968) and Zimmer and Golden (1988). For example, attributes such as *store location, bus access, car parking, product quality, product availability, product variety, promotions, low prices and loyalty discounts* have all been found to represent salient aspects of the store to the wider UK population (see Section 3.3.1 and 6.3). However, other identified attributes were specific to the needs of older people. For example, having *accessible shelf height* minimises excessive bending or stretching often found difficult by older people (see Section 2.3.1). This was also found to be pertinent in the study by Johnson-Hillery et al (1997). Another attribute specific to older (and not to the wider population in previous studies) was *store lighting*. Respondents talked at length about the difficulties reading product labels in an inadequately lit environment. This was first found by Lumpkin et al (1985), albeit in the context of apparel shopping. With regard to the products available at their store, respondents placed a high level of importance in obtaining *branded* items. This corresponds with research conducted by Goodwin and McElwee (1999) and Moschis et al

(2004) in which brands were considered to signify a higher level of reliability by older people. Also, whilst related to the products available, some respondents discussed needing smaller portioned product sizes to reduce shopping costs and wastage (Hare et al, 1999). This was mainly considered as salient by those people living alone (Hare et al, 1999). A further finding was the importance of baskets and trolleys. This corresponds with research by Goodwin and McElwee (1999), who found that older people have difficulty manoeuvring deeply-set trolleys. Lastly, the sample displayed a preference for a wide range of promotions such as price discounts, bulk-buy promotions, clearance merchandise and loyalty cards. Surprisingly, senior citizen discounts, as observed in the studies by Lambert (1979) and Tepper (1994) was not mentioned during the interviews. In some ways, this may reflect the nature of grocery retailing in England when compared to places such as America. Whilst *age-based* discounts are commonplace in services such as transport, this is unusual in the retail sector and not commonly expected. Similarly, whilst certain store personnel characteristics were found to be salient in the current study, any preference to purchase products from older members of staff was not evident in the findings. This contradicts the work of, for example, Johnson-Hillery et al (1997).

In addition to the attributes identified as important in previous studies, there were also findings unique to the current research. Store availability of special dietary products was considered salient owing to the prevalence of food allergies, intolerances and certain illnesses in later life – e.g. celiac disease and diabetes (see Section 2.3). Stocking a range of alternative produce (e.g. gluten-free or sugar-free) was therefore considered helpful. Additionally, the perception

that *non-grocery products* were important was also mentioned by several interviewees, representing a fairly new addition to customer needs (see Section 3.2.2). In general, these respondents opted towards acquiring most (if not all) product/service from one place. This was considered helpful to save both time and energy. Finally, the role of other shoppers has received much less attention in the extant literature. The clients being *friendly, likeminded* and *obliging* were all identified as salient. One possible explanation might be that older people like to feel comfortable and safe in their shopping environment. This viewpoint, although not exclusive to the store's clientele, was discussed by Petermans and Van Cleempoel (2010) who stated that "older consumers consumption satisfaction does not come merely from consuming for gathering tangible possessions, but from consuming while seeking intangible experiences, such as feeling welcome within a retail store" (p.21).

As discussed in Section 5.6.7, the 42 items collected via qualitative semi-structured interviews were subjected to a "performance" based assessment using a seven-point Likert scale. Following exploratory factor analysis (EFA) in which the scale was purified and refined (resulting in 33 items), six underlying factors were evident. These related strongly to the "provisional" typology delineated as a result of qualitative analysis (see Section 6.3). However, no separate distinction between physical and atmospheric environment was found. As such, one underlying factor supporting the eight corresponding items was taken forward. This indicates that shoppers do not easily distinguish between *physical* and *atmospheric* components, cognitively judging this aspect of the store as intertwined. This relates to the conceptualisation offered by Baker

(1986) in which both design and ambience aspects of a store were organised under *Store Environment* at the factor level.

It was also found that the items underlying the provisional *Accessibility* factor were not significantly related to each other. The items were therefore dispersed, becoming located within the *services* and *store environment* factors. The six factors were then subjected to further analyses for construct validity and reliability. In both regards, the six factor store image scale represented model fit above recognised thresholds (see Section 8.3.1). All of the six factors were also identified as both valid and reliable. This represented the first holistic scale for grocery store image as perceived by older shoppers.

Each of the six factors was specified as exogenous variables in the wider conceptual model as driving satisfaction. Overall, the six factors explained 69% of the variance in satisfaction, indicating a high level of predictability (see Section 8.4.1). This provides good support for using store image as an antecedent, corroborating the work of Theodoridis and Chatzipanagiotou (2009). The loadings, representing the level of performance ascribed to the six factors by respondents, differed in the influence they had on satisfaction. As such, merchandise had the largest influence. This corresponds strongly with the qualitative research findings in which many respondents talked about 'product' related store attributes as being the most salient aspect of the store to them. This also re-enforces the findings of Theodoridis and Chatzipanagiotou (2009), who reached a similar conclusion as a result of their structural equation modelling approach. In more general studies, research by Meneely et al (2008) and Hare et al (1999) have also isolated *products* as being very important to

older people, although neither was able to conclusively state that it was a priority.

The store environment factor had the second largest influence. Once again, this was corroborated by the qualitative research in which many participants openly discussed the importance they ascribed to aspects of the atmospheric and physical store environment. It was particularly found that these older people wanted to shop in a clean, relaxed and pleasant environment. In contrast, Theodoridis and Chatzipanagiotou (2009) found that of their six store image factors, *atmosphere* was one of only two exogenous variables which were non-significant in driving satisfaction. This might be because shoppers (of mixed ages) in Greece do not consider the store environment to be important, possibly as a result of cultural or social norms. Similarly, in the study by Lumpkin et al (1985), the authors found that these aspects of the store were not as important as many others, such as prices and promotions. One possible explanation might be that they organised their study to be specific to apparel shopping where environment may not be so strongly associated with issues of health and hygiene (Petermans and Van Cleempoel, 2010). As such, the evidence presented in Section 8.4.1 represents a fairly unique finding. However, this was not unexpected given the prominence of studies such as Donovan et al (1994) and Turley and Milliman (2000). Whilst neither of these studies directly measure satisfaction, environment quality is shown to be vital in determining positive behaviours such as customer retention.

A further driver of satisfaction in the model relates to the store personnel. In her study of satisfaction, Hare (2003) found that older people scored their

supermarket highly with regard to members of staff. This also corroborates studies by Johnson-Hillery et al (1997) and Goodwin and McElwee (1999) both of which found quality of personnel to be held in high esteem by members of the older population. Nonetheless, this did not provide any indication of *how* strong the influence was on satisfaction. In other words, although previous studies show older people rate grocery staff highly, to what extent is this important in influencing customer satisfaction? In the current study, the personnel and services factors were shown to positively influence satisfaction, but as lower level determinants. Once again, the derived importance of the factor was expected, given the qualitative research findings, in which many participants talked about the store staff as being critical. Similarly, Theodoridis and Chatzipanagiotou (2009) obtained corresponding findings with the majority of shoppers deeming the personnel to have a low-medium influence.

Despite receiving many complementary findings to Theodoridis and Chatzipanagiotou (2009), their study did not measure aspects of store image relating to services. Nonetheless, these aspects have been noted as important in previous studies such as Oates et al (1996), Lumpkin et al (1985) and Lambert (1979). One recurring finding in the literature was that older people prefer to purchase products from stores in which they are able to make complaints and return items considered as unsatisfactory (Moschis, 1992b). Since these items were captured in the services factor, it is not surprising that older shoppers consider it to positively influence their satisfaction.

Whilst four store image factors were identified as drivers of satisfaction, in the present study, two factors were shown to have a non-significant influence;

namely price/promotions and clientele. In both cases this result was unexpected. For example, pricing was found by Theodoridis and Chatzipanagiotou (2009) to have the second largest influence on satisfaction. Given the weak situation of the Greek economy (the location of their study), it may be construed that shoppers were inclined to consider aspects of retail pricing to be more salient than as perceived in England. A further reason might be that Theodoridis and Chatzipanagiotou (2009) did not include any aspect of promotions in their model. Given the ephemeral nature of grocery store promotions combined with the narrower remit of products required, older people may have little experience of promotional offers compared to other aspects of the store. This may lead to difficulty gauging the influence of promotions with satisfaction.

The only other non-significant driver was the clientele factor. Once again, this was surprising since the qualitative research clearly showed it to be of importance to certain people. There may be two explanations for this. Firstly, 'clientele' related aspects of the store might only be important to a smaller sub-segment of the wider population. Therefore, when specified to be significant using data from the entire sample, the aggregate effect might not be large enough to be significant. This was in fact shown to be the case following finite mixture SEM in Chapter 9. Secondly, respondents may not consider the store to be responsible for *fellow shoppers*. Therefore they may not reconcile store clientele to be associated with satisfaction. Nonetheless, this would need further exploration in future research.

10.3.2. Objective 2b - Outcomes of Customer Satisfaction

Fornell (1992) pointed out that satisfaction models should not only measure what has happened in the past, but also predict what will happen in the future.

As such, the second part of objective 2 was:

2b)...to develop and evaluate the factors resulting from (consequences of) customer satisfaction.

In contrast to the scale for store image, which had yet to be established in the literature, the analysis of previous studies in Section 4.6 identified several marketing constructs to be tried and tested measures. These included affective commitment, calculative commitment, future intentions, word-of-mouth and price insensitivity. Surprisingly, despite being used independently, the five factors had not previously been used simultaneously as consequences of satisfaction. Future intentions, word-of-mouth and price insensitivity were especially important since normally they are included as part of the overall *loyalty* construct. Recent work by Soderlund (2006) suggested that this “cocktail” approach is inappropriate. Although the selected scales had been used in previous research, each was again subjected to confirmatory factor analysis testing unidimensionality (Fornell and Larcker, 1981; Anderson and Gerbing, 1988; DeVellis, 2003). As such, a measurement model was specified incorporating all constructs. With certain modifications (see Section 8.3) the model was shown to fit the data at levels exceeding recognised standards (Hu and Bentler, 1999). Each of the constructs/scales was then tested for construct validity and reliability and analysed using its relationship to satisfaction within the model. The results of this process are now discussed for each factor.

As a scale, affective commitment had only been tested in a limited number of contexts. Therefore, two separate scales with exemplary validity were amalgamated and tested as one (see Section, 5.6.2). Following the modification and removal of three items, retaining elements of both individual scales, the construct scored above recommended levels of validity and reliability (Hu and Bentler, 1999). This provided further evidence that the two borrowed scales, offered by Fullerton (2003) and Gustafsson et al (2005), were fit for purpose. The structural relationship between satisfaction and affective commitment revealed that the former explained 59% of variance in the latter. It also evidenced that an increase in satisfaction led to a significant positive increase in affective commitment. This relationship was hypothesised; further supporting studies by Garbarino and Johnson (1999), Johnson et al (2001) and Brown et al (2005).

Calculative commitment followed a similar approach, combining scales from both Fullerton (2003) and Gustafsson et al (2005). Of the seven items, three were removed to improve unidimensionality (Anderson and Gerbing, 1988). Comparable to the affective commitment scale, a level of construct validity and reliability above recommended thresholds was observed (Hu and Bentler, 1999). When measuring the hypothesised structural relationship, satisfaction was shown to explain only 9% of the variance in calculative commitment. This, whilst lower than expected, may be explainable. Research by Jones et al (2002) showed that switching costs, by which calculative commitment is intrinsically linked, was most determined by 1) lost performance costs, 2) uncertainty costs, 3) pre-switching search and evaluation costs, 4) post-switching behavioural and cognitive costs and 5) set-up costs. Since these were not explicitly measured in

the model, it is not surprising that satisfaction was incapable of explaining variance to a high degree. In terms of its structural relationship, satisfaction was hypothesised as having a negative influence. As such, it was considered likely that as the former increased, calculative commitment decreased. This finding was shown in the study by Gustafsson et al (2005), where a perception of limited alternatives (i.e. calculative commitment) was exchanged for genuine emotional attachment (i.e. affective commitment). In the present study, this hypothesis was not realised, showing a significant positive relationship between satisfaction and calculative commitment. In other words, as satisfaction increased, feelings of being "tied" to a particular store also rose. Although this was unexpected, a possible explanation may relate to the conclusions drawn by Johnson et al (2001). They suggested that higher satisfaction plays both the role of emotionally pleasing customers, as well as narrowing the number of alternatives in which a similar level of satisfaction can be matched. Since this situation, for certain people, would increase perceived switching costs, calculative commitment might also rise. This would be especially true for older shoppers who are constrained by the number of stores available to them. This would also require exploration in future research.

The scale for future intentions, which measured the likelihood of continuing to use the grocery store in the future, was borrowed from Fullerton (2003). In the wider measurement model (see Section 8.3.1) it scored at acceptably high levels evidencing unidimensionality, construct validity and reliability. It also scored higher in the level of reliability, using Cronbach alpha, than in the original study (i.e. .88 versus .81). This provides further support for the scale offered by Fullerton as being appropriate for purpose. In the structural model (see Section

4.6), future intentions was hypothesised to explain satisfaction, affective commitment and calculative commitment. As such, an increase in any of the three constructs was expected to positively increase future intentions. In total, the three exogenous factors explained 45% of total variance. In the wider model, this represented the second least well explained construct (after calculative commitment), indicating that causes outside of the model are responsible for the majority of influence. In some ways this could be explained by older people being unsure of what the *future* holds in store for them. For example, Metz and Underwood (2005) have suggested that the current cohort of older people often adopt a 'day-by-day' approach to living their lives (see Section 2.4.2). In terms of where shopping will be completed in the future, it is conceivable that factors outside of satisfaction, affective commitment and calculative commitment may blur any prediction.

Of the three determinants specified in the model, the largest influence on future intentions was calculative commitment. As such, older people consider their future store choice to be most influenced by a lack of alternatives rather than genuine emotional commitment or increased levels of satisfaction. In studies involving the wider population, authors such as Burnham et al (2003), Lam et al (2004) and Gustafsson et al (2005), have found calculative commitment to be important to future intentions, but usually as a secondary driver behind affective commitment (see Section 4.6). Additionally, in many studies involving commitment and loyalty intentions, calculative commitment has been overlooked as a significant determinant (e.g. Abdelmajid, 1998; Verhoef, 2003). These pieces of research tend to only consider the emotional attachment shoppers feel, presumably assuming that *switching costs* are redundant owing

to the greater number of alternatives in the present day retail arena. Nonetheless, whilst this may (or may not) be the case for the wider population, it would appear that calculative commitment is important to future intentions when applied in the context of older people. It therefore deserves further adoption and exploration in future research.

The scale for word-of-mouth was also taken from the study by Fullerton (2003). Once again the construct scored highly for both validity and reliability. Fullerton provided a Cronbach alpha score of .81 for the scale. In the current study, Cronbach alpha showed a higher level of internal consistency yielding a statistic of .91. This indicates that the scale is of sufficient quality, and, once again, provides further support in a context other than that of the original study. In the conceptual model, both affective commitment and satisfaction were hypothesised to have an influence on word-of-mouth communications. These hypotheses were formulated as a result of the extant literature provided in Section 4.6. Unsurprisingly, affective commitment was the largest determinant of word-of-mouth suggesting that the greater the mutual relationship, the more likely they are to advocate the store to others. This finding was expected, and further enforces the work provided by Bettencourt (1997), Garbarino and Johnson (1999), Johnson et al (2001), Harrison-Walker (2001) and Brown et al (2005). Although, it should be noted that none of the listed were in the context of older people, the logic behind this behaviour suggests that emotionally committed people would like to see 'their' store become more successful. Most customers understand the requirement of profit making underlying this success. They therefore act as ambassadors for turning this into a reality (see Section 4.6.4).

An interesting and unplanned finding was that calculative commitment also had a direct positive influence on word-of-mouth advocacy. Based on the research provided by Harrison-Walker (2001) and Fullerton (2003), this was not included as a structural relationship in the conceptual model and was thus hypothesised to be non-significant. The logic behind this was that people who are committed through necessity rather than choice were thought less likely to promote the store to others. However, the modification indices in MPlus suggested the two constructs were linearly correlated; albeit at a low level of relationship. This presents a novel finding. A possible explanation might be *assimilation theory* (Hovland et al, 1956). In assimilation theory, subjects tend to assume opinions and communicate them in line with the situation they face. In other words, despite being committed to the organisation through necessity rather than choice, subjects communicate positively, not wishing to be associated without options. This is a type of rationalisation by consumers who are unable to realise personal goals (Schiffman and Kanuk, 1999). As such, customers who would otherwise leave the organisation adopt a more positive attitude, further justifying their non-switching behaviour (Hansen et al, 2003).

The final construct specified as a consequence of satisfaction was the price insensitivity factor. This measured the extent to which customers were willing to pay higher prices should their store raise them. In the first instance the scale provided by Fullerton (2003) was found to contain strong construct validity and reliability. The alpha coefficient in Fullerton's study was .77 compared to .89 in the current research. Once again, this provides strong evidence for the usefulness of the scale, particularly since it was applied in a new setting and context. As one of the outcomes of loyalty, it was hypothesised in Section 4.6

that satisfaction, affective commitment and calculative commitment would all explain variance in price insensitivity. As such a one-point increase in any of the former was expected to positively influence the latter. Overall, the three exogenous factors explained 52% of the variance in price insensitivity suggesting more variance was explained by the factors specified than those missing from the model. Both affective and calculative commitment was found to have a strong positive influence on price insensitivity. This suggests that being committed to an organisation is strongly related to a higher price tolerance. In this regard, affective commitment was shown to have a marginally stronger influence than calculative commitment. This corroborates the work of Johnson et al (2001)²⁸ and Fullerton (2003) who both found this to be the case (see Section 4.6.5). Whilst affective commitment was the strongest determinant, the results also showed that calculative commitment can restrict choice to the extent that higher prices can be demanded by retailers and suppliers. This, in many ways, relates to Section 3.3.5 in which the work of Donkin et al (1999), Chung and Myers (1999) and Leighton and Seaman (1997) revealed that food prices were often higher for people restricted by transport, mobility or both. This is problematic since it shows how a lack of alternatives can have significant financial repercussions for older people. In many ways, it also implies the need for strict regulation of pricing within grocery retailing – not just with supermarkets and large retailers, but also smaller independent and convenience stores. An unexpected finding was the non-significant relationship between satisfaction and price insensitivity. In studies such as Anderson (1996)

²⁸ It should be noted that Johnson et al (2001) measured Price Insensitivity as part of their wider loyalty factor and this is the relationship described.

and Homburg et al (2005a), this relationship was found to be significant. This was especially the case when exchanges were cumulative as opposed to transactional (see Section 4.6.6). Since exchanges between older people and their grocery store were often found to be long-term, a non-significant relationship was even more surprising. One possible explanation is gleaned from the work of Homburg et al (2005b). When analysing the nature of the relationship between satisfaction and 'willingness to pay more', the authors observed that the type of influence changed depending on the length of that relationship. As such, in some models the authors observed an S-Shaped curve showing higher levels of price tolerance only at certain levels of satisfaction. They therefore concluded that in some situations a non-linear relationship may be observed. This also coincides with the seminal paper by Oliver (1999) in which he suggested that despite most loyal customers being satisfied to some degree, increasing satisfaction is not enough to retain customer loyalty. Both of these findings may have implications in the present context. For example, many respondents differed in the length of time in which they had shopped at their store. Similarly, older people may only be willing to pay more if satisfaction is at the highest possible level, or increasing to certain levels where they feel a price rise is justified. Nonetheless, in both cases, further research would be needed with more sophisticated statistical procedures should this be verified.

In this section a discussion surrounding the measurement of satisfaction and the relationship it has with other constructs in the conceptual model has been given. The following section will review the third and final research objective specified in Section 1.2, which provides a segmentation analysis of the model described in this section.

10.4. Objective 3 – Response-based Segmentation Using Finite Mixture Structural Equation Modelling

The final objective, stated in the early stage of the thesis (Section 1.2), involved the exploration and analysis of heterogeneity in the sample. Previous research had pointed towards the older population consisting of a number of sub-segments yet, to date, no conclusive and holistic method had been applied to model these variations. Therefore, objective 3 was:

3)...to explore heterogeneity within the older population by implementing an appropriate segmentation schema for modelling differences.

In Section 2.5 several attempts at segmenting the wider population were reviewed, comprising both *a priori* and *post-hoc* methods. Since *a priori* approaches were considered to be simplistic, response-based *post hoc* methods were shown as preferable. This was evident since no singular cause of heterogeneity within the older population had been identified as generically applicable. Response-based *post hoc* methods allow researchers to firstly identify heterogeneity and subsequently compare potential sources for this. Nonetheless, following a review of the literature, only one technique was shown to perform effectively and efficiently when segmenting using a structural equation model as the basis.

Finite mixture SEM, as first introduced by Jedidi et al (1997) was therefore chosen as the segmentation schema. In analyses this method scored better in every area when compared with alternatives – i.e. multi-group SEM using data segmented with cluster analysis (see Jedidi et al, 1997).

The analysis was computed in the statistical software programme MPlus. In total, three distinct segments of varying size were found. Segment one

accounted for 57.8%, segment two represented 16.8% and segment three contained 25.4% of the sample. The segments were distinct in the way in which the structural model (i.e. relationships between segments) was operationalised, as well as the mean factor scores (i.e. satisfaction). Personal and behavioural characteristics were then used to profile the segments. These three critical differences were reflected in the sub-objectives stated in Section 1.2. Whilst the model using the aggregate sample detailed in the previous section is very useful when making global policy decisions, the data showed a better level of fit to the three-segment solution. This verified the final hypothesis outlined in Section 4.6, stating that segmentation would have a significant effect on model fit. This revealed that the segmented model was more accurate than the overall (aggregate) one.

Since finite mixture SEM represented a novel approach, with little scope for comparisons against previous studies, the structure of the discussion orientates around *how* the three segments differ from each other. This, whilst an important set of findings deserving attention in this discussion, also proves useful for the practical implications in the following chapter. A thorough review of each of the identified segments is given, linking the findings to each of the sub-objectives in Section 1.2. This begins with a review of the factor mean scores for each segment.

10.4.1. Objective 3a – Customer Satisfaction Levels

Given the research aim and objectives, the first of three sub-objectives was:

3a)...to evaluate any differences in the level of customer satisfaction between segments.

Of the three segments, the most satisfied group of shoppers was segment one. Segment three was the second most satisfied and segment two the least. This also corresponds to the mean factor scores for each of the store image factors. As such, once again, segment one scored highest followed by segment three and finally segment two. These results corroborate, to some degree, the work by Woodliffe (2007) outlined in Section 3.3. She suggested that only differences between older people in their evaluations of satisfaction could identify whether certain segments are better (or worse) served by their grocery store. The two smaller groups within the larger segment claim that their store provides lower levels of store image performance and satisfaction. This is particularly true of the smallest group (segment two). From these findings it is inferred that differences exist in the performance and overall satisfaction perceived by older grocery shoppers (Moschis, 1992b).

The level of commitment people have to their grocery store was also shown to differ between segments. Unsurprisingly, given the high scoring satisfaction and performance of store image constructs, segment one rated their level of affective commitment higher than the other segments. Uniformly, the mean satisfaction levels of each segment were reflected in the mean scores for affective commitment. Contrarily, with regard to calculative commitment, segment one and two claimed to have the highest switching barriers. Segment three had the lowest mean level of calculative commitment. In terms of loyalty outcomes, once again, segment one claimed to be the most loyal (e.g. future intentions, word-of-mouth and price insensitivity). This is especially true of future intentions and word-of-mouth, which scored significantly higher than segments two and three. The most significant gap between the three segments

was in future intentions, indicating that segment two is the least likely to continue shopping at the same store in the future. This finding coincides with the work of Griffin (2002) which stipulated that loyalty behaviours and intentions should be observed at different levels. As such, it should not be anticipated that one person's loyalty is the same of that of another. This is shown here by all three segments which differed markedly not only in the level of loyalty as a whole, but between each of the different types of outcome. This further supports the work by Soderlund (2006) that the "cocktail" approach to loyalty is not always appropriate. To date, it is believed that this is the only other study to make the distinction between the three types of loyalty.

10.4.2. Objective 3b – Operationalisation of Customer Satisfaction

Despite differences in the level of satisfaction (and related constructs) between segments, these findings are difficult to interpret when little is known about the psychological operationalisation of satisfaction. In other words, how satisfaction is formed and how changes in satisfaction have implications for factors such as commitment and loyalty outcomes. This is important since these issues blend aspects of the *benefits*, *needs* and *consequences* attained by use of a particular store (Best, 2000). For this reason, the second sub-objective was:

3b) ...to evaluate whether there are differences between segments in the operationalisation of customer satisfaction.

The finite mixture algorithm identified all of the structural parameters in the model relating to each of the three segments. In the first instance, it is worth noting that none of the segments replicate the homogenous model, providing further support for the assertion by Jedidi et al (1997) that aggregated solutions can cloud reality.

With regard to the store image factors responsible for driving customer satisfaction, it was revealed that segment one considered increases in store environment, personnel, merchandise and services to have a small-to-medium influence. As in the aggregated model, clientele as well as prices and promotions, were not found to have an influence. Interestingly, due to the size of the factor loadings (low-medium), this finding indicates that the satisfaction of segment one is determined by a larger range of store image factors, each with a lower level of influence. This is evidenced by the fact that satisfaction is only determined by merchandise and clientele at a medium-to-high level. Therefore, it can be inferred that segment two put most influence into aspects of these two factors, with the remaining four factors having no significant effect. This differs from the aggregate model which suggested that clientele did not have any influence on satisfaction. This finding shows that satisfaction levels are affected by "other shoppers" but only within a small sub-segment of the overall sample (i.e. 16.8%). Nonetheless, whilst aspects of the store environment, personnel and services represent the benefits desired by segment one, segment two places a higher level of importance on *fellow shoppers* (i.e. clientele). This corroborates the findings of the qualitative stage of fieldwork which identified other shoppers to be important to certain participants, but not others. This finding, to date, had yet to be identified within the literature (see Section 3.3.1). This again justifies the importance of segmentation when analysing structural models, since salient variables can easily be overlooked.

In segment three, only store environment and merchandise were identified as significant *drivers* of satisfaction – both at medium-to-high levels. As such, personnel, clientele, services and prices and promotions were not important.

This suggests that segment three seeks food produce benefits, and also atmospheric and physical environment benefits from the store. Although segment one also finds these two factors to be important, the influence they have on satisfaction is of a lower level. These findings corroborate the studies by both Jedidi et al (1997) and Hahn et al (2002) since both research projects showed that different types of people *desire* disparate outcomes. It also enforces the findings of Oates et al (1996), (see Section 3.3.1) who asserted that groups of similar respondents could be *clustered* by the importance they ascribed to various store attributes/factors.

In terms of the outcomes of satisfaction, all three segments were found to have a positive and significant influence on affective commitment. The strength of the relationship was fairly similar between each. The effect of satisfaction on calculative commitment varied. For example in segment one the direction of the influence was positive, indicating that the more satisfied they became, the higher they considered their switching costs. In some ways, this follows a similar relationship to the aggregate model (see Section 8.4.1). Contrarily, segment two revealed no relationship between the two constructs, indicating satisfaction and calculative commitment to be unrelated. In all of the studies reviewed in Section 4.6, none had found any non-significant relationships between the two variables. However, this could indicate that calculative commitment evaluations are the product of situation (i.e. personal and behavioural characteristics), in which satisfaction levels are less important. This outcome is a unique finding. In contrast, segment three had the opposite relationship to segment one. An increase in satisfaction led to a decrease in calculative commitment. This was the association hypothesised between the

two constructs in Section 4.6. As such, it was presumed that feelings of constraint would be lifted from shoppers once they became more satisfied with their store. In general, this shows completely different psychological operationalisation of calculative commitment, suggesting it is driven by different forces between segments. Since in the aggregate model only 9% of total variance was explained by satisfaction, the addition of more explanatory variables would be beneficial in future research.

The future intentions of older people to continue shopping at their store is likewise driven by different factors between segments. For example, only satisfaction drives this decision in segment one, whereas in segment two it is only calculative commitment that is important. In other words, even if satisfaction or affective commitment increases, these subjects are unwilling to stay with the store they currently frequent. Both satisfaction and calculative commitment drive this decision for segment three; with the former having the greatest influence. This shows that different groups of the wider population consider the likelihood of shopping at the store they currently use to be governed by different factors. This may provide insight into the thought processes of each segment. For example segment one, currently the most satisfied group, did not consider any changes in personal situation (i.e. higher calculative commitment) to influence their choice of store. In contrast, the least satisfied group (segment two) considered *only* an increase in calculative commitment to have an effect on their future intentions. It could be that these people do not consider aspects such as their own personal gratification (satisfaction) to be particularly important in where they will choose to shop for groceries in the future.

The operationalisation of word-of-mouth also differed across segments. Whilst all three groups showed that an increase in satisfaction would have a positive influence, only segments one and three indicated affective commitment could have a similar impact. In segment two, the strength of the relationship between satisfaction and word-of-mouth was sufficiently high ($>.9$) to signify that the only way in which this particular group of older people would talk to others positively about their store, would be by an increase in satisfaction. This may be due to the satisfaction levels in segment two being lower than in other groups. Additionally, since it was the only group to find other clientele to be important in driving satisfaction, it may indicate that these people enjoy discussing aspects of the store with other people. Unsurprisingly, calculative commitment was not found to influence positive word-of-mouth in any of the three segments. This suggests a unified behaviour such as that proposed by Harrison-Walker (2001), and discussed in Section 4.6.

Once again, differences existed between the three segments in the operationalisation of price insensitivity. For segment three, a willingness to pay higher prices was governed by satisfaction. As such, when an increase in satisfaction occurs, it is expected that price insensitivity (i.e. price tolerance) also rises. For segments one and two, changes in price insensitivity were solely driven by affective commitment. Therefore, it is only when shoppers feel emotionally attached to the store that they are willing to spend more money. Predictably, in all three segments, calculative commitment had an influence on price tolerance. With the exception of segment two, calculative commitment had the largest effect on price insensitivity. In a wider aged (aggregate) sample,

Fullerton (2003) had similar results, with calculative being more important than affective commitment in driving levels of price tolerance.

Given that the finite mixture SEM identified differences in both mean scores, as well as the way in which satisfaction was operationalised, the key personal and behavioural characteristics of respondents are now discussed.

10.4.3. Objective 3c – Personal and Behaviour Characteristics

Since finite mixture SEM segments people based on their responses, for marketing purposes it is important to ascertain whether or not similarities and differences exist in the *descriptive* variables used to profile people. For this reason, objective 3c was:

3c)...to evaluate if personal characteristics (demographics, behaviours, etc.) differ between segments.

In many of the personal and behavioural *descriptive* variables, segment one and two differed very little. This was fairly surprising since they differ appreciably in both mean factor scores and their operationalisation of satisfaction within the model. The factor mean scores for segment two, suggest that this group is most likely to be disadvantaged as a result of (for example) disability, lack of personal transport and/or poorer financial situations. Nonetheless, the *descriptive* profiling did not indicate them to be any less disadvantaged than segment one. In some ways, the relationship between segment one and two corroborates the findings of Woodliffe (2007) in Section 3.3. In explanation, basing disadvantage solely on descriptive personal characteristics is not considered acceptable.

The personal and behavioural characteristics between segments one, two and three were also fairly similar. Nonetheless, there were some stand-alone differences between segment three and the others. For example, segment three was found to have a higher mean household income, more access to personal transport and, on the whole, higher levels of educational qualifications. From this, it could be expected that segment three has greater choice over where they shop. To some extent, this is reflected in the fact they scored lowest for mean level of calculative commitment. It may also be inferred that satisfaction should be higher for segment three since they (should) have better opportunities to find stores which fulfil their needs. This is likely to be the case when compared to segment two, where the mean scores for each factor were lower. In contrast, segment one claimed to be more satisfied and more loyal (based on the three outcomes). It could be argued, given their greater ability to spend alongside higher average educational qualifications, that segment three is more demanding and more critical of their store than segment one. For instance, in segment one satisfaction was driven at a low-to-medium level by a total of four store image factors indicating that no specific aspect of the shopping experience is critical to them. In contrast, segment three demands higher levels in fewer aspects of the store, indicating a more discerning evaluation. Nonetheless, no clear explanation can be given as to why segment one is more satisfied than segment three. This would need further evaluation following the current study.

In many ways, the outcome of the current segmentation corroborates the sentiments of Hahn et al (2002) – see Section 5.6.7. They suggest that ‘true’²⁹ segments rarely exist at the *descriptive* level. Instead, consumers are more likely differentiated by psychological characteristics which are not easily observed. These include benefits, consequences and needs (Best, 2000). This explanation may explain why two seemingly related segments (i.e. one and two), in terms of personal and behavioural characteristics, differ so greatly in mean factor scores and operationalisation of the model. Nonetheless, analysis suggests that whilst managers are normally always interested in segmenting groups based on personal attributes, making targeting less complex, the use of response-based segmentation is far more accurate and exacting for finding different groups. For example, Hahn et al (2002) used their satisfaction model, segmenting the sample using similar variables to that discussed in Section 2.5. The outcome showed that in all of these *a priori* segments the model parameters barely changed. This coincides with work by Ahmad (2002) who encouraged academics to segment using psychological approaches, such as *benefits*, particularly when working with older people (see Section 2.5). This approach is achieved in the current study.

In some ways, the findings discussed here point towards a new agenda for segmenting the older population. Instead of focussing on *descriptive* variables with limited capacity for identifying heterogeneity, researchers should embrace approaches such as mixture modelling (Gagne, 2006) and finite mixture SEM

²⁹ ‘True’ segments refer to groups which exhibit the most distinctive differences between them.

(Jedidi et al, 1997; Hahn et al, 2002). Groups of the wider population can consequently be more effectively and efficiently targeted as a result.

10.5. Summary and Conclusions

This chapter has presented an overview of the key findings resulting from the wider study. A discussion pertaining to both qualitative and quantitative aspects of the research was given. This showed that the project breaks new ground in a number of distinct areas through not only its application but the strength of its results (e.g. a new store image scale, good-fitting satisfaction model). The following chapter will take many of the points made in this regard further, drawing on the contribution that the study makes and assembling final conclusions about the project as a whole.

'Nothing before had ever made me thoroughly realise, though I had read various scientific books, that science consists in grouping facts so that general laws or conclusions may be drawn from them'

(Charles Darwin, 1809-1882)

11. Conclusions

11.1. Introduction

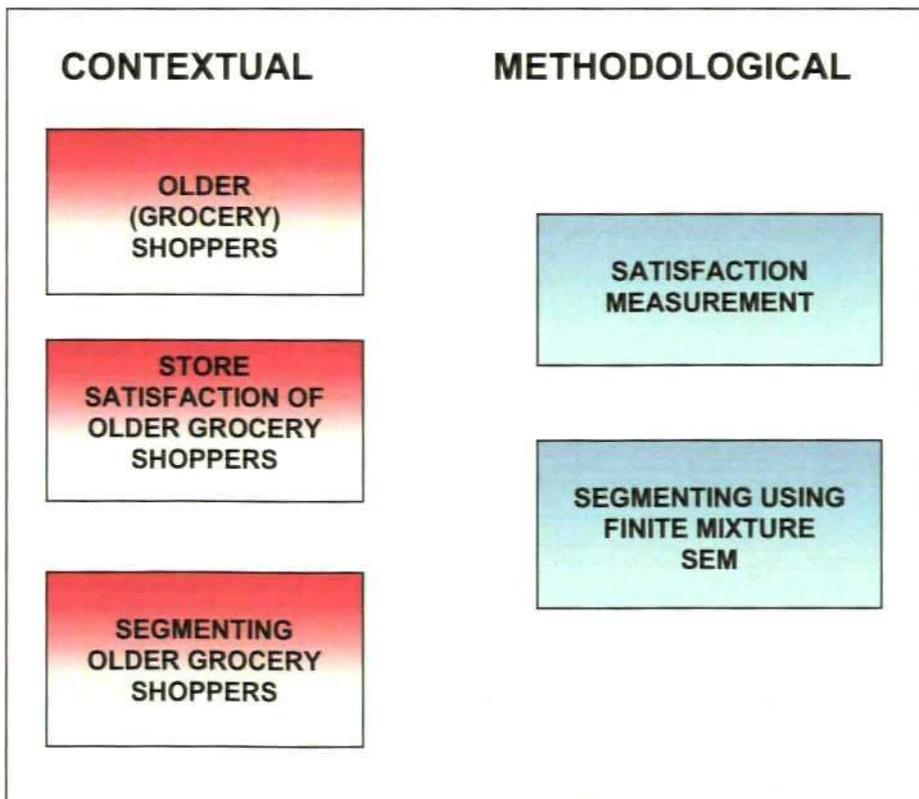
In the previous chapter, a discussion of the key findings in the study was reviewed. This was presented in relation to the three research objectives stated in Chapter 1. Chapter 11 represents the last in the thesis. As such, the main intention is to provide an overview of the entire study with specific consideration for the contribution it makes to theoretical knowledge and practice. This reflects, in part, the discussion given in the previous chapter. However, in other ways it goes further to review *how* and *where* the gaps existing in the extant literature have been filled. Reflection of areas in the study causing difficulties and/or limiting inferences is also given. Suggestions for further avenues of research is considered.

The chapter is introduced with a discussion of how this piece of research has contributed to theoretical knowledge. This is extended in the following section which details some practical strategies that policy makers and grocery retailers could implement to better serve the older population. An analysis of the inherent weaknesses in the study follows, continued by some possible directions for future research.

11.2. Contribution to Theoretical Understanding

In Section 1.2, an initial *scan* of the literature revealed that more research was needed to better understand the grocery shopping satisfaction of older people in England. This became the focal 'aim' of the research underlined by three objectives (see Section 1.2). These were addressed in full, details of which were discussed throughout Chapter 10. Based on gaps in the literature identified in Section 1.2, the study provides a number of contributions to theoretical understanding. As demonstrated in Figure 31, these contributions exist on both *contextual* and *methodological* levels. The discussion presented here will begin with the former, looking at how the findings add to a better general understanding of older shoppers.

Figure 31 - Contributions to Theoretical Understanding



11.2.1. Contextual: Older Grocery Shoppers

As demonstrated in Section 2.6, there is an urgent need for better understanding of the older population, with researchers such as Szmigin and Carrigan (2001) and Ahmad (2002) all calling for general research involving this group. For example Szmigin and Carrigan (2001) asserted that “continued research, both qualitative and quantitative, will provide an ongoing longitudinal analysis of how populations are changing” (p.1012). In this way, the findings disseminated here further theoretical knowledge, specifically contributing to a better understanding of shopping behaviours within the segment. Academics, such as Meneely et al (2008) and Hare et al (1999), have encouraged researchers to seek understanding specific to grocery shopping. Meneely et al (2008) stated that “the older consumer segment warrants greater attention as a population...and it is essential that their particular needs within the food and other service sectors are met” (p.346). The current study gives “greater attention” to the issues discussed by Meneely et al, and is especially relevant since the majority of research in this area of marketing theory has originated from the USA (see for example: Mason and Bearden 1978; Bearden and Mason, 1979; Lambert, 1979; Oates et al, 2004; Lu and Seock, 2008). This is not to say that UK based studies do not exist. Recently, certain researchers have focused on the grocery shopping behaviour of older people in Britain (see for example: Hare et al, 1999; Hare, 2003; Meneely et al, 2008; Meneely et al, 2009). However, these studies were limited to Scotland and Northern Ireland. The current study therefore redresses this imbalance by collecting data specific to England. Nonetheless, those completing future research projects might be advised to incorporate the wider UK population into their sampling frames and, if necessary, compare individual regions on this basis.

A key area of theory developed by this study provides insights into grocery shopping behaviours and habits. This includes answers to fundamental questions such as *when*, *where* and *how often* people complete shopping trips. Few studies have addressed this subject in recent years, with the exception of Myers and Lumbers (2008). In contrast to Myers and Lumbers (2008) who used a phenomenological approach, delving deeply into the lives of fewer respondents, this study provides quantitative data with a greater generalisability of findings. It therefore represents the most up-to-date and widely explainable insight of older grocery shoppers available in the literature. It also reflects the society of older people living in England today. This data could be further used for comparison with other age groups and/or future generations of people aged 60 years and above.

Furthermore, this study contributes a new *store image* scale. This was developed in line with suggestions afforded by authorities such as Kunkel and Berry (1968) and Lindquist (1974). Despite previous studies looking at independent store attributes considered important to older people (see Section 3.3.1), a holistic typology/framework was not available. As such, the scale developed in this research is empirically derived through qualitative and quantitative procedures and yields a blend of both existing and new attributes. Using recommended development methods, the new scale scored above recommended thresholds for validity and reliability. Given the growing necessity for research pertaining to the older population (Thompson and Thompson, 2009), it is thought that the scale represents a useful contribution for academics in future research projects; either for direct use or adaptation. Nonetheless, although the proposed scale is timely and current, the grocery retail market is

evolving. Future generations of the older population are also expected to change. It is therefore important that this scale is regularly updated to ensure that its reliability and validity is maintained. Application in varied contexts would help to verify its appropriateness.

11.2.2. Contextual: Factors Involved in the Satisfaction Process of Older Grocery Shoppers

The research presented in this thesis provides an empirical analysis of the satisfaction process employed by older people when shopping for groceries. Previous research, such as Mason and Bearden (1978) and Hare (2003), have attempted to study this, but only measuring satisfaction using single-item store attributes (e.g. product quality, product variety etc.). These studies have not provided evidence for the factors most important in driving satisfaction, nor have they attempted to measure potential *consequences*. In fact, until now, little was known of *how* store satisfaction decisions formed. As such, one of the foremost findings was that of the six store image factors specified to *drive* satisfaction, only four were found to be significant (see Section 10.3.1). This has implications for practitioners since focusing on non-significant factors might be wasteful (see Section 11.3). With regard to future research, it would be useful to see whether the influence of each store image factor alters at different time points as grocery retailing changes. For example, Section 3.2.2 illustrated how the food industry has changed markedly through time. It would be interesting to measure whether, and how, factors important to older shoppers change as evolution occurs. Similarly, it will be important to gauge whether internet shopping gains in prominence over time.

In addition to factors driving satisfaction, this project incorporates some potential consequences – i.e. affective commitment, calculative commitment, future intentions, word-of-mouth and price insensitivity. This augments the narrower approaches taken by Mason and Bearden (1978) and Hare (2003). One unexpected finding was that satisfaction positively influenced calculative commitment, especially since a negative relationship had been hypothesised. This was contradictory to the extant literature provided in Section 4.6 suggesting that older people may view calculative commitment differently to the wider population. A potentially valuable extension might be to model whether (and how) outcomes of satisfaction differ between older (60+) and younger (less than 60 years old) age groups.

The third area in which the contextual basis of the current study contributes to theoretical understanding is through the segmentation of older grocery shoppers. This is now discussed.

11.2.3. Contextual: Segmentation of Older Grocery Shoppers

Previous research has debated whether or not the older consumer segment should be treated as homogenous or heterogeneous (Moschis, 1992a). Whilst an answer to this question is dependent on the context in which it is assessed, this study found that heterogeneity was evident in the satisfaction model. As such, the findings endorse segmentation as critical (see Section 2.6). This is particularly crucial since of the few studies that do measure satisfaction of older grocery shoppers, none have sought different *types* of shopper for comparison. This gap was bridged in the current study by using finite mixture SEM to identify groups of similar people belonging to the wider sample population. This

presented a unique method of segmentation, never used before in older consumer research.

Crucially, segmentation revealed that older people vary in both the operationalisation of satisfaction, as well as the mean scores for each of the factors used in the model. This finding is important since it should encourage academic research, particularly that measuring customer satisfaction, to consider the older population as heterogeneous. Researchers should thus apply methods such as finite mixture SEM when sources of heterogeneity are unobserved. Older consumers should not be forcefully segmented using “descriptive” variables when there is little justification for doing so, as this is unlikely to provide “truly” different groups in the data. This was evidenced by the variables expected to cause higher/lower levels of satisfaction discussed in Section 3.3 (e.g. car access, mobility, income, etc.), which, overall, showed relatively few differences between segments. Further research would be useful to clarify this finding.

This piece of research also yields two areas in which the findings contribute to better methodological understanding, beyond implications within the context of older consumer research. These are ‘satisfaction measurement’ and ‘segmenting using finite mixture SEM’.

11.2.4. Methodological: Satisfaction Measurement

The current study makes contributions relevant to the wider measurement of customer satisfaction; and thus methodological theory in general.

The use of the empirically derived *store image* scale was found to explain a high level of variance in satisfaction and was part of the structural model displaying 'good fit'. To date, the use of store image has been used as a precursor for satisfaction in only a handful of studies (see Bloemer and de Ruyter, 1998; Theodoridis and Chatzipanagiotou, 2009). Nonetheless, this study finds that store image factors are extremely meaningful when looking at 'store' satisfaction. Whilst *store image* factors are therefore considered here to be both theoretically and empirically relevant, more research is needed using subjects from a wider age group.

The current study is the first to integrate the selection of *outcomes* relating to satisfaction. In the past, most studies have tended to focus on commitment or loyalty, with some others including only elements of either (e.g. word-of-mouth, future intentions, etc.). This study shows that greater inferences can be made when commitment and loyalty are used simultaneously. This is especially true since affective and calculative commitment differed significantly in the influence they had on each of the loyalty outcomes (see Section 10.3.2 for discussion of this). Using both types of commitment in future research is therefore considered as important. Similarly, by separating loyalty outcomes into three distinct types: future intentions, word-of-mouth and price insensitivity, cumulative satisfaction models are afforded greater levels of predictability. Since all three exogenous factors (satisfaction, affective commitment and calculative commitment) had diverse levels of influence on loyalty outcomes (see Section 10.3.2), academics are advised to consider loyalty as multi-faceted, requiring measurement using its constituencies and not as a cocktail approach.

Since the model presented here showed a *good* level of fit to the data, it should also be used by academics (and practitioners) wishing to measure satisfaction in other contexts. However, it should be noted that the store image scale may require adaptation depending on the situation in which it is used and is only applicable when applied in 'store' based contexts. As such, it is believed that the model represents the most innovative and up-to-date measure of customer satisfaction available in the extant literature.

11.2.5. Methodological: Segmenting using Finite Mixture SEM

In addition to the provision of a new satisfaction model, an original method for segmenting unobserved heterogeneous populations was used – finite mixture SEM. In previous research, few studies have adopted this approach, presumably owing to its demanding computing requirements. The current study bridges this gap, applying the method using satisfaction data; the context for which it was originally intended (Jedidi et al, 1997). The study also finds support for segmenting in this way, particularly when heterogeneity is expected, yet a *priori* approaches are unable to explain sufficient variation in the model. For example, in this context, the likelihood of the wider sample population containing segments was expected, but no cause of heterogeneity was known in advance. Finite mixture SEM collates subjects into similar groups based on their response to measures in the model. This guarantees *true* heterogeneity to be found. Profiling can then help to build a picture of members belonging to each segment. Given its limited uptake in the literature, little guidance was previously available. The process listed here provides academics, from a variety of disciplines, with a benchmark for implementing finite mixture SEM in their own research.

A further contribution to the wider methodological literature was finite mixture SEM's application within an extended structural equation model. In previous studies, usually only one (Jedidi et al, 1997) or two (Hahn et al, 2002) endogenous factors have been included. In this research, six endogenous factors were used, further supporting its appropriateness even in more complicated models. This assertion is substantiated since the finite mixture SEM model (Chapter 9) showed a better fit to the data than the aggregate solution (Chapter 8). Academics unsure of using the method in situations where several latent variables are needed should be reassured by this finding. The following section presents the implications of the study for practitioners.

11.3. Implications for Practice

This study has implications for both policy makers and retail managers within the wider grocery industry. In the first instance some general connotations to those responsible for controlling and regulating the grocery industry will be discussed. This will be followed by a discussion surrounding potential strategies grocery retailers could adopt to improve the satisfaction and loyalty of older shoppers.

11.3.1. Implications for Policy Makers

Given their growing size and influence, this study contributes support for placing greater emphasis on the needs and wants of the older consumer segment. Through a review of the extant literature, the findings indicated that this age group have often been neglected by practitioners in retailing. In the first instance, it is advised that policy makers such as local councils and industry bodies/controllers such as IGD and the Competition Commission factor the

older consumer segment into their decision making. This is important on both national and local levels. For example, policy makers are advised to be observant of grocery provision, particularly within regions displaying a high density of older people; i.e. the south-east and north-west (see Section 5.6.3).

Recent regulation by the Competition Commission in which grocery retailers are only permitted to own 60% of sales space within a designated region is considered an important strategy for retaining the potential for a wider range of store choice (see Section 3.3.3). However, this judgement should be strongly considered in areas in which older people have less accessibility, since more restriction may result in fewer stores and therefore an overall *net* decrease in store availability. Given the wider literature surrounding the growth of 'food deserts' discussed in Chapter 3, bodies such as the Competition Commission should ensure that their policies do not increase this likelihood.

It is also advised that local councils and governing bodies such as IGD actively monitor whether grocery stores attempt to meet the needs of older shoppers. Whilst, as this research has demonstrated, their needs often differ between segments of people, attention would be most beneficial in aspects of the store impacting upon a healthy diet and access. Therefore closer attention should be given to policies regarding the store environment and merchandise provided by retailers. With the former, efforts should be made to ensure that older people can access and use grocery spaces easily and efficiently. As such, it might be beneficial to set-up a national forum to provide advice to retailers about stocking produce enabling a healthy diet. This would be most important to smaller (particularly independents) retailers who may not have the 'buyer power' or

'know-how' to organise and stock produce meeting this requirement. At the same time, retailers could be advised and assisted in preparing a suitable store environment (e.g. lighting, aisle width, etc.). This could also be used to ensure that important issues such as car parking and transport routes are accessible for the older generation.

The initiation of an organisation to mediate between older consumers and the grocery industry might create an efficient mode of communication between the parties and other stakeholders. This may also help to keep retailers better informed and provide older consumers with a voice for important issues. This section will now consider the implications for grocery retailers, specifically outlining some potential strategies that could be followed.

11.3.2. Implications for Grocery Retailers

This study has shown that neglecting the wants and needs of older shoppers may be misguided when considering the influence that increasing their satisfaction has on loyalty behaviours; for example, future intentions, word-of-mouth and price insensitivity (see Section 8.4).

Greater investment is therefore advised by managers in the wider grocery industry, yet specific intervention might be more apt in targeting specific groups. For example, an actionable finding derived from segmentation showed that the three segments differed in their mean factor scores on many of the constructs. This revealed that segment one was not only the largest, but also the most contented with their store. It could be argued that those stores serving segment one are doing a positive job of keeping their customers happy and might,

therefore, consider a strategy of only modest improvements. For segments two and three, greater investment might be advised in order to increase satisfaction levels. For instance, segment two was the smallest group, yet professed to be the least contented in terms of store image, satisfaction, affective commitment and loyalty outcomes. Depending on the strategy chosen by the grocery retailer, this group might be an attractive target since there is greater scope to increase their satisfaction and loyalty. In contrast, segment three displayed mean factor scores between both other groups. However, they were also found to have a relatively higher education level, higher income, greater level of mobility and belonged, on average, to a higher geodemographic class. Given this greater flexibility, segment three may appear to be more appealing to certain retailers depending on their strategic targets. This is particularly true if the store positions 'higher end' products at more expensive prices than competitors.

The following sections outline potential strategies retailers might consider for 1) increasing customer satisfaction, and 2) increasing loyalty outcomes in the aggregate and individual segments.

11.3.2.1. Increasing Customer Satisfaction

As the strategies used by grocery retailers currently stand, improving the satisfaction (and therefore loyalty outcomes) of the wider (aggregate) older population and each of the constituent segments might require specialist attention. An important implication that emerged arose as a result of the development of the scale for store image. This showed that many salient aspects were consistent with other age groups. Nonetheless, older people were found to have their own unique *wants* and *needs*. These were discussed in

Section 10.3.1. Initially, grocery retailers should be aware that the service they provide needs to be differentiated for the older age group. For example, managers should be cognisant of, and willing to implement strategies tailored to the requirements of their older customers. Some potential interventions are now discussed.

The model presented in this thesis is useful for isolating aspects of the grocery store most influential in increasing customer satisfaction. This is evidenced by factor loadings identified in structural parts of the model (see Section 8.4 and Section 0). In this way, grocery retailers can use the findings to either improve the satisfaction of the wider over 60 year old population, or target segments. As such, Table 66 presents some potential strategies that *could* be used. These are provided on both the aggregate and individual segment level. Only those factors found to influence satisfaction are highlighted, with the most important of these shown as priority.

Table 66 – Strategies for Grocery Retailers

Factors Driving Satisfaction	Corporate Level Strategies for Increasing Customer Satisfaction	Store Level Strategies for Increasing Customer Satisfaction	Target Segment
1) Merchandise	<p>Freshness: Consider linking freshness to branding through promotional messages both in-store and out-of-store.</p> <p>Product Range: Develop product lines within the package size requirements of older shoppers. Stock extensions to meet special dietary needs.</p>	<p>Freshness: Use internal cues including lighting and positioning of fresh produce to develop the concept of freshness and quality.</p> <p>Product Range: Use in-store displays to effectively promote extended product ranges. Make sure that the products most used by older people are accessible.</p>	<p>Aggregate Sample++ Segment One++ Segment Two++ Segment Three++</p>
2) Store Environment	<p>Store Design: When designing a store consider the logic of the layout. Use atmospherics that enhance the concept of space, with a clear aisle policy.</p> <p>Atmospherics: In the (re)design of the store, architects and store designers should be briefed on the importance of lighting, the use of sound suppressing materials and appropriate colours.</p>	<p>Store Design: Familiarity can be important for the aged. Consequently reduce any 'radical' restructure. Encourage staff to follow a clear aisle and tidiness policy. Attempt to undertake internet shopping collection and restocking prior to the store opening or during less busy periods to increase progression throughout the store.</p> <p>Atmospherics: Scent generated in-store can be an important trigger of freshness. Store managers could examine the possibility of pumping the smells from the bakery through the store.</p>	<p>Aggregate Sample+ Segment One+ Segment Three+</p>
3) Personnel	<p>Staff Training: Develop an online staff training programme to increase awareness and service levels delivered to the aged market. Part of this training programme will include information about the three segments.</p> <p>Staff Remuneration: Consider remuneration policies that reward staff for the service levels they provide to the seniors market.</p>	<p>Staff Training: Encourage staff to undertake the online training programme. Implement in-store train sessions to supplement the online programme.</p> <p>Staff Remuneration: Measure and reward staff on how they perform in regards to their friendliness and helpfulness. Monitor and collect research to this effect.</p>	<p>Aggregate Sample Segment One</p>

Factors Driving Satisfaction	Corporate Level Strategies for Increasing Customer Satisfaction	Store Level Strategies for Increasing Customer Satisfaction	Target Segment
4) Clientele	<p>Social Islands: As can be seen with segment 2, socialisation is an important part of the shopping experience. Explore concepts of the social island where the senior market can interact. This could be as easy as a café or the placement of seating.</p> <p>Crowd Control: Develop strategies to help the flow of customers around busy times. This will reduce the stress of shopping.</p>	<p>Social Islands: During times of the day when there are more seniors in the store attempt to implement social islands. This might take the form of constructing temporary seating areas.</p> <p>Crowd Control: Have more staff working in areas that will increase flow through during busy times.</p>	Segment Two+
5) Services	<p>Facilities: When designing stores, consider the accessibility and health needs of the aged market. Develop seating areas within store, and use store cafes.</p> <p>Returns Policies: Consider adapting returns policies to allow greater flexibility for defected items being brought back to the store. Consider compensating customers who return items making that task less painful</p>	<p>Facilities: Incentivise older shoppers to use in-store cafes as social meeting places by offering discounts for groups of shoppers.</p> <p>Returns Policies: Provide adequate in-house staff training for dealing with customer complaint resolution.</p>	Aggregate Sample Segment One
6) P+P	<p>Seniors Reward Scheme: A loyalty scheme could be developed that is targeted towards segments of the seniors market. This could be a variation of the normal loyalty scheme, however, with some extra features (e.g. free coffee at the in-store café) tailored to this group's needs.</p> <p>Price Promotions: Identify a range of pricing strategies, including multi-buy promotions, price discounts and a clearance items section using items that are mainly used by older shoppers.</p>	<p>Seniors Loyalty Scheme: Identify different ways to offer value to loyal customers using each store – making sure that a one size fits all approach is not adopted.</p> <p>Price Promotions: Run the pricing strategies at different times of the day when older people usually use the store.</p>	N/A

++ = Factor which must be seen as the priority within the aggregate sample/independent segment; + = Factor which is second priority within the aggregate sample/independent segment

As Table 66 shows, retailers should concentrate their efforts on improving aspects related to merchandise. This was the biggest priority in all three segments. Potential strategies might include improving the freshness of produce and communicating this to shoppers at both corporate and store levels using advertising and well placed in-store marketing techniques. Additionally, the store could extend their product lines to cater for specific issues including a greater selection of product sizes and, where appropriate, merchandise to meet the needs of any special dietary requirements.

The second priority for the aggregate population, segment one and segment three is the store environment. As such, improvement in this area is expected to have the second largest influence on satisfaction for these groups. A potential strategy on both corporate and store level might be to improve the 'store design', in order to make the layout more logical. Whilst this could be accomplished at corporate-level strategy, on the store-level it would be important to avoid making overly revolutionary changes which could overwhelm loyal customers. Additionally, improving the store atmosphere to reflect a range of sensual cues might instil a higher propensity to spend within the shop.

The store environment was not considered a priority, or indeed an influence, for increasing satisfaction within segment two. Instead, these customers placed importance in other clientele. As such, having *friendly, helpful and likeminded* shoppers was considered priority. These customers are most likely to be attracted by the social element of the store. Potential strategies may include the implementation of 'social islands', which would allow people to take a break from shopping and communicate with peers. Additionally, 'crowd control'

policies such as *filtering*, currently used in stores such as IKEA, allow people to shop in their own time without feeling rushed or impinged upon by other shoppers. It should be noted that these strategies may only be of use for improving satisfaction within segment two and might therefore be wasteful when targeting other segments.

Improvement in the performance of personnel is likely to positively influence satisfaction in both the aggregate population and segment one. This might be wasteful if directed towards segments two and three. For instance, a potential strategy might be to encourage staff to engage in company-wide training schemes. These schemes would educate personnel to better serve older people in general. On a local level, staff could be trained to adapt to the specific demands of older people living and shopping in the area in which the store is located. For example, in areas where gaining access to the car-park is difficult, staff could be taught to direct vehicles. In essence, staff could be trained at the local level to be more socially aware of the situations faced (e.g. financial, social, etc.) by people using the store.

As with other personnel, the services factor was found to be a significant driver of satisfaction in both segment one and the aggregate population – both at a low-level of influence. This indicates that intervention would have only a minimal effect. However, potential strategies might include the implementation of specific ‘facilities’ in every store. Such facilities might include a cafe shop and/or rest rooms. The former would be useful to older people as it would encourage socialising and provide the opportunity to rest before travelling home. Obviously, in smaller shops this may not be possible. However, a small seating

area may be considered useful to many people. A second option might be to address the 'returns policy' of the store. Given that older people often place a high level of importance in purchase reliability, having a clear and consumer-oriented returns strategy may encourage a greater sales volume and provide peace-of-mind to customers. At the store level, this may involve additional "in-house" training and evaluation.

Prices and promotions were found to be insignificant in driving satisfaction. Intervention may be considered wasteful in all of the segments and, indeed, in the wider older population. It could be argued (as in Section 10.3.1) that many older people are yet to experience anything important enough in this regard to *drive* their satisfaction. Investing in strategies such as reward schemes for seniors may provide this impetus to consider them salient. However, currently many older people do not see this to be relevant to their satisfaction and priority should therefore be directed elsewhere.

The following section will look at the main influences retailers might consider when trying to increase specific loyalty outcomes.

11.3.2.2. Increasing Loyalty

Whilst loyal customers are invariably satisfied, satisfied customers are not always loyal (Oliver, 1999). For this reason, if the objective of grocery retailers is to obtain specific loyalty outcomes (i.e. future intentions, word-of-mouth, price insensitivity), it is important that they ascertain how this is best achieved. It should be noted that in situations where satisfaction is not the most influential driver of loyalty outcomes, it still should not be overlooked. In instances where

affective commitment and calculative commitment have the largest effect, it should be remembered that satisfaction is often the *driver* and might therefore be *indirectly* important. For this reason, the strategies suggested for increasing satisfaction in the previous section are also relevant here, since measuring *indirect* effects was outside the scope of the current study. It is therefore difficult to assess the extent of influence that satisfaction has on loyalty outcomes as a result of either type of commitment. Table 67 presents each of the loyalty outcomes and their corresponding exogenous factors. Priority relationships are identified for each.

Table 67– Influences on Loyalty Outcomes for Each Segment

Endogenous Construct	Exogenous Construct	Segment Influenced
Future Intentions	Satisfaction	Aggregate Sample Segment One ^b Segment Three ^d
	Affective Commitment	Aggregate Sample
	Calculative Commitment	Aggregate Sample ^a Segment Two ^c Segment Three
Word-of-Mouth	Satisfaction	Aggregate Sample ^a Segment One ^b Segment Two ^c Segment Three
	Affective Commitment	Aggregate Sample Segment One Segment Three ^d
	Calculative Commitment	Aggregate Sample
Price Insensitivity	Satisfaction	Segment Three
	Affective Commitment	Aggregate Sample ^a Segment One Segment Two ^c
	Calculative Commitment	Aggregate Sample Segment One ^b Segment Two Segment Three ^d

Note: ^a = Priority for influencing endogenous factor in the Aggregate population;

^b = Priority for influencing endogenous factor in Segment One;

^c = Priority for influencing endogenous factor in Segment Two;

^d = Priority for influencing endogenous factor in Segment Three.

Table 67 shows that for increasing future intentions, raising switching barriers (i.e. calculative commitment) would have the largest effect in the aggregate population and segment two. In addition to raising satisfaction levels, retailers could invest in specific store discounts tailored to the products that customers use, or reward cards to make it less cost effective for them to switch (Burnham et al, 2003). In contrast, in segments one and three, increasing satisfaction using the suggestions in Section 11.3.2.2 would be the best intervention.

For increasing positive advocacy about the store (word-of-mouth), satisfaction is the exogenous factor with the largest influence in the aggregate population, segment one and segment two. In segment three, satisfaction is also important. However, these people are most likely to engage in positive word-of-mouth when they feel a genuine affective commitment to the store.

Secondary to increasing satisfaction, which is obviously important to affective commitment, the store could attempt to engage in greater relationship-building activities such as 'personalized marketing' (Peppers and Rogers, 1993). Organisations would therefore need to tailor their product offering and communications to individual customers. This would require that stores regularly and efficiently collect and collate data to this effect.

Price insensitivity is driven by different factors between segments. For example, in the wider population and segment two, affective commitment has the largest influence. As such, once again, relationship building exercises coupled with increases in satisfaction levels might be the most beneficial strategy.

Conversely, in segments one and three, calculative commitment rises are most likely to encourage people to accept price increases. If this is the tactic the store wishes to introduce, a potential approach might be to limit the opportunities for people to shop at alternative retailers. For example, an organisation might implement an aggressive strategy to acquire a competitor's stores, thus limiting the number of choices available (Johnson et al, 2001). This strategy might be difficult in the UK since there are legal restrictions on the 'sales space' owned by one retailer within a designated radius (see Section 3.2.3).

The following section in Chapter 11 will be to look at some of the foremost limitations of this study.

11.4. Study Limitations

As in most studies, the research presented in this thesis has several limitations. It should be noted that the research quality was managed in order to restrict the limitations. These were identified in the areas shown in Table 68. This included the *contextual* aspect of the research which involved the study setting and organisation. Other limitations were distributed between qualitative and quantitative research methods for the *sampling, collection and analysis* of data.

Table 68 – Possible Limitations Associated with the Study

Limitations	Qualitative Stage	Quantitative Stage
Contextual	<ul style="list-style-type: none"> • Restricted to “most used” store in the past six months. • Exclusion of “top-up” shopping. • Focused on store shopping and not online. • Focused on satisfiers without considering secondary satisfiers or dissatisfiers. 	
Sampling	<ul style="list-style-type: none"> • Use of registered groups for recruiting participants. • Type of groups used for recruiting participants. • Selection policy for recruiting participants from each group. 	<ul style="list-style-type: none"> • Use of a commercially purchased sampling list.
Data Collection	<ul style="list-style-type: none"> • Public meeting place for interviews. • The demographic profile of the researcher (i.e. male, young, etc.). 	<ul style="list-style-type: none"> • The use of self-completion surveys.
Data Analysis		<ul style="list-style-type: none"> • Omission of “equivalent” models. • Omission of indirect effect structural relationships. • Omission of interaction and moderating relationships.

11.4.1. Contextual

Whilst most of the issues identified in this section can be specified as part of either the qualitative or quantitative research effort, the contextual limitations refer to the organisation and focus of the overall project. As such, one of the greatest restrictions was that data could only be collected from a single “most used” store. This decision was taken to minimise the fragmentation of both data collection and analysis. It was also felt that this would help to preserve the quality of data, since users of multiple stores might find it difficult to differentiate between retailers when providing evaluations. Nonetheless, this approach makes it difficult to draw inferences and make assertions about customer

satisfaction in the wider provision of grocery retailing, since potentially, not every combination of the stores used by each shopper is included in analysis.

In addition to this, the study was specified to collect data from only “main shopping” experiences. That is, stores in which older people conducted the most-part of their shopping. This overlooked the relatively new phenomenon of “top-up” shopping. Previous research has collected data making this distinction (Megicks et al, 2008). Similarly, the qualitative research highlighted that “top-up” shopping was commonplace with older people (see Section 6.2.2). However, as a result of needing to simplify the data collection and analysis efforts, “top-up” shopping was omitted. A replication of the current study, collecting data pertaining to this mode of shopping, would provide a useful addition to understanding the behaviour of older people. It would also serve as a basis for direct comparison with the findings of this research.

The study was exclusively from the perspective of *store* shopping and not *online* sales. As such, the focus of the project revolved around *physical* rather than *electronic* shopping. Although it would have been difficult to merge the two approaches, since the drivers of satisfaction are most likely disparate, research suggests online shopping within the older segment is on the rise (ONS, 2005b).

The final contextual issue relates to the operationalisation of customer satisfaction. The study aimed to identify the factors most critical in driving satisfaction. Nonetheless, previous research has shown that certain store attributes have the ability to *satisfy*, but when missing, cause little *dissatisfaction* (Cadotte and Turgeon, 1988). On the other hand, certain attributes are more

akin to Herzberg's *hygiene* factors and, if not present, cause dissatisfaction (Herzberg, 1959). As the relationship of specific attributes was measured as part of a latent system, this was felt to be beyond the scope of the study. Future research looking more closely at the relationship of certain attributes with satisfaction may reconcile this limitation.

11.4.2. Sampling

Methodological restrictions in both the sampling for qualitative and quantitative stages of the research were also inherent.

In the qualitative research, a non-probability convenience/snowball sampling approach was used, recruiting organisations run for people aged 60 years and above. These tended to be active groups requiring meetings and social events. It could be argued that this approach attracted bias owing to the potential neglect of people unable, or unwilling, to belong to such groups. Whilst this is often an issue with convenience sampling, it is thought that the types of organisations may have further encouraged bias. For example, many of the groups (with the exception of Age Concern Plymouth) consisted of fairly well educated, socially active retirees, wishing to remain involved with society. Again, this may be conceived as erroneous since other *types* of older people may have been overlooked. At the same time, the *gatekeepers* for each organisation were the intermediary recruiting participants for interviews. This may have been problematic for increasing bias since it took selection away from the researcher, thus foregoing control to people untrained in research design issues. It should be remembered with the last point that this was also the most convenient and cost effective method for gaining access to subjects, as the

researcher was able to gain the trust of the organisation. Additionally, every possible step was taken to encourage the recruitment of an eclectic sample (as discussed in Chapter 5).

In the quantitative sampling a slightly different issue concerning bias arose. Questionnaires were posted using addresses lifted from a commercially purchased list. The list was compiled using the personal details of people who, at some stage, had agreed to take part in market research. For this reason it was difficult to establish the extent to which the sample list was representative of the wider population. Once again, this was considered the most convenient and effective method for reducing bias, although some may have still been inherent.

11.4.3. Data Collection

With regard to the collection of data, certain issues were considered as possible limitations of the overall research project.

During the qualitative data collection stage, respondents were organised to meet the researcher in a neutral location, such as a cafe. This was essential since meeting participants in their homes would have breached the ethical guidelines stipulated by the University of Plymouth Ethics Committee. Nonetheless, meeting in public *might* have influenced the data collected. For example, it could be argued that respondents may have been less likely to discuss the more intimate aspects of their shopping behaviour in public. Although unrelated, a second issue may have been the willingness of participants to impart information to a young (under 30), male researcher. As

such, they may have felt uncomfortable discussing elements of their shopping behaviour with someone perceived to be unable to empathise with their situation. However, it should be noted that every attempt was made to connect with participants to gain their trust, therefore encouraging them to talk freely.

The quantitative research might have also suffered limitations for different reasons. The questionnaires represented self-completion surveys, expecting respondents to fill-in these themselves. Whilst this is more time and cost effective than other approaches, it does assume that subjects are literate and capable of answering questions. This approach may have excluded certain people, such as those unable to self-complete due to illness or frailty in old age. It should be noted that an attempt to obviate this potential cause of bias was to offer additional support (i.e. telephone completion).

11.4.4. Data Analysis

Constraints in time imposed several limitations in the analysis of data in the quantitative stage of research.

In the qualitative analysis, data was collected concerning the attributes most important to older people alongside certain personal and behavioural characteristics. These separate types of data could have been merged to provide a qualitative segmentation of shopper *types*. Unfortunately, owing to project scope, insufficient personal/behavioural data was collected to make the segments substantively meaningful. However, this might be a worthwhile activity in future research, as it would examine whether qualitative and quantitative research methods *triangulate* in their results.

The quantitative data analysis had slightly different limitations. The satisfaction model was stipulated and tested as a result of the extant literature. Owing to time constraints, *equivalent* models representing variations in structural paths were not experimented with to find a 'best fit' model (see Cronin et al, 2000). Again, this might deserve consideration in future analyses. Additionally, the data analysis did not examine how certain constructs are moderated by other variables. For example, a recent study has shown that certain personal characteristics may interact and moderate the relationship of satisfaction with other variables (Mittal and Kamakura, 2001). Owing to the project scope, this possibility was not entitled to investigation.

Emerging from the limitations discussed here, the following section outlines several avenues for further research.

11.5. Directions for Future Research

In many ways, this study presents a plethora of opportunities for future research. In both this chapter and the last (Chapter 10), a number of directions for furthering the current project are/were suggested. At the same time, the research has opened other avenues for exploration, both in terms of the older consumer segment and satisfaction measurement. Although the possibilities are conceptually wide, this section will briefly introduce several directions for new research considered imperative for developing knowledge.

In the first instance, academics (and practitioners) are encouraged to continue research regarding older consumers, covering a wide spectrum of sectors and subject focuses. This will help to widen understanding of this customer

segment. With such an eclectic compilation, this goal can only be accomplished by constituent research projects. It is also important that this understanding is maintained and disseminated over time, ensuring that research is collected longitudinally. In this sense, academics can monitor and make predictions about future generations based on past research.

More specifically, further research should focus on the wider retail satisfaction of older people. This would extend data collection of grocery shopping behaviours to incorporate “top-up” shopping. This would help to provide a more complete picture of grocery provision than was possible in this study. A further opportunity might be to apply the satisfaction model used here in a variety of other sectors. For example, would merchandise be as, or more, important in the automotive industry? Is word-of-mouth more or less influenced by satisfaction increases in the financial sector?

With regard to the structural model presented, it would be worthwhile to analyse whether certain relationships are moderated by other factors. For example, Homburg et al (2006) found that a longer relationship with a retailer moderates satisfaction with that store. This would be an interesting experiment since this study found older shoppers to be long-term loyal, frequenting their grocery store for a number of years. Similarly, it might be useful to analyse whether the frequency of using a store (number of trips) influences satisfaction (and loyalty outcomes). This is especially critical to older people since they were found to shop regularly – sometimes in excess of 20 times per month – indicating a great deal of social and monetary investment. It would also be of value to test the model using wider age groups, firstly to see if it remains a good fit to the data

(i.e. acceptable) and secondly to analyse whether the model differs between the younger and older segments. Additionally, this same approach could be used to compare the satisfaction processes employed by different age groups within varied cultural settings. This coincides with the calls for future research by Theodoridis and Chatzipanagiotou (2009), who feel that international differences in satisfaction need to be better understood. Most importantly, the recommendation made by Johnson et al (2001) regarding the evolution of cumulative satisfaction models should be seen as a priority in future research. Therefore, satisfaction experts should aim to develop and improve models presented in the past, including that which is provided in this study. To this end, there is scope to explore variables explaining satisfaction and, perhaps even more importantly, commitment and loyalty.

A further area of importance is the segmentation of the older population. Since the sources of heterogeneity were unknown in this study, response-based segmentation using finite mixture SEM was used. The three segments differed very little in personal and behavioural variables, making the task of profiling more difficult. In general, greater research is needed to identify whether certain *descriptive* variables contribute to heterogeneity in satisfaction, or whether Hahn et al (2002) were correct in their feeling that most heterogeneity is psychological, with people differing fundamentally in 'benefits' and 'needs'. Additionally, owing to its relatively limited implementation in past research, it is advised that more studies use finite mixture SEM to segment heterogeneous populations. Currently there is little academic press detailing the process or theory surrounding this method. A wider uptake will help develop the science of its application, allowing it to be used in a wider range of subject disciplines.

Further research comparing alternative methods such as 'cluster analysis multi-group SEM' with 'finite mixture SEM' would be particularly welcome, enabling academics to more easily choose approaches most suited to their research.

11.6. Summary of Final Thoughts

The purpose of this study was to provide a better understanding of the grocery store satisfaction of older shoppers – that is, people in England aged 60 years and above. In addition to addressing this fairly broad area, the research has yielded some important contributions to theory. A full structural equation model detailing the satisfaction process implemented by older grocery shoppers was formulated and tested on a large sample of 524 cases. This model used both *drivers* and *outcomes* of satisfaction so that academics and retailers would be able to predict behaviours, thus allowing them to isolate areas best suited to intervention. In many ways, the model not only contributes towards a better understanding of older shopper satisfaction, but presents a new and innovative conceptualisation, developing the wider area of satisfaction measurement.

The study goes a step further, incorporating previous research suggesting that the older consumer population cannot be treated as homogenous (see Section 2.6). As such, finite mixture SEM was used to identify heterogeneity in the model. Three segments representing different types of shopper were classified into groups and then compared. This identified that older consumer groups within the model mainly differed psychologically in their wants, needs and benefits, and not in personal characteristics. A number of suggestions for policy makers and retail managers for improving satisfaction and loyalty outcomes were suggested as a result of the model.

Whilst this study, as a whole, makes a valuable contribution towards a better understanding of the older consumer population in England, specifically with regard to grocery store satisfaction, more research is needed in future years.

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13. Appendices

Please refer to the supporting CD/DVD for full provision of the appendix.

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