A purchase decision-making process model of online consumers and its influential factor

a cross sector analysis

A Thesis submitted to the University of Manchester for the degree

of

PhD

In the Faculty of Humanities

2013

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Word Count: 84,027

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ABSTRACT

This research explores the online purchase decision-making behaviour of consumers by introducing a comprehensive approach that covers two different viewpoints: a) individual-level behaviour and b) market-level behaviour. Individual-level behaviour enhances our understanding of how purchase decision-making processes unfold and whether they differ for different individuals. Drawing from decision analysis and consumer behaviour literature, four segments of online consumers are introduced based on two individual factors: decision making style and knowledge of the product. Archetypal behaviour of each segment is identified addressing variations in the process and process outcome for different groups. In addition, market-level behaviour investigates the actual behaviour of consumers in relation with different retailers in the market; it is based on the aggregated behaviour of 60,000 individuals. Not only behaviour in a particular website but also cross-visiting behaviour of consumers comparing multiple retailers is examined.

For this purpose, a multi-level mixed-method approach is designed. Video recording sessions, think-aloud method, interviews and questionnaires are used to capture the dynamic decision-making process, segment consumers and measure the outcome of the process at individual level. Business process modeling approach and an adaptation of path configuration method are selected for modelling the process. Data from an Internet panel data provider, comScore, is analyzed to explore the market-behaviour of consumers visiting multiple retailers. A set of measurement frameworks, that have been developed to fully exploit the research potential of Internet panel data, are designed for this research. Two sectors of banking and mobile network providers are selected; this research methodology enables a much more detailed evaluation of online behaviour and can be applied in other consumer markets.

A conceptual model of online purchase decision making is proposed synthesizing theory from three disciplines: consumer behaviour, decision analysis and Information Systems. This model is able to explain the complexities and dynamic nature of real-life decision-making processes. The results of individual-level analysis show that the synthesized model has an enhanced descriptive power. Purchase decision-making processes in the two sectors appear to be highly complex with a large number of iterations, being more unstructured in banking sector. The process is found to be influenced by the both individual characteristics and each segment exhibits a certain typology of behaviour. Behaviour in terms of the way stages are performed is identical across the two sectors; whereas it differs in relation to intensity of decision-making cycles, duration of the process and the process outcome, being a function of product/ market characteristics.

The findings of market-level analysis revealed that banking websites are preliminary visited for using online banking services; despite the high portion of visitors, the intensity of research in these websites is low. On the contrary, mobile network providers attract a higher portion of consumers with purchase intentions and enjoy more intensive research. Consumers have a small consideration set in both sectors; and consider certain banks/providers rather than using the accessibility of all alterative on the Internet. It is evident that comparison sites play an important role in both markets affecting the behaviour of online consumers. Finally, the research stresses the use of the Internet as a complementary channel offering specific benefits in each sector.

DECLARATION

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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DEDICATION

I dedicate this work to

my parents, Hourshid and Parvis, for inspiring me throughout my life;
and my grandmother, Parvin, for her encouragements.

Despite the distance, they have supported me in every second of this journey.

AKNOWLEDGEMENT

I would like to thank my supervisors, Dr. Nadia Papamichail and Prof. Christopher Holland, for their support and guidance during my PhD. This work would not have been possible without their input.

I also thank my friends in Manchester Business School, Liwei, Guilherme and Hussain for their support over the course of PhD and particularly the final stage of submission. They made the past four years special.

1 INTRODUCTION

1.1 Background

Increase in the adoption and penetration of the Internet has turned the online marketplace into an important distribution and communication channel where consumers and businesses interact with each other. “Since the advent of Internet-enabled e-commerce, online sales have attracted an increasing share of overall sales revenues” (Van der Meer, Dutta and Datta, 2012). An increasing number of consumers are engaging in online retailing interactions (Chiu et al., 2012). In 2011, 43% of individuals in Europe made an online purchase and 71% of US consumers reported use of online shopping (Zickuhr and Smith, 2012; Eurostat, 2012). Despite the current economic downturn, the volume of electronic commerce is expanding rapidly (Hu et al., 2010). The volume of Internet shopping grew to the value of $348.6 billion in 2009 worldwide. It is anticipated to reach $778.6 billion, increasing by nearly 125%, in 2014 and hit $1 trillion by 2020 (Datamonitor, 2010; 2011).

The rapid increase in consumers’ involvement in online purchase has transformed the Internet into a powerful force that influences consumer behaviour (McGaughey and Mason, 1998). Its characteristics, such as the accessibility of large amounts of information, lower search costs and access to all competitors (Daniel and Klimis, 1999) have changed consumers’ research and purchase activities. The Internet provides access for anyone at any time and at any location, which has made it easier for consumers to collect and evaluate competing offers. Different retailers can be visited at the same time, unfamiliar retailers can be reached and their products/services can be compared simultaneously. There is enormous amount of information in terms of details (depth) and number of sources (breadth) available to everyone. Online consumers, who need to retrieve the required information and make a purchase decision, experience a different setting that alters their purchase behaviour. It is therefore clear that the Internet purchase behaviour does not necessarily follow the traditional one (Koufaris, 2003). Consumers use the Internet for researching into products, making a purchase and even using e-services. However, different tasks or stages of the purchase process might take place via the Internet channel or physical shops. In other words, the Internet affects consumers' behaviour by allowing for cross-channel purchases.

The recent development of some technological features to assist consumers throughout the online purchase have also given rise to the change in consumer behaviour; for example, search engines, comparison engines, recommender systems and social networks. They simplify online purchase by offering consumers diverse types of convenience to search for information, evaluate different options, and make a purchase (Moon, 2004; Constantinides, 2004). Many of these tools, such as recommender systems and comparison engines, have been developed to help consumers with the information overload and the frustrating task of locating products given the large number of choices available (Hölscher and Strube, 2000). At the same time, implications of Web 2.0 applications, which enable wide participation of consumers in social activities, and consumer-generated content give another twist to their behaviour (Constantinides and Fountain, 2008; Jarrett, 2008). Consumers interact with each other, rate and review products and spread electronic Word of Mouth (e-WOM). Although the influence of these features on "consumers' shopping behaviour in terms of how consumers search for information, evaluate alternatives, and make purchase decisions" is an under-studied area (Brynjolfsson, Dick and Smith, 2010), its existence is definite.

The changes in behaviour also engage the marketers. Due to the accessibility of all retailers, the potential level of competition in the online market increases and the power of retailers is reduced (Bakos, 1991; 1997). In order to win consumers in such a highly competitive marketplace where the Internet purchase conversion rate is low, retailers ought to understand the nature of online purchase and reach their consumers at the right time with the right message. By better understanding the behaviour of online consumers, retailers can facilitate the purchase process and enhance the consumer experience (Zhang, Agarwal and Lucas, 2011). In fact, supporting online decision-making processes directly influences e-satisfaction (Kohli, Devaraj and Mahmood, 2004).

Many studies have addressed the issues of online behaviour by directly applying the knowledge of traditional purchase to the Internet context. Online purchase behaviour is different from the traditional one and current knowledge of online consumer behaviour is still limited (Dennis et al., 2009). Hence, increasing the theoretical knowledge in this area, which considers the particular characteristics of the online environment, is crucial.

Purchase behaviour on the Internet in general is a very complicated phenomenon which comprises various aspects and is influenced by many factors. Consumer decision making, which is a part of purchase behaviour, has been a focal interest in consumer research and "will continue to be critically important" (Bettman, Luce and Payne, 1998). It is defined as:

> *Behaviour patterns of consumers, that proceed, determine and follow on the decision process for the acquisition of need satisfying products, ideas or services* (Du Plessis et al., 1991, p.11).

On the Internet, purchase decisions are shaped through the interactions of consumers with the online environment. Understanding online decision-making processes can enhance our knowledge of online consumers to a great extent. This is only achievable by recognizing the whole process that consumers are engaged in and the steps they follow to reach a decision. Decision-making processes can be explored by developing new behavioural models (Rickwood and White, 2009). Modelling the entire purchase decision-making process, which can describe this complex phenomenon, is therefore the step forward.

1.2 Motivation

This research is motivated by the changes in the behaviour of online consumers which stem from the characteristics of the Internet environment. It focuses on understanding the behaviour in terms of the purchase decision-making processes that online consumers follow.

Lack of a suitable online purchase decision-making model

In order to illustrate the consumer decision-making behaviour and the factors that affect it, several models were developed in the 1960s and 70s (such as those of Engel, Kollat and Blackwell, 1968; Howard and Sheth, 1969; and Nicosia, 1976). These models have remained the main source of reference in the following decades. However, changes in consumer behaviour due to the increased use of the Internet channel and adaptation of the decision-making process for the new environment (Xia and Sudharshan, 2002) have recently raised the need for the development of new models for this specific context. According to Erasmus, Boshoff and Rousseau (2001), the traditional models have been treated as the "ultimate" knowledge even though they have shortcomings. They have suggested that modelling purchase processes needs more attention from researchers. New models should be developed in order to address the complexities of real-world purchase decisions. Describing these complexities requires a dynamic approach (Ariely and Zakay, 2001).

Moreover, previous research into online consumer behaviour has mostly suggested conceptual models (see for example: McGaughey and Mason, 1998; Moon, 2004; Lee, 2002), offering limited empirical evidence. Very few studies, e.g. Hölscher and Strube (2000), have captured the actual behaviour and developed high-level models. However, they did not concentrate on the context of the decision or the variations existing in the process. This research aims to address the limitations of this area.

- This research is motivated to fill in these gaps and enhance the current knowledge of online consumer behaviour by proposing an improved online purchase decision-making process model. The model is able to (a) describe the real-life decision processes by offering a dynamic structure; (b) explain the variations in the process; (c) be applied in different contexts; and (d) be empirically tested.

Insufficient knowledge on the impact of individual characteristics on online purchase behaviour

In order for the explanation of purchase decision making to be compelling, it should consider individual variations. Online purchase processes are shaped through the interactions of consumers with the Internet. Therefore, consumers' individual characteristics are among the main factors that influence the purchase decision-making process (Smith and Rupp, 2003; Srinivasan and Ratchford, 1991). Although many factors influence behaviour, such as social, economic and cultural, the focus of this research is on individual characteristics. As stated by Buchanan and O'Connell (2006), "People's decisions say things about them and their values".

Previous research has explored the impact of the individual's characteristics on adoption of the online purchase. As the Internet is growing fast and becoming accessible to everyone, there is a need to shift our focus from investigating adoption of Internet shopping to exploring actual behaviour of online consumers. It is vital to identify consumers with similarities and segment them based on the factors which are more prominent in their purchase decisions (Klever, 2009). Early research focused on the decision task and situation but there was less evidence on which characteristics of the decision maker affect the decision (Scott and Bruce, 1995). In the last few years, however, several studies have focused on individual characteristics and their impact on specific behaviour of consumers (Simonson and Nowlis, 2000; Ranaweera, McDougall and Bansal, 2005). Nevertheless, limited research (see for example Chowdhury, Ratneshwar and Mohanty, 2009) has examined the differences of the purchase decision-making process for different consumers. It is not yet clear whether different segments of consumers exhibit distinct purchase decision-making behaviour during the process.

In the literature on decision making, the decision-making style and in particular the tendency to maximize or satisfice the decision has been found to have a direct impact on the decision process and can explain diversities in decision-making behaviour (Schwartz et al., 2002; Iyengar, Wells and Schwartz, 2006). Decision makers have a tendency to be either maximizers or a satisficers. The maximization tendency has only recently been examined in the online consumer behaviour literature, with the study by Chowdhury, Ratneshwar and Mohanty (2009). As mentioned by them, previous empirical evidence for the impacts of this personality trait on consumer decision-making behaviour is limited. Although, their result is supported by empirical evidence, self-reported data is utilized. On the other hand, Schwartz et al. (2002) suggest that future research should examine the actual choice behaviour by capturing the decision-making process. Knowledge of product is another important factor which has been found to influence purchase behaviour (Bughin, Doogan and Vetvik, 2010; Moore and Lehmann, 1980; Chang and Burke, 2007). In 2002, Desmeules called for an online retailing study that examines the relationship between consumer knowledge and the maximization tendency. This research moves one step forward. It attempts to establish the nature of the combined effect of these two individual characteristics (decision-making style and knowledge of products) on the purchase decisions.

- This research is motivated to fill in these gaps by making an attempt towards understanding the influences of individual differences on purchase decision-making processes. It establishes the nature of the combined effect of the decision-making style and knowledge of products on the purchase decision. According to the 2*2 design (maximizer/satisficers and low/high level of knowledge), four segments or archetypes of consumers are introduced.

Scarcity of studies on online consumer behaviour across multiple retailers

Purchase decision-making behaviour consists of interactions with different retailers. However, analysis of behaviour on multiple retailers in the traditional setting is highly complex and almost unfeasible. Data is mainly available on the purchase transaction rather than interactions with retailers. However, the entire behaviour of consumers on the Internet can be recorded (Van den Poel and Buckinx, 2005). Advances in information technology have provided "an unprecedented ability to track and analyze customer behaviour" (Hinz, Hann and Spann, 2011). Online panel providers, which use web-tracking tools, offer behavioural data based on a very large sample of individuals. This data includes all the actions of users on the Internet. It can therefore provide interesting insights into the actual behaviour of online consumers during their purchase journey on the Internet (Bucklin et al., 2002). The availability of such data makes it possible to examine the behaviour in an entire market and across competitors. It can identify different aspects of behaviour, which is not possible through other methods. The behaviour is averaged, based on the individual behaviour of tens of thousands of online consumers.

A well-developed area of research in Information Systems uses this type of data. However, their focus has been on one particular retailer rather than one market. To the best of my knowledge no study has used the Internet panel data to investigate the total behaviour of online consumers in a particular market and among competitor retailers.

- This research is motivated to study consumer behaviour across the entire online market using the benefits of Internet panel data. It includes the new concept of online cross-visiting behaviour, which is concerned with one consumer selecting and visiting multiple retailers in a market.

1.3 Aim and Objectives

This research aims to facilitate our understanding of the online consumer purchase behaviour and in particular decision-making behaviour while choosing among retailers. In order to provide a comprehensive picture of this phenomenon, the online consumer behaviour is captured and analyzed at two levels: 1) the individual behaviour of consumers; and 2) the actual aggregated behaviour of consumers in the online market.

- <u>Individual behaviour</u>: individual behaviour analysis examines the behaviour of individuals in an intensive manner and considers the details and context of the purchase decision-making process. It identifies the way that purchase decision-making processes unfold on the Internet and seeks to capture the impact of the combination of two individual characteristics on the process. The common behavioural patterns for each of the four segments, and similarities and variations across two different sectors are observed. In the absence of a model which can explain the real-world online purchase processes, a conceptual model of purchase process was initially developed to provide the foundation of the study.

- <u>Market behaviour</u>: market behaviour analysis uses a very large sample of Internet users to explore the actual aggregated behaviour of online consumers in the Internet marketplace. It indicates the behaviour in relation to different retailers. It investigates whether and how the Internet has changed the research and purchase behaviour. The aggregated behaviour is shaped by the behaviour of many individuals.

The following research objectives were formulated in line with the aim of this research and identified gaps in the literature (Table 1.1):

1. Propose a revised model of the consumer purchase decision-making process that can explain complexities of online purchase processes.
2. Evaluate the actual behaviour of online consumers on the Internet (using the online panel data).
   - Indicate the impact of the Internet on the behaviour of online consumers and the nature of its usage in a sector.
   - Explore the behaviour across multiple websites.
3. Capture and model the purchase decision-making processes that consumers follow in an online environment.
4. Introduce a typology of online consumer behaviour based on decision-making style and knowledge of product.
   - Identify variations in the purchase decision-making behaviour of each segment.
   - Present a typology of consumer decision-making behaviour for each segment.
5. Identify similarities and variations in the purchase decision-making behaviour across selected sectors

These objectives will drive the research design and analysis of the research findings, which are described next.

Table 1.1: Gaps in the literature and research objectives

Gaps in the literature	Objectives	Approaches to address the gaps
Lack of a suitable online purchase decision-making process model	Proposing a model which explains real-world online purchase processes	Review of consumer behaviour, decision science and online consumer behaviour literature
Lack of empirical evidence on online purchase decision-making processes Lack of understanding of the individual characteristics' impact on the process	Capturing the decision-making processes Identifying the impact of combined individual characteristics on the process	Individual-level analysis
Lack of studies on online consumer behaviour across multiple retailers	Understanding the actual behaviour of online consumers on multiple retailers using online panel data	Market-level analysis
Synthesis		

1.4 Research design and outcome

In order to achieve the objectives of this research, a research plan which comprises various methods is designed. As some of the contributions of this research are related to its different approach to studying online consumer behaviour, a brief explanation on the choice of research design in the introductory chapter is necessary. I believe that only such design could provide a comprehensive picture of online purchase decision-making behaviour.

This thesis uses a multi-level mixed-method approach to explain this complex phenomenon. It analyzes the situation from different perspectives and provides a holistic insight. The mixed method is able to address complex phenomena by drawing on multiple data sources (Bazeley, 2008). As the aim of different methods is addressing different questions, the Concurrent Embedded Strategy type of mixed method is conducted (Creswell, 2009). All pieces of analysis contribute to the understanding of online consumer behaviour. Moreover, multi-level research examines research questions by addressing different levels of measurement and analysis (Hitt et al., 2007). A two-level analysis explores the dynamic interplay between micro- and macro-constructs, such as individuals, technology and a population (Bamberger, 2008). Therefore, it can examine the behaviour of online consumers in the market in addition to their individual behaviour in terms of detailed actions.

Most academic research on macro-behaviour has been based on surveys or secondary data. In this research, data for macro-behaviour of online consumers was collected from an Internet panel data provider, comScore, which has over 60,000 registered users in the UK. It is the largest online panel provider in the world, providing data on actual behaviour of consumers. Due to the lack of measurements which can analyze this data, a new research methodology has been specifically designed. It is based on a set of measurement frameworks, some of which have been borrowed from previous research and others developed to fully exploit the research potential of Internet panel data. This methodology can be directly utilized in different consumer markets.

At the individual level, I have devised a methodology which can assess the dynamic behaviour of online consumers. Experiments are conducted to captures the purchase decision-making processes that consumers follow. Less than one third of research into online consumer behaviour and decision making endeavours to use experimental methods, which is disappointing (Darley, Blankson and Luethge, 2010). Data is collected by video-recording technique, use of verbal protocols, questionnaire and a follow-up interview. As video recording can record the process as it occurs, it is a suitable way to trace a decision-making process. It provides a "direct insight into process" and the way it unfolds (Weingart, 1997). Video recording during individual experiments was compared against log file analysis and recalling memory strategies and was found to be more appropriate. In fact, experiments take into account the context of the behaviour and therefore are the best approach for the purpose of this research (Kaplan and Duchon, 1988). The questionnaire measures the individual characteristics and the outcome of the process. Verbal protocols, which are a common practice in consumer research (see for example Payne, 1976), are crucial for capturing the part of the process that occurs in the mind of consumers. Processes are modelled by UML activity diagrams and adaptation of the path configuration method. A wide range of modelling methods was reviewed and the activity diagram, which illustrates the behavioural view of a process, was selected as the most suitable method. However, further in the research, the need for modelling the flow of the process was discovered and, therefore, the path configuration method was adapted for this purpose. Due to the difficulty of modelling dynamic purchase processes, a pilot study was conducted ensuring that this method captures the desirable behaviour.

In line with other studies that investigate online consumer behaviour (see for example Daniel and Klimis, 1999; Becerra and Korgaonkar, 2011; Pavlou, Liang and Xue, 2007), this thesis examines the online decision-making behaviours in two sectors. I have chosen the banking sector, where consumers consider the service only, and the mobile network providers sector, where consumers examine tangible products plus service.

The banking sector has been at the forefront of e-services with the widespread implementation of online banking. It is one of the sectors which is undergoing huge changes in the way consumers interact with their banks as a result of the Internet

(Jayawardhena and Foley, 2000). In the UK, consumers have been increasingly searching online for information about financial products, with more than 2.5 million searches on Google in one month having keywords related to retail banking (Zafar, 2012; Greenlight, 2011). It shows that the Internet is becoming an important research channel in this sector. There has been relatively little research conducted into the use of the Internet as a research and purchase channel in banking.

The mobile network market is a dynamic market with a high rate of penetration. It has turned into one of the most important sectors in service marketing (Shukla, 2010) and still shows interesting potential for development (Decker and Trusov, 2010). The industry comprises a network of operators and mobile phone companies. Mobile phone buyers need to choose a handset and services which makes the decision criteria more complex. I therefore believe that this sector is worth exploring. According to Mintel's report on UK mobile phone retailing (2012), 30% of the UK adult population have performed online purchase in this sector.

The theoretical and empirical results inform the literature of this study. Our results imply that the proposed dynamic model of online purchase decision making has enhanced descriptive abilities. This research provides evidence that the Internet data has interesting potential in assessing different aspects of online purchase behaviour. It is an early step towards this type of online behaviour analysis. There is, however, more to be built upon the concepts that are developed in this study. In addition, purchase decision-making behaviour for four segments of individuals in two of the most important markets in the UK is explored. Characteristics of the process and behaviour at each stage of the process highlight interesting variations across segments of consumers. The study emphasizes how the combination of both individual characteristics (decision-making style and knowledge of the product) influences the decision-making behaviour. These four segments provide promising archetypes of online consumers which has important theoretical impact and practical implications.

1.5 Overview of chapters

The organization of the thesis is as follow.

Chapter 2: This chapter puts the research problem into perspective by defining the fundamental concepts of consumers' behaviour, and in particular decision-making behaviour, while interacting with the online environment. Concepts from consumer research, decision science and Information Systems provide the background of the research. The chapter explains the limitations of current knowledge in some aspects of online consumer decision-making behaviour and the opportunities that exist to enhance this knowledge. It ends with emphasizing the need for such research.

Chapter 3: This chapter aims to develop the conceptual framework of this research. It explores the related literature in order to identify the components of the decision-making process that online consumers follow and the factors that influence the process. A wide range of models introduced in the literature over the past half a century is reviewed. Their limitations are outlined and the required improvements for the Internet context are identified. An online consumer purchase decision-making process model which synthesizes elements from consumer research and the decision science literature is proposed in order to address the limitations. Those studies which have attempted to investigate the influential factors of behaviour are examined. The two individual characteristics which are expected to have a prominent impact on the process and some of their expected impacts are described. Finally, the context of the behaviour including the two selected sectors is introduced. By defining the conceptual framework, this chapter leads to the research design.

Chapter 4: This chapter explains the multi-level mixed-method research design. The reason for choosing this specific method is justified. Data collection methods, the way experiments are conducted and methods of analysis are described in detail.

Chapter 5: In this chapter, I explore the behaviour of online consumers on the market. Specific concepts which can explain the aggregated behaviour at the macro-level and their measurements are defined at the beginning. They are then applied to the two selected sectors of the study. The chapter ends with a short summary of the main findings and a comparison of the results with the theory. As this chapter provides a background understanding of actual behaviour of consumers, it is presented before the individual-level analysis.

Chapter 6: It presents the individual-level analysis. First the segmentation of consumers is described. Next, variation in different aspects of the behaviour for each segment is examined in detail. Four different behavioural typologies are introduced. A summary of the key findings and comparison with the theory are provided in the last section of this chapter.

Chapter 7: The final chapter starts by providing a short summary of the research. The results of the two levels of analysis are brought together and discussed, establishing a strong view of online consumer purchase behaviour. Theoretical and practical contributions are stated, limitations of the research are addressed and directions for future work are proposed. A short conclusion brings this thesis to an end.

1.6 Research contributions

This research has been presented in a number of conferences: Informs Annual Meeting, 2010; International Conference on Information Systems (ICIS), 2010; Academy of Management Annual Meeting, 2011; Mediterranean Conference on Information Systems (MCIS), 2011.

2 LITERATURE RIVEW

2.1 Chapter overview

This chapter aims to put the research problem into perspective by reviewing the related literature and explaining the current understanding of online consumers, their purchase behaviour and context. It starts by introducing the three areas of research that are used in this thesis: consumer behaviour, decision science and Information Systems (IS). In the first sections of the chapter, fundamental concepts of consumer behaviour and in particular decision-making behaviour as well as decision-making processes are introduced. The evolution of these theories over half a century is discussed and the detailed discussion on processes provides the basis for this study.

However, understanding online consumer behaviour requires an understanding of consumers in general and the effects of the Internet environment on their behaviour. Increasing penetration of the Internet has introduced a relatively new line of Internet studies in the consumer behaviour and IS disciplines that investigate behaviour in the online environment. The chapter is therefore followed by discussion of the online environment and its impact on consumer behaviour. It emphasizes the importance of modelling purchase behaviour and the limitations of current knowledge of how online purchase decision-making processes unfold. This part of the study is illustrated by the purchase decision making process shown in Figure 2.1(a).

As one of the objectives of this research is exploring the impact of individual characteristics on online consumer behaviour, variations in the behaviour of consumers are reviewed. A wide range of individual factors is drawn from previous literature, leading to development of a comprehensive model of the impact of individual characteristics on online purchase behaviour. In addition, the influence of those market characteristics beyond product features is introduced. They are indicated by individual characteristics and market characteristics in Figure 2.1(a). Finally, the output of the online purchase decision-making process which determines the future behaviour of consumers is described. Output is measured in terms of adoption of the decision and online consumer satisfaction (output in Figure 2.1a).

The chapter ends by identification of the gaps in our understanding of online decision-making processes and discussion of the need for new approaches in studying online consumer behaviour. Exploring the actual behaviour of consumers in an online market which is shaped by aggregated behaviour of millions of individuals and modelling the entire purchase process are new approaches to studying online purchase behaviour (Figure 2.1b).

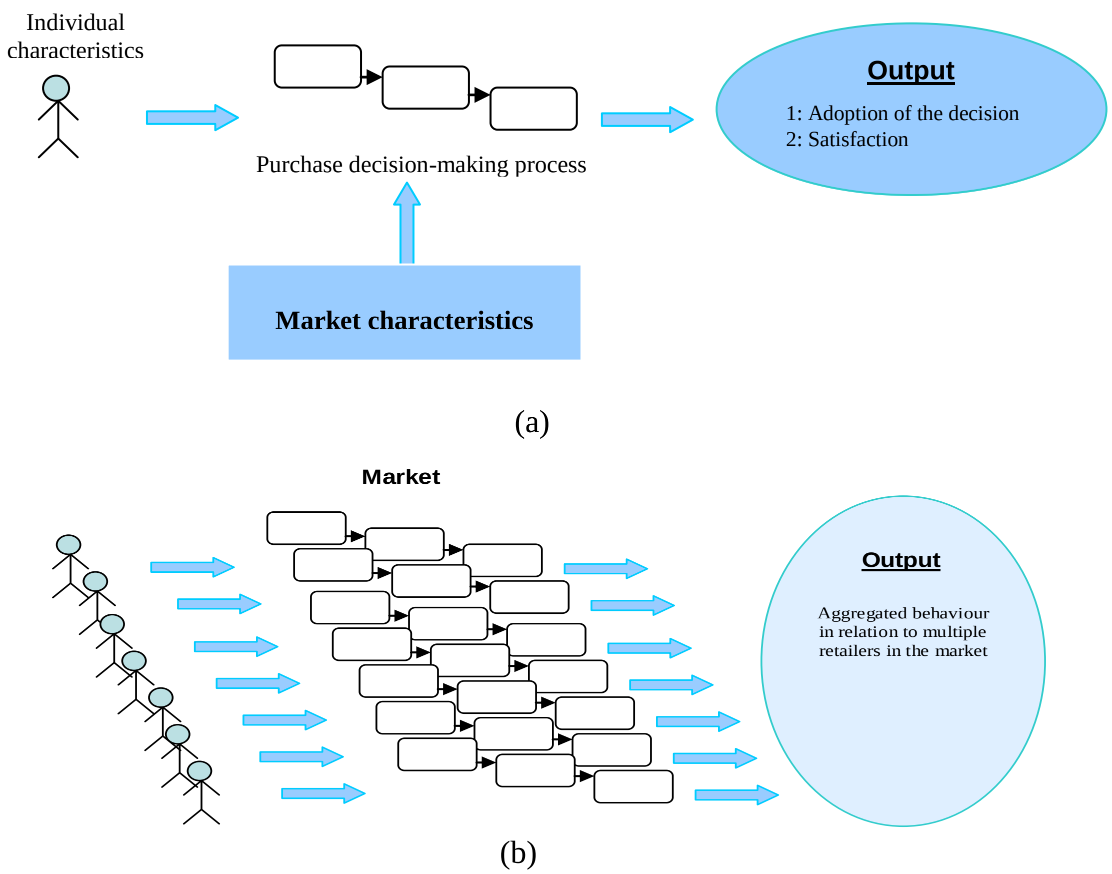


Figure 2.1: Research overview: (a) individual behaviour (b) market behaviour

2.2 Focus of this study

In the increasingly competitive online retailing market (Chiu et al., 2012), the importance of understanding online consumers is greater than ever. This research is a study of online consumer decision-making behaviour. In addition to consumer behaviour, other disciplines have contributed significantly to its development. Literature on consumer behaviour and decision making science is brought together to provide an accurate and realistic understanding of purchase decision-making processes. The behavioural view of this purchase process is not complete without understanding the decision-making processes that consumers follow. Moreover, studies of the digital world which examine the behaviour of online consumers are integrated to provide information on the interactions of consumers with their environment. Some of the studies of online consumer behaviour have entered the consumer research; while the majority are conducted by IS researchers. They are however presented together under the online consumer behaviour section. Figure 2.2 shows the underlying areas of this research.

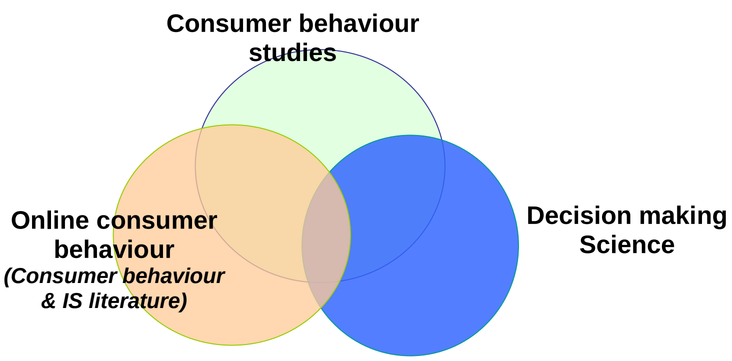


Figure 2.2: Underlying areas of this research

2.3 Consumer behaviour research

This section starts by introducing online consumer behaviour, defining consumer decision-making processes and discussing how basic assumptions of the way consumers behave have altered over the past century. The literature on consumer purchase decision-making behaviour is then reviewed, discussing the importance of this area, our current understanding of consumers and the limitations of available studies.

2.3.1 Consumer behaviour as a discipline

Consumer behaviour is defined as “the process and activities people engage in when searching for, selecting, purchasing, using, evaluating, and disposing of products and services so as to satisfy their needs and desires” (Belch and Belch, 1998), “including the decision processes that precede and follow these actions” (Engel, Blackwell and Miniard, 1995). This definition indicates the comprehensiveness of this area and the wide scope that it covers.

Consumer behaviour was a relatively new field in the mid-to-late 1960s. It has emerged from other disciplines such as economics, marketing and behavioural sciences (Engel, Blackwell and Miniard, 1995) (Figure 2.3). It has borrowed its concepts from those “developed in other scientific disciplines, such as psychology (the study of the individual), sociology (the study of groups), social psychology (the study of how an individual operates in groups), anthropology (the influence of society on the individual), and economics (the study of spending patterns in society)” (Smith and Rupp, 2003). However, with the increasing penetration of the Internet, other research areas which investigated the use of technology, such as IS, have also contributed to its growth.

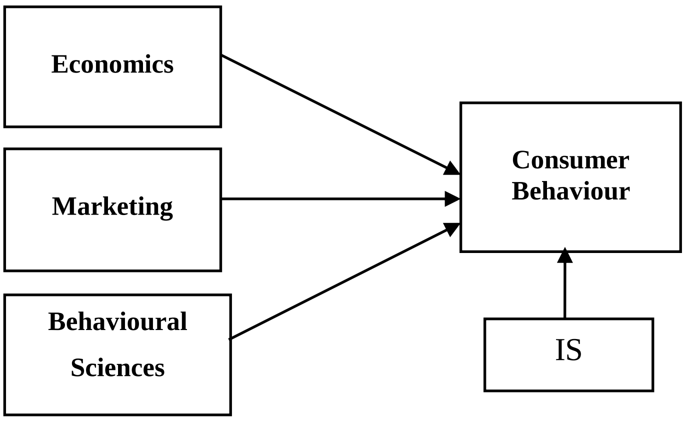


Figure 2.3: Emergence of consumer behaviour from other disciplines

2.3.2 Consumer decision making

One of the fundamental issues in consumer behaviour is the way consumers develop, adapt and use decision-making strategies (Moon, 2004). Consumer decision making could be defined as the "behaviour patterns of consumers, that precede, determine and follow on the decision process for the acquisition of need satisfying products, ideas or services" (Du Plessis et al., 1991, p.11).

Consumer decision making has long been of great interest to researchers. Early decision making studies concentrated on the purchase action (Loudon and Bitta, 1993). It was only after the 1950's that modern concepts of marketing were incorporated into studies of consumer decision making, including a wider range of activities (Engel, Blackwell and Miniard, 1995). The contemporary research indicates that more activities are involved than the purchase itself. Many other factors influence the consumer decision making than the final outcome. Vast numbers of studies have investigated this issue and many models have been developed accordingly. Models aim to depict the purchase decision-making process and its influential factors. They are discussed in detail in the following chapter.

2.3.3 Evolution of consumer decision-making studies

Theories of consumer decision making have evolved over time. The first theories were based on rational choice theories known as the economic view, assuming that individuals act completely rationally to maximize their benefits in a purchase situation (Schiffman and Kanuk, 1997). This view supposes a rational decision maker who has well-defined preferences and a clear choice set. Each alternative in the choice set has a utility that is only dependent on the option. Any consumer is able to compute which option will maximize his or her utility and makes a choice accordingly. From this perspective, there is perfect competition in the market place where consumers make rational decisions.

However, there are limitations with the rational choice theory and it is not able to explain commonly observed, less "rational", choice behaviours (Bettman, Luce and

Payne, 1998). Moreover, consumers are just as likely to purchase impulsively due to influences of advertisers, role models, family and friends, as well as their mood, situation, and emotions (Smith and Rupp, 2003). For the economic view to be true, consumers should be aware of all product alternatives, be able to correctly rank advantages and disadvantages of each alternative, and finally select the best one. However, it is clear that such expectation is unrealistic. Consumers, in most cases, do not have access to "all the information", do not have time for such an extensive process, and are not skilled and motivated enough to make the "perfect" decision. They are generally "unwilling to engage in extensive decision-making activities" and will settle instead for a 'satisfactory' decision which is good enough rather than the "optimum choice" (Schiffman, Hansen and Kanuk, 2008). Despite its criticisms, this approach has made a remarkable contribution to the prediction of consumer decisions (Bettman, Luce and Payne, 1998) which should not be neglected. It goes beyond the choice of the optimal solution. Consumers not only assess the utility of a choice but might also engage in "cost-benefit" analysis in selecting a decision-making procedure (Wright, 1975). These issues led to development of a new generation of consumer behaviour theory, assuming an information processing approach to purchase decision making.

2.3.4 Purchase decision-making processes

According to more recent studies, the consumer purchase decision-making process can be explained by an information processing approach (Bettman, 1979; Howard and Sheth, 1969). Consumers find the information, evaluate it and make a choice. Various models have been developed in order to describe this behaviour. The purchase decision-making process is constructive and is shaped by the consumer and the context of decision making (Bettman, Luce and Payne, 1998). It therefore varies across individuals, decisions, and contexts (Xia and Sudharshan, 2002). Exploring consumer information processing behaviour in traditional purchasing, which occurs though physical shops, has long attracted the attention of researchers (Su, 2007), resulting in comprehensive knowledge of behaviour in this setting.

2.3.5 Modelling the consumer decision-making process

Although consumer behaviour could be studied without involving decision-making process models and by only experimental approaches, the decision making process is one of the main issues in consumer behaviour studies. Models are the best way to explain this process (Livette, 2006). They can visually show the way variables and circumstances are related by connecting the causes and effects. A model examines consumers' approach in choosing between alternative products. It shows the stages that consumers follow to make a purchase decision as well as their behaviour after that choice. Models also facilitate the understanding of differences in consumer decision processes (Engel, Blackwell and Miniard, 1995, p.143; Erasmus, Boshoff and Rousseau, 2001; Livette, 2006).

In addition, models simplify reality (Caine and Robson, 1993) and are beneficial in studying complex issues. Online consumer behaviour, in particular, is a complex phenomenon as it relies heavily on information gathering, evaluation of a large amount of information, using decision aid systems and making a purchase in a self-service environment. Therefore the use of visual behavioural models provides a better insight into the situation. Additionally, building theoretical knowledge and models is important for businesses and provides them with tools to better understand their "consumer, segment the market, and ultimately increase profitability" (Rickwood and White, 2009).

2.3.6 Different types of consumer behaviour models

Among the diverse studies of consumer behaviour, two main streams of models can be observed. The first group of models consists of the key elements of consumer behaviour. They show the stages of the decision-making process, a wide range of influential factors and their relationships with the process. The early models consisted of a large set of elements (for example see: Nicosia, 1966; Engel, Kollat and Blackwell, 1968). They are known as "grand models" (Kassarjian, 1982). More recent models have attempted to simplify the elements. These models are discussed in detail in the following chapter. The second group of models illustrate the way consumer behaviour is structured and try to act as predictors of behaviour. They concentrate on the order of elements and their causal effects on shaping the behaviour. The Theory of Reasoned Action (Fishbein and Ajzen, 1975) and the Theory of Planned Behaviour (Ajzen, 1985) are the main models in this category.

The second group of models has been widely examined in IS literature indicating the reasons for using the Internet as a purchase channel. The first category, which aims to describe the behaviour of consumers as they go through the decision-making process, is not been well-developed in online purchase context. Current knowledge of consumers' decision-making stages and the sequence of activities they follow are limited, leaving us unable to describe this complex phenomenon. The model proposed by this research is in line with this type of model aiming to uncover consumer behaviour beyond the decision output. Those models which have made a remarkable contribution to the literature and their elements are used for development of our proposed model, are discussed in chapter 3.

2.3.7 Behavioural differences

As consumers behave differently, models of purchase decision-making behaviour are adapted in different ways by different individuals. In this section, some of the variations in behaviour, described in previous literature, are explained. The focus has been on search and purchase behaviour of consumers.

2.3.7.1 Variations of consumer search

Search behaviour varies for different individuals (Moore and Lehmann, 1980; Malhotra, 1983). Kaas (1982) provides more detailed analysis of search behaviour by dividing it into different stages which depend on the knowledge of consumers about the market and the frequency of purchase (Figure 2.4). If consumers are unfamiliar with a product, they will enter the *concept-forming* stage. In this stage, they learn about the relevant attributes of the product and define their choice criteria. When the criteria are formed, they move to the next step which is *brand information.* Infrequent consumers who are familiar with the product category enter the search process from the brand information stage. They collect brand-specific information in order to compare the important attributes against their criteria. Afterwards, they move to the final stage of situational information (Kaas, 1982) where only specific information about a product is collected. Sproule and Archer (2000) have utilized this categorization in the e-commerce context.

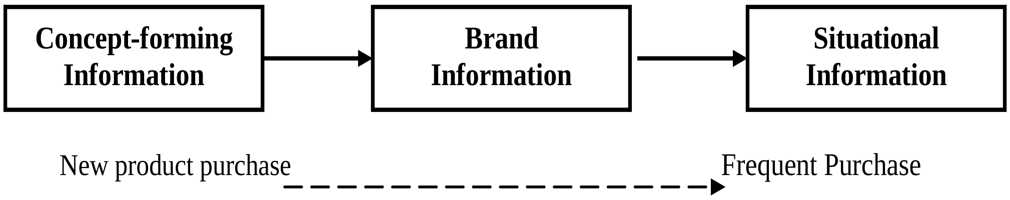


Figure 2.4: Stages of information search [Source: Sproule and Archer, 2000]

2.3.7.2 Variations in purchase behaviour

Assael (1995) and Kotler (2003) have classified consumer purchase behaviour in four categories, based on the buyer's involvement and differences among brands, value of the product and frequency of purchase. Therefore, both consumer and the context of the purchase affect the purchase behaviour. These categories and their characteristics are shown in Table 2.1. Different products also have different levels of complexity. They might add more complexity to the decision task if they have a large number of criteria which increases the conflicts among alternatives; if they are expensive and less frequently purchased; or if they have a higher level of associated risk. In other research the difficulty of the purchase task has been attributed to the larger number of alternatives and attributes, difficulty of evaluating the value for some attributes, uncertainty about the value of many attributes, and a smaller number of shared attributes between alternatives (Bettman, Johnson and Payne, 1991). The context of this research will be discussed in chapter 3. As will be seen, selected sectors require relatively complex behaviour.

Table 2.1: Different types of purchase behaviour

Purchase type	Characteristics
Complex Buying Behaviour	High consumer involvement Major differences among brands Expensive product Infrequent purchase More time, information and help required
Dissonance-Reducing Buyer Behaviour	High consumer involvement Little difference among brands Expensive product Infrequent purchase Relatively quick Quick response to a good price
Habitual Buying Behaviour	Low customer involvement Little brand difference Same brand purchase Little search for information about the brand Receive information through media passively
Variety-Seeking Buying Behaviour	Low customer involvement High perceived brand difference A lot of brand switching

2.4 Decision Making Science

In this section, the prior work conducted in the decision science discipline is reviewed, concentrating on concepts that could be borrowed in consumer decision-making behaviour. Although decision analysis has developed as a different area of research, it can shed light on understanding purchase decisions, which is a particular type of decision-making process.

2.4.1 Decision Science as a discipline

Decision science is one of the well-developed disciplines that "captures the dynamic nature of decision processes by prescribing a decision strategy that indicates what action should be chosen initially and what further actions should be selected for each subsequent event that could occur" (Keeney, 1982). Literature in this area analyzes decision-making processes. Based on the above definition, one might assume that understanding decision making is equivalent to analysis of subsequent actions to evaluate the consequences of alternatives that lead to a choice. However, analysis of decision making not only depends on the evaluation of consequences of each alternative but also the preferences of the decision makers for those consequences. Philosophers believe that our decisions say things "about ourselves and about our values" (Buchanan and O'Connell, 2006). Due to the important role of decision makers, this analysis requires subjective judgments (Keeney, 1982). Although technical knowledge could calculate the probabilities and utilities of alternatives, inclusion of decision makers' judgments and values is a determinant and crucial aspect of decision-making analysis.

Decision-making processes are an important part of decision science literature and have emerged in three different areas: cognitive psychology on individual decision making, social psychology on group decision making, and management and political sciences on organizational decision-making, this last having won the most attention from researchers. The group decision making literature is of little help to us as it concentrates on the interactions between the members of a group to make a decision, which is not the case in individual online shopping.

Before any further discussion on decision-making processes, a brief discussion on the evolution of decision-making theories is crucial.

2.4.2 Evolution of decision-making studies

The evolution of decision-making studies follows changes in the perception of human rationality at various points of time. The first studies considered decision making to be an entirely rational process. The most commonly used model was the "utility theory" that emphasizes decision making being on the basis of expected outcome of each decision. In fact, the decision maker tries to maximize utility while using the minimum effort. This assumption has been criticized widely by researchers (Simon, 1997).

Since its introduction, Simon's theory of bounded rationality (Simon, 1957) has become the basis of choice behaviour. This theory challenged the previously dominant view of economists by considering limitations of computational capabilities, availability of information, and organization and utilization of this information in the memory of decision makers (March, 1978). Bounded rationality supposes that decision makers develop sensible procedures to make a choice, having a number of limitations. Considering the complexity of circumstances, limited time, and inadequate mental computational power, rationality of the decision is reduced to a state of bounded rationality (Buchanan and O'Connell, 2006).

Following the concepts of bounded rationality, other theories have emphasized other aspects of decision making. For example, limited rationality emphasizes the fact that individuals simplify a decision problem due to the difficulty of processing all the information and evaluating all possible alternatives; contextual rationality emphasizes the relation of choice behaviour in a particular situation with the social and cognitive characteristics of individuals; process rationality emphasizes the impact that a decision process has on the decision in addition to the impact of the outcome itself. All types of rationality discussed above contribute to our understanding of decision making and its variations in different situations (March, 1978; 1979).

Currently, researchers are taking an information processing approach to the study of decisions, as opposed to the rational choice theory. The information processing approach is based on bounded rationality (Simon, 1955). It acknowledges the limitations of decision makers on their information processing capability. It suggests that behaviour is shaped through the interaction of human information processing and the task context (Simon, 1990).

2.4.3 Processes

Any decision-making process is a type of process and therefore defining the process in the first step in understanding decisions. Various definitions for the process have been proposed. Davenport, Jarvenpaa and Beers (1996), for instance, defined it as "an ordering of activities across time and place, with a beginning, an end and clearly identified inputs and outputs: a structure for action"; Talwar (1993) described it as "any sequence of pre-defined activities executed to achieve a pre-specified type or range of outcomes". Saxena (1996) suggests that process is "a set of inter related work activities characterised by specific inputs and value added tasks that produce specific outputs". Pall (1987)'s definition is more detailed: "the logical organisation of people, materials, energy, equipment, and procedures into work activities designed to produce a specified end result".

Despite the differences in the definition of processes, they all seem to have similar elements: a set of activities, process input, and process output (Hlupic and Robinson, 1998), followed in a specific order to achieve an outcome. Researchers all agree that processes are relationships between inputs and outputs. Inputs are "transformed into outputs using a series of activities, which add value to the inputs" (Aguilar-Saven, 2004). Purchase decision-making processes are no exception; they include a number of activities that lead to a choice.

2.4.4 Characteristics of processes

Processes and purchase processes are categorized based on different characteristics. One type of process is an ad-hoc process, which is highly flexible with the actual process path being entirely selected at run-time. There is no pre-defined path to be followed and individuals decide on the stages of the process as the process goes along. The control flow between activities for an ad-hoc process cannot be modelled prior to its occurrence (Dustdar, 2004; Dustdar and Hoffmann, 2005). These types of process are very dynamic and flexible. Dorn et al. (2010) has defined such flexibility as "the ability to adapt the process flow on demand through adding, skipping, or sequence reordering of process steps". Online purchase decision making is to some extent an ad-hoc process that is shaped at run-time, and its flexibility makes it difficult to analyze. However, we argue that despite the flexibility, there are common behavioural patterns that can be observed and modelled. Although the details and order of activities are decided at run-time, the overall activities involved are known.

Another classification of processes which is relevant to this study is having formal processes (those that can be documented) or informal processes (which occur in the mind of the actor) (Holt, 2005). In the online purchase context, the process not only includes the activities of consumers during interaction with the Internet, but also the evaluations that occur in their mind. An online purchase process, therefore, includes both formal and informal sub-processes. It is important to assess both in order to understand the behaviour comprehensively.

2.4.5 Types of decision

In addition to the variations of processes, the decision problems also differ. A discussion on these differences follows.

2.4.5.1 Programmed and non-programmed decisions

Decisions can be classified according to the extent to which they are repetitive, routine and complex. Simon (1960) has classified decisions into programmed and non-programmed. The routine decisions are often properly structured and decision makers develop particular procedures to tackle the problem. They have a clear starting point and goal as well as a well-defined procedure to reach the goal. These types of decision are referred to as programmed decisions. On the other hand, non-programmed decisions are unique, unstructured and there is no known or pre-specified procedure to the decision maker. This type of decision making occurs when the decision maker is dealing with a new or not recent problem, when the decision situation is very complex, important or requires an innovative procedure (Simon, 1960; Perkins and Rao, 1990). When individuals encounter an unstructured decision situation, they seek to reduce the decision into sub-decisions which are familiar, in order to deal with the problem (Mintzberg, Raisinghani and Theoret, 1976).

2.4.5.2 Adaptive decision making

However, although the above definitions explain the two extreme ends, decisions can have various degrees of repetitiveness and complexity. For instance, if there is a unique problem which is not very complex, the decision maker might use adaptive decision making and adapt a known procedure to a new context rather than creating a unique one (Gore, 1962). Purchase decisions fall into this category (Foxall, 1993).

Gore (1982) has classified the decision problem into three types: routine, adaptive and innovative. Adaptive decision making has received a lot of attention from decision science researchers (Payne, Bettman and Johnson, 1988; 1993; Klein and Yadav, 1989). Decision makers are flexible and adaptive in the way they respond to different tasks. It is due to their limitations in information processing and differences of heuristics that perform best in different contexts (Payne, Bettman and Johnson, 1993). They use choice heuristics, which is not in line with some principles of rationality, in order to respond to different tasks (Tversky, 1969). Therefore, adaptive decision makers select the strategy that best fits a particular decision task and context (Klein and Yadav, 1989). They choose strategies that are efficient in terms of effort and accuracy in that particular situation (Payne, Bettman and Johnson, 1988). Adaptive decision making changes the structure of the decision problems slightly. It can explain the differences in the decision-making processes adapted by different individuals.

2.4.5.3 Complex decisions

According to Keeney (1982), "Complexity cannot be avoided in making decisions. It is part of the problem, not only part of the solution process." However, the extent to which decisions are complex varies. A number of issues contribute to the complexity of decision-making processes, such as: multiple objectives which complicate the evaluation of "the degree to which each objective is achieved by the competing alternatives"; difficulty in identifying good alternatives; intangibility of some factors; long-term impact; large impacted groups; risk and uncertainty; reliance on others' information; the presence of several decision makers; value trade-offs; risk attitude; and the sequential nature of decisions. However, not all of these issues are important in each decision-making event, particularly in purchase decision making. For instance, in the case of online purchase decisions, difficulty in identifying good alternatives among the huge amount of information available, intangibility of products/services and retailers, and risk and uncertainty increase the complexity of decision making to a great extent.

When the decision context is complex or unknown, defining the decision problem is more sophisticated. In such cases, decision makers might find it hard to identify the wide range of factors or unknown variables that are involved. An extensive process will occur as they are not able to draw on their past experience as much. With the increase in complexity, the amount of information that can be captured by "objective" data decreases; whilst, the importance of values, judgments, and experience become more prominent (Keeney, 1982). On the Internet, which is a highly complex environment, subjectivity of decision making and importance of individual values and judgments are determinant. Purchase decision-making processes on the Internet are complex and include different types of inter-connected activities. Whenever there are complex phenomena, modelling could be beneficial as it simplifies reality (Caine and Robson, 1993). In this case, for example, modelling would help in visually illustrating the decision process and defining various possible adaptations of the process.

2.4.6 Modelling decision-making processes

A large number of studies in decision science have visualized the decision-making process by modelling it. This can be found particularly in organizational decision making. Process modelling is valuable in capturing the key phases of a process, reducing the associated complexity and facilitating identification of process constructs (Papamichail and Robertson, 2003).

Three types of decision-making study and therefore models have been developed: descriptive, normative and prescriptive models (French, Maule and Papamichail, 2009, p.29). Descriptive models illustrate the actual human behaviour by explaining the way decisions are made (March, 1978). Normative models show how the decision should be made. Prescriptive models combine the two by having the behavioural characteristics of decisions makers in mind while providing guidance towards the normative behaviour. In this research the descriptive behaviour of consumers is illustrated. However, suggestions which lead us towards a prescription for purchase decision-making are presented, based on the analysis of the performed process and its outcome.

Decision-making process models are illustrated as sequential activities similar to workflows. According to Petrusel and Mican (2010), "A decision workflow represents the depiction of the sequential mental activities performed by the decision maker starting with the discovery of the need for a decision and ending with the execution of the chosen alternative". Purchase decision-making processes can therefore be modelled as a workflow, following sequential activities. The next chapter reviews a wide range of models developed in the decision science literature, in order to develop the proposed model of the online purchase decision-making process.

2.4.7 Empirical testing of decision models

Decision-making models provide a valuable insight into the phases of process, improving and considering more issues of real decision making as time has passed. In order to apply the theoretical knowledge of decision making in practical cases, models play two important roles: first, explaining the behaviour and indicating its influential factors so that those interested can target decision makers at the right point for various purposes; second, providing the framework for empirical analysis (Wilson and Dowlatabadi, 2007). Despite the vast number of decision-making studies, process models of individual decision making have seldom been empirically tested outside the organizational decision-making context.

2.4.8 Behavioural differences in decision strategies

Variations in decision-making processes in decision science have been addressed mainly in terms of evaluation strategies used by decision makers. The main variations described in the literature are explained next.

2.4.8.1 Decision heuristics

There is a stream of behavioural research which looks at the ways decision makers use heuristic strategies. The first distinction can be made between compensatory and non-compensatory strategies. Compensatory strategies allow the low rating of one attribute of an alternative to be compensated by the high rating of another attribute. It therefore requires explicit trade-offs among attributes. Different methods of compensatory strategy are possible, such as weighted adding strategy and the majority of confirming dimensions strategy. Non-compensatory strategies, on the other hand, set a minimum value for each attribute and reject alternatives which do not meet the minimum value for any attribute. Examples of non-compensatory strategies are lexicographic strategy, satisficing strategy and elimination by aspects (EBA).

Decision makers, including consumers, tend to combine these strategies when making a decision which is often developed on the spot (Montgomery and Svenson, 1976; Bettman, Johnson and Payne, 1991; Wright, 1975). Rather than one invariant approach to solve choice problems, consumers appear to utilize a wide variety of approaches. For example, in decision situations where decision makers are faced with a large set of alternatives, they usually start the process with non-compensatory strategies to eliminate unwanted alternatives and reduce the size of the consideration set. Afterwards, they perform more time-consuming compensatory strategies to make their choice. This is, in fact, in line with the notion of bounded rationality and the constructive nature of decision processes. The processing method alters as consumers learn more about the decision problem and adapt the strategy which best suits a particular condition, minimizes the cognitive effort and maximizes the accuracy (Wang and Benbasat, 2009).

2.4.8.2 Alternative-based and attribute-based strategies

Another classification of decision strategies adopted by decision makers is based on the information being compared. They might evaluate different options one by one where all the attributes of one option are assessed (alternative-based), before moving on to evaluating the next alternative. Attribute-based analysis, on the other hand, involves the comparison of all alternatives based on one attribute, before moving to the next attribute (Bettman, and Zins, 1979).

These two categories have been combined to define decision strategies (Dhar, 1996). Decision heuristics are more concerned with the psychological aspects of decision making and are well-researched in decision science. However, the latter categorization is simple, while having interesting implications in marketing, as it indicates the behaviour of consumers in relation to competing retailers. Therefore, it is more suitable for this research.

2.5 Online consumers behaviour

The previous sections enhanced our understanding of consumer behaviour and in particular consumer decision-making processes, drawing on the literature of both consumer behaviour and decision science. The underlying concepts and the basis of purchase decision making were introduced. In this section, the behaviour of consumers in the Internet market will be discussed, showing that online behaviour does not always follow the traditional behaviour. The current knowledge of online consumers is limited and therefore this research is an attempt to explore this phenomenon. In addition to academia, understanding consumers and their decision-making journey is of importance to e-businesses in order to facilitate and influence consumers' purchase processes. This knowledge can be used to reach consumers "*in the right place at the right time with the right message*" (Court et al., 2009).

This section starts by describing the characteristics of the Internet and its impact on the behaviour of consumers. Studies of online behaviour are then discussed.

2.5.1 Online consumers and opportunities for e-businesses

In order to win customers in the online market place, where all the competitors and their products are readily accessible, companies require a comprehensive understanding of their customers. E-businesses have encountered challenges in addressing consumer needs and utilizing the capabilities of this environment to the maximum. Little is yet known about the way consumers make purchase decisions, search, and use information in this environment (Häubl and Trifts, 2000; Peterson and Merino, 2003; Dennis et al., 2009). Online consumers behave differently and also have more sophisticated needs. They are not only buyers but also Internet users (Koufaris, 2003). They perform the purchase-related tasks to fulfil a purchase as they would with a traditional retailer. In addition, they require interacting with the Internet while directing the process on their own. Their behaviour is affected by general purchase-related factors and also their interactions with the Internet environment. It is, therefore, crucial to understand their requirements and concerns due to the nature of the online environment. This knowledge can then be used to enhance the shopping experience and provide instant personalization based on the knowledge of consumer (Rust and Lemon, 2001; Zhang, Agarwal and Lucas, 2011).

2.5.2 Internet characteristics

The way Internet shoppers behave has always been of great interest to academics and e-businesses. The Internet has become a powerful force that influences shopping behaviour (McGaughey and Mason, 1998), because of its characteristics such as the accessibility of large amounts of information, lower search costs, and intangibility of products (Moon, 2004). The Internet can improve the consumer experience by providing convenience, highly personalized services and in some cases better prices. In addition, Web 2.0 features have turned this platform into a highly dynamic place with interactive communications between business and user as well as between user and user. Interactivity is gained by sophisticated tools. These tools "assist shoppers in their purchase decisions by customizing the electronic shopping environment to their individual preferences" (Häubl and Trifts, 2000). They therefore improve the shopping experience and satisfaction through the quantity and quality of individually customized information (Chen and Chang, 2003), and enable wide participation of consumers in social activities and consumer-generated content. Interactive features of this environment alter the natural cognitive flow of consumers and affect their decision making process and satisfaction (Xia and Sudharshan, 2002; Choudrie and Dwivedi, 2007; Constantinides and Fountain, 2008; Jarrett 2008).

On the other hand, lack of face-to-face relations, the intangibility of shops and products, and security issues such as being a victim of credit card fraud or the possibility of receiving a different product (Lee, 2002; Bhatnagar, Misra and Rao, 2000), increase the risk in this environment. The higher level of perceived risk leads to consumer hesitation in a purchase decision. In addition, the low cost of visiting the e-shop contributes to the delay of the purchase as consumers can visit the online shop many times and postpone the purchase, which is not the case in traditional offline shops (Moe and Fader, 2002). Although intangibility of products on the Internet could be considered as one of its drawbacks, advances in technology such as the ability to provide a combination of images, texts, sounds and visual tools has reduced this downside.

2.5.3 Impact of the Internet on the purchase decision-making process

The nature of online purchase activities makes the online purchase process different from the traditional one. The Internet affects all stages of the purchase process followed by consumers (McGaughey and Mason, 1998). For instance, searching for alternatives, gathering required information, simultaneous evaluation of different retailers, providing personal information and the payment process are all different in the online environment. In other words, the Internet has changed consumer behaviour by offering consumers diverse types of convenience to search for information, evaluate different options, and make a purchase (Moon, 2004; Constantinides, 2004). "This environment could have a profound effect on how customers construct their decision-making processes to adjust appropriately to the new decision-making environment" (Xia and Sudharshan, 2002). The Internet also allows for cross-channel purchases. This means that different stages of the purchase process might take place via the Internet channel or physical shops (Choudhury and Karahanna, 2008).

One of the main underlying issues of online purchase decisions addressed in previous studies is information overload. The amount and type of information available online is different (Bakos, 1997). Information overload has been found to be the main reason for an alteration in behaviour. It is related to the bounded rationality theory. The fact that consumers get overloaded by large amounts of information on products has been proved previously (Jacoby, 1984; Malhotra, 1982; 1984). It has been verified that a limited number of alternatives and attributes can be processed by individuals before being affected by information overload. Information overload is a "multiplicative function of the amount of product attributes and alternative information available for a single product" (Mick, Broniarczyk and Haidt, 2004). It leads to simplification of choice processes which in return reduces the quality of the decision. It also increases confusion and lowers the decision satisfaction (Mick, Broniarczyk and Haidt, 2004). As there is a huge amount of information available on the Internet, consumers are unable to evaluate all the alternatives in depth prior to making a choice. Therefore, Häubl and Trifts (2000) have suggested that consumers use a two-stage process. In the first stage they look at a large number of products but not in great depth, and select a set of alternatives which seems to be more promising. During the second stage, they evaluate this set in more depth and perform extensive comparisons based on their criteria to make the purchase decision. This two-staged strategy is the most typical approach (Payne, 1976; Bettman, Luce and Payne, 1998). It is aligned with the studies of compensatory and non-compensatory strategies mentioned above.

In addition to the Internet's characteristics, the impact of new supporting features in the Internet environment, such as interactive decision aids (Wang and Benbasat, 2009), comparison engines and recommender systems on consumer behaviour, is obvious. According to Terpsidis et al. (1997), recommender systems help consumers in problem recognition and information search. They can suggest potentially useful products and reduce the external search by using feedback from other consumers with similar interests. They help consumers in the often overwhelming task of locating products as a response to the large number of choices and their frustration at the low level of professional support available (Schafer, Konstan and Riedl, 2001). Alongside recommender systems, comparison engines have a great impact on information search behaviour (Peterson and Merino, 2003) and have created a new trend in purchase behaviour. Comparison tools affect purchase decisions (Haubl and Trifts, 2000). Moreover, the impact of online consumer reviews on consumers' purchase decisions has been supported by many researchers (Li and Hitt, 2010; Mudambi and Schuff, 2010).

It is clear that Internet purchase behaviour does not necessarily follow the traditional consumer purchase behaviour (Koufaris, 2003). The online consumers are also different. They are more "powerful, demanding and utilitarian in their shopping expeditions" (Koufaris, 2003), as they get the control of the situation and actively "pull" the information they need rather than waiting for marketers to "push" it (Court et al., 2009).

2.5.4 Internet support for purchase process

Zeng and Reinartz (2003) suggested that the impact of the Internet on stages of the consumer decision-making process varies. They found that the Internet supports mainly the search stage and almost neglects assisting consumers during evaluation. Kohli, Devaraj and Mahmood (2004) have similarly found evidence for partial support of the Internet during the purchase process. However, the Internet has changed over the past decade and more and more decision aid tools and recommender systems have been put in place to support consumers. Understanding consumers' decision-making stages is the first step in supporting them by providing necessary information and facilitating their choice. This support results in a reduction in tangible and cognitive costs (Kohli, Devaraj and Mahmood, 2004). On the other hand, failure to support some stages of the process might lead to change of channel choice.

2.5.5 Impact of the Internet on behaviour of consumer in a market

The influences of the Internet are not limited to consumer purchase decisions. The Internet also influences the way consumers behave in an online market in terms of interaction with different retailers. It is transforming the distribution of purchase over different products and retailers (Brynjolfsson, Dick and Smith, 2010). The online environment facilitates lower search costs, and offers the possibility of visiting different retailers at the same time, and comparing various alternatives simultaneously. It therefore makes all the information and market players easily accessible to consumers (Daniel and Klimis, 1999; McGaughey and Mason, 1998). Theoretically, buyers have access to all suppliers (Daniel and Klimis, 1999). The power of sellers is then reduced while the market competition is increased by making allocation of resources more optimal (Bakos, 1991; 1997; Hinz, Hann and Spann, 2011). This changes the market structure (Bakos, 1997; Koufaris, 2003).

Online retailers are competing to gain more consumers and increase their market share (Tih and Ennis, 2006). One of the first studies to investigate the nature of the electronic market is the work of Malone, Yates and Benjamin (1987), who stated that in an electronic market, consumers are capable of searching many retailers for a product or service. As the cost of search is lower, “proportionately more use of markets” will be noticed (Daniel and Klimis, 1999). Therefore, the Internet market is expected to create opportunities for small retailers and reduce concentration of the market by making it easier for consumers to visit all online retailers. In addition, a recent study by Oestreicher-Singer and Sundararajan (2012) has found the impact of the recommendation networks on a flatter distribution of both revenue and demand. However, certain categories of product are more influenced by recommendation networks. One of the markets which have been suggested as likely to encounter changes was the financial market, due to the increase in electronic distribution of services (Daniel and Klimis, 1999).

2.5.6 Internet, e-services and online consumers

Internet serves its users by various e-services. “E-service includes the service element of e-tailing, customer support and service, and service delivery” (Rowley, 2006). As the use of the Internet among retailers has increased, a growing body of literature has emerged exploring the use of e-services in e-commerce. These studies have mainly concentrated on the psychological processes underlying adoption. They have mainly attempted to establish the link between measures of services and behavioural intentions (e.g. Hackman, et al., 2006; Zeithaml, Berry and Parasuraman, 1996; Cronin et al., 1997; Chen and Dubinsky, 2003; Pavlou and Fygenson, 2006; Gefen and Straub, 2003; Pavlou, 2003).

Online service marketing and Internet studies have focused on adapting measures of traditional services for e-services. For instance, the impact of service quality (Janda, Trocchia and Gwinner, 2002; Andreassen and Lindestad, 1998; Zeithaml, Berry and Parasuraman, 1996; Cronin et al., 1997), service value (Chen and Dubinsky, 2003), and trust and risk (Gefen and Straub, 2003; Pavlou, 2003; Salam, Rao and Pegels, 2003; Schlosser, White and Lloyd, 2006; Gefen, Karahanna and Straub, 2003; Walczuch and Lundgren, 2004; Pavlou and Fygenson, 2006; Cunningham, Gerlach and Harper, 2005) on the adoption of e-commerce has been examined. However, service quality in an online context is different from the traditional one (Janda, Trocchia and Gwinner, 2002). A number of studies have investigated service quality in the online retail service context. Janda, Trocchia and Gwinner (2002) explored consumers' perceptions of Internet retail service quality. Zeithaml, Berry and Parasuraman (1996) found a strong relationship between service quality and consumers' behavioural intentions. Therefore, for e-businesses to be successful, high quality e-services should be offered to their consumers. Cronin et al. (1997) have investigated the impact of service value on consumer decision processes. They show that inclusion of this construct in models of consumer decision making for services increases the ability of these models to explain the variations in purchase intentions beyond analysis of service quality. As mentioned by Gefen and Straub (2003), the majority of retailers on the Internet "have created websites where customers can order services online, but there is little or no provision for socially rich exchanges when the customer has questions or deeper issues". Social presence is highly related to information richness.

Therefore, e-service is more than providing a list of products and fulfilling an online purchase. It is important to develop e-services based on the requirements of online consumers. This again emphasizes the understanding of consumer behaviour and development of those e-services with the quality, value, social presence and other characteristics that satisfy their needs, increase consumer adoption and enhance their experience.

2.5.7 Characteristics of online purchase decision-making processes

As mentioned above, online consumer behaviour is different from the well-studied traditional behaviour (Van den Poel and Buckinx, 2005; Bucklin et al., 2002). Online purchase decision making process can be characterized as being to some extent ad-hoc, including both formal and informal sub-processes, as well as being unstructured and highly dynamic.

Online purchase decision making is unstructured as consumers do not follow a predefined set procedure. "Internet choice behavior is dynamic and consists of an evolving series of interrelated choices, where both consumer and marketer can play a role in shaping the context of subsequent choice events depending upon the outcome of earlier encounters" (Bucklin et al., 2002). These characteristics all contribute to the complexity of this process.

2.5.8 Modelling the consumer decision-making process

It is now clear that online purchase behaviour is different from the traditional behaviour. "There are significant gaps in our understanding of e-consumer behaviour" (Dennis et al., 2009). "Building theoretical knowledge and models in order to […] better understand the consumer, segment the market, and ultimately increase profitability" is of great importance (Rickwood and White, 2009). Therefore, it is necessary to develop a new behavioural model that enhances our understanding of the online purchase decision-making process (Constantinides, 2004).

A number of studies propose models of online purchase behaviour. Some of the current models try to improve the existing models of traditional purchase by introducing factors that influence the online purchase. The purchase process stages, however, are merely based on the traditional problem-solving view, following the sequence of research, evaluation and purchase stages. Complexities of the online purchase decision have not been taken into account (Smith and Rupp, 2003; Louvieris, Driver and Powell-Perry, 2003).

As the aim of this study is modelling the purchase decision-making processes, part of the next chapter is dedicated to a review of existing models. The proposed model, which will be introduced in section 3.5, is an effort towards optimization of current online purchase decision-making models in order to indicate the reality of decision making as much as possible. For instance, capturing the actual process flow, considering the specific context of decision problem and decision maker, and examining the impact of various factors on the decision are some of the measures towards this aim.

2.5.9 Empirical testing of online purchase models

The majority of purchase decision-making models of online context are conceptual, and offer hypotheses (McGaughey and Mason, 1998; Moon, 2004). Others concentrate on factors that influence the purchase process rather than stages of the process (e.g. Lee, 2002; Smith and Rupp, 2003). Very few have attempted to model the behaviour. For example, Chen and Chang (2003) have modelled the behaviour of consumers, but their work is based on self-reported behaviour. Hölscher and Strube (2000) have used modelling techniques to illustrate the actual steps of search behaviour on the Internet. They have developed a model of information seeking based on interviewing experts and testing it with individuals with different levels of Web experience and domain-specific knowledge. Other interesting work by Hsia, Wu and Li (2008) studies the behaviour of Internet shoppers, considering the whole process rather than concentrating on the search behaviour. The purchase decision-making behaviour is combined with a value matrix to suggest the services needed at each stage of this process. Their model can be utilized to determine the core e-services required for an e-business in order to create value from e-commerce.

However, I aim to model the online purchase decision-making behaviour of customers while they are interacting with the Internet. This research goes beyond the general steps of the process and unfolds the activities involved in each stage of the purchase process, as well as the overall process flows. In addition, it operationalizes the conceptual model so that it can be empirically tested.

2.5.10 Behavioural differences in online information search

The majority of Internet studies have concentrated on the information search stage (e.g. Klein, 1998; Johnson et al., 2004). The information search intention is one the most important predictors of purchase intention in the online shopping context (Kim and Park, 2005; Shim et al., 2001; Watchravesringkan and Shim, 2003). There is evidence that a large number of consumers who search a retailer's website for product information with the intention of purchasing abandon their online purchase plans (Shim et al., 2001). Therefore, understanding the factors that affect search behaviour is crucial for e-retailers. Moe (2003) and Moe and Fader (2004) have categorized online consumer researchers into four different groups based on the aim of the search:

1: Directed buyers: want to buy a specific product when they visit a shop, therefore are unlikely to leave without purchase.

2: Search/deliberation visitors: want to buy a general product category; purchase might happen after a number of visits when more information has been gathered from visiting different stores.

3: Hedonic browsers: have no product or even product category in mind when they visit a website. The purchase may or may not happen, but if the consumer makes a purchase, it is due to in-store experience and the stimuli he/she has received.

4: Knowledge-building visitors: only research to gather information about the products available, without any intention to purchase. No matter how stimulating the website is, they will not make a purchase.

2.5.11 Multi-channel behaviour of consumers

Although the Internet has been treated as a replacement channel in many Internet studies, there has recently been a shift towards multi-channel behaviour of consumers. The Internet has in reality allowed for cross-channel purchases and post-purchase behaviour (Tih and Ennis, 2006; Wikstrom, 2005). Consumers might use e-services that support a particular stage of the purchase because of their value compared to the offline value. Different channels of communication convey different levels of information. Some channels are more suitable for certain tasks (Gefen and Straub, 2003). Therefore, it is important to understand the specific characteristics of different markets. The Internet can be used as a new channel that supports the entire purchase process in some sectors; while it can be used as a complementary channel by others. It is a new area of research that will be addressed in this study. As stated by Choudhury and Karahanna (2008), “The choice of channels is not a monolithic decision. Rather, the purchase process consists of several distinct stages and consumers can disaggregate their choice to move from one channel to another at different stages of a single transaction”.

2.6 Factors influencing online consumer behaviour

As already stated, studying consumer behaviour is more than the decision-making process. Understanding issues that trigger consumers to make a purchase, affect their decision-making processes, and lead to variations in choice and process in different contexts and for different individuals, are very important. As online purchase decision making is a complex phenomenon, a large number of factors have been found to be influential. Different factors have a different level of importance in different stages of decision making. Court et al. (2009), for example, believe that company-driven marketing is more important when the initial consideration set is developed, while the consumer's information and knowledge is more important during the research and evaluation. At the purchase time, interactivity with the shop is the most determinant factor. Therefore, understanding the influences of various factors on different stages of the process is crucial. This section reviews a wide range of literature to identify the factors influencing online purchase behaviour. A contextual model is introduced, based on the empirical results of previous research.

The first studies of consumer behaviour which introduced the grand models have made a great contribution by illustrating the impact of Individual and contextual factors on decision-making processes (for example see: Engel, Kollat and Blackwell, 1968; Howard and Sheth, 1969; Nicosia, 1966). They present highly complex models with detailed concentration on relations of factors and stages in the decision-making process. A detailed explanation of the factors introduced in these models is presented in Appendix A. Although the early studies defined slightly different contextual and individual factors, they concentrated on interrelations between these factors. However, as will be seen in the next chapter (section 3.2.1), they are too complex to be tested. Their pioneering work that has led to further research on identification of the contextual and individual factors which influence consumer decision-making processes should not be ignored.

After reviewing the literature, it became clear that the comprehensive model of Middleton (1994), which was developed for the tourism industry (Figure 2.5), is the most suitable model for this research. We have adapted this model to show online consumers within their context. This model depicts the market, advertising and community influences as well as personal factors and experiences. Although one might suggest that the way individual and environmental factors influence the decision making is not explained in such detail as in the grand models, we argue that simplicity of linkages make the measurements and validation of the model easier.

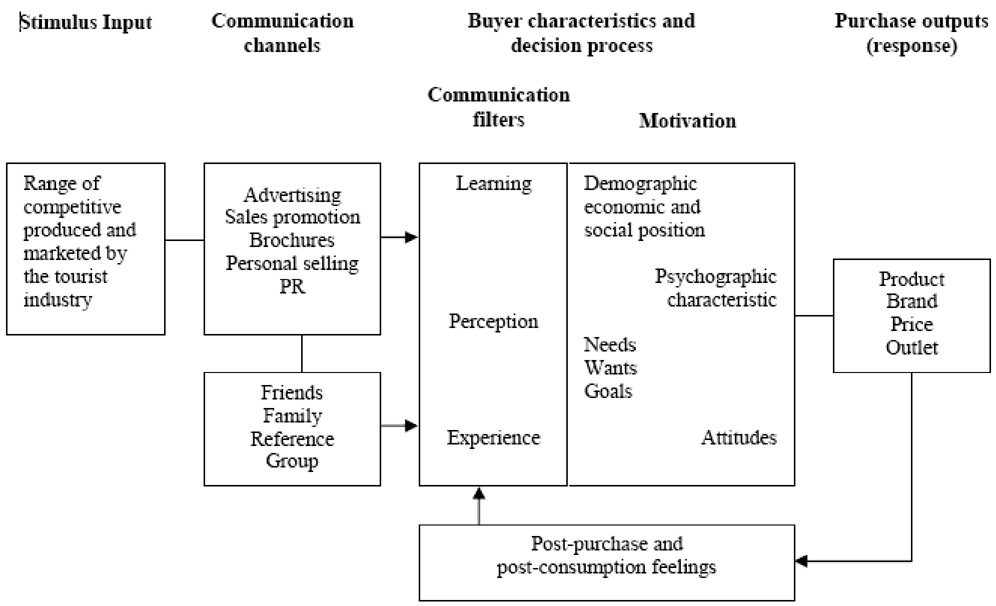


Figure 2.5: Stimulus-Response Model of Buyer Behaviour [Source: Middleton, 1994]

The contextual model (Figure 2.6) which was developed based on previous empirical studies shows the online consumer in its context. It illustrates all the elements that surround consumers and the factors that influence their behaviour. On one side, there is the consumer with his/her characteristics and the social and cultural context; on the other side, there is the market including market players, intermediaries, their websites, e-business strategies, marketing strategies, product range, advertising efforts and both Internet and offline channels. According to Constantinides (2004), in addition to consumer characteristics and environmental influences, characteristics of the product/service, medium and merchant/intermediary also define the context of the decision. The impact of the consumer’s community is also illustrated. The outcome, which is consumer purchase and post-purchase behaviour, is included. To summarize, in the online purchase context, consumer characteristics, market, merchant and medium characteristics, reference group as well as the cultural, social and economical factors all affect the purchase process.

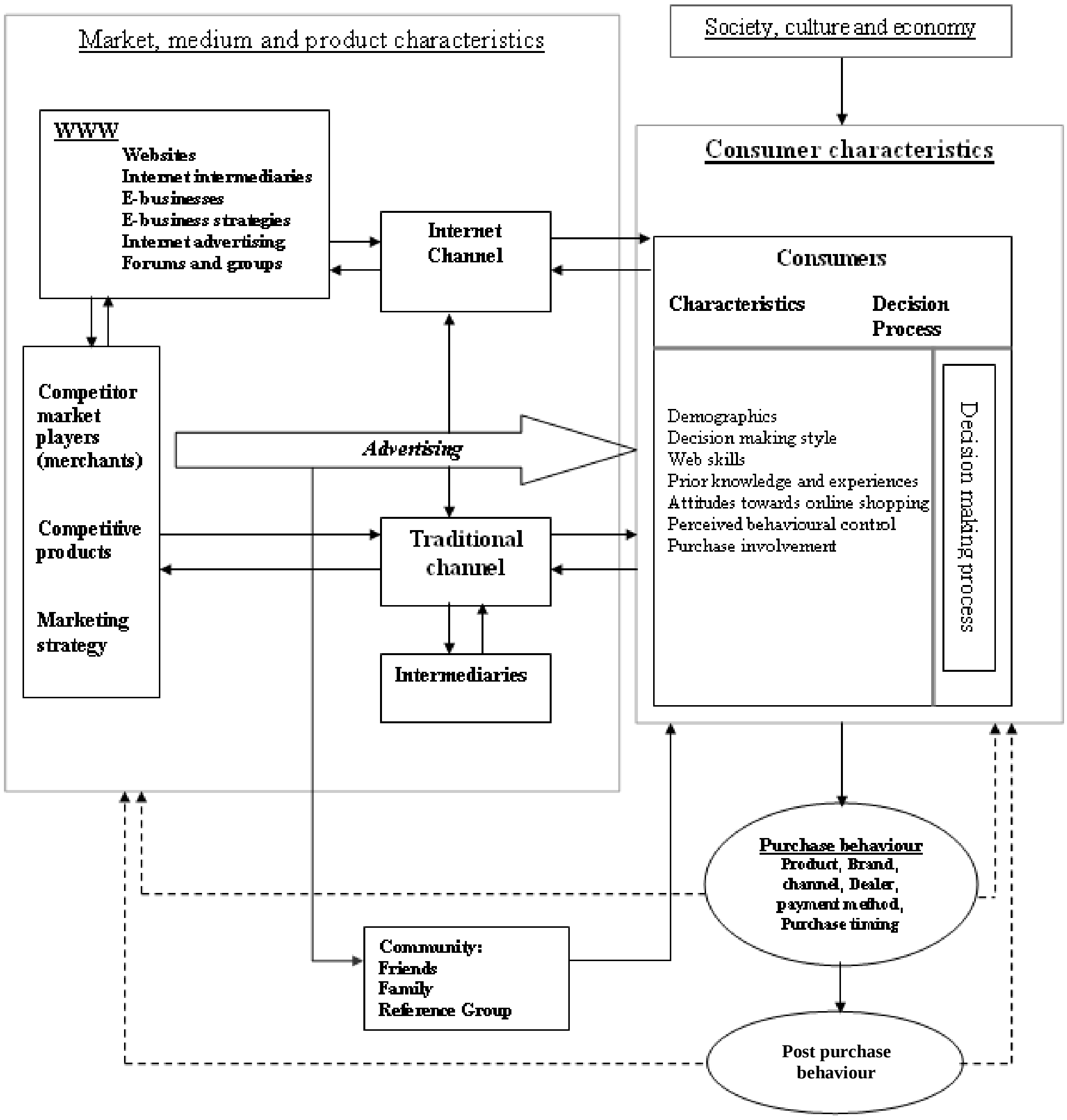


Figure 2.6: Contextual model of online consumers

2.6.1 Impact of contextual factors on online purchase decisions

The literature describes a diverse range of contextual factors that influence online consumer behaviour. They include: social (opinion leaders, person's family, reference groups, social class, and culture) (Doyle, 1994); environmental influences, product/service characteristics, characteristics of the medium, merchant/intermediary characteristics, exposure of customers to the company's marketing, and the Web experience (Constantinides, 2004); marketing efforts, socio-cultural influences (Smith and Rupp, 2003); brand name, price, sensory and non-sensory attributes of products

(Degeratu, Rangaswamy and Wu, 2000). It is the impact of all these factors that makes online purchase decisions so complex.

There is a relatively new area of literature that examines the sociability of online shopping as one of the influential factors. Shopping in general is motivated by various reasons, and is not only a matter of purchasing a product but is also related to the consumer experience. Socializing is one of the shopping motivators (Rohm and Swaminathan, 2004). The consumer-to-consumer relationship enhances the consumer experience: "Social shopping, leads to more customer satisfaction" (Leitner and Grechenig, 2008). The online environment, however, lacks the social interactions of shopping (Palmer and Koenig-Lewis, 2009; Dennis et al., 2010; Hassanein and Head, 2007), which is a hindrance to online purchase. The growth of social networking and availability of consumer forums is a step towards a more sociable experience. This area of study has great potential, but our emphasis here is on individual decision making.

2.6.2 Focus of this research: interaction of the consumer with the online environment

As already stated, online decision making process is a complex phenomenon which is influenced by various factors. Despite the importance of the contextual factors mentioned above, the concentration of this research is on understanding the purchase process of consumers as it occurs online. Figure 2.6 shows that consumers interact with the market through the Internet channel. Internet purchase is a dynamic process which both online consumer and marketers play an important role in shaping it (Zhang, Agarwal and Lucas, 2011) (Figure 2.7). Both the Internet market characteristics and individual consumer characteristics affect the process (Karimi, Papamichail and Holland, 2010). Therefore, we have limited ourselves to a short review of consumers' individual characteristics and market characteristics.

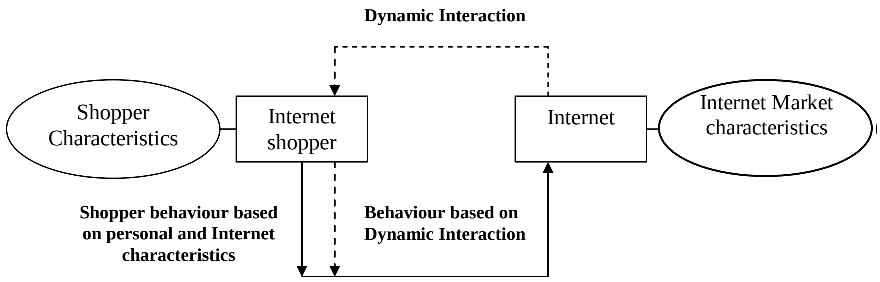


Figure 2.7: Dynamic nature of interactions on the Internet [Source: Karimi, Papamichail and Holland, 2010]

2.6.3 Individual characteristics and stages of the process

As the Internet is growing fast and becoming accessible to everyone, there is no longer any such thing as a “typical Internet user”. It is vital to identify users with similarities and segment them so that the marketing efforts can target them effectively (Klever, 2009). Research into the segmentation of online consumers is still in its infancy. In addition, retailers’ knowledge, which is gained from understanding particular customer profiles, enables personalization and increases the efficiency of online purchase (Zhang, Agarwal and Lucas, 2011). It is therefore important to understand the role of individual differences in the consumer decision-making process and purchase behaviour (Chowdhury, Ratneshwar and Mohanty, 2009; Simonson and Nowlis, 2000; Ranaweera, McDougall and Bansal, 2005).

In an increasingly complex Internet environment, consumers assume various roles. They are consumers of a product or a service, online users who need to deploy their Internet skills, and decision makers who choose not only products, but also search engines, retailers, intermediaries and information sources that are all just a click away (Karimi, Papamichail and Holland, 2011b). Therefore, consumers’ individual characteristics are among the main factors that influence the purchase decision-making process (Smith and Rupp, 2003; Srinivasan and Ratchford, 1991). Online consumers have different characteristics linked to the different roles (i.e. decision maker, online user and consumer) they assume. Their characteristics in each of these roles have an impact on their purchase behaviour, making online purchase different from the traditional one. Understanding consumer characteristics, therefore, will provide the basis for understanding their online behaviour (Ranaweera, McDougall and Bansal, 2005). In this section, we explore the linkages between individual characteristics and online purchase decision making process in prior literature. There are a large number of factors that influence each consumer role. For example, Web skills, decision-making style and consumer prior knowledge affect their roles as Internet user, decision maker and consumer respectively.

In order to better understand the impact of individual factors, examining their influences on different stages of the purchase process is crucial. Some of the pioneering studies of individual differences in consumer behaviour literature have focused on the search stage of the purchase process (Malhotra, 1983; Moore and Lehmann, 1980; Schmidt and Spreng, 1996; Srinivasan and Ratchford, 1991). More recent studies have proposed theoretical frameworks that illustrate factors affecting search and purchase behaviour on the Internet (Moon, 2004; Smith and Rupp, 2003). Moon (2004), for example, has reviewed a large number of literatures papers on offline and online behaviour. In his study, individual factors are only linked to the search behaviour. Factors influencing the purchase stage are product type, benefits and risks involved in Internet transactions. However, the influence of individual factors on behaviour is not limited to the search stage. For example, website usage behaviour depends on the way consumers process the information. Information processing and evaluation are also dependent on an individual's characteristics (Balabanis and Reynolds, 2008). The model of Smith and Rupp (2003) also shows that individual characteristics affect not only consumers' pre-purchase information search, but also the need recognition and evaluations stages. The impact of individual characteristics on the choice of the decision strategy has been acknowledged by Bettman, Johnson and Payne (1991). In this thesis, the focus is on the stages of process before the actual purchase.

This chapter provides a comprehensive picture by synthesizing a theoretical model drawing on consumer behaviour, IS and decision science studies. The theoretical model can not be tested in this single study but would review previous research and highlight future research directions. The impact of individual factors has been examined in two distinct areas. User acceptance/usage theories investigate those individual factors that are related to the use/adoption of online shopping. Other theories are more concerned with the impact of factors on the behaviour after adoption and the way that purchase processes unfold.

2.6.3.1 Models of behavioural intentions: attitude, perceived behavioural control, trust and risk

As explained above, there is a group of models that aim to assess behavioural intentions. These models concentrate on factors that identify the adoption of online shopping. In the last decade, a large body of literature in IS has developed that utilizes these models such as the Technology Acceptance Model (TAM) (Davis, Bagozzi and Warshaw, 1989), the Theory of Planned Behaviour (Ajzen, 1985; 1991) and the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) in order to investigate the behaviour of online consumers. These theories were initially developed for other contexts, but they have found their way into the online purchase studies to examine the use and adoption of online shopping. Despite their differences, they suggest that individual beliefs are antecedents of intention to have behaviour in a particular way, and when individuals form the intention to have a particular behaviour, they are free to exhibit that behaviour without any limitation. In this context, these models depict the way individual characteristics, such as attitude and perceived behavioural control, influence the intentional and actual behaviour of online consumers; and also how these characteristics are formed by beliefs themselves. They concentrate on beliefs, norms, attitudes and feelings.

TAM was developed to predict computer usage (Davis, Bagozzi and Warshaw, 1989; Igbaria, 1993). The original TAM and its extended version have been used to study Internet usage (Atkinson and Kydd, 1997; Fenech and O'Cass, 2001) and online purchase (Chen, Gillenson and Sherrell, 2002; Vijayasarathy, 2004; Koufaris, 2003; Fenech and O'Cass, 2001; Grazioli and Jarvenpaa, 2002; Kim, Ferrin and Rao, 2008; Shim et al., 2001; George, 2004). Initial studies of TAM have investigated the effects of perceived usefulness and perceived ease of use, some including computer experience as one of the influential factors of usage (O'Cass and Fenech, 2003; Pavlou, 2003; Atkinson and Kydd, 1997; Vijayasarathy, 2004). However, more recently the impact of other factors that are related to the "fun" part of technology use have been added to the model, such as enjoyment and playfulness (Atkinson and Kydd, 1997; Van der Heijden, 2003). Using this theory, purchase decision making is seen as a "sequence of belief formation, attitude formation, intention formation, and actual purchase behaviour" (Verhagen and Dolen, 2009). All these studies support a strong link between attitude towards online shopping and intention to use online shopping which is strongly related to the actual behaviour. Their main focus has been on the variables which shape attitude, as Figure 2.8 shows later in the chapter.

Alongside studies of TAM, an area of literature has used the Theory of Planned Behaviour (TPB) (Ajzen, 1985; 1991; 2002) to predict consumer online purchase behaviour (Kim, Ferrin and Rao, 2008; Limayem, Khalifa and Frini, 2002). This theory suggests that attitude toward behaviour, subjective norm and perceived behavioural control are the three antecedents of intention to exhibit behaviour. This theory has been used to assess online search (Kim and Park, 2005; Shim et al., 2001; Klein, 1998; Pavlou and Fygenson, 2006) and purchase (Kim and Park, 2005; Pavlou and Fygenson, 2006). The importance of search behaviour on purchase behaviour has been supported by Shim et al. (2001). It again emphasizes the importance of analyzing the entire process, as the behaviour at one stage affects the behaviour at other stages of the process.

These two models have been compared (Taylor and Todd, 1995) and comparable explanatory power has been found for them. However, in the case of usage prediction TAM might be more powerful, while TPB is able to provide a better understanding of behaviour. Both theories suggest that attitude towards e-commerce is one of the main influential factors of online consumer behaviour (George, 2004; Kim and Park, 2005; Limayem et al., 2002; Shim et al., 2001; Vijayasarathy, 2004). The relations between individual factors of attitude and perceived behavioural control on intention, and consequently actual behaviour, have been supported by studies of TPB. However, findings on the impact of subjective norms have been contradictory in different research. Terry and Hogg (1996) suggested that norms should be investigated in relation to social identity and be measured for the behaviourally relevant reference group. However, subjective norms were found in later studies to have a weak role in online behaviour (George, 2004; Pavlou and Fygenson, 2006).

Attitude

The term “attitude” is an index that shows the degree of favourability of an object (So, Wong and Sculli, 2005). Attitude towards online shopping has been empirically proven to affect the search and purchase intentions of consumers (George, 2004; Helander and Khalid, 2000; Kim and Park, 2005; Shim et al., 2001). Consumers' attitudes toward Internet shopping predict Internet purchase intentions, both directly and indirectly, through the Internet search (Shim et al., 2001; Kim and Park, 2005). It has been found to have the strongest effect on the intention to shop online (Limayem et al., 2002). While Watchravesringkan and Shim (2003) and Kim and Park (2005) tested this relationship for apparel shopping, George (2004) tested the above theory using secondary data collected by Graphics, Visualization, and Usability (GVU) centre. It can be seen that these relationships have been studied widely. However, as the nature of online shopping is changing, with advances in virtual stores and the introduction of social shopping (Dennis et al., 2010; Leitner and Grechenig, 2008), testing these relations in the new setting is still ongoing.

Perceived behavioural control

According to the theory of planned behaviour, perceived behavioural control affects online search and purchase intention. It has been defined as the perceived ease or difficulty of performing the behaviour (Ajzen, 2002). "Specifically, control relates to an individual's perception of the availability of knowledge, resources, and opportunities required to perform the specific behaviour" (Venkatesh, 2000). According to Pavlou (2006), the importance of perceived behavioural control is greater in online than in traditional shopping, as consumers' perception of control, confidence and ease of activities is lower on the Internet. This not only affects the intention but the actual behaviour as well (Ajzen, 1991; Limayem et al., 2002; Taylor and Todd, 1995). Perceived behavioural control might be altered by changes in the online shopping features.

Perceived trust and risk

Other factors that are touched upon in these models are trust and risk. These two factors have been found to be influential in online purchase decision making (Kim, Ferrin and Rao, 2008; Sia et al., 2009) and repeated purchase (Chiu et al., 2012). Personality-oriented and experience-based trust do not evolve during one purchase interaction and affect the attitude towards e-commerce in general, while other types of trust which are related to a particular website or environmental factors have an impact on the attitude towards a particular e-retailer's website. This type of trust is built during the interaction of consumers with the retailers' website (Grazioli and Jarvenpaa, 2002). Online consumer trust includes both system trust and personal forms of trust (Constantinides, 2004) which should be dealt with separately. In addition to trust, perceived risk in an online context has a significant impact on consumer attitudes and behaviour (Grazioli and Jarvenpaa, 2002). Perceived risk is belief in negative consequences that may result from using the web (Grazioli and Jarvenpaa, 2002). Perceived risk in traditional purchasing has been related to the previous product usage and experience. As the experience of a consumer with a product purchase increases, the perceived risk decreases (Malhotra, 1983; Sheth and Venkatesan, 1968). However, risk in online shopping is different in nature. "Online consumers are concerned with risks inherited in the characteristics of the Internet such as credit card fraud or not receiving the right products" (Bhatnagar, Misra and Rao, 2000; Koufaris, 2003). Risk has a negative influence on consumer decision making by increasing the intensiveness of conducted research and hesitation in making the decision. There are seven types of risk associated with consumer decision making mentioned in the literature: functional, financial, temporal, physical, psychological, social and sensory (Rickwood and White, 2009). It is important to mention that there is a different level of risk associated with different product categories, which alters the behaviour of consumers. A recent study by Dimoka, Hong and Pavlou (2012) has suggested that product uncertainty is a major problem for e-commerce; however, it can be reduced by certain signals such as product descriptions and third-party assurances. Perceived trust and risk are well studied in online research.

The above studies have concentrated on adoption of online shopping. Internet usage and penetration has increased remarkably over recent years, indicating that more people are going online and making a purchase. The "typical Internet user" does not exist anymore (Klever, 2009). Therefore, the issue that currently requires more attention is how the Internet is being used by different individuals and how it affects user behaviour, rather than whether it is used. The above models should concentrate on particular aspects and features of online shopping rather than online purchase adoption. Therefore, segmentation of online consumers according to their characteristics matters now. The following individual characteristics (Web skills, previous knowledge and experience, involvement, demographics and decision-making style) influence the way consumers behave after they have chosen to shop online and while they are involved in the purchase decision-making process.

2.6.3.2 Demographics

Demographic variables are used to classify consumers in order to better understand the behaviour of each group. Demographics can determine the Internet usage behaviour (Korgaonkar and Wolin, 1999) and purchase behaviour (Mittal and Kamakura, 2001; Ranaweera, McDougall and Bansal, 2005) in more detail. One of the demographics which have won academics' attention is gender, which has been studied widely in relation to purchase behaviour. Even though recent statistics on Internet usage and online shopping, such as those provided by ITU and Eurostat, show little difference between genders, the literature on gender clearly indicates that the way males and females process information is different (Meyers-Levy and Mahreswaran, 1991; Meyers-Levy and Sternthal, 1991). Different information processing styles lead to different decision-making processes, as they affect the search and evaluation stages. The impact of gender differences on consumer trust and decision making has also been proven to be influenced by biological factors (Riedl, Hubert and Kenning, 2010). In addition to gender, age is an important factor that affects user acceptance of technology (Venkatesh et al., 2003). These two demographics have been used as control variables of purchase intention (Pavlou, Liang and Xue, 2007).

2.6.3.3 Web skills and online shopping experience

Online consumers are not only consumers but also Internet users. In addition to performing all the traditional purchase-related tasks, they need to interact with the Internet (Koufaris, 2003). When consumers have a higher level of Web skills, it is expected that they will be more willing to use the Internet for shopping. In addition, with their capabilities, these consumers would be able to perform the online search more efficiently and accomplish the purchase task. One might argue that the importance of Web skills has decreased as more and more people are using it daily.

However, its impact is not limited to the usage decision but also how the Web is utilized. More skilled users might adopt different strategies in order to retrieve information or make a purchase decision. As Web skill is “an individual judgment of one’s capability” to use the Internet (Compeau and Higgins, 1995), it ought to be measured from the user’s perspective rather than by standard tests of skills. In fact, it is consumers’ perception of their ability that reduces their anxiety and improves their experience with the Web (Koufaris, 2003).

In addition to Web skills, online purchase is affected by online shopping experience (Johnson, Bellman and Lohse, 2003). Individuals who have used the Internet for purchase are more likely to purchase again as they found it easier and less complex. This could be considered as an increase in their skills to make an online purchase. However, an important issue that needs more attention is the fact that individuals with previous experience are more inclined to use online shopping only if it is a “favourable” experience (Frambach, Roest and Krishnan, 2007). Previous favourable experiences increase the intention to shop online.

2.6.3.4 Prior knowledge of the market and product

Studies of consumer behaviour have suggested that consumers’ prior knowledge influences information search and information use in generation of the consideration set, evaluation and choice of products (Rao and Monroe, 1988; Cowley and Mitchell, 2003). Therefore, its impact on consumer behaviour during the information search stage (Brucks, 1985; Moore and Lehmann, 1980; Rao and Sieben, 1992; Schmidt and Spreng, 1996), information processing stages (Alba and Hutchinson, 1987; Bettman and Park, 1980; Brukes, 1985), and satisfaction with the process (Xia and Sudharshan, 2002) cannot be neglected. Online purchase is also strongly affected by the product and market knowledge, as consumers are bound to search and evaluate the information on their own. Although the majority of Internet research has focused on the search behaviour, knowledge has been found to be an important factor in purchase decision making process (Bughin, Doogan and Vetvik, 2010).

Moore and Lehmann (1980) have shown that knowledge is the most influential factor in search behaviour, compared to other individual, situational and environmental factors. They have found a negative relationship between the amount of knowledge and the amount of external search. External search collects the information from external sources. On the contrary, others have not found such a relationship (Katona and Mueller, 1955; Bennett and Mandell, 1969). This equivocal result has been explained by Malhotra (1983), stating that consumers with a high level of knowledge lack the motivation to search for information, while those with a low level of knowledge are not capable of searching and evaluating the information (Bettman and Park, 1980; Malhotra, 1983). On the other hand, in the online environment consumers with low knowledge are still able to locate the online store, find the information and evaluate it. Therefore, they are able to perform the task although they might not be able to select the relevant information or evaluate it effectively. Those with a high level of knowledge might be motivated or not, according to their personality traits such as maximization tendency, which will be discussed later. The contradictory results of previous research may be due to ignoring other individual factors. This will be discussed in section 3.8.

Prior knowledge also facilitates the selectivity of information use and information processing (Huffman and Kahn, 1998; Chang and Burke, 2007). Individuals are selective in the way they allocate their attention when processing information on an interface (Lee, Chen and Ilie, 2012). Consumers with a higher level of knowledge are more selective in the information they assess to make a decision, and they gather more information about product attributes because they are aware of those attributes (Brucks, 1985; Cowley and Mitchell, 2003). They can also assess the information with less effort (Cowley and Mitchell, 2003; Alba and Hutchinson, 1987). Therefore, people with knowledge have wider criteria, select the information they are looking for and evaluate more easily.

Knowledge not only affects search and evaluation, but also the way processes unfold. Consumers start the process from different stages according to their knowledge of the market and product (Kaas, 1982). If they are unfamiliar with a product, they will enter the *concept-forming* stage where they learn about product attributes, develop the appropriate choice criteria and generate alternatives. Consumers who have knowledge of a product category start with collecting brand information and those with knowledge of product category and market require only a set of situational attributes (Sproule and Archer, 2000; Kaas, 1982) (Figure 2.4).

Despite being treated as a single construct, prior knowledge has two sides: objective knowledge (what is actually known) and subjective knowledge (individual perception of own knowledge) (Brucks, 1985; Park, Mothersbaugh and Feick, 1994; Schmidt and Spreng, 1996). Objective knowledge is related to the ability of consumers to perform product-related tasks. It is more influential in performing the purchase process online (Alba and Hutchinson, 1987; Schmidt and Spreng, 1996). Subjective knowledge includes both knowledge and confidence, and is closely related to the product domain experience (Park, Mothersbaugh and Feick, 1994; Schmidt and Spreng, 1996). It defines the amount of search, evaluation style and purchase decision as it reflects consumers' own decisions on what should be done. Subjective knowledge determines how consumers construct the decision-making process and is therefore used in this study. Previous knowledge has been mentioned with different terminology in the literature, such as familiarity and expertise (Alba and Hutchinson, 1987). The impact of consumer knowledge on the financial decision-making process (Rickwood and White, 2009) and for the purchase of financial products/services has been demonstrated (Byrne, 2005; Howcroft, Hewer and Hamilton, 2003; Perry and Morris, 2005).

Impacts of collective knowledge on the process

Today's consumers rely on "collective wisdom" to gain knowledge based on the online content generated by other consumers (Hoffman and Novak, 2009). Not only can they obtain information but also, according to Dennis et al. (2010), two-thirds of users see online recommendations from other consumers as valuable and credible. Product knowledge is one form of information that is communicated through e-WOM (Hung and Li, 2007; Xu et al., 2008). In fact, consumers' knowledge is affected by their communications with others through social networking and online communities. Knowledge development through interactions is expected to influence the behaviour of consumers. Hung and Li (2007) have discovered that the impact of knowledge development differs between less-informed and well-informed consumers.

Knowledge development through social interactions positively influences 1) variety seeking for less-informed consumers, and 2) selective buying for well-informed consumers.

2.6.3.5 Involvement

In addition to the individual characteristics discussed above, the consumer behaviour literature has suggested other characteristics that affect purchase behaviour. Involvement is an important issue that has been studied in relation to consumer behaviour in both traditional and online markets (Balabanis and Reynolds, 2001; Ranaweera, McDougall and Bansal, 2005; Koufaris, 2003; Constantinides, 2004; Laurent and Kapferer, 1985; O'Cass, 2000; Livette, 2006; Rickwood and White, 2009). Involvement has been used to examine the relationship between a consumer and a product category (Laurent and Kapferer, 1985).

Various definitions have been proposed for this factor, such as "an internal state variable that indicates the amount of arousal, interest or drive evoked by a particular stimulus or situation" (Mittal, 1989). Involvement has also been explained as a motivational variable which reflects "the extent of personal relevance of the decision to the individual in terms of basic goals, values, and self-concept" (Ranaweera, McDougall and Bansal, 2005). All in all, involvement, which is an individual difference variable, can be defined as the person's interest in an object. This object could be the product they are willing to purchase or the decision-making process itself (Mittal, 1989). Accordingly, involvement has been divided into product involvement (Houston and Rothschild, 1977; Zaichkowsky, 1985) and purchase decision involvement (Mittal, 1989; Laurent and Kapferer, 1985).

The level of involvement of a consumer with a product is the relevance of that product to the consumer's needs, values and interests (Zaichkowsky, 1985). It shows the degree of the "personal importance attached to the product and brand choice" (Livette, 2006). Its relation to actual behaviour such as search and evaluation is known today (Bloch, Sherrell and Ridgway, 1986; Maheswaren and Meyers-Levy, 1990). Depending on their degree of involvement, consumers vary in the extent of their decision process and their information search. When consumers have a higher level of involvement, they will search for more information, evaluate the information in more detail and use more criteria in their purchase decision making (Balabanis and Reynolds, 2001; Maheswaren and Meyers-Levy, 1990).

Involvement with the purchase process on the Web is partly related to personal characteristics such as shopping enjoyment; however, it very much depends on the interactivity of the website and the degree of freedom and control available to consumers (Koufaris, 2003). In fact, on the Web, user involvement depends on the technological features that provide the degree of interaction, and also on the accessibility of sources of information. Therefore, in the Web environment, process involvement cannot be assessed merely by measuring an individual’s interests but through their interactions with the Web and its facilitating features.

2.6.3.6 Decision-making style

In addition to the above issues described in consumer research, other researchers in decision science have suggested that individual characteristics of decision makers, risk, environment and information source have an impact on the process (Henderson and Nutt, 1980; Wally and Baum, 1994). Individual differences are mentioned by the majority of researchers as being influential in decision making by affecting the way information is processed and evaluated.

In the early studies, many researchers classified individuals based on their cognitive styles, as analytic or heuristic, which are similar to other classifications like intuitive or systematic, feeling, thinking, or combination of these (Henderson and Nutt, 1980; Doktor and Hamilton, 1973; McKenney and Keen, 1974). In other studies individuals are categorized based on their cognitive complexity by considering the number of solutions and amount of information used. Accordingly, four styles of decisive, flexible, hieratic and integrative have emerged (Driver and Mock, 1975). Different characteristics influence different stages of the decision making (Wally and Baum, 1994). Maximizers and satisficers is another classification of individuals based on their decision-making style. As this classification is concerned with information overload and has an impact on the behaviour at all stages of the purchase decision-making process, it is more applicable to the online purchase context.

Decision making style: maximization tendency

Prior consumer research has often used basic demographics or product-related characteristics that vary across individuals, such as product involvement, to profile consumers (Chowdhury, Ratneshwar and Mohanty, 2009). However, decision-making style in terms of maximization tendency has been neglected. Maximization tendency is a personality trait which has a direct impact on the decision-making process and can explain diversities in consumer behaviour. It is, in fact, a “macro-motivational construct” which affects the purchase decision process (Chowdhury, Ratneshwar and Mohanty, 2009). It was first introduced by Simon (1955; 1956; 1957) as a pioneering distinction between individuals, based on their decision-making strategies of maximizing or satisfying. Much research followed, investigating the differences between maximizing and satisficing decision-making behaviour. According to Simon, maximizing is impossible as individuals are limited in their information-processing capacities. This is even more relevant in “the modern world of almost unimaginable choice” (Iyengar, Wells and Schwartz, 2006). In online markets where innumerable alternatives are just a click away, maximization seems to be entirely unrealistic.

Schwartz et al. (2002) then suggested that individuals habitually differ in their tendency to maximize or satisfy. This, in fact, can result in more diverse behaviour of consumers. Online consumers are constantly making decisions on how to interact with the online environment. They need to decide on the sources of information, searching time, use of decision support tools, choice of a retailer and finally whether to purchase online or from a high street shop. Therefore, their decision-making style should have a great impact on the purchase process as consumers direct the process by their interrelated decisions. However, the importance of this personality trait has only entered the consumer online decision-making literature very recently. The work of Chowdhury, Ratneshwar and Mohanty (2009) is one of the only studies in the area that has observed the importance of customization based on the decision-making style orientation of individual consumers. This research proposes that online purchase decision making process is dependent on the consumer’s decision-making style and illustrates how maximizers and satisficers behave differently when encountering a product-choice problem.

Maximizers vs. satisficers

As already mentioned, Simon's concept of bounded rationality has addressed the limitations of information processing and the fact that decision makers are not able to maximize their utility but are more likely to satisfy their need. But Schwartz and his colleagues (2002) have suggested that some individuals are habitually maximizers and are more tend to choose the best option; whereas others are satisficers and tend to settle for a good enough option. Since then, the fact that individuals are different in their decision-making style has been widely reported in the decision science literature. These studies categorize decision makers based on their orientation to maximize the outcome of a decision in a choice situation (Schwartz et al., 2002). Decision makers might seek the best possible result (maximizers) or opt for a good enough choice that meets some criterion (satisficers). Satisficers search and evaluate products until they find one that passes their acceptability threshold. Maximizers evaluate all the options in order to choose the best one. However, it is important to mention that there is no fine line between maximizers and satisfiers. "It is surely more accurate to say that people differ in the extent to which they are maximizers, rather than falling on one or the other side of a maximization line" (Schwartz et al., 2002). Satisficers often move towards maximization as they encounter new information or alternatives with a higher rank which raises their previous acceptability threshold (Schwartz et al., 2002).

Maximization tendency and differences in the process

Despite the large amount of research on the characteristics and differences of maximizers and satisficers, researchers have paid little attention to the differences in the decision-making process that they follow (Schwartz et al., 2002). This study suggests that individuals follow different decision processes according to their maximization tendency. They are expected to behave differently, particularly when there are more alternatives available (Chowdhury, Ratneshwar and Mohanty, 2009). In the online purchase decision-making context where more choices are present, maximizers and satisficers follow different processes.

Maximizers search for more information and browse more intensively (Schwartz et al., 2002; Chowdhury, Ratneshwar and Mohanty, 2009). They perform an "exhaustive search of all possibilities" and analyze all the information available to them (Iyengar, Wells and Schwartz, 2006; Schwartz et al., 2002). Higher decision process time for maximizers during online shopping has been supported by Chowdhury, Ratneshwar and Mohanty (2009). They also increase their consideration set initially by exploring multiple options and try to evaluate them all. However, due to cognitive limitations, evaluation and comparison of all alternatives becomes impossible which leads to an increase in difficulty of decision making (Iyengar, Wells and Schwartz, 2006; Iyengar and Jiang, 2004). More options generate problems for maximizers. One cannot be sure of choosing the maximizing choice without examining all the alternatives, but it is impossible or impractical to do this. Consequently, when a maximizer gives up the search and makes a choice there will be a lingering doubt that he or she could have done better by searching more. Maximizers are also more inclined to keep their options open (Schwartz et al., 2002). Aiming for "the best possible" often requires comparison (Schwartz et al., 2002). Therefore, maximizers are expected to search for others' decision outcomes if they are to be satisfied with their own choice (Schwartz et al., 2002). It is expected that in the online environment, user-generated content and e-WOM would be a very influential source of information (Hung and Li, 2007; Xu et al., 2008), especially for maximizers. According to Leitner and Grechenig (2008), "The customers of a supplier are the personal filters for other potential customers."

On the other hand, satisficers perform less intensive research, they have a smaller consideration set and spend less time on the process. They perform "superficial search processes" (Chowdhury, Ratneshwar and Mohanty, 2009). Satisficers use more simplification strategies and are expected to simplify their decision-making process. They might use recommendation systems to eliminate options and reduce the cognitive process. Satisficers are also more likely to evaluate options sequentially till they find a good solution (Chowdhury, Ratneshwar and Mohanty, 2009) rather than comparing them against each other.

The differences are not limited to the purchase process, but they can also be noticed in the post-purchase behaviour. Maximizers tend to be less satisfied in their real-world experiences and might regret the choice afterwards (Mick, Broniarczyk and Haidt, 2004; Schwartz et al., 2002). In making a real purchase decision, maximizers are not able to access all the possible information and evaluate all the alternatives. As a result they might be less satisfied with their choice, feeling that it might not be the best. Higher levels of dissatisfaction might be observed in online purchase situations for maximizers, as the number of possible alternatives is higher and consumers are not able to evaluate them all. Therefore, at the point they give up searching and choose an option, they will have a doubt that they could have done better.

Purchase context and decision style

Although individuals' decision style orientation differs, the context of decision making also affects the level of their maximization. "No one maximizes in all domains" (Schwartz et al., 2002). Consumers might perform a cost-benefit analysis to select a simplifying or maximizing decision strategy based on the context of decision problem (Wright, 1975). For example, in the case of purchasing a financial product an individual will probably maximize more in comparison to the choice of a book. It can be concluded that despite being a personality trait, decision-making style is not a context-independent variable. In fact, it is related to the product type.

All the individual factors discussed in this section are illustrated in Figure 2.8 in the following page.

2.6.4 Internet market characteristics

In addition to individual characteristics, the characteristics of a particular online market have an impact on purchase behaviour (refer to Figure 2.6). Consumers interact with a particular market comprising different merchants and their websites which offer a specific product class. Therefore, the characteristics of the market, websites and the product class all influence behaviour. The majority of research has been concentrated on the product differences and website-related factors.

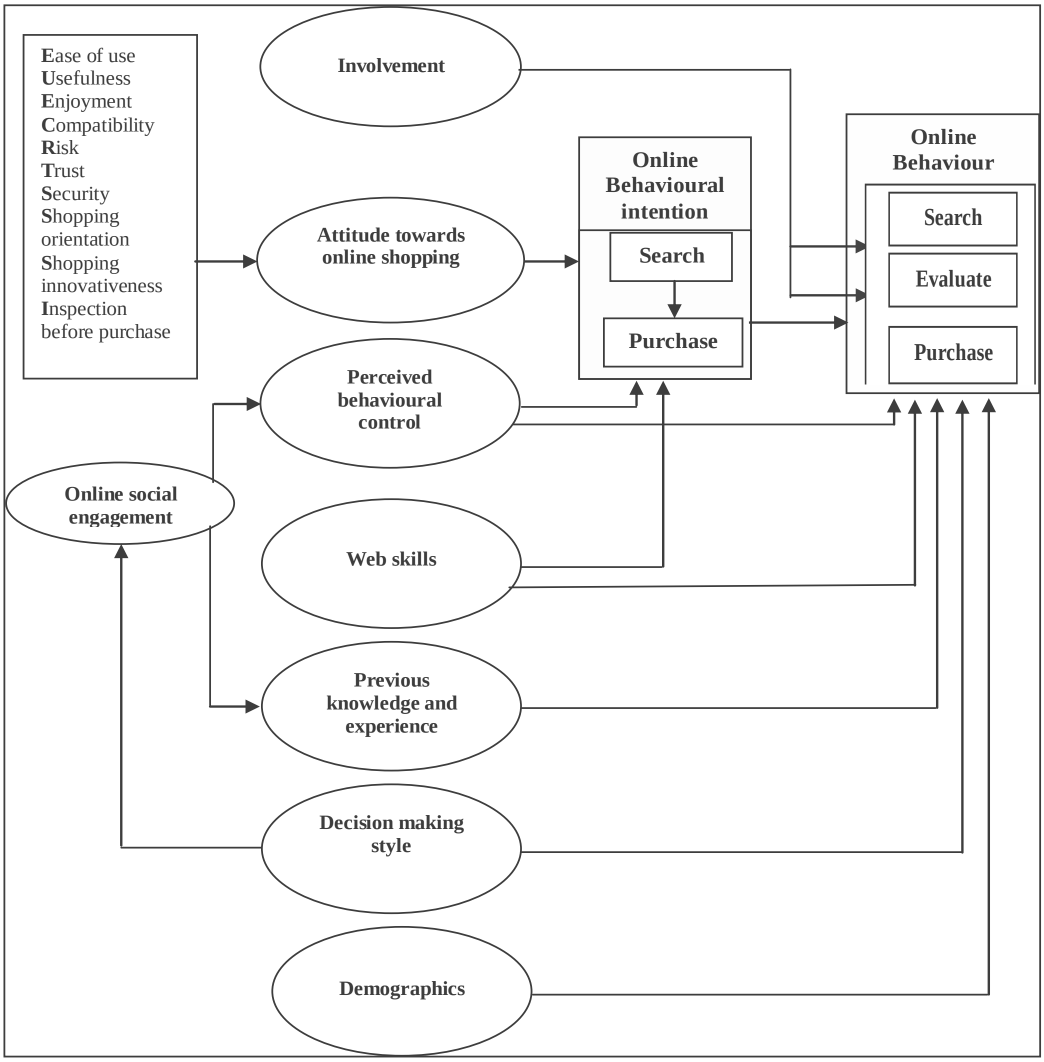


Figure 2.8: Comprehensive model for the impact of individual characteristics on online purchase behaviour [Source: Karimi, Papamichail and Holland, 2011b]

2.6.4.1 Website characteristics

Retailers' websites are the main interaction point of consumers with online retailers during the purchase. "Before consumers commit to an online purchase, they interact with websites by navigating through the web pages and filtering through the information to obtain relevant product information" (Jiang et al., 2010). Website quality influences online purchase intentions (Wells, Valacich and Hess, 2011). Therefore, websites which are able to enhance consumer experience by offering them assistance based on their individual differences will have a great competitive advantage. When a website is not sufficiently usable, it loses potential customers. Therefore, an unusable website would lead to a decline in sales (Tarafdar and Zhang, 2005; Ellis and Kurniawan, 2000; Becker and Mottay, 2001). Usability "is a very important part of the store's image and […] it can influence shopping behaviour" (Flavián, Guinalíu and Gurrea, 2006). Many website features have been examined in usability studies. These studies have explored website-related factors that affect the process, such as information presentation, navigation, ease of use, context, customization and security (Palmer, 2003; Ranganathan and Ganapathy, 2002; Flavian, Guinaliu and Gurrea, 2006). However, the impact of these features is not constant during the purchase task. The nature of consumers' interactions with websites is diverse and their reaction to the online shopping environment depends on the stages of the process they are engaged in, such as search, evaluation and purchase (Rose, Hair and Clark, 2011; Valacich, Parboteeah and Wells, 2007). Different factors affect different stages of the purchase. For example, search is affected by the ease of navigation (Bauer, Grether and Leach, 2002). Interactive features of websites have also had an impact on the psychological processes of a purchase (Koufaris, 2003; Jiang et al., 2010).

Flavian, Guinaliu and Gurrea (2006) concluded that user satisfaction is directly affected by the usability of a website. Satisfaction with e-commerce has been defined as: "The reaction or feeling of a customer in relation to his/her experience with all aspects of an e-commerce system" (Molla and Licker, 2001). Satisfaction with a website is closely related to its interface features (Doll, Xia and Torkzadeh, 1994; Zviran, Glezer and Avni, 2006; Battleson, Booth and Weintrop, 2001). Other studies have been carried out to define the relationship between quality/usability and user satisfaction. However, in today's Internet environment, in addition to usability, the quality of pre-purchase services, transaction services and post-purchase services are important. Therefore, service quality factor was introduced in this discipline (Cheung and Lee, 2002). A review of literature on online service quality was presented in section 2.5.6.

Website characteristics moderate the influence of individual factors such as involvement and Web skills (Balabanis and Reynolds, 2008). The study by Ranaweera, McDougall and Bansal (2005) has combined website characteristics and individual characteristics. In their theoretical model, these authors emphasize understanding consumer characteristics to get a picture of consumer behaviour and use this knowledge to design customized websites for competitive advantage. Moon (2004) and Constantinides (2004) have also considered the influences of website characteristics on consumer decision making process.

2.6.4.2 Product characteristics

Products have long been classified based on their characteristics such as tangible/intangible, search/experience and so on. "Consumer decision-making behaviour should be context specific and product specific to provide new insights and to contribute to theory building in the domain of consumer science " (Lohse, Bellman and Johnson, 2000). Product class differences are found to affect consumer behaviour during the purchase process (Moon, 2004). Huffman and Kahn (1998) have observed the impact of product class variations on choice evaluation. Decision strategies selected by consumers are also affected by the characteristics of the decision problem, including product characteristics. Consumers adapt a specific decision-making strategy and modify it to meets the needs of a particular decision (Bettman, Johnson and Payne, 1991; Bettman and Zins, 1979). Dimoka, Hong and Pavlou (2012) have also emphasized the impact of product-related factors on buyers.

In addition, products vary in their level of complexity, importance and frequency of purchase. In purchasing complex products, the impact of evaluation strategy on satisfaction seems to be stronger. Product complexity not only includes the number of attributes it contains but also how these attributes are interrelated and their weighting in the generation of an aggregated overall product score (Huffman and Kahn, 1998). Two important dimensions of a purchase are frequency of purchase and importance of the purchase (Du Plessis and Rousseau, 1999; Hoyer, 1984). The amount of search for product classes with greater importance is also higher (Jacoby, Chestnut and Fisher, 1978). Table 2.2, adapted from Sproule and Archer (2000), shows the behavioural differences for search and choice behaviour based on level of perceived risk associated with the product and frequency of purchase.

Table 2.2: Impact of product characteristics on search and choice behaviour

	Search behaviour		Choice behaviour	
	New purchase	**Frequent purchase**	**New purchase**	**Frequent purchase**
High risk	Extensive search Trustworthy sources (neutral or interpersonal)	Directed search Sources with expertise (neutral or supplier-controlled)	Unstructured processes (staged, constructive) Risk reduction through extensive information processing Trade-off avoidance	Structured processes Risk reduction through use of familiar suppliers/brands Investment reduction
Low risk	Shallow search Low cost sources	Directed search Low cost sources	Unstructured processes (staged, constructive) Minimal information Processing	Structured processes

2.6.4.3 Market characteristics

In addition to the product variations, there are important differences in the way the Internet is used in different sectors (Wikstrom, 2005). These differences go beyond general product characteristics such as tangible/intangible, search/experience, functional/expressive or frequently/non-frequently purchased products. It is therefore crucial to study these differences for each specific sector to be able to understand consumer behaviour on the Internet. Use of online services also depends on the market characteristics (Tih and Ennis, 2006). It is dependent on the environment and the nature of the offering in each market.

Although consumer decision-making models provide us with a broad, structured knowledge of behaviour, they are proposed from specific perspectives and for certain contexts (Walters, 1978). According to Burns and Gentry (1990) and Erasmus, Boshoff and Rousseau (2001), generalizing the models for any consumer product might generate bias from the beginning of analysis. Therefore, it is important to have possible variations in mind when modelling the behaviour in a specific context.

In this research, two specific markets are selected and their characteristics are investigated. Awareness of the characteristics of each particular market, such as market structure, competition between retailers, product characteristics and variations, and new trends, is a prerequisite for a meaningful explanation of consumer behaviour.

2.7 Output of the purchase decision-making process

Up to this point, the emphasis has been on the purchase process. However, understanding the output of this process and its relation to the process and individual factors is crucial. The output of consumers' interaction with online retailers has been previously examined in terms of choice. This study intends to adopt the decision and satisfaction as outputs of the process.

2.7.1 Adoption of the decision

Consumers might make a decision online. However, completion of the purchase stage might not occur online. Terpsidis et al. (1997) have confirmed the separation of choice from the purchase action in the online purchase process. In addition, the Internet purchase conversion rate which is defined as "the percentage of visits that result in purchases" is noticeably lower than that of offline shops (Moe and Fader, 2004; Ayanso and Yoogalingam, 2009; Bai and Luo, 2011). Consumers do not complete the process if they do not adopt the decision. There are different reasons for a low purchase conversion rate on the Internet. For instance, lower transportation and search costs increase the chance of visiting an online shop without any intention of buying. In addition, the low cost of visiting a virtual store raises the possibility of delaying a purchase decision and making return visits for purchase. However, it is an important issue for businesses as the consumer visit is the best chance they have of interacting with potential consumers and pursuing them to make a purchase. Increasing the conversion rate is a challenge, even for successful online retailers (Ayanso and Yoogalingam, 2009).

We refer to pursuing the choice and completing the purchase as adoption of the decision. Adoption of the decision has been previously examined as the output of a process and its measure of success (Nutt, 1993).

2.7.2 Consumer satisfaction

One of the important outputs of this process is online consumer satisfaction. In today's Internet market place, e-businesses need to anticipate consumers' needs and expectations in order to enhance the shopping experience. It is crucial for them to understand how to increase consumer satisfaction to be able to improve their growth and market share (McKinney and Yoon, 2002). Consumer satisfaction, its antecedents and consequents are well documented in traditional retail research (Oliver, 1997; Ballantine, 2005). Oliver (1997) has defined satisfaction as "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with a consumer's prior feelings about the consumer experience". "Disconfirmation is defined as consumer subjective judgments resulting from comparing their expectations and their perceptions of performance received" (McKinney and Yoon, 2002). Therefore, satisfaction is suggested as a function of consumer expectations and the extent to which these expectations are met (Oliver, 1980; LaBarbera and Mazursky, 1983; Shukla, 2010). These definitions are the grounds of expectation-confirmation theory (ECT). However, more recently satisfaction has been suggested to include desires. Spreng, MacKenzie and Olshavsky (1996) believe that satisfaction "arise[s] when consumers compare their perceptions of the performance of a product or service to both their desires and expectations."

In the online context, Anderson and Srinivasan (2003) have adapted the definition of e-satisfaction as: "the contentment of the customer with respect to his or her prior purchasing experience with a given electronic commerce firm." A large number of researchers have studied online consumer satisfaction, developing antecedents of this concept. The impact of website-related factors on consumer satisfaction has also been well-established in previous research (Ballantine, 2005; Szymanski and Hise, 2000). McKinney and Yoon (2002) have proposed that customer e-satisfaction has two distinctive sources: satisfaction with the quality of a Website's information content and satisfaction with the Website's system performance in delivering information. Some studies of Technology Acceptance Model (TAM) have also linked the components of TAM to consumer satisfaction (Devaraj Fan and Kohli, 2002; Bhattacherjee, 2001). In addition, its impact on consumer intentions to repurchase (LaBarbera and Mazursky, 1983) and loyalty (Shukla, 2010; Anderson and

Srinivasan, 2003) has been well researched. Most authors examined the e-satisfaction on a particular website (Anderson and Srinivasan, 2003; Ballantine, 2005), although a few studies were concerned with the overall online shopping experience of consumers on the Internet (Szymanski and Hise, 2000; Evanschitzky et al., 2004; Kohli, Devaraj and Mahmood, 2004).

2.7.3 Impact of the purchase process on satisfaction

Satisfaction is a consequence of consumers' experience during all stages of the purchase process (McKinney and Yoon, 2002). However, it has been suggested that online shopping applications fail to "understand consumer needs at specific points in their online shopping decision-making process" (Kohli, Devaraj and Mahmood, 2004). McKinney and Yoon (2002) have investigated satisfaction at the information search stage, whilst Kohli, Devaraj and Mahmood (2004) examined e-satisfaction during all the stages of purchase decision making, using Simon's model of intelligence, design and choice. This model is discussed in the next chapter. Kohli and colleagues found that online support of the decision-making process directly influences satisfaction.

In addition to the stages of the purchase decision-making process, other aspects of process characteristics influence satisfaction, such as the number of alternatives assessed during the process. Although economics theory maintains that an increase of alternatives results in more utility, as the likelihood of finding the most suitable alternative increases, other research has found that it reduces consumer satisfaction at some point. Those confronted with fewer options might be more satisfied with their choices (Iyengar and Lepper, 2000; Desmeules, 2002). Desmeules (2002) represented the relationship between variety of alternatives and satisfaction with an inverted "U"-shape. Satisfaction increases as the number of alternatives increases to a certain point ("point of satisfaction") with some number of options. At this point, the number of alternatives provides a good chance of finding the favourable product. As satisfaction is reached, consumers enter a plateau, largely unaffected by additional options. This stage is ended by a "point of regret" where the curve starts to dive, as more options generate doubt and regret. Any increase in options after this point decreases satisfaction, because of stress, frustration and heightened expectations accompanied by the inability of consumers to evaluate. Schwartz (2000) categorizes the impact of more options in three ways; as an option is added: a) there is the problem of collecting adequate information about it; b) consumer expectation rises; and c) they start to believe that any unacceptable result is their fault as they should be able to make a good choice among many alternatives. The way information is evaluated also influences satisfaction. In evaluation of complex products, comparison of attributes generates more satisfaction than comparison of alternatives. This is based on the study of Huffman and Kahn (1998) that compared presentation of information by attributes and alternatives and found that presenting information by attributes increased customer satisfaction with the process; attribute-based evaluation reduces perception of the task's complexity and therefore increases satisfaction with the process in situations with a large variety of assortments. When consumers perform attribute-based evaluation they assume that they have seen all the possibilities in the choice set. The stronger feeling of having enough information to make a choice increases their willingness to make a choice; while alternative-based evaluation increases their uncertainty about seeing all the alternatives and therefore causes reluctance in making a purchase decision. Zhang and Fitzsimons (1999) showed that satisfaction with the process is greater when alternatives have comparable attributes rather than non-comparable ones.

2.7.4 Choice satisfaction vs. process satisfaction

Decision satisfaction is an important issue that has been examined in psychology and decision research. However, studies of satisfaction have mainly focused on satisfaction with the choice and the outcome of the decision-making process (Oliver, 1980), and have overlooked the importance of satisfaction with the decision-making process. However, an area of literature has developed to study satisfaction with the decision-making process (Fitzsimons, Greenleaf and Lehmann, 1997; Fitzsimons, 2000; Zhang and Fitzsimons, 1999; Iyengar and Lepper, 2000). The experience of the decision process is "influenced by variables that shape the situation in which the decision occurs" (Zhang and Fitzsimons, 1999). Satisfaction with the process is therefore conceptually different from satisfaction with the choice and their underlying dimensions identifiably vary. They both are significant contributors to consumers' overall satisfaction (Fitzsimons, 2000).

Spreng, MacKenzie and Olshavsky (1996) have also gone beyond satisfaction with choice and included satisfaction with the information used in choosing a product. They acknowledged the existence of other components of satisfaction. In the online context, satisfaction goes beyond information satisfaction to include satisfaction with the process shaped through the interactions of consumers with e-retailers, and satisfaction with the final choice.

2.8 New paradigm of online consumer behaviour research

Previous studies of online consumer decision-making behaviour were reviewed. In this section, the importance of investigating this phenomenon with different approaches that can address the limitations of previous research is highlighted.

2.8.1 Modelling the interactions

Traditional models of consumer behaviour should be revised and their validity and underlying assumptions examined in the Internet context (Butler and Peppard, 1998). One of the major difficulties of modelling online behaviour is due to its dynamic nature (Van den Poel and Buckinx, 2005). Court et al. (2009) identified the influential factors at various stages of the Internet purchase process. Their study suggests that interaction of online consumers with the e-store is a key element that affects different stages of the Internet purchase process (12% influence in choosing the alternatives, 26% in the evaluation stage, and most importantly by 43% during the purchase stage). Therefore, the purchase process can be entirely understood by analysis of the dynamic interactions between the two ends. As the behaviour relies on dynamic sets of interrelated choices, it can only be assessed and analyzed by looking at the whole process as it occurs. In fact, behaviour during the interaction should be captured and finally modelled. A beneficial research approach is modelling the real-time online decision making process (Constantinides, 2004; Rickwood and White, 2009). Modelling dynamic behaviour, however, requires flexible models that can justify variations of behaviour while providing a common base for comparison.

Involvement of consumers in the buying process is essential in an Internet environment (Terpsidis et al., 1997). Observing online consumer behaviour while there are involved in the process can create a great understanding of different behavioural patterns (Ranaweera, McDougall and Bansal, 2005).

2.8.2 Behaviour of consumers across multiple retailers

Purchase decision-making processes were discussed at the beginning of this chapter. The nature of decision making process requires comparison of different alternatives. In the online purchase context, it includes comparing retailers or, in other words, interaction with different online retailers. However, little is known about this interaction. Previous research theoretically suggests that consumers visit a large number of retailers as they have access to all the retailers online, generating a large consideration set (Daniel and Klimis, 1999). Conversely, Johnson et al. (2004) found relatively small consideration sets for three categories of products. This research aims to address this gap by examining different aspects of the actual behaviour of consumers over competing retailers.

Availability of online data on the whole purchase process that goes beyond the purchase activity (Van den Poel and Buckinx, 2005), provides new opportunities for researchers to better understand the consumer choice behaviour (Bucklin et al., 2002). Behaviour across the market can be examined using this new research approach.

2.9 Summary

Despite its importance in today’s marketplace, e-consumer behaviour is not yet fully understood (Dennis et al., 2009; Peterson and Merino, 2003; Terpsidis et al., 1997). Although a vast amount of Internet research has been conducted over the last decade, some issues have remained unaddressed. In addition, the Internet and its features have also changed substantially over this period, outdating some of the previous Internet studies.

The literature review revealed that the individual online behaviour of consumers is different from traditional behaviour (Koufaris, 2003; Van den Poel and Buckinx, 2005). The Internet's characteristics have altered the behaviour of consumers in terms of their natural cognitive flow, decision-making process and satisfaction (Xia and Sudharshan, 2002; Constantinides and Fountain, 2008; Jarrett, 2008). Much research has addressed different aspects of online consumer behaviour, in particular search behaviour. The decision-making process that consumers follow is not yet entirely understood (Constantinides, 2004; Rickwood and White, 2009). This research therefore aims to explore the way purchase decision-making processes unfold during a consumer journey on the Internet.

Purchase decision-making processes on the Internet are complex, dynamic and unstructured, including a number of inter-connected activities (Bucklin et al., 2002). Dynamic and complex phenomena are best understood by modelling, which is the simplification of reality (Caine and Robson, 1993). However, this dynamic nature creates difficulties in modelling the online behaviour (Van den Poel and Buckinx, 2005). Although a number of conceptual models have been developed to enhance our knowledge of online purchase, their focus has been on the impact of contextual factors rather than on the stages of the purchase process. They have improved the existing models of traditional purchase by introducing factors that influence online purchase, but their empirical evidence is notably weak. Complexities of the online purchase decision have not been considered (Louvieris et al., 2003). Therefore, it is necessary to develop a new model that can explain real process flows of online purchase (Constantinides, 2004; Rickwood and White, 2009). Modelling dynamic behaviour requires flexible models that can justify differences in the behaviour, while providing a structure that is common among all purchase decisions. Advances in decision analysis can facilitate understanding of purchase decision-making processes as consumer research has relied heavily on the classical model for over half a century. Due to the lack of a model which can explain the complexities of real-world online purchase processes, a conceptual model of the online purchase decision-making process is required. The following chapter reviews different models from different disciplines in order to propose a model which can explain the purchase decision-making processes that consumers follow in an online environment.

In addition, a review of the Internet studies revealed that previous work did not consider the differences that exist in the purchase process followed by different consumers in different sectors. Consumers are flexible and adaptive with limited capabilities of information processing. They adapt and construct the decision as the process flows (Payne, Bettman and Johnson, 1993). This explains the reason for process variation across individuals, decisions, and contexts (Xia and Sudharshan, 2002). There is a wide range of factors that influence consumer behaviour. Our knowledge of variations in the purchase decision-making behaviour of different individuals is limited (Klever, 2009). It is therefore important to identify the main factors that affect the behaviour and their impact on each stage of the purchase decision-making process (Court et al., 2009). A few attempts have been made to create a typology of online purchase decision-making behaviour based on characteristics of individuals (e.g. Chowdhury, Ratneshwar and Mohanty, 2009). It is crucial to continue this objective by segmenting online consumers and examining their typical behaviour during the purchase journey. Although the research aims to describe the behaviour of consumers as they go through the decision-making process, and to identify general patterns of behaviour for different groups of individuals, this knowledge can be used to predict the possible behaviour of consumers based on their characteristics. Businesses will benefit from this knowledge by offering personalized environments for their consumers.

Moreover, the characteristics of a particular online market have an impact on the purchase behaviour. These include the characteristics of the product, website and the market. Understanding the similarities and variations in the purchase decision-making behaviour across different sectors is also very important in order to provide a meaningful explanation of behaviour (Erasmus, Boshoff and Rousseau, 2001).

However, understanding purchase behaviour is not complete without an indication of the process output. In order for e-businesses to be successful they need to improve the output of the purchase processes. This can be performed by pushing consumers towards the adoption of the decision and enhancing consumer satisfaction (Bai and Luo, 2011; McKinney and Yoon, 2002). These two concepts can be considered as the output of the purchase process. Satisfaction with the process which, in addition to satisfaction with the choice, contributes significantly to consumers' overall e-satisfaction has received little attention from consumer behaviour researchers (Fitzsimons, 2000).

The above issues address the micro-level behaviour of consumers, whereas one of the main objectives of this research is putting individual behaviour into a bigger picture which includes the market, market players and e-services that support the market. It aims to identify the influences of the Internet on the aggregated behaviour of online consumers which defines the behavioural trends in a particular market. To the best of my knowledge there has been no attempt to measure this macro-level behaviour. Purchase decision making includes interactions with different online retailers. Therefore exploring the behaviour across multiple retailers in the entire market is one of the main issues of decision-making behaviour. This new paradigm of studying online consumer behaviour is now possible by using Internet data (Bucklin et al., 2002). In addition, the reality of consumer behaviour is that consumers mix channels, depending on the value that the Internet offers them at various stages of purchase process (Tih and Ennis, 2006; Wikstrom, 2005; Gefen and Straub, 2003). Therefore, understanding the reasons for certain behaviour can be completed by examining the actual behaviour concerning use of the Internet channel.

3 CONCEPTUAL FRAMEWORK

3.1 Chapter overview

The previous chapter reviewed the literature related to consumer behaviour, decision making and online consumer purchase behaviour. Exploring the related studies identified the gaps including: the need for an online purchase decision-making process model, the limitations of current knowledge about the variations in the behaviour of different consumer segments and the impact of individual characteristics on the online purchase process, as well as the role of market characteristics. This chapter aims to develop the conceptual framework of this research and set the research settings.

In this chapter, a new model is developed which can explain current purchase decision-making processes on the Internet. In order to identify the components of the decision-making process that online consumers follow, the main models introduced in consumer behaviour research, decision science and Internet studies are reviewed. Their limitations are discussed in detail. Consequently, an online consumer purchase decision-making process model which synthesizes elements from the literature is proposed in order to address the limitations identified. This model is a dynamic one which can explain the complexities of online purchase decision-making processes. It has a flexible structure that allows for complex and adaptive processes and justifies their variations. There is a vast amount of literature in psychology that investigates how decision makers evaluate different alternatives. However, this is beyond the scope of this study and we are only concerned about the stages of the process and factors that influence the process rather than the mental information processing. The dimensions of the purchase process that define its characteristics are also identified. Variations in the process can be measured according to these dimensions.

As outlined in the literature review, the general model is adapted by each individual for each specific context. Only accounting for individual and contextual variations can provide a meaningful explanation of behaviour. Therefore, the two individual characteristics that were found to have a remarkable impact on consumer behaviour and their influences are further discussed. Four segments of consumers are introduced, based on the two characteristics of prior knowledge and decision-making style. The expected variations of the process for each segment are highlighted. The context in which the behaviour occurs is then set. The focus and boundaries of this research are presented, explaining the market characteristics of the selected sectors and the expected variations in the process in each market. By defining the conceptual framework, this chapter leads to the research design.

3.2 Main models of consumer behaviour

The popularity of modelling consumer behaviour has decreased since 1978 (Du Plessis et al., 1991). The traditional models have been accepted as "ultimate" and "flawless"; however, research needs to continue this method in order to address current issues of consumer decision making (Erasmus, Boshoff and Rousseau, 2001). As already mentioned, the Internet has changed the current behaviour of consumers (McGaughey and Mason, 1998; Constantinides, 2004), not necessarily only in online purchasing but also as a complementary channel for research and e-service usage. Therefore, development of an online consumer decision-making model which shows the entire behavioural cycle and addresses the limitations of existing models is necessary.

A number of models are suggested in the consumer behaviour discipline, which have tried to illustrate the detailed behaviour of consumers. The first models were conceptual, including a wide range of constructs. However, due to their complexity and the impracticability of empirical testing, they were simplified to a five-stage model that has subsequently been used in consumer research. These models provided the basis of any consumer behaviour model and are therefore reviewed. In this section, the early models are discussed, their limitations are addressed and more recent behavioural models are introduced.

3.2.1 "Grand" consumer decision-making models

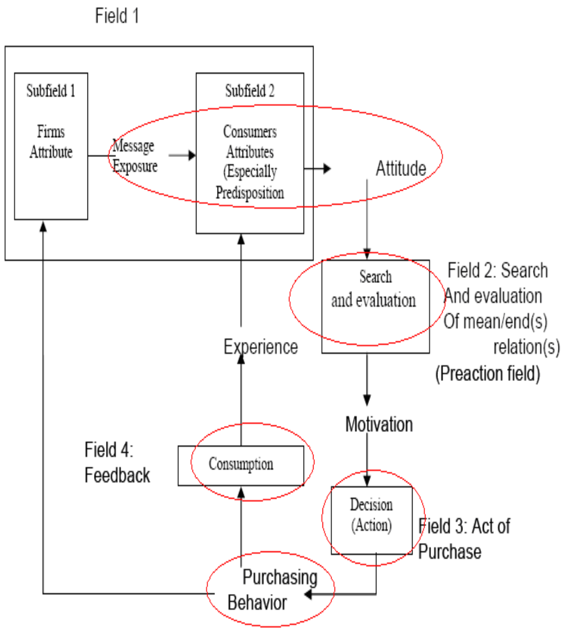
Three of the main consumer decision-making models known as "grand models" are depicted in Figure 3.1. As is clear from the figure, there are a large number of boxes connected to each other with the aim of illustrating how the actions are derived from perceptual factors and external factors internalized by the consumer. Actions lead to a decision which in return acts as an input to future purchase decisions. These models, despite their differences, all follow similar stages of the decision-making process which are highlighted by circles. At first there is a trigger that brings consumers' attention to the decision problem. Consumers then search and evaluate the information or, in other words, comprehend the alternatives. Finally they make a decision and complete a purchase task. These main models are briefly described.

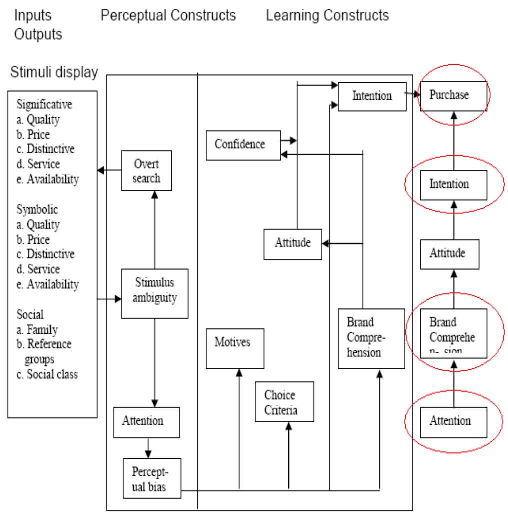
Nicosia's model (1966)

The first model of the consumer decision process which proved to be influential was proposed by Nicosia in 1966. Its distinguishing feature is that it illustrates the firm's message and the marketing efforts that are pushed towards consumers. It defines four actions (fields), namely: consumer attitude formation, information search and evaluation, the act of purchase, and post-consumption feedback. Attitude, motivation and experience are suggested to have an impact on different stages of the process. The other two models, however, considered a wider range of elements.

Howard and Sheth's model (1969)

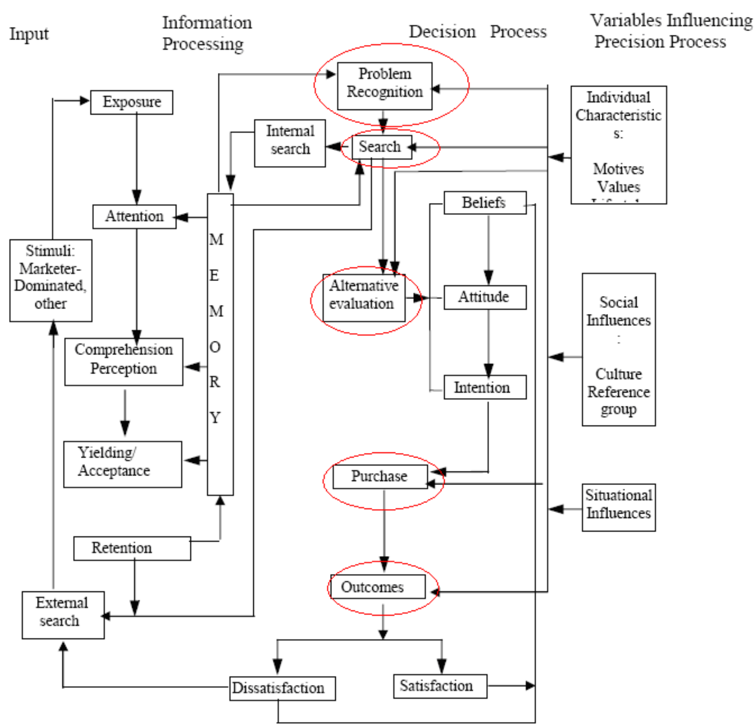
Howard and Sheth's (1969) model illustrates a sophisticated integration of different influential factors, such as social, psychological and marketing on consumer decision making and the stages of information processing. Inputs are categorized into the various environmental stimuli that consumers are exposed to. Inputs not only cover the physical characteristics of products but also the symbolic image that products and brands have constructed through advertising and the influence of consumers' reference groups (Foxall, 1990). This model indicated that these environmental influences are internalized by the consumer before affecting the decision-making process.





(a): Nicosia model of consumer decision process
[Source: Nicosia, 1966]

(b): A simplified description of the theory of buyer behaviour
[Source: Howard and Sheth, 1969]



(c): The Engel-Kollat-Blackwell Model of Consumer Behaviour (1968)

[Source: Engel, Blackwell and Miniard, 1995, p. 95]

Figure 3.1: Grand models of the consumer decision-making process

There are number of intervening variables in the model that affect the decision making. They are divided into perceptual and learning constructs. Perceptual constructs affect the internalization by filtering and controlling the environmental stimuli that a consumer is exposed to. Learning constructs have an impact on the information search and post-purchase behaviour such as repurchase. Learning constructs are also influenced by perceptual factors. Finally, the five output variables show the sequences of purchase stages for a decision maker.

What made Howard and Sheth's model of consumer behaviour remarkable at the time of its publication was the way different variables are linked and their linkage is developed during the process (Hunt and Pappas, 1972). Its developmental linkages and the correlation of all constructs make this model hard to test. In fact, for this model to be tested, the existence of all the linkages should be assessed (Hunt and Pappas, 1972). In addition to linkages, the unobservable nature of its constructs hinders the simplicity of measurement. However, ignorance of these constructs will reduce the accuracy of the model.

Engel-Kollat-Blackwell's model (1968)

Many of the constructs in this model are similar to those of Howard and Sheth (1969). The main difference is in the presentation and linkage of constructs. The model is structured around sequential stages of the decision process, namely: problem recognition, search, evaluation of alternatives, purchase and outcome. The stages of the decision process are influenced by individual, social, cultural and situational factors; the consumer's reference group; as well as the information retrieved from memory, external search and internally processed marketing stimuli.

This model was reviewed after its publication to be more accurate, and included contemporary issues of consumer behaviour. For example, the previous five stages of the decision process changed to seven stages with the addition of consumption and divestment. One of the drawbacks of this model is ignoring the individual and environmental influences on the information processing and internalization of received stimuli. In fact, these factors not only affect the stages of the process but also the internal process in the mind of consumers.

3.2.2 Limitations of “grand” models

The grand models define the stages of the consumer decision-making process, the factors that influence the process and the way they are interrelated. Despite providing a broader insight into the decision-making process, these fancy models can not be empirically tested.

Erasmus, Boshoff and Rousseau (2001) have criticized the grand models for several reasons: the limitations in the theoretical background to consumer behaviour at the time of their development; too much emphasis given to details; and an assumption of rational consumer decision-making behaviour, whereas consumers may spend very little time making a purchase and do not engage in these sequential stages. The underlying limitation of these models is the positivistic approach to their development, instead of looking at consumer decision making from the perspective of the consumers who are involved in the process. They consider consumer decision making process as a logical problem-solving approach, which has limited their accuracy. As mentioned in the previous chapter, consumers are adaptive decision makers who direct the flow of the process. They are continuously involved in unconscious behaviour and the use of heuristics, which is not accounted for in the rational problem-solving approach of these models (Erasmus, Boshoff and Rousseau, 2001). In recent studies, the “use of decision heuristics that are relational and perceptual in nature” (Simonson and Tversky, 1992; Bettman, Luce and Payne, 1998) is addressed. These authors have emphasized the ratings of one option relative to others. Another important issue that was neglected in the early models is that consumers do not always have known preferences, but “construct” them during the process (Bettman, Luce and Payne, 1998; Sproule and Archer, 2000).

The rigid structure of these general models is another problem that needs to be addressed. They do not allow diversity in decision-making processes. A model should be adaptable to different situations and be able to justify the possible differences in decision making processes that might exist for different individuals in different sectors. Variations in decision-making processes are more complicated and depend on more contextual factors and individual characteristics than those mentioned in these early studies. Generalization of the process is not applicable where consumers change their strategy based on the product, situation, context and their previous experience (Solomon, 2002). Hoyer (1984) suggested that consumer decision-making research should consider the relevant dimensions of a purchase (frequency of purchase and importance of the purchase) for each specific purchase.

One of the aims of the proposed model is having a dynamic and flexible structure that can justify online purchase decision-making processes. It should be able to illustrate the constructive nature of these decisions and be adaptive for different contexts in order to explain different instances of the process.

3.2.3 Classical Purchase Behaviour Model

The grand models have captured the stages of the traditional purchasing process (Engel, Kollat and Blackwell, 1968; Howard and Sheth, 1969; Nicosia, 1966; Erasmus, Boshoff and Rousseau, 2001). The differences are mainly in their emphasis on different variables and the way they are presented (Du Plessis et al., 1991; Schiffman and Kanuk, 1997; Erasmus, Boshoff and Rousseau, 2001; Guttman, Moukas and Maes, 1998).The classical purchase behaviour model, which is a sequential model, has been derived from the grand models. The classical model is also known as the traditional model. It is a simplified process model which concentrates on the process and eliminates the interrelations of elements. It illustrates the main five stages of the purchase process: problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behaviour (Figure 3.2). This model is the best-known and most commonly used model of consumer purchase behaviour and has been used as the standard model in consumer behaviour research (e.g. Graham, 1981; Van der Heijden, 2003; Terpsidis et al., 1997) and online consumer research (Hölscher and Strube, 2000; Butler and Peppard, 1998). The classical model provides the backbone of any purchase decision-making study. Despite the differences between Internet purchase and traditional purchase behaviour, a number of activities are inevitable in any purchase process. For instance, in an online purchase process, more iteration might happen or stages might be followed in a different order. However, search, evaluation and purchase still shape the online purchase process.

Therefore, this model can be adapted for any specific context, including online purchase.

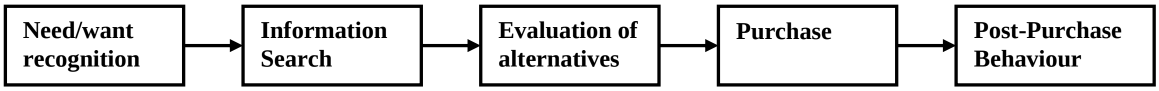


Figure 3.2: Classical purchase behaviour model [Source: adapted from Butler and Peppard, 1998]

Some researchers have separated purchase decision from the purchase itself, defining six stages (e.g. Terpsidis et al., 1997). However, as they have claimed, the only reason for the separation is the time dimension. In e-commerce, unlike traditional purchase where the purchase process is straightforward, different purchase options are available and different factors such as trust in the transaction might change consumer choice of retailer or even channel. In addition, consumers might reach a choice online, while making the purchase from a traditional shop. It is worth separating these two stages.

3.2.4 Limitations of the classical model

The main problem of the classical model is its "step by step" sequential structure, which is not followed every time. Not every consumer follows all the steps and some of the stages might be skipped depending on the consumer and the type of the purchase. Consumers might go back to previous stages. Nevertheless, consumer behaviour research has relied on this model for more than half a century.

3.2.5 McKinsey's dynamic model of the consumer decision journey

A new model of the consumer decision journey was recently introduced in the McKinsey report (Court et al., 2009). It introduced new concepts in the purchase decision-making process based on current market issues and consumer behaviour. Previously, purchase decision making was defined as a funnel that consumers go though, starting at its wide end with a wide range of brands, reducing the options and narrowing down the consideration set as they pass through the funnel, and finally ending with the purchase of a brand. However, this model can no longer explain the current consumer decision-making. Exposure to the huge number of products and access to large amounts of information on the Internet, a dramatic increase in the number of shops as well as the increased sophistication of consumers, have changed this process (Court et al., 2009). The new model of McKinsey is more circular than sequential and has four primary phases: "initial consideration; active evaluation, or the process of researching potential purchases; closure, when consumers buy brands; and post purchase, when consumers experience them". In this model, as consumers research and look for information their consideration set expands rather than narrowing down (Court et al., 2009) and therefore the funnel concept and sequential stages do not occur.

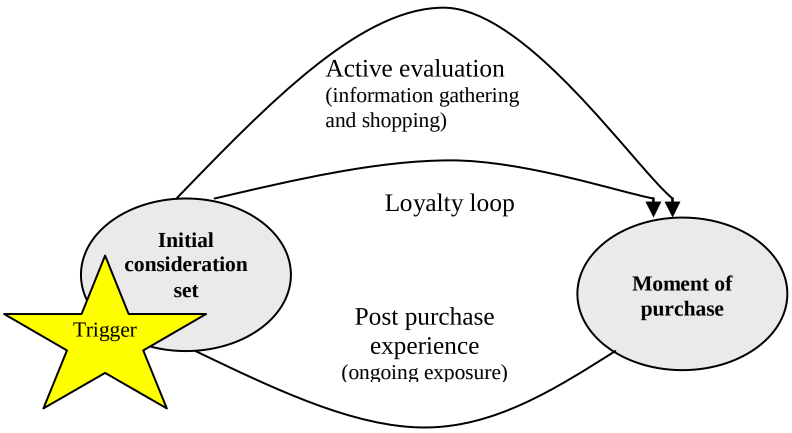


Figure 3.3: A new model of purchase decision making [Source: Court et al., 2009]

The process starts by a trigger which persuades consumers to start the decision journey. This model is one of the first in the area of consumer behaviour that depicts the existence of an initial consideration set in the minds of consumers. Consumers are exposed to a lot of information about brands all the time, but when the need is triggered this information becomes useful in constructing their initial consideration set. By gathering the information and evaluating it, they add or subtract alternatives. At the beginning of the active evaluation the initial consideration set increases, but when they get to the moment of purchase, one brand is selected. After the purchase, however, they form expectations based on their experience which will feed back to their next purchase. Also, a loyalty loop can be noticed that includes both actively loyal and passively loyal consumers (Court et al., 2009). This model can explain new purchase conditions. However, it does not concentrate on how consumers come to a choice during the active evaluation and what influences their choice process, which is the main focus of this research.

3.3 Main models of decision making

The classical model of consumer behaviour is based on the models introduced during the 1960s and 70s. The consumer behaviour literature since then has relied heavily on this model; whilst the literature on decision making sciences has developed considerably since the work of Simon (1960). Current literature in decision science emphasizes that decision making process is not a sequential process and cannot be classified into a predefined order of phases. In addition, decision makers themselves should be considered as they direct the process.

An important contribution of this work is refining the consumer decision-making process models based on advances in decision-making science. Bringing these two separate literatures together, coupled with the knowledge of the impact of the Internet on consumer behaviour, enhances our understanding of the online consumer decision-making process.

Simon (1960) changed decision science by suggesting that decision making is more than the outcome, and is composed of various stages. He introduced a decision-making model comprising different stages. Subsequently, other researchers have advanced this discipline by exploring the stages in the process. Decision-making models are structured models which show the process that decision makers follow. This starts with the classification of the problem by choosing a set of following actions (Simon, 1960; Mintzberg, Raisinghani and Theoret, 1976; Holtzman, 1989; Papamichail and Robertson, 2003). Preliminary literature in this area has considered decision making as being a sequential process, first represented by Simon (1960), emphasizing the structure and steps. Others, on the other hand, believed in a completely anarchic process, where there is no structure or steps that are followed in a particular order (Langley et al., 1995). In fact, "the phases overlap and blend together, with frequent looping back to earlier stages as more is learned about the problem" (Shim et al., 2002). However, other studies have tried to be a midpoint by combining the sequential steps with a number of dynamic factors. We take the lead of studies which have selected this approach, such as the model of Mintzberg, Raisinghani and Theoret (1976), Papamichail and Robertson (2003) and Hall (2008). This approach is able to “structure the unstructured processes”. Some of the most influential models of decision making and those which have contributed to the development of the conceptual model are reviewed next. They can be broadly divided into sequential and non-sequential models.

3.3.1 Sequential models of decision making

Simon’s model

One of the pioneering attempts in decision-making modelling is the work of Simon (1960). He challenged the economists’ claim that “decision makers are aware of all the required information and choose the alternative which maximizes utility” (Langley et al., 1995). In his model, the decision-making process has been conceptualized in three stages of activities: (1) intelligence activity, (2) design activity, and (3) choice activity (Simon, 1960; Wally and Baum, 1994) (Figure 3.4).

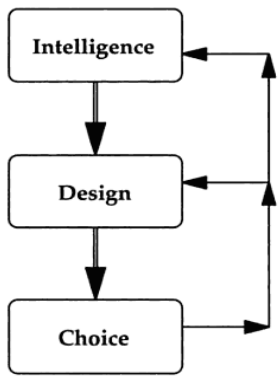


Figure 3.4: Simon’s model of decision making (1960)

During the intelligence activity, the decision maker classifies the problem, and scans the environment by gathering and processing the information. As a result, the decision situation is understood. In the design activity, alternatives are generated and their pros and cons are analyzed, while in the choice activity the decision maker makes a judgment and chooses among alternatives (Simon, 1960). In sum, the intelligence phase is related to the search for problems, design involves the development of the alternatives, and choice consists of analyzing the alternatives and choosing one. Simon believed that decision making is a cognitive process that can be separated into simple sequential steps. However, it is important to mention that these phases are not necessarily separate. In fact, one can not draw a fine line between different stages. New information might create interactions between stages (Wally and Baum, 1994).

Simon's model has been the line followed by most researchers in decision making science. This simple model provides the backbone of modern decision-making models. However, the process ends at the choice stage, ignoring the implementation and outcome. In addition, stages consist of various actions themselves that can be separated. In order to be visualized more accurately, well-defined stages with a particular aim need to be designed. Another limitation of this model, mentioned by Hall (2008), is its concentration on the process stages not its context. Considering the decision context is a critical factor in decision making processes.

Keeney's model

Another important decision-making model is the four-stage model of Keeney (1982). The stages are: structure the decision problem (generation of alternatives and specification of objectives), assess possible impacts of each alternative, determine preferences (values) of decision makers, and evaluate and compare alternatives. This model depicts the anticipated complexities at each stage. One of the advantages of the model is that it takes into account the individual preferences of decision makers. The inter-relation of constructs is also more developed than in Simon's model. However, the sequential structure can still be seen in this model. It shows that at the beginning there is a "vaguely perceived notion of problem objectives" and "possible alternatives" that we refer to as criteria and initial alternatives. This aspect of the decision process which is missing in traditional consumer research needs to be included. As Keeney has mentioned said, this initial perception would direct the research stage of the process by determining the information that has to be gathered and the importance of that information.

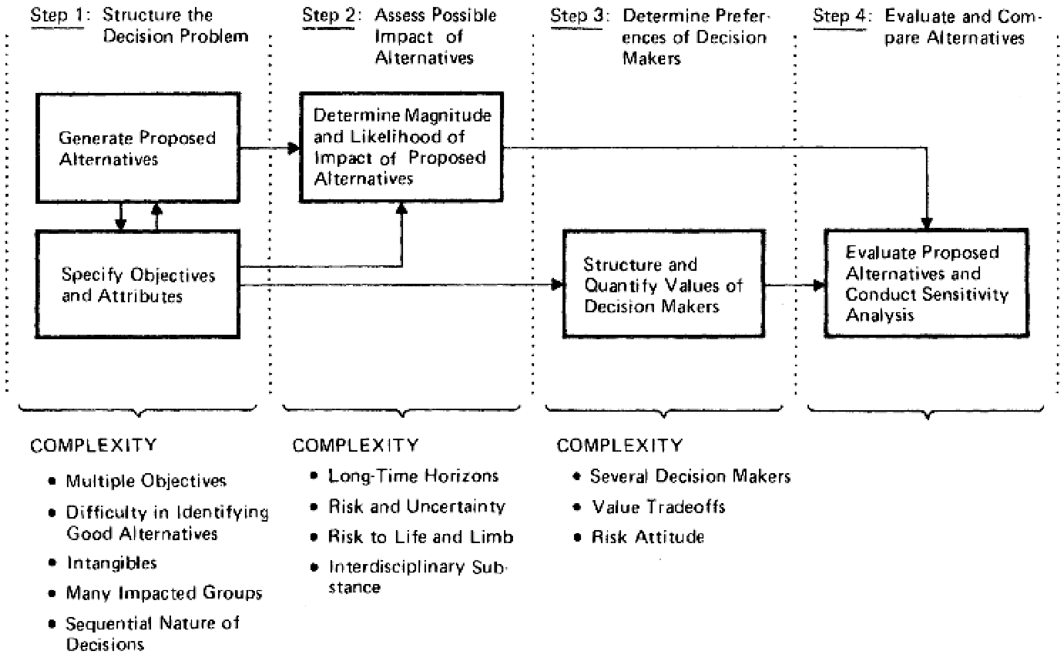


Figure 3.5: Four-stage decision-making model of Keeney [Source: Keeney, 1982]

Holtzman's model

Holtzman (1989) introduced a model that has become one of the most commonly used in decision making. It consists of phases of decision analysis, namely, formulate, evaluate and appraise. "A consultation begins with a real decision situation and ends with a commitment to a real action. The insight necessary for action is generated by formulating and evaluating a sequence of increasingly refined decision models and appraising the resulting recommendations" (Regan and Holtzman, 1995). In the first stage, the decision maker should formulate a decision-making model that reflects the decision-making problem and consists of objectives and alternatives. That means that alternatives are formulated and objectives and criteria are articulated. The consequences of each alternative are assessed in the evaluation stage and one alternative which is more promising is chosen. In the last stage, the resulting recommendations are appraised (Holtzman, 1989; French, Maule and Papamichail, 2009). If the chosen alternative is not satisfying the decision problem will be refined and the cycle will start again to include other alternatives or to repeat the evaluation stage. One of the differences between this model and Simon's is that alternatives are generated at the formulation stage and then evaluated in the next stage; in Simon's model they are generated and evaluated in the same phase. However, the sequential structure of the process can still be seen in this model. Including an appraisal stage in the decision processes is one of Holtzman's contributions.

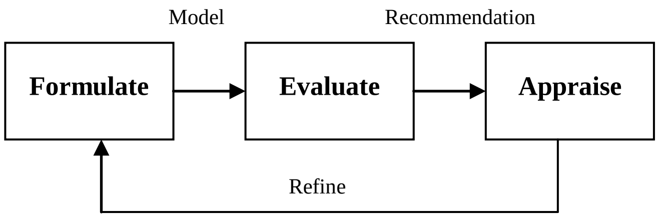


Figure 3.6: Holtzman's model [Source: Regan and Holtzman, 1995]

Shim's model

Based on the model of Simon, Shim et al. (2002) introduced similar conventional decision-making process model for Decision Support Systems (DSS). Although developed for the DSS environment, it is a detailed model of decision making that has been more widely applied. First the problem is recognized, and then it is defined so that a model can be created. Alternative solutions are generated and the model is developed based on the problem definition to analyze the various alternatives. The choice is made and finally implemented. This sequential model divides the three phases of the previous models into more detailed stages, each having one clear role. The model was afterwards refined to be more comprehensive, going beyond the mathematical models and including perspectives into the problem-formulation phase. The primary difference between these two models is in "the development of multiple and varied perspectives during the problem formulation phase" (Shim et al., 2002). Shim's model is a pioneer in the decision-making literature for taking into account the context of decision making and the factors that affect it. The factors that shape the perspective are in the organizational context and are not adopted for purchase decisions. A mental model of actors, which is the core of the model, affects the whole process from the definition of the problem to analysis. It indicates the subjectivity of decision-making processes. Both these issues show the impact of the individuality of decision makers on the decision-making process.

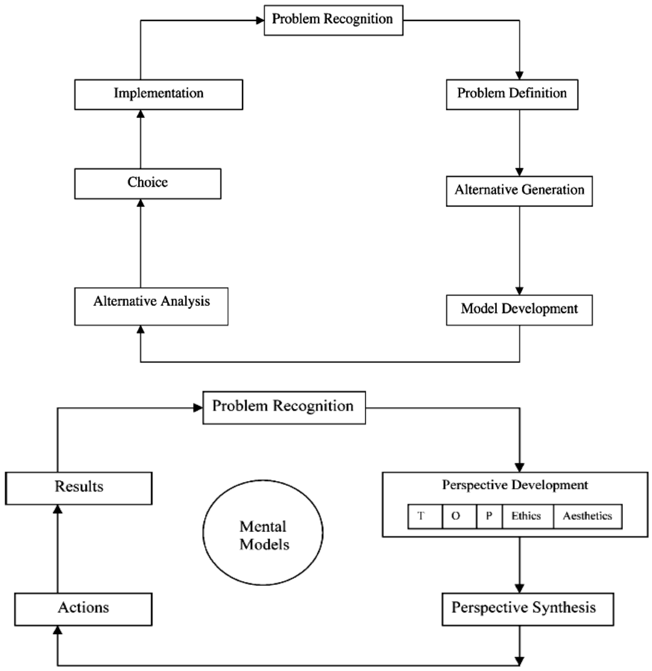


Figure 3.7: Shim et al.'s (2002) models of DSS decision-making process [Source**: Shim et al., 2001**]

3.3.2 Limitations of sequential models

The above decision studies have been criticized for various reasons. Their limitations go beyond the sequential steps that can not illustrate real-world decisions. As addressed by Langley et al. (1995), their shortcomings stem from limitations of the concepts of decision, decision maker and decision-making process. These drawbacks and the way they can be addressed are:

- *Considering sequential stages*. Witte (1972) discovered that the stages are not sequential in all cases of decision making even for the most efficient decisions. Therefore, it is important to have a model that allows flexibility and can be adapted by decision makers.

- *Describing a decision as something that exists and can be defined.* A decision is really a construct that can not be limited to a particular time and place (Langley et al., 1995). By including a dynamic consumer mental model, considering loop backs and the possibility of skipping stages, we can show that a decision builds up during the process and follows various procedures, while still having a structure. Decision processes unfold differently; however, there are fundamental elements that are common in all purchase decisions. This is a matter of importance in online decision making, where the decision process which is constructed and followed by consumers depends very much on the characteristics of the Internet and the support it provides in facilitating the process. In addition, consumers constantly review their definition of the decision problem and decide on the flow of the process accordingly. The mental model of the decision problem alters with time and directs the stages of the decision problem. To solve this problem, the formulation stage should be linked to search, evaluation and choice stages.

- *Excluding the influences of emotions, individual differences and memories from the process*. "In the absence of emotion it is impossible to make any decisions at all" (Buchanan and O'Connell, 2006). According to Bechara, Damasio and Damasio (2000), some of the theories of decision making have considered emotion as an influencing factor, although the majority suggested that the role of emotions comes after the decision has been made, for instance the feeling of satisfaction or disappointment. By taking into account personal characteristics, the model becomes more realistic and explains the differences in the way a process proceeds.

- *Isolating one decision from others*. Instead, their linkage and interrelations should be considered. They suggested that decision making is a social interactive process with a variety of decision linkages in a complex network of issues from which decisions emerge. Although this issue is very important, it is not easy to measure, therefore we only look at the consumer's background and previous knowledge while concentrating on a single decision problem at a time.

3.3.3 Non-sequential models of decision making

Other research has introduced non-sequential models. The main non-sequential models in decision science are reviewed in this section.

Mintzberg's model

Mintzberg's model is one of the first models to have altered the sequential decision-making process. Although this model is not entirely sequential, it does suggest that "a basic structure underlies these "unstructured" processes" (Mintzberg, Raisinghani and Theoret, 1976). The process is iterative "rather than proceeding merely as the linear unfolding of sequences of decomposed stages". It has challenged previous models that are divided into a "sequence of simple, programmed steps" (Langley et al., 1995). Decision making process is driven by the actors and therefore varies for different individuals.

Mintzberg's work is based on Simon's model (1960) in that it defines the three stages of intelligence, design and choice, emphasizing that these three stages are inevitable in decision making. In fact, a problem is recognized, a type of evaluation is performed and a choice is made. Mintzberg, Raisinghani and Theoret (1976) rephrased the three phases of Simon's model as identification, development and selection; these shape the core of his model, the "central framework". However, these phases have different routines. The identification phase contains the decision recognition routine, where the opportunities and problems are recognized and the decision activity is invoked; and the diagnosis routine, in which the decision situation and issues are comprehended, existing information channels are identified and information is collected. The development phase is also described by two routines: search finds ready-made solutions, and design creates custom-made solutions. At this stage the alternatives are generated. The selection phase is "a multistage, iterative process, involving progressively deepening investigation of alternatives". It is the last phase in decision making, but most decisions have a number of selection phases as at least one is required for each sub-decision. It has three routines: screen, evaluation-choice, and authorization; these are almost equivalent to the criteria development, evaluation of consequences of alternatives, and choice in other literature. Screening shortlists a large number of ready-made alternatives to a few feasible ones; evaluation-choice examines the shortlisted alternatives and selects one; authorization is when the decision maker does not have the authority to take actions, which is not the case in consumer research. Mintzberg believes that judgment happens at the evaluation-choice stage which is a process in the mind of the decision maker and can not be explained.

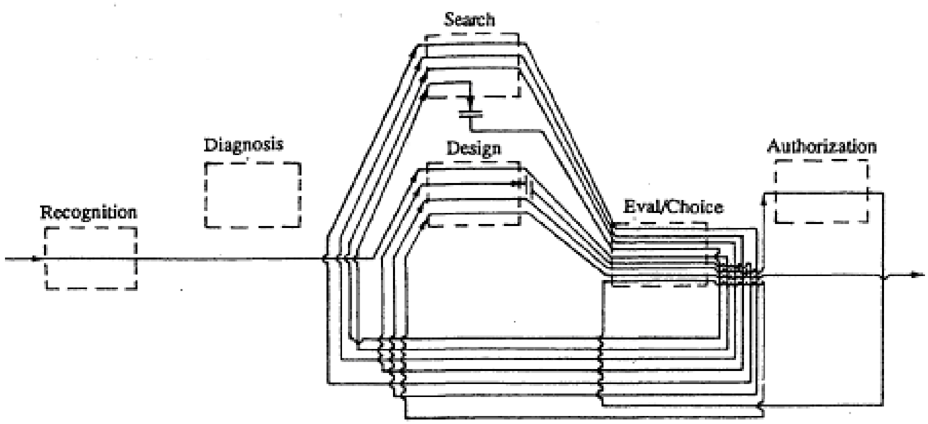


Figure 3.8: Mintzberg's model [Source: Mintzberg, 1976]

The iterative sequence of this model tries to be a midpoint by combining concepts of both sequential and anarchical views by using the linear sequence of previous models as a base and including additional dynamic factors to justify the chaotic characteristics of the decision process. This dynamic model allows loops back to earlier stages, changes in the direction of the process as more information is gathered, and also reviewing the situation. It introduces a decision control routine that guides the decision process itself and decides on the decision process flow. By defining this routine, Mintzberg explains that individual decision makers make decisions on how to follow the decision-making process, and therefore do not all follow the same procedure. Few studies have examined the diversions of process that consumers decide to pursue. This could be due to difficulties in tracking the process flow as it occurs in the mind of the decision maker, leaving no trace afterwards. The only way that such differences can be identified is by capturing the whole decision-making process as the decision maker goes through it. In addition, the importance of considering the individual context has been acknowledged in the work of Langley et al. (1995). The decision maker's insight, inspiration, memories and experience as well as culture affect the decision-making process.

One of the strong points of this model is its detailed explanation of the activities that follow the information search process. For instance, it explains the fact that consumers might go for known solutions or tailor their own strategy to tackle the decision problem. Another interesting aspect of Mintzberg's model is that judgment in the evaluation-choice stage is a process in the mind of the decision maker. Accordingly, we argue that the decision maker's mental model affects their evaluation and therefore cannot be ignored in decision process models. Our proposed model has used some concepts of the Mintzberg model.

Mintzberg's model has been tested in different contexts over many years. Boonstra (2003) adapted the path configurations to model decision making processes. He has concluded that there is no single decision-making pattern. According to factors that influence the process, various paths can be observed. Petrusel and Mican (2010) have also opted for this method to map the decision-making process, using the logs of individuals' interactions with decision support systems. Adaptation of the Mintzberg path configuration method can easily identify patterns of the process and the way it flows; however, the activities involved in each stage can not be depicted. Therefore, the path configuration is used in our modelling to illustrate the differences in process flow patterns based on differences in individual factors. However, this modelling technique does not meet all the requirements of this research and a sufficient level of detail.

Papamichail and Robertson's model

D2P (decision for decision support in processes) is a non-sequential process model that was introduced by Papamichail and Robertson (2003), is based on the model of Holtzman (1989). Its advantage is in gathering more information on decision actors, their roles, activities and the way they follow the process, and also on the data that has been exchanged as the decision process proceeds.

The "doing" stage in this model represents the implementation part. Actors become aware of a decision problem and the D2P is instantiated. Formulating is related to the formulation of alternatives and criteria, based on actors' backgrounds, experiences and predefined goals. Based on individual differences the formulation phase will be different. It is at this stage that actors search and filter information. The alternatives and criteria are then passed to the appraising phase to be reviewed. The feasibility and superiority of the alternatives are examined. Decision makers might reformulate the decision model or reassess the alternatives at the evaluation stage. If they are satisfied with formulation/or evaluation, then they will take action; if not, they might re-instantiate the decision process. At the evaluation stage, a framework for evaluation of alternatives is created and the consequences of each alternative are assessed (Papamichail and Robertson, 2003; 2008). It is clear that in this model, any generated model or decision for the next action should pass through the appraising box. Evidence of decision makers skipping some stages during the process was supported in their study and could be explained by the model.

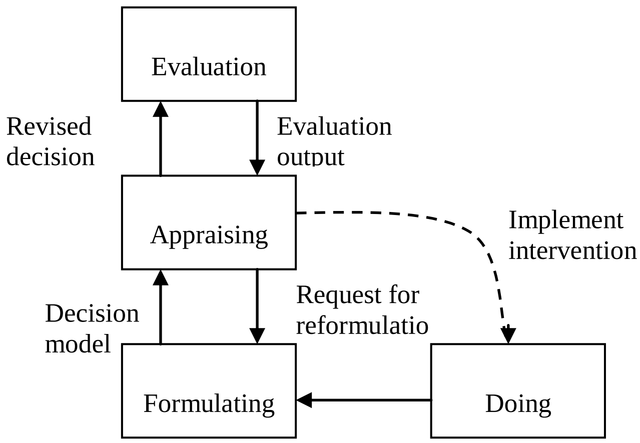


Figure 3.9: Papamichail and Robertson's model [Source: Papamichail and Robertson, 2003]

One of the issues that make this model different from the previous ones is the clear loops to previous stages, showing the dynamic nature of decision making. The loop back to the formulation stage to reformulate the decision model is a very important issue in decision making, particularly in online decision making where information is retrieved and more knowledge is gained throughout the entire process. However, it has been observed that decision makers skip or integrate decision steps, giving this model an advantage in explaining real decision cases (Papamichail and Robertson, 2003). Our proposed model has used many concepts described in this study.

Hall's adaptation of Simon's model

Hall (2008) has explained Simon's model by adding more details (Figure 3.10). In fact, he has separated the stages of decision making that Simon merged for simplification.

Hall's model starts by classification of the problem, which is related to how familiar the decision problem is to the decision maker. The problem can be classified as unique, similar to other known problems, or a routine problem. Based on the classification, the decision maker will define the problem and start an action plan. However, the only aspect of classification is familiarity, while other factors such as the importance of the decision to the decision maker and the risk involved might also affect the problem definition. In the design phase, alternatives are generated, then evaluated and ranked. At the choice stage, analysis and comparison of alternatives lead to a choice. Collecting the information might create changes in the classification and definition and lead to revision of those stages. Identification of this dynamic link between problem definition and information search is very important. It emphasizes the role of the initial mental model of consumers by explaining the consumers' classification and definition of the problem before starting the action, and the changes that might occur in this mental model during the search process. These concepts play an important role in decision making, improving the sequential structure of Simon's model in which decision makers are not able to move from design to intelligence.

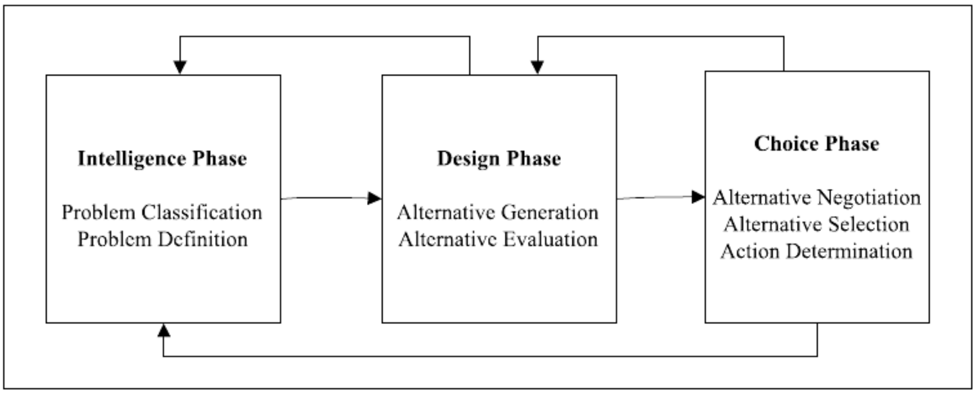


Figure 3.10: Hall's adaptation of Simon's model [Source: Hall, 2008]

3.4 Main models of online purchase

Recently, studies of the online purchase process have been conducted. McGaughey and Mason (1998) are among the first researchers to discuss the impact of the Internet on the consumer purchase decision-making process. Their important contribution shows the potential influences of the Internet on each stage of the classical model: problem recognition, information search, alternative evaluation, purchase, and post-purchase behaviour. However, like the majority of researchers in the area, they have developed hypotheses and conceptual models rather than providing sufficient empirical evidence (McGaughey and Mason, 1998; Moon, 2004). Most empirical studies on Internet consumer behaviour focus either on search behaviour or purchase behaviour (Moon, 2004). Only through studying the whole process can a comprehensive knowledge of behaviour be gathered. Those who have attempted to propose a model have concentrated on individual characteristics and environmental factors (Lee, 2002; Smith and Rupp, 2003) or the technical components (Chen and Chang, 2003) which affect the process.

3.4.1 Online purchase behaviour models

The most influential models of online purchase behaviour are illustrated in this section.

Smith and Rupp's model (2003)

Smith and Rupp (2003) have adapted the model of Schiffman and Kanuk (1997) for the online environment. It is an Internet-based model that considers external influences of website marketing efforts and the socio-cultural environment, as well as psychological issues on the online consumer tasks which lead to purchase and post-purchase behaviour. Although this shows that online decision processes are made up of different interconnected decisions (Figure 3.11), it is over-simplistic and does not clearly identify actions taken by users, although this is the observable part of the decision-making process. Online purchase is more complicated than searching for a better price, in fact, and consumers' needs are not always well-defined but are shaped during the process.

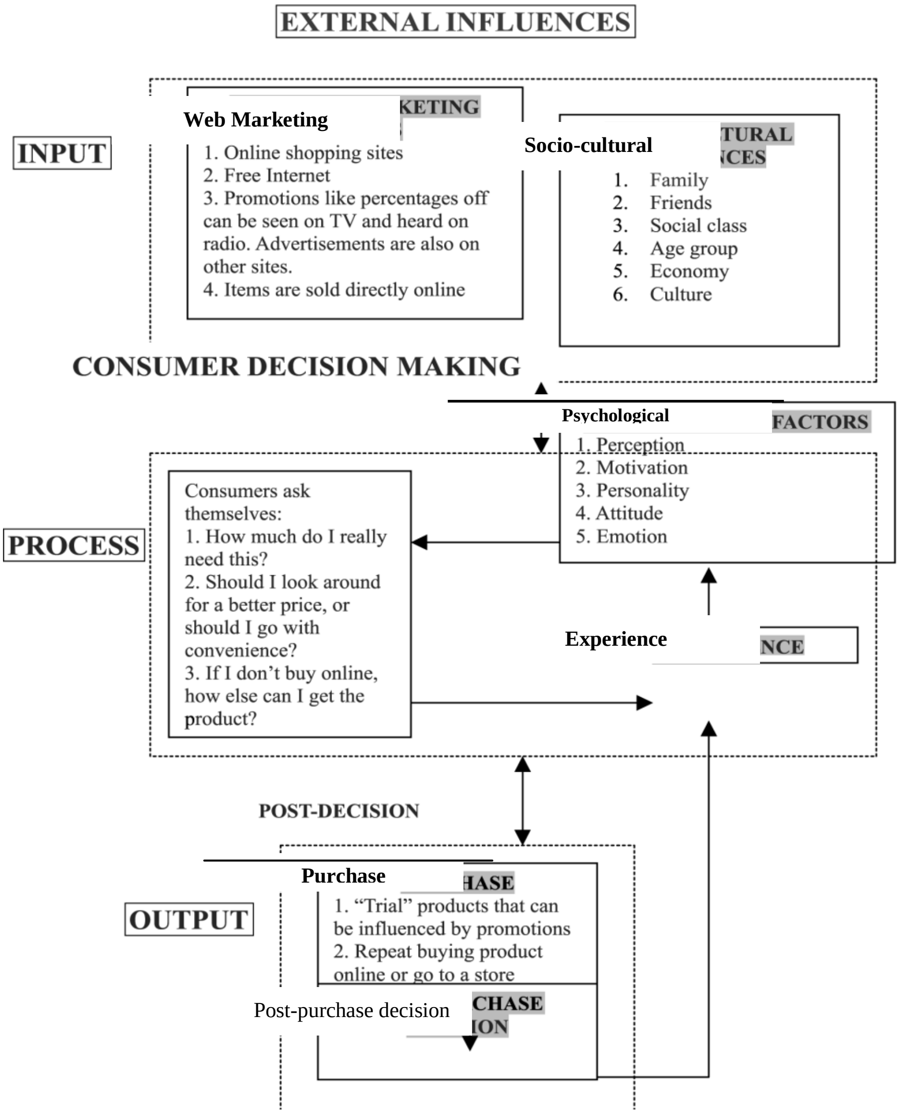


Figure 3.11: Internet-based model of Smith and Rupp (2003) [Source: Smith and Rupp, 2003]

Lee's model (2002)

Another suggested online purchase model is Lee's model. It is based on the classification of factors that influence online purchase, rather than on the stages of decision making. However, it provides a clear understanding of determinants of online purchase. Lee identifies three phases of online purchase: building trust and confidence, online purchase experience, and after-purchase needs. In the first phase, consumers identify the reliability of the website and company, the accuracy of information and the quality of offered products/services by conducting an information search and cross-checking the information. The second phase is related to the act of purchasing, which is similar to offline purchase. Consumers browse a variety of product offerings and compare prices. The last phase consists of issues related to delivery, guarantee, return policy and dealing with enquiries.

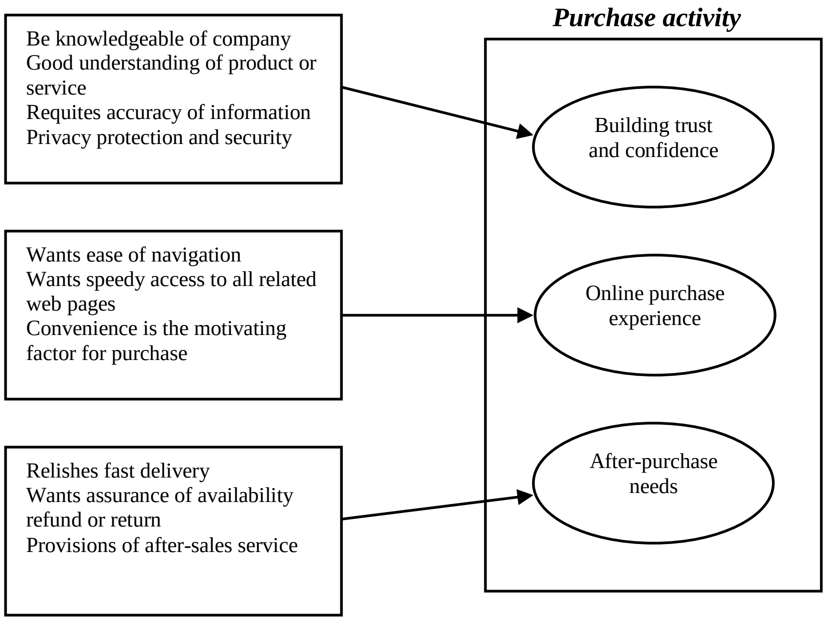


Figure 3.12: Lee's model (2002) [Source: Lee, 2002]

Although the visual illustration of the model does not seem to be a sequential model with defined arrows, Lee believes that these phases are sequences of actions. In fact, consumers will proceed to the online purchase activities only if they have developed trust in the company behind the website, and the website itself. However, we argue that consumers visit many websites and might even perform an intensive research on a website without having trust in it. In fact, trust is an issue before the transaction stage but it will not stop consumers from carrying out purchase activities such as search and comparison. They might search on a website just to learn about the market and products without knowledge of their reliability. In fact, consumers do not perform a reliability task as the first online activity. Therefore, defining the "distinct" phases of trust building and purchase might not be appropriate. However, this classification is beneficial as a guideline for website design, which was the aim of Lee's study. Based on his model, e-businesses can verify different activities that occur to the minds of buyers and design a better interface accordingly, even though these stages are not segregated time wise.

Chen and Chang's model (2003)

In addition to the conceptual models described above, Chen and Chang (2003) have proposed a descriptive model of online shopping process based on participants' self-described process. They investigated the effects of technological components on user satisfaction. Three main phases of interactivity, transaction and fulfilment, as well as determinants of online shopping experience in each phase, were identified. A number of issues affect each of these phases: interactivity (shopping environment such as Internet connection, website design and appearance, and system capacity); transaction (factors affecting the online purchase decision, such as price, convenience, security, evaluation and entertainment); and fulfilment (such as delivery, exchange and return policies, and post-purchase services). Two types of satisfaction are illustrated: pre-purchase satisfaction that leads to a purchase; and finally, post-purchase satisfaction that might lead to a repeat purchase (Chen and Chang, 2003). The consumer-driven approach of this research that models the purchase behaviour according to consumers' perceptions is beneficial. The qualitative method of in-depth interview has added value to modelling the process. However, it is mainly concentrated on the technical and website-related aspects of online shopping experience and is not concerned with how Internet shoppers behave while interacting with the environment and making a purchase decision.

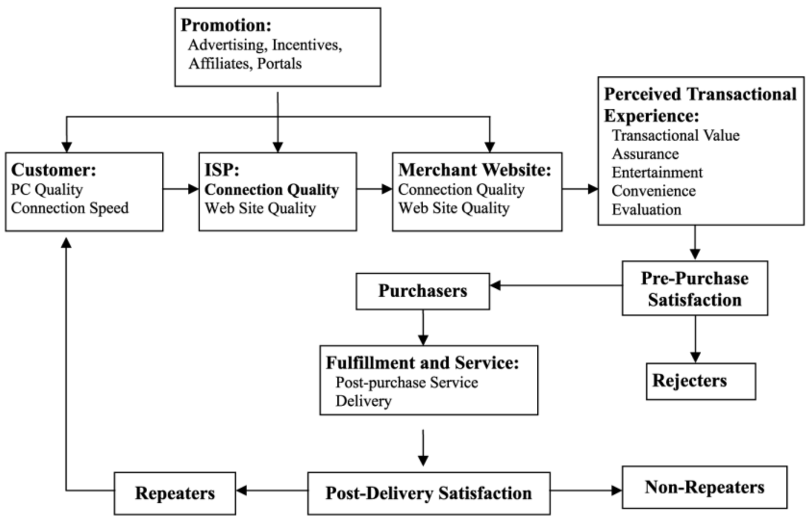


Figure 3.13: Chen and Chang's model (2003) [Source: Chen and Chang 2003]

Darley, Blankson and Luethge's model (2010)

Darley, Blankson and Luethge (2010) have adapted the model proposed by Engel, Blackwell and Miniard (1968). They used the main five stages of this model and added the impact of beliefs, attitudes and intentions on the process. They identified different influential factors: individual characteristics, socio-cultural factors, situational and economic factors and online environment. They performed a content analysis on the 108 peer-reviewed articles collected on online consumer behaviour, online purchase behaviour, and online decision making. They have provided a very comprehensive review of the current studies of online consumer decision making. However, this model again shows a sequential process that is unable to justify online purchase processes.

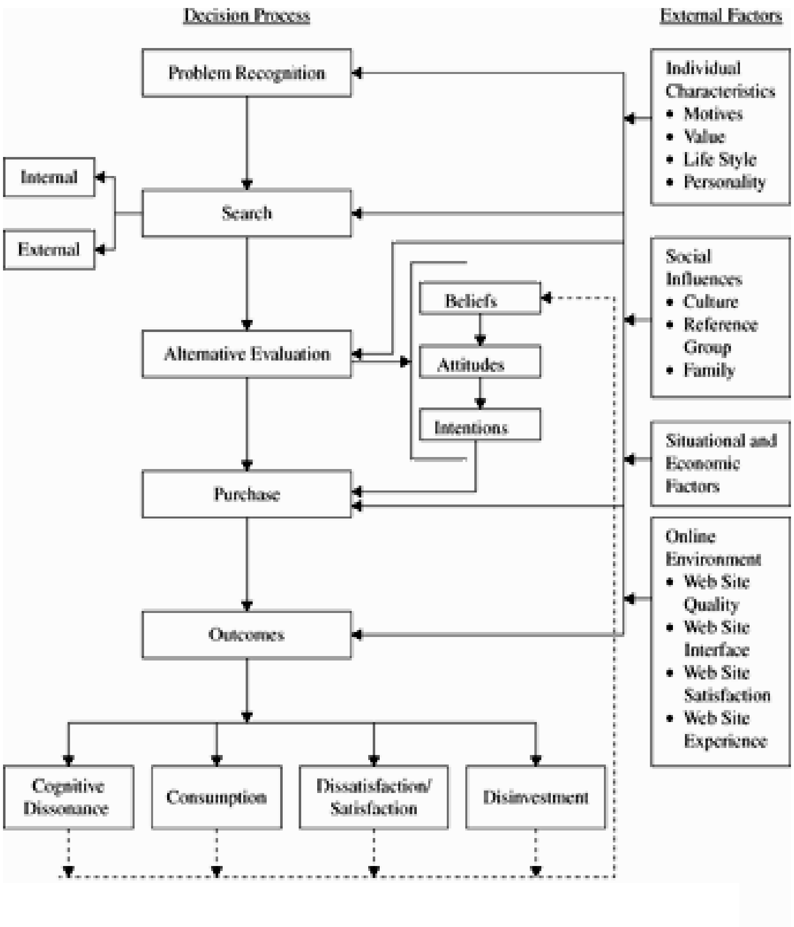


Figure 3.14: Darley, Blankson and Luethge's model [Source: Darley, Blankson and Luethge, 2010]

3.4.2 Limitations of Internet-based models

A number of models of online purchase behaviour have been introduced. However, they adapt the contextual factors for the Internet context while using the sequential models of traditional purchase. They therefore offer a comprehensive view of the factors that affect the purchase, but are not concerned with the actual decision-making process. As already mentioned, it is important to understand the processes that online consumers follow to reach a decision, as they differ from traditional purchase behaviour. In addition, the empirical evaluation of these models is very limited.

3.5 Proposed Model

A conceptual model of the online purchase decision-making process has been proposed (Figure 3.15). Its aim is to illustrate the process that consumers follow on the Internet to research alternative providers and make a purchase decision. It brings together elements from two different areas of the literature, consumer behaviour and decision science, in order to combine the advantages and reduce the drawbacks of each. Although purchase and post-purchase behaviour are illustrated to complete the model, the focus of this research is the decision-making process that leads to a choice and use of e-services. Other types of post-purchase behaviour, such as re-purchase or spreading by word-of-mouth (WOM), are not considered in this study.

The classical purchase behaviour model provides the backbone of the process (need recognition, search, evaluation, purchase and post-purchase behaviour). Despite providing the required foundation, it considers human decision making as a logical problem-solving issue with sequential stages that consumers go through to make a purchase decision. In reality, these stages are not followed by all consumers in the same order and in all contexts. On the contrary, more recent studies have indicated that decision making is a dynamic and constructive process in which decision makers might skip or repeat different steps. They therefore follow different decision-making paths. The possibility of having a dynamic process that allows moving between different stages, and skipping some, is considered in the proposed model by including loops. Only a dynamic approach is able to correctly illustrate the complexity of real-world decisions (Ariely and Zakay, 2001). This structure is essential for the Internet environment where the process is formed dynamically through the interactions of consumers with the online environment.

In addition, the decision science literature shows that consumers are active and make decisions on the flow of the process at all times (Papamichail and Robertson, 2003; 2008). The proposed model takes into account the decisions made by consumers on the flow of the process and emphasizes their individual role. It synthesizes the classical model with elements from decision-making process models and includes formulation and appraisal stages (Karimi, Papamichail and Holland, 2010). These two stages, which are directly related to the active role of consumers, have been overlooked in consumer research. The rigid structure has also changed to a flexible process that can be adapted. It is therefore operationalized in order to be applicable in different decision tasks and situations. Each of the stages in the above model has a defined role that is discussed here.

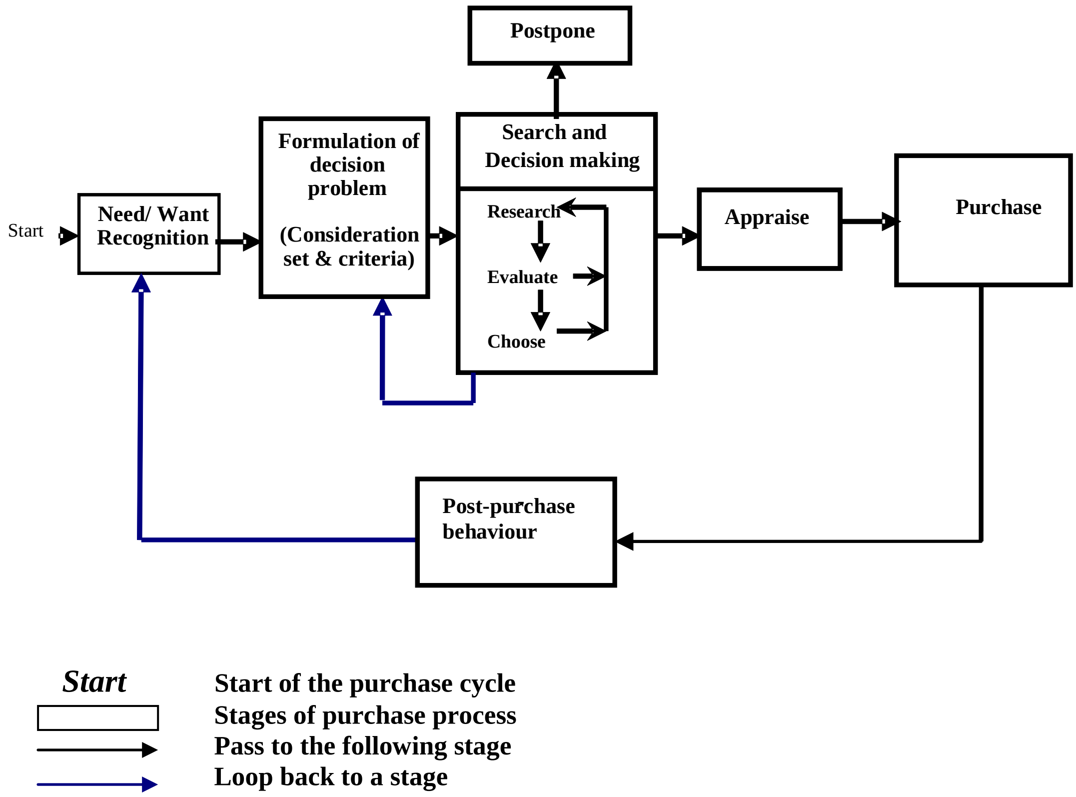


Figure 3.15: Conceptual model of online purchase decision-making process

Need/want recognition

Any decision starts with recognition of a need or want. Therefore, this stage is an inevitable part of decision making process. It is where consumers are triggered to start the process.

Formulation of decision problem

The formulation stage is related to the "formulation of consumer's perception of the decision problem". It is, in fact, the mental presentation of the decision model. Formulation is a very important stage of any decision-making process (Holtzman, 1989; Papamichail and Robertson, 2003; Regan and Holtzman, 1995). The initial mental model consists of consumers' criteria, alternatives and situational understanding that are synthesized to form the decision problem in their mind. There is a constant interaction between different stages of the process and formulation of the decision problem. This suggests that, based on their criteria and alternatives, consumers search and evaluate. On the other hand, according to the output of the search and evaluation, their mental model might change as they come across or evaluate new information. Their criteria might change, alternatives will be generated or altered, and the understanding of the situation increases. The processing strategy also changes as consumers change their mental model and learn about the problem (Bettman, Luce and Payne, 1998). Therefore, the reason for having bi-directional arrows between the two boxes of formulation and search and the decision making process is clear.

Changes in the mental model affect the flow of the process by directing the next action to be taken. This stage illustrates the impact of the decision maker on the process variations. The consumer behaviour literature overlooks this stage and moves from need recognition to search, comparison, choice and finally purchase of the product, sequentially. It neglects the fact that consumers are very different and have different preferences and knowledge of the situation. Not all of them follow the same sequential routine. On the contrary, they "*carry themselves"* throughout the whole process. It is important to take into account that consumers never start the process blank but that they have an understanding of the situation and some criteria for their choice; they might not have any alternatives in their mind if they are new to the market. However, they start the information search process based on their mental model.

Search and decision making

The online search and decision-making box consists of three stages: consumer search the information based on their mental model of the decision problem; evaluate generated alternatives according to their criteria; and make a choice. The loops between these three stages show that the process is not sequential and consumers go through various loops continuously. As already mentioned, the search and evaluation might be for concept formation, brand information or situational information.

Appraisal

The appraisal stage introduced in the decision making literature is also included. In this stage, consumers develop an insight into the process by review the process and alternatives, achieving certainty and feeling of control. Similar to formulation stage, it might lead to changes in the course of actions. To the best of my knowledge, it has not been previously investigated as a stage within the purchase decision process. This research is the first attempt to investigate its existence and importance in the process.

Purchase

The purchase stage in the traditional models included both "choosing the product" and "performing the purchase task". On the Internet, however, they need to be separated. Purchase on the Internet is a complex activity which is broader than choosing the product or service. As any of these stages might occur through the offline channel, it is important to separate them.

Post-purchase behaviour

Post-purchase behaviour is a complex issue that occurs in different formats over a long period of time. Therefore, it can not be observed during the process. However, it is the stage that most businesses are interested in. It includes, re-purchase, use of post-purchase services, spreading WOM, and so on.

The conceptual model will be reviewed based on the outcome of the research. Its adaptation for different individuals in different sectors will be illustrated. In the next section, different indicators for each stage are discussed which together define the characteristics of the process.

3.6 Indicators of purchase behaviour

Different aspects of the process can be measured using different indicators. While data from offline markets are mainly restricted to purchasing transactions, different dimensions of online behaviour can be captured directly. One of the aspects of decision-making behaviour that has received a lot of attention from researchers, particularly in the online market, is search behaviour. The online environment makes it possible to examine the search activities of different consumers and the factors that might influence their search behaviour (Johnson et al., 2004). According to Bettman, Luce and Payne (1998), decision-making strategy is more than search behaviour but also includes the patterns of processing and evaluation. The study of evaluation behaviour is to date largely restricted to traditional markets, and other stages of the purchase process have not been well examined. Generation of alternatives, for example, "which in some cases might determine the fate of a decision, are not well understood" (Ariely and Zakay, 2001; Beach, 1993). As search and evaluation behaviour have been previously studied, various dimensions have been introduced for them. However, the dimensions of the formulation and appraisal stages are not yet known and are assessed for the purpose of this research.

3.6.1 Dimensions of the process

One of the obvious characteristics of a process is its intensity. Intensity can be measured in terms of number of cycles, time spent on the process and number of times a certain stage is performed. Number of cycles in the process has been previously mentioned (Chowdhury, Ratneshwar and Mohanty, 2009; Schwartz et al., 2002). It indicates the effort that the decision maker puts into the decision-making process. In addition, I have introduced an intensity measure for each stage of the process, termed allocation of effort. It shows the effort consumers put into each stage of the process.

Time has also been suggested as one of the dimensions of the decision-making process (Ranyard, Crozier and Svenson, 1997; Ariely and Zakay, 2001; Xia and Sudharshan, 2002). It is an important measure of online activities (Ip and Wagner, 2008; Thorbjornsen and Supphellen, 2004) and is in fact a resource (Ariely and Zakay, 2001) that a consumer decides to use. It has been argued that longer duration of visit could be the result of different factors such as confusing navigation, slow connection and load times. It could also indicate a certain level of difficulty in understanding the content or performing the shopping task. However, performing the experiment under the same conditions eliminates the impact of external factors such as slow connection. Therefore, the differences in duration are due to individuals' differences, such as their ability to locate relevant information and willingness to spend more time on the task in order to maximize their choice. In other words, the visitors to a website are continually making a "judgment as to the value of continuing on at a given site or clicking away" (Holland and Baker, 2001). Therefore, if consumers remain at a site by choice, then there should be a value in exchange for their time. As a result, duration can be a good indicator of behaviour that can be used to differentiate between individuals (Thorbjornsen and Supphellen, 2004).

3.6.2 Dimensions of formulation behaviour

At the formulation stage, criteria, alternatives and understanding of the situation are synthesized to shape the mental model of the decision problem. The whole decision-making process is shaped around two constructs of alternatives and criteria. Therefore the number of alternatives and criteria (Moore and Lehmann, 1980) and also the way they are generated should be understood.

The impact of the number of alternatives in the consumer's consideration set on the decision making process has been previously studied (e.g. Shocker et al., 1991). The consideration set, which is an important part of the purchase process (Roberts and Lattin, 1991), includes a number of alternatives at any point in time which changes during the process (Ariely and Zakay, 2001). By increasing the number of alternatives, decision making becomes more complex and tiresome (Chowdhury, Ratneshwar and Mohanty, 2009; Payne et al., 1993). Having more alternatives is not always favourable (Iyengar and Lepper, 2000). The consideration set is dependent on characteristics of an individual and therefore varies across consumers (Shocker et al., 1991).

Criteria are another dimension of decision making which has been studied for several decades (Sheth and Raju, 1974; Park and Lutz, 1982). It is a set of attributes that consumers evaluate for each alternative. Decisions become more difficult where there are more criteria involved in the decision making, as the degree of conflict among attributes increases. In addition to the number of alternatives and criteria, how often and in what phases they are altered is very important. Therefore, we include the phase of re-formation among the process features that need to be examined.

3.6.3 Dimensions of search behaviour

Consumer behaviour in terms of search can be measured by its extent and the type of sources consulted (Klein, 1998; Sproule and Archer, 2000). The extent of the search illustrates the extent to which consumers have done research. It includes breadth and depth of the search activity. In this context, breadth of search is the number of sources used to find information. It is mainly the number of retailers' websites as well as comparison sites and other information sources visited by consumers (Klein, 1998). The number of stores visited has been found to be an important characteristic of search in other research (e.g. Johnson et al., 2004). Depth of search on the other hand is the amount of information retrieved and evaluated from each source (Klein, 1998). Extent of search (Rozic-Hristovski, Hristovski and Todorovski, 2002) is a behavioural variable. Type of sources can also identify the behaviour of consumers and indicate the sources they consult or find reliable.

In addition to constructs of search, the context in which search happens, such as frequency of purchase and level of risk, are determinant factors (Kaas, 1982) (Figure 2.4). Therefore, different search behaviour in different sectors can be expected. With frequent purchases, consumers only require a set of situational attributes (such as price and availability) to compare the possible alternatives; while with less frequent purchases they start with concept formation and brand information search before collecting information on situational attributes. However, these stages might occur in parallel.

A number of studies have been conducted on continuous search behaviour when users are building a bank of information. They have differentiated this type of search from pre-purchase search where the aim is shopping (Tauber, 1972; Bloch, Sherrell and Ridgway, 1986). In the current market, consumers not only build their bank of information but are constantly exposed to information pushed towards them by advertising. Although it is an important matter, we will not look at this aspect of behaviour separately, but will include it in the consumer attributes such as previous knowledge of the product. Therefore, according to their knowledge and previous experience, the search behaviour is different.

3.6.4 Dimensions of evaluation behaviour

In addition to the amount of information which has been processed, selectivity in information processing, use of simplification strategies and the pattern of processing are important behavioural variables that have an impact on the decision-making process (Bettman, Luce and Payne, 1998). Selectivity of information is due to the limitations in processing capabilities of people. As they are not able to evaluate all the available information, they select that which is of interest to them (Bettman, Luce and Payne, 1998). “Consumers develop mechanisms for limiting their intake of information” (Malhotra, 1984). This is more prominent when consumers encounter information overload and use selectivity in order to reduce processing difficulties (Kardes et al., 2004). As the number of alternatives increases, the decision making becomes more complex and tiresome (Chowdhury, Ratneshwar and Mohanty, 2009; Payne et al., 1993), selectivity increases (Payne, 1976; Bettman et al., 1998) and use of simplifying decision heuristics rises (Payne, Bettman and Johnson, 1993). Simplification strategies are another response to information overload (Mick, Broniarczyk and Haidt, 2004). They are used to simplify the evaluation process and filter unwanted alternatives as soon and as effortlessly as possible. Patterns of processing include alternative-based and criteria/attribute-based processing. In order to define patterns, it is important to understand that the whole processing behaviour is shaped around the two constructs of alternatives and criteria. When evaluating the options, information on alternatives may be processed in two different ways (Bettman and Zins, 1979). First it can primarily be assessed by alternative-based processing, in which different attributes of a single alternative are evaluated before evaluation of another alternative. Therefore, the evaluation is more sequential and there is less comparison between alternatives. Secondly, it can be processed by criteria, in which the values of several alternatives on one particular criterion are examined and compared across alternatives before evaluation of another criterion for all alternatives. Parallel evaluation and comparison occur in this processing strategy. The evaluation stage is therefore examined by these dimensions.

3.6.5 Dimensions of appraisal

Another important stage identified in the decision-making process is appraisal. However, evidence of its existence in consumer purchase process has not yet been proven. Therefore, we are interested to see if it is at all applicable in the online purchase context and whether it occurs for any particular type of purchase. It is also important to identify which aspects are reviewed by consumers and at what point during the process.

3.7 Individual characteristics

The proposed model and the indicators which can be employed to examine the online purchase decision-making process have been discussed. However, as mentioned in the previous chapter, individual characteristics influence the purchase process. As the Internet is almost ubiquitous in modern societies, understanding different segments of online consumers according to their individual characteristics is very important

(Klever, 2009). Consumers are expected to have different behaviour and decision-making processes as a result of their individual differences.

In order to classify consumers and identify the behaviour of each segment, a large number of individual factors were reviewed in the previous chapter. The literature review revealed that the impact of some of the individual characteristics has been well studied in marketing and IS literature. Decision-making style of consumers in terms of maximization tendency is one the most influential factors of any decision-making process (Karimi, Papamichail and Holland, 2011a). However, it has only just entered online consumer behaviour research, with the study by Chowdhury, Ratneshwar and Mohanty (2009). They have stated that "very little empirical work has been done till now to understand the implications of this trait for consumer choice behaviour and decision-making processes". Consumers' knowledge is also one of the important factors mentioned in previous research which affects different stages of the purchase behaviour (Bughin, Doogan and Vetvik, 2010; Moore and Lehmann, 1980; Chang and Burke, 2007). It was similarly found to be very important in the pilot study we conducted. Therefore, these two individual characteristics are selected and consumers are classed by their decision-making style (maximizers/satisficers) and knowledge of products and the market (low/high) in four categories (Table 3.1).

Table 3.1: Segments of online consumers

	Satisficers	**Maximizers**
Low level of knowledge	Segment1	Segment3
High level of knowledge	Segment2	Segment4

A decade ago, Desmeules (2002) called for an online retailing study that examines the relationship between consumer knowledge and maximization tendency and satisfaction for a complex product with a large number of attributes. Schwartz et al. (2002) have suggested that future research should examine the differences in processes followed by maximizers and satisficers when it comes to actual choice behaviour. As they themselves admitted, Chowdhury, Ratneshwar and Mohanty (2009) did not investigate the actual online behaviour due to use of participants' self-reported data. They have suggested that using actual behavioural data will provide more definitive evidence on differences between maximizers and satisficers. Using experiments that can capture the actual process as it happens will respond to this issue.

Few studies have examined the differences in process models for different consumers. This could be due to difficulties of tracking the process flow as it occurs in the mind of the decision maker, which leaves no trace afterwards. Only capturing the process as consumers go through it can identify such differences. Therefore in this research, not only is an online model of consumer behaviour proposed but it is also tested for different groups of individuals.

3.8 Expected process variations based on individual characteristics

As discussed in the previous chapter, the behaviour of decision makers is closely related to their maximization tendency. However, this research suggests that analysis of decision-making processes based only on this characteristic is not complete. The integration of maximization tendency and consumers' prior knowledge is a better determinant of consumer behaviour during different stages of the purchase process. Ignoring one can reduce the accuracy of our descriptive model, particularly in the purchase of complex products.

One example of this is the argument presented in section 2.5.3.4. It was mentioned that some researchers believe that consumers with a high level of knowledge do not have enough motivation to search for information. However, considering the maximization tendency of individuals, we expect maximizers with a high level of knowledge to have enough motivation to search and evaluate information as they are looking for the best possible alternatives. They still get involved in intensive search and evaluation and assess a large number of criteria to ensure the best possible choice. Satisficers with knowledge, on the other hand, only look for a good enough solution and might have fewer criteria, be more selective in their choice of information and avoid intensive evaluation. The contradictory results of previous research in the relationship between knowledge and search behaviour can be due to elimination of other individual factors such as maximization tendency.

The levels of prior knowledge and maximization tendency have various impacts on the process which were fully discussed in chapter 2. The following variations are therefore expected (for further explanations refer to sections 2.6.3.4 and 2.6.3.6):

Formulation

Prior knowledge negatively influences the amount of re-formulation of the mental model and the number of evaluated alternatives and attributes (Sproule and Archer, 2000; Kaas, 1982);

Maximization level positively influences the number of evaluated attributes, the number of evaluated alternatives (Chowdhury, Ratneshwar and Mohanty, 2009) and the number of options which are left open (Schwartz et al., 2002).

Research

Prior knowledge negatively influences the amount of information search (breadth) (Moore and Lehmann, 1980).

Maximization level positively influences the amount of information search (depth and breadth) (Schwartz et al., 2002; Chowdhury, Ratneshwar and Mohanty, 2009) and use of user-generated content (Schwartz et al., 2002).

Evaluation

Prior knowledge positively influences selectivity of information processing (Huffman and Kahn, 1998; Chang and Burke, 2007) and negatively influences the evaluation difficulty (Cowley and Mitchell, 2003; Alba and Hutchinson, 1987).

Maximization level negatively influences the sequential evaluation of alternatives (Chowdhury, Ratneshwar and Mohanty, 2009), selectivity of information processing

(Iyengar, Wells and Schwartz, 2006; Schwartz et al., 2002), and use of simplification strategies during evaluation (Chowdhury, Ratneshwar and Mohanty, 2009) such as use of recommendation systems for filtering options.

Appraisal

Maximization level positively influences occurrence of appraisal the in decision-making process.

Process

Prior knowledge negatively influences the number of cycles in the process, duration (Moore and Lehmann, 1980) and performance of concept formation search (Sproule and Archer, 2000; Kaas, 1982).

Maximization level positively influences the number of cycles in the decision-making process (Chowdhury, Ratneshwar and Mohanty, 2009; Schwartz et al., 2002) and duration (Chowdhury, Ratneshwar and Mohanty, 2009).

Satisfaction

Prior knowledge positively influences satisfaction with the process (Xia and Sudharshan, 2002).

Maximization level negatively influences satisfaction with the choice (Mick, Broniarczyk and Haidt, 2004; Schwartz et al., 2002) and the process.

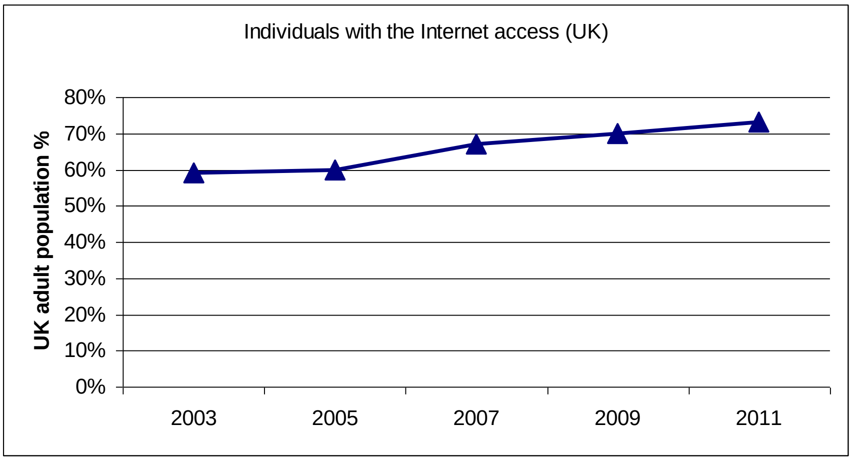
3.9 Research context

In the previous section, we illustrated the proposed model and its expected variations based on individual differences. In the remaining part of this chapter the context of the research, the UK Internet market for retail banking and mobile network operators, is described. In line with other studies of online consumer behaviour (see for example:

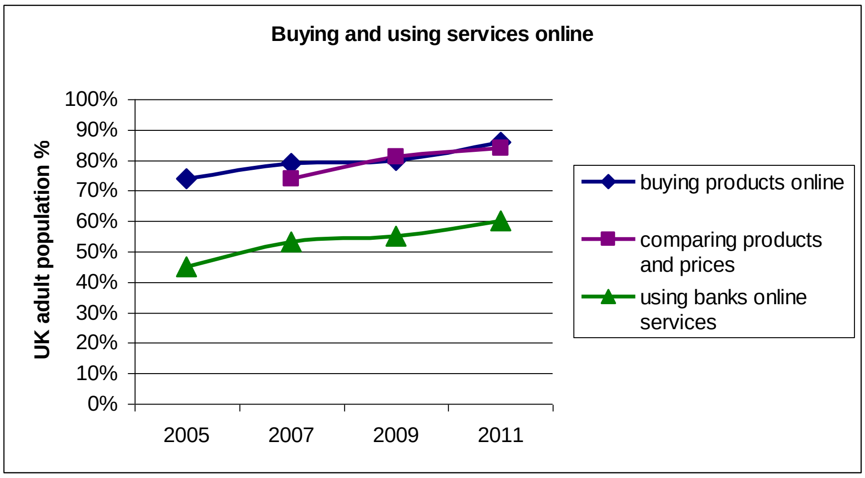
Daniel and Klimis, 1999; Becerra and Korgaonkar, 2011; Pavlou, Liang and Xue, 2007), the online decision-making behaviours in two sectors are explored.

3.9.1 Internet adoption and usage in the UK

In the UK the adoption of the Internet is high and the majority of people have access to it (Figure 3.16a). Figure 3.16b illustrates that use of the Internet is relatively advanced and consumers use this channel for information search, comparison, purchase and post-purchase services. However, its adoption rate and usage varies across markets.



(a) Adoption of the Internet in the UK



(b) Use of the Internet in the UK

Figure 3.16: Adoption and various uses of the Internet in the UK (OxIS, 2011)

3.9.2 Selection of markets

As mentioned above, the majority of online purchase behaviour models are not tested by the actual behaviour in a particular sector. The cross-sector analysis of this study will be a step towards more applicable Internet behavioural models. Two sectors, retail banking and mobile network providers, are selected for this research. In the banking sector, consumers consider the service only, while in the mobile network providers market, they evaluate tangible products plus service. Frequency of purchase, level of associated risk and market trends vary for these two sectors. However, both have a large number of online visitors, are undergoing noticeable alterations in the market and have great potential in the UK which are not yet understood.

In the banking sector, all the concentration of researchers has been on online banking. According to the Mintel report (2011a), online banking has grown to become a vital element of distribution and management in the market. The majority of innovations and developments in this market are related to online and mobile banking (Mintel, 2011a). However, a recent report by *Retail Banking Quarterly*, which assesses the online search behaviour of UK customers in the financial sector, found that UK consumers are more and more searching for sites that offer them information on financial products (Zafar, 2012; Greenlight, 2011). According to their report, in October 2011 more than 2.5 million searches on Google had keywords related to retail banking in the UK (Greenlight, 2012). This in fact opens a new chapter for this sector, illustrating the use of the Internet channel for information search in addition to the online banking services. According to the *Financial Times*, this might be a result of "concerns among UK households as they feel increasingly cash-strapped in tight economic times" (Zafar, 2012). Ongoing economic uncertainty has made consumers more cautious with their finances (Mintel, 2011a) and they are therefore more active in finding suitable financial products. Another factor that has given rise to the use of the Internet for research in this sector is comparison sites. In 2009, the impact of comparison sites on consumer decision making was addressed in the US financial market, showing that 21% have used these websites (Strothkamp and Wannemacher, 2010). The Greenlight report in the UK also found that MoneySupermarket was the most visible site to online consumers of retail banking and MoneySavingExpert was in third place.

In addition to the consumer side of the story, government policies are changing this sector. The UK retail banking market has been criticized for not being competitive enough over the years. One of the reasons is because of consumers' perception that "they are all the same" and therefore there is little motivation to switch banks. However, increasing competition will be the central theme of the market for the next few years, and is on the government's agenda. The government established an Independent Commission on Banking in June 2010 to "consider the structure of the UK banking sector, and look at structural and non-structural measures to reform the banking system and promote competition" (House of Common, 2011). In order to compete and differentiate, understanding consumers is crucial.

The second selected sector is mobile network providers, which has become one of the most important sectors in service marketing (Shukla, 2010), and has more than 100% penetration in the UK market (Shukla, 2010). The UK has the largest market in Europe in terms of revenue and number of subscribers and there is no strong monopoly within the market (Ofcom, 2009). The mobile network industry has also "received a major boost from the development of Smartphone" (Mintel, 2012). "This is a comparatively new product category that still shows an interesting feature development" (Decker and Trusov, 2010). Use of the mobile phone has gone beyond making calls, and 43% of mobile phone owners in the UK access the Internet on their phone. This is a new trend that affects consumer decision making in the purchase of phones and contracts.

In addition, the market is dynamic and the switching rate is relatively high. In relation to their current mobile contracts, 36% of consumers have renewed their contract with the same provider while 22% switched to a new provider. Use of the Internet for purchase is already remarkable and "there is a clear shift to more buying online" (Mintel, 2012). According to this report, 30% of the UK adult population bought their phone online, 21% performed the whole process online, 20% searched online but completed the purchase in the store, and 29% mentioned that they will do an online information search before deciding what to purchase next time. It is expected that this trend will increase as mobile phones are becoming more commoditized than before. For these reasons, this sector has been selected for this research.

These two sectors both require a relatively complex decision-making process. Although the selected sectors provide complex products, the proposed model can also be adapted for other types of product classes.

Banking sector

Alongside its general characteristics, the Internet delivers specific benefits and drawbacks for any particular sector. In the financial sector, whilst the Internet attracts consumers by lowering fees, improving service quality, saving time and providing a 24-hour service; it discourages potential consumers by increasing the fear of lacking security and the likelihood of errors occurring. Moreover, banking products are associated with high risk and involve a long-term relationship. Consumers are more likely to buy products with a lower purchase risk through the Internet channel (Lee and Tan, 2003). The role of the Internet in the banking sector is unique and more complex than in many other sectors as it is not limited to the initial delivery of a service but has a "long term continuing maintenance role" (Howcroft, Hamilton and Hewer, 2002). These unique characteristics are expected to influence the way this channel is used by customers. On top of this, the introduction of decision aid systems has changed the behaviour of banks' customers over the past few years.

Banks websites offer two types of service to their existing and potential customers: online banking; and information to support research into new products and services (Figure 3.17). Online banking provides post-purchase services for consumers such as account management, money transfer and payments of bills. Research into new products, on the other hand, is associated with information search, evaluation, comparison and purchase of products offered by banks.

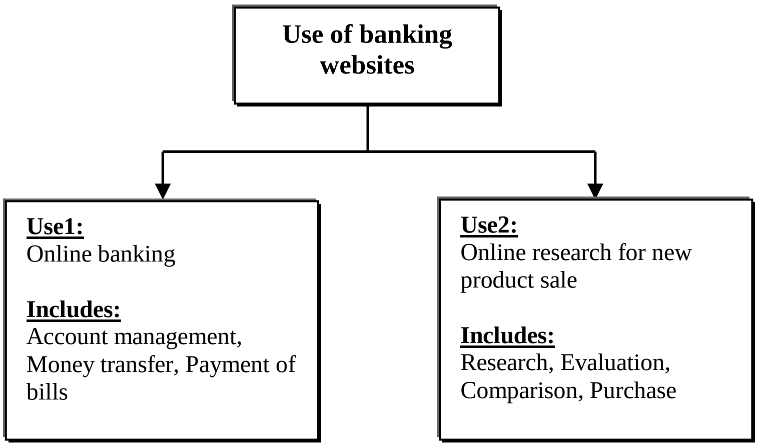


Figure 3.17: Use of the Internet channel in the banking sector

The banking sector has been at the forefront of e-services with the widespread implementation of online banking and has undergone significant changes in the way that consumers interact with banks (Jayawardhena and Foley, 2000). Banks have actively promoted the use of online banking for customer self-service. They allow customers to perform the banking transactions "at anytime and anywhere, faster, and with lower fees compared to using traditional, real-world bank branches" (Grabner-Krauter and Faullant, 2008). Online banking services are used by 60% of UK consumers today (OxIS, 2011), and are one of the most successful e-solutions (Wikstrom, 2005).

Three decades of research on the use of the online channel in the banking sector has concentrated on the use of online services (Hoehle, Scornavacca and Huff, 2012). There is a growing body of literature exploring the adoption of online banking (e.g. Sathye, 1999; Howcroft, Hamilton and Hewer, 2002; Pikkarainen et al., 2004; Grabner-Krauter and Faullant, 2008; Hernandez and Mazzon, 2007; Wang et al., 2003). Adoption studies have found that security, trust and risk (Sathye, 1999; Pikkarainen et al., 2004; Grabner-Krauter and Faullant, 2008; Hernandez and Mazzon, 2007), lack of social interaction (Howcroft, Hamilton and Hewer, 2002), perceived usefulness and perceived ease of use (Pikkarainen et al., 2004; Wang et al., 2003) are the most influential factors.

In addition to online banking, consumers use banks' websites for research into new product sales. Although, the most common online service is purchasing (Hackman et al., 2006), there has been relatively little research conducted into the use of the Internet as a search and purchase channel in this sector. Studies of online customers of banks a decade ago (e.g. Howcroft, Hamilton and Hewer, 2002) showed that the branch was still the most popular delivery channel for purchase in this market. Their results from future preferences of consumers suggested that the change towards widespread adoption of the Internet in the banking sector required more time, as consumers were not willing to make dramatic changes in their choice of channel. Despite reluctance towards the use of the Internet as an alternative, their evidence showed interest in mixing channels when acquiring financial services. They took a different approach, suggesting that banks are multi-channel operators and therefore their websites are considered as an alternative channel for accessing information. Tih and Ennis (2006) also found the same result. “Retail bank consumers might want access to all available delivery channels” and do not consider Internet services of banks as a replacement channel. Banks, therefore, tend to offer a range of different channels (Wikstrom, Yakhlef and Osterlund, 2003; Wikstrom, 2005). In order for multi-channel banks to gain a competitive advantage on the Internet, they need to re-examine consumers’ needs and requirements and develop their services accordingly (Tih and Ennis, 2006).

Studies during this period in different geographic areas have suggested that online banking services were not well adopted relative to the number of consumers (e.g. Sarel and Marmostein, 2003 in US; and Wang et al., 2003 in Taiwan). However, as the statistics reveal, the acceptance of the Internet as a channel in the banking sector is increasing and more people are using their websites for services (Figure 3.18). In addition, UK consumers are currently even able to apply for many banking products online. Although these services are available, their actual usage and the potential of the Internet as a search and purchase channel are not yet known. The above studies are not based on evidence from actual market behaviour. It is necessary to examine the actual use of the Internet in banking in order to identify the new trends in this sector. In this research we distinguish between and assess both types of Internet usage in the banking sector by using actual online usage.

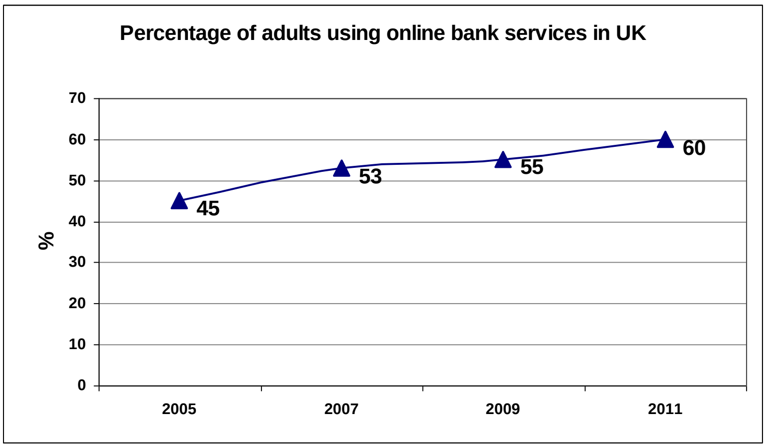


Figure 3.18: Growth in the usage of online banking services in the UK (OxIS, 2011)

In addition to the studies of the Internet, there have been a number of attempts to model the behaviour of consumers in banking. Despite small variations in purchase models of financial services that are suggested by the limited number of studies (Robinson, Farris and Wind, 1967; Turnbull, 1982), the main stages of the purchase process are identical. Turnbull (1982), for instance, has applied several purchase models in the context of financial service purchase and concluded that these models are not able to explain the complexities of financial service purchases. He has noted however that the process follows the five stages of stimulus, specification, search, evaluation and selection proposed by Robinson, Farris and Wind (1967). In fact, banking sector customers still need to search and evaluate to acquire a product. Therefore, we believe that our proposed model can explain the decision-making process of retail banking consumers.

Mobile network operators

Mobile phones have become one of the most commonly used, daily, multi-purpose, and interpersonal consumer devices (Levinson, 2004; Bigne, Ruiz and Sanz, 2005). Figure 3.19 shows the increase in mobile subscribers over the past a few years. In 2004 nearly 60 million subscriptions were in the market accounting for 100% of the UK population. It has now reached over 80 million subscriptions, which represents 130% of the total population. The main product has become a commodity. The differentiating factors are not the main product and service but the additional features that have added value (Shukla, 2010).

The mobile phone market is one of the most dynamic markets in the world, including technological changes and evolving competition (Petruzzellis, 2010). In addition to its dynamic nature, there has been strong competition in the UK mobile network market since 1998, with the entry of T-mobile and Orange and the popularity of prepaid cards (Birke and Swann, 2006; Turnbull, Leek and Ying, 2000). Providers are competing intensely for a greater market share (Shukla, 2010). The industry is a combination of network operators and mobile phone companies. In other words, the handset manufacturers cooperate with the service providers. The market should be assessed as a whole, which is the cooperation between mobile operators and mobile manufacturers (Petruzzellis, 2010).

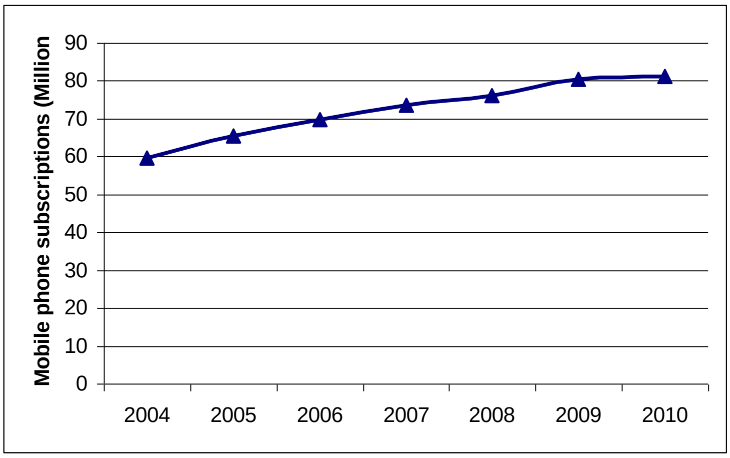


Figure 3.19: Growth in mobile phone subscriptions (Mintel, 2012)

Selection of a mobile phone, that is choosing a suitable handset within a range of prices, is an important problem for a consumer. It can be "considered as a complex multi-criteria decision problem" where the expectation of different individuals varies (Işıklar and Büyüközkan, 2007). In addition to the handset, consumers have to choose a network operator which adds up to their criteria. Their decision criteria are therefore complex (Petruzzellis, 2010) and the information gathering is effortful (Turnbull, Leek and Ying, 2000). The rapid rate of change in the UK market, in addition to the complexity of networks, tariffs and contracts, makes comparison between different networks, and selection of the best value tariff, difficult (Turnbull, Leek and Ying, 2000). Marketers also use "various offers to attract consumers at any cost" and make their offers difficult to compare (Graff, Sophonthummapharn and Parida, 2012). The evolving competition of the market also influences consumer decision making process (Petruzzellis, 2010).

Similarly, two types of Internet usage can be defined for this sector, using providers' websites for search and purchase as well as using online services. "Supporting websites are becoming an important or even indispensable component of the overall offering" (Van Riel et al., 2004). The perceived quality of online supporting services offered by providers is very important for retaining consumers (Van Riel et al., 2004). The Internet is also widely used for purchase. Already 30% of the UK adult population have bought their phone online (Mintel, 2012).

3.10 Expected process characteristics in each sector

Although consumers with particular characteristics are expected to behave similarly in different contexts, differences in the characteristics of the market might create different behavioural patterns which have not been studied previously (Schwartz et al., 2002; Wright, 1975). Consumers are expected to perform more cycles and enter the formulation stage more often in the banking sector, as it is less frequently purchased. The mental model of the decision problem is not well shaped and criteria might be less known. The process is expected to be more complex for financial products and therefore satisfaction with the process might be lower. Satisfaction with the choice might, however, be greater as there is less differentiation within the market.

3.11 Summary

As explained in chapter 2, online purchase decision-making processes are very complex and not entirely understood. In order to explore the way these processes unfold, an Internet-based model which can explain the complexities and dynamic nature of real-life purchase decisions should be developed.

Although there is a vast amount of research on consumer purchase decision making, it has some limitations. Early models, known as grand models, are based on the knowledge available in 1960s and 70s and suffer from a complicated structure that is impossible to test. These models were later simplified to a few sequential stages known as the classical model. The step by step structure of this model is not necessarily followed by all consumers in all conditions. The underlying problems of models introduced for consumer purchase were the assumption of rational consumer decision-making behaviour and the rigid structure that does not allow variations in the process. They also ignore the role of consumers in constructing the decision-making process. Consumers, however, direct the flow of the process and make unconscious decisions which are not explained in the rational problem-solving approach.

As the Internet has become a prominent purchase channel, a few attempts have been made to model online purchase decision making. However, these have been adaptations of the sequential models of traditional purchase, concentrating on its influential factors rather than the stages of the process. In addition, the empirical evaluation of these models is very limited, overlooking the way in which the decision problem is identified, changes over time and leads the flow of the process. They do not take into account how a dynamic decision process is constructed and proceeds differently by different actors in different conditions. Therefore, literature on decision making has been investigated to add the missing knowledge to the context of online purchase decision making. In contrast to models of consumer purchase process that put unnecessary emphasis on details and interrelations of elements, these models do not illustrate all the stages. Therefore, there is a need for extra explanation of details which are omitted from the model. This study has tried to provide a middle ground by illustrating all the main stages of the purchase decision-making process while eliminating the unnecessary details and interrelations which are not of interest to the objective of this research.

In order to address the shortcomings of consumer purchase models, three main improvements were implemented in the proposed model.

1) The sequential stages are combined with a number of dynamic factors. Online purchase decision-making processes are dynamic and do not follow a pre-defined order. Unlike the solid sequential model, ours supports a dynamic process.

2) It is able to explain the role of individuals in the process by including additional stages. The usual stages of search, evaluation, and choice are common to all models, being rephrased by different researchers. Emphasis on the recognition of the problem and different forms of post-purchase behaviour can be seen in more recent models. Whereas, decision-making models show that consumers have an understanding of the situation and number of alternatives and criteria in their mind that are synthesized to formulate their perception of the problem in a formulation stage. This happens prior to the information search; however, information search and following stages might alter the formulation. Information goes through the human filter. It is internalized and used to reformulate the problem, which directs the flow of the process and use of different decision strategies. Appraisal of the choice or the process is another way of introducing individual preferences into the models. This synthesis is considered as one of the main contributions of this research to consumer purchase decision models.

3) Despite the general stages of decision making that can be visualized in a model, decision makers follow different instances of the process. The reason for differences in decision-making process models are variations in the types of decisions, the existence of a large number of variables which have a different degree of importance in different situations, and different characteristics of the decision makers themselves (Sprague, 1980). These processes have a constructive nature. However, there are still common patterns that "structure the unstructured processes". Therefore, a comprehensive decision-making model should provide a flexible structure that allows different adaptations of the process. Decision-making process models are highly abstract and the process that decision makers follow is an instance of the decision process model.

Understanding consumer behaviour is not limited to the modelling of consumer decision making process. The complexity of this process involves the influence of various factors that have been found previously. However, their impact on the stages of purchase decision is not understood as yet. As consumers construct the process while interacting with an online market, their characteristics have a direct impact on the process. The literature review indicated that consumers' knowledge is one of the most influential factors in the purchase process, particularly in the search and information processing stages that are the main activities online. In addition, another area of literature, derived from decision science, has just entered the consumer behaviour debate. It suggests that any decision-making process is strongly affected by the decision-making style of the decision maker in terms of maximization tendency, which is a personality trait. Therefore, these two factors are combined in order to segment online consumers and explain behavioural variations. The expected behaviour of each segment and the dimensions of behaviour during each stage of the process are discussed.

In addition, characteristics of the market, websites and the product class influence the decision-making process. The two sectors of this research, retail banking and mobile network providers, are introduced. Their characteristics, current trends and potential in the UK market are explained and the expected behavioural variations across sectors described.

The conceptual framework of this study, in terms of the proposed model, segmentation of consumers and context of research, were defined in this chapter. Design of the research methodology is explained in the next chapter.

4 RESEARCH METHODLOGY

4.1 Chapter overview

In order to achieve the objectives of this research (section 1.3), an approach which combines various methods is necessary. Different methods and data sources are used to explain the complex phenomenon of online purchase behaviour. The mixed method approach comprising both qualitative and quantitative research at the micro- (individual) and macro- (market) levels is chosen to analyze the situation from different perspectives and provide a better insight.

In the previous chapter, the conceptual framework for the research was discussed. The new model of the online purchase decision-making process and four segments of online consumers were introduced, providing the backbone of the individual-level analysis. It was also mentioned that capturing the actual process as it occurs is the only way to understand the entire decision-making process. Therefore, a methodology comprising a data collection technique that can record the process and a modelling method that can transform the data into a process model has been designed for the individual-level analysis. Individual decision-making processes are captured during experiments that are conducted for each sector. They are accompanied by pre- and post-questionnaires in order to identify individual differences and outputs of the process. Interviews follow the experiments for further verification.

However, other research questions can only be examined by exploring the aggregated behaviour of consumers in the market. The Internet provides a unique opportunity by leaving tracks of the behaviour of online consumers beyond the final transactions. Therefore, the research starts with a statistical analysis of actual consumer behaviour over the entire market and across multiple retailers. The characteristics of a particular market are also identified using this approach.

Figure 4.1 depicts the research design. The outcome generates a holistic knowledge of online consumer purchase behaviour in terms of decision-making processes, use of the Internet channel, visits to multiple retailers and variations and similarities in behaviour among individuals and across the two selected sectors. Discussion of the mixed method multi-level research design follows. Quantitative and qualitative approaches which are conducted at the macro-level and micro-level are explained in separate sections.

4.2 Multi-level mixed method research design

The research design (Figure 4.1) shows that qualitative and quantitative approaches are used to answer different research questions. The level of analysis is also different. Quantitative research is performed at the market level while qualitative research investigates individual behaviour.

4.2.1 Mixed method

Mixed method research is defined as mixing qualitative and quantitative data in one study (Johnson, Onwuegbuzie and Turner, 2007; Harrison and Reilly, 2011). However, traditionally qualitative and quantitative research methods belong to two different paradigms which are incompatible. A paradigm specifies a general set of philosophical assumptions about the nature and knowledge of the world, including ontology (reality: what is assumed to exist), epistemology (knowledge of that reality: the nature of valid knowledge), and methodology (the particular way of knowing that reality) (Mingers, 2001; Guba, 1990; Tashakkori and Teddlie, 1998). There have long been disagreements among researchers who believe in one of the above paradigms. However, "if either of these research approaches could be proven to be universally applicable, the debate would have been resolved long ago" (Fitzgerald and Howcroft, 1998). The mixed method approach is now "recognized as the third major research approach or *research paradigm*, along with qualitative research and quantitative research" (Johnson, Onwuegbuzie and Turner, 2007).

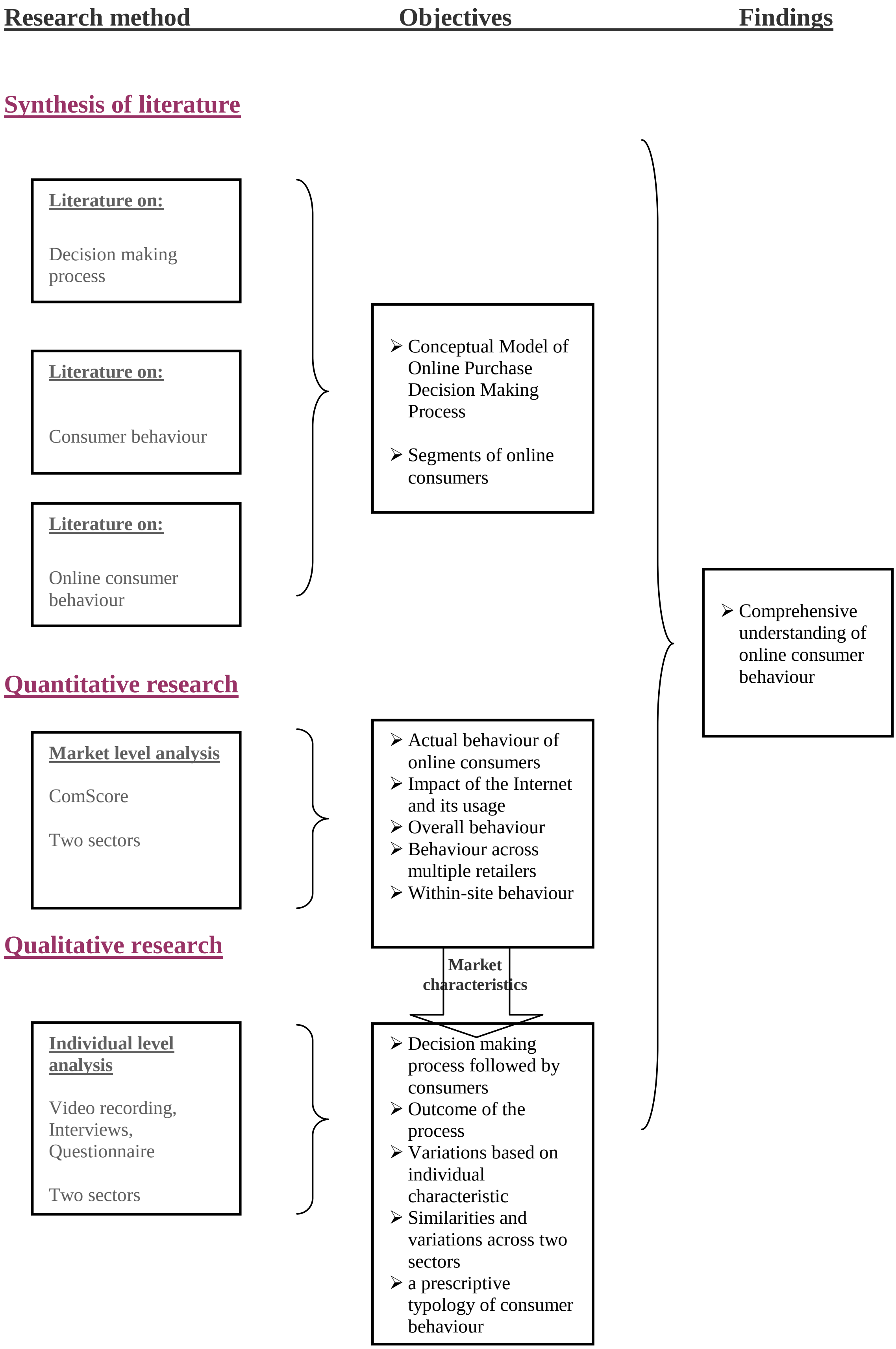


Figure 4.1: Research design

Mixed method research has been suggested as having a pragmatic ground. It uses pragmatism as its underlying philosophy, which is not in line with a single philosophy (Creswell et al., 2003). It is instead "driven by the research question" (Harrison and Reilly, 2011; Johnson and Onwuegbuzie, 2004). Pragmatism has been suggested as a well-developed philosophy for integrating perspectives and approaches (Johnson, Onwuegbuzie and Turner, 2007; Bryman, 2007; Johnson and Onwuegbuzie, 2004). It supports the separation of paradigms, while offering an epistemological justification for combining them (Johnson, Onwuegbuzie and Turner, 2007).

Mixed method researchers have a desire to combine methods from different paradigms. Some believe that "*Paradigms* are simply constructs of our thought. To hold that the world must actually conform to one of them is to commit the epistemic fallacy […]. The world is almost certainly more complex than we do, or possibly can, know" (Mingers, 2001). Later Mingers (2001) suggests that the real world is ontologically differentiated and consists of different structures that lead to a phenomenon. Therefore, different paradigms which concentrate on different aspects of a phenomenon might be necessary to understand the complexities of the real world. Viewing the world through the lenses of one perspective reveals certain aspects of the reality while being blind to others. Combining methods is consequently favourable and assists in gaining a better result.

Morgan (2007) argues against the "top-down" approach of paradigms that stress ontology above epistemology and epistemology over methods. He however suggests the pragmatist approach which does not "ignore the relevance of epistemology and other concepts from the philosophy of knowledge" but rejects this "top-down" approach as being too narrow. The research itself is a principle which requires equal attention as epistemology. Multi-paradigm research in which methods from different paradigms are combined provides a richer and more holistic view of an event. "Combining diverse research methods with a view to maximising their complementary strengths is worthwhile" (Fitzgerald and Howcroft, 1998). Pragmatism indicates how research approaches can be mixed in a beneficial way (Hoshmand, 2003).

The mixed method is able to answer research questions that other methodologies are not capable of solving (Teddlie and Tashakkori, 2003). A more complete picture of the phenomenon can be obtained by using this method (Morse, 2003). It allows a "more flexible, integrative, and holistic" technique and addresses a "range of complex research questions that arise" (Powell et al., 2008, p.306). According to Bazeley (2008), the mixed method draws on multiple data sources in order to understand complex phenomena and is especially useful when the research goal is to understand both the process and outcome. It is therefore aligned with our research where the overall behaviour of the market (the outcome) and the individual behaviour (process) which generates the outcome are of interest.

Although mixed method research is well established in social sciences, there is not enough coverage in the marketing discipline (Hanson and Grimmer, 2007; Harrison and Reilly, 2011). The encouragement of this method in marketing is due to its complementary nature that uses the strength of each methodology while having non-overlapping weaknesses (Woodruff, 2003). In the Information Systems (IS) discipline also, mixing qualitative and quantitative methods has proved to be valuable (Kaplan and Duchon, 1988). Benbasat and Weber (1996, p.397) also hold the belief that complex phenomena in IS cannot be addressed by use of one paradigm. There has been a shift towards more use of mixed methods in all disciplines.

Although the mixed method approach can overcome the limitations of qualitative and quantitative methods, it has its own drawbacks. Conducting mixed method research is not simple. It requires more time, financial resources, effort and also broader skills in both qualitative and quantitative research (Creswell and Clark, 2007; Molina-Azorin, 2011; Tashakkori and Teddlie, 2003). However, the fundamental issue which has been found to be problematic is combining the results of the qualitative and quantitative parts (Bryman, 2007). It is challenging for researchers to connect these separate results. However, if they "return to their grounds for conducting such research in the first place", making sense of the data will be easier (Bryman, 2007). In some mixed method research, components are to a great extent independent. Each part aims to answer a different research question. Together they provide a better understanding of the phenomenon under study. This research is within this category.

Therefore, results are brought together to explain the online purchase behaviour while having different constructs.

This research uses the *Concurrent Nested (Embedded) Strategy* type of mixed method. Mixed method research can be divided into different types, depending on the order of qualitative and quantitative parts and how the results are presented. Concurrent Nested Strategy is useful when mixing methods can provide broader perspectives on the phenomenon from “different types of data or from different levels within the study” (Creswell, 2009). Each of the methods is appropriate for different elements of the research and contributes to an overall picture (Bazeley, 2008). Quantitative and qualitative data are collected concurrently. They address different questions and are combined in the interpretation phase. According to Woodruff (2003), mixed method research mainly gets published based on the rigour of the quantitative part, taking the qualitative part for granted. However, qualitative analysis where the phenomenon is context-dependent is necessary (Kaplan and Duchon, 1988). This research is a move forward in mixed method research by paying particular attention to the qualitative research and illustrating how statistical analysis can support interpretative data.

The mixed method approach can also be multi-level research where researchers use different methods at different levels of analysis (Tashakkori and Teddlie, 1998). The research design of this study is a multi-level mixed method approach. Quantitative analysis is performed at the market level while the qualitative approach examines the individual-level behaviour.

4.2.2 Multi-level analysis

This research is designed as multi-level, including both macro and micro approaches. Multi-level (mixed-level) analysis reveals the magnificence of a social behaviour by illustrating the context of the behaviour and all its consequences that go higher to a collective level (Hitt et al., 2007). Macro-level analysis deals with large-scale collectives such as organizations, industries, populations and societies. It does not include “individual attitudes, intentions, motives and choices”. It ignores the individuals who populate a larger-scale society, their behaviour, constructs of their mental processes and those processes that shape the large-scale outcome. Micro-level analysis, on the other hand, is related to individuals and small groups (Morrison, 2010). In micro-level analysis, the belief is that the individual acts while the collective bodies are incapable of action.

However, “the basic premise of all social science is that there is a dynamic interplay between micro and macro and that to appreciate the complexity of any social reality we have to examine the interplay between these two realms” (Bamberger, 2008). A micro- or a macro-lens alone is not able to provide a complete understanding of a phenomenon. Macro-concepts are only meaningful when they are grounded in individual behaviour as they consist of individuals. Multi-level research can fully examine research questions by addressing different levels of theory, measurement, and analysis (Hitt et al., 2007). Mixing levels of analysis can examine the “dynamic interplay among individuals, technology, and larger social structures” (Markus and Robey, 1988).

The multi-level methodology considers macro-level concepts and grounds them in individual behaviour (Coleman, 1986). It can therefore illustrate the reason for the behaviour of consumers by looking at the market and their individual intentions and linking them together. Multi-level research is particularly beneficial in an inter-disciplinary field where the subject under study includes mixed-level phenomena (Rousseau, 1985). Online purchase behaviour is not only related to individual behaviour but also to the structure of the market.

This type of analysis requires a broader range of paradigms and perspectives. It provides a tool that explains the relations between structures and environments with attitudes, cognition, and behaviour (Bamberger, 2008). As mentioned by Markus and Robey (1988), “‘macro-level’ and ‘micro-level’ theories have disciplinary boundaries, each with its favoured research questions, acceptable methodologies, and conventions for reporting results”. These two levels of research are different in their research design, measurements, and data analysis techniques (Aguinis et al., 2009). Coleman (1986) has suggested that in multi-level analysis, the study should move down from macro-level to micro and then back to macro again.

Over the past year, there has been a shift in management research towards an analysis of the multi-level approach. There has been an attempt to integrate theories and research strategies that combine individual or group-level analysis with the organizational level of analysis (Aguinis et al., 2011; Hitt et al., 2007; Markus and Robey, 1988). In the marketing discipline, also, theory can be looked at from macro- and micro-levels. “At the micro level, there are a representative consumer and a representative firm who interact in a market. At the macro level, there are societal, the aggregate of all consumers; corporate, the aggregate of all firms; and geopolitical, the aggregate of all markets” (Huang and Rust, 2011). Aguinis and his colleagues (2011) have pointed out that in order for the research to be meaningful and relevant to practitioners, real-world challenges should be addressed from all levels of analysis. Figure 2.1(a) and (b) showed the two levels of analysis in this research.

4.3 Market-level analysis

In order to find an answer to the research questions on the aggregated behaviour of consumers, data is collected at market level and is analyzed statistically. This not only illustrates the overall behaviour of consumers across the entire online market and across multiple retailers, but also shows the characteristics of a particular sector. The main source of data is from an Internet panel data provider, comScore, which has millions of members worldwide. ComScore data is combined with additional market data to provide a broader context to the online behaviour. This data is analyzed to investigate consumers’ overall behaviour as pre-purchase research and post-purchase use of e-services. Data has been collected for selected markets separately. Internet panel data provides real knowledge of the market.

A new research methodology has been specifically designed to analyze this data. It has also been necessary to develop some new concepts that are capable of interpreting Internet panel data. Certain measurements are borrowed from other research while others are developed for this particular data set. This method and its concepts will be explained before presentation of the data in the next chapter. This methodology can be directly applied to other consumer markets.

4.3.1 Methodological justification

Previous empirical research on consumer behaviour regarding use of the Internet for research and purchasing tends to be based on survey methods rather than on actual behavioural data. Actual behavioural data in offline channel is restricted to the purchase stage (Johnson et al., 2004). Availability of data on the behaviour of online consumers as they interact with various websites provides a great opportunity for researchers and marketers. It presents empirical researchers with advanced real consumer data that could be used in understanding and prediction of consumer behaviour (Bucklin et al., 2002). It has also made it possible for businesses to understand their consumers' research and purchase behaviour and to try to influence them at the right time with the right message.

The actual behavioural data has already entered marketing and IS research. However, it is not plentiful and mainly concentrates on the behaviour in a particular website rather than a market (e.g. Montgomery, Srinivasan and Liechty, 2004; Moe, 2006; Sismeiro and Bucklin, 2004). Researchers have used other types of Internet data, such as log files, to assess online behaviour. Panel data and log files are different in nature; each has advantages for a different context. Log files are very useful when the aim is analysis of behaviour on a particular website and where the demographics of visitors are not of interest. However, understanding consumers' choice of retailers is not complete without understanding consumer research behaviour across different websites. Consumer research across competitors' websites influences the evaluation of one particular retailer. According to Park and Fader (2004), analysis of data for a single website is not complete and there is a relation between consumer visits to different websites. Data from Internet panel data providers has made it possible to look at this cross-visiting behaviour.

Online cross-visiting between brands is an indication of the level of consumer research into competing retailers. This type of analysis is useful for exploring individuals' behaviour (Kumar, Lang and Peng, 2005). In addition, by having information on websites of all retailers the entire market can be examined. The study of Johnson et al. (2004) is one of the only works in the online environment that have examined the search behaviour of consumers across competitor sites. Therefore, Internet panel data is the best data source currently available to assess the online behaviour within a market.

4.3.2 Research design

Designing the macro-level analysis of Internet panel data requires understanding of the nature of the data that can be collected and its advantages and limitations. Before explaining the data collection procedure, an introduction to this type of data and its potential and limitations is presented.

Online panel data: benefits and drawbacks

Using online panels has become a dominant method for market research. It is mainly used for survey completion and to a certain extent has replaced mail and phone surveys. The majority of panel vendors have a large number of panel members and recruit some for any survey that they are trying to complete. Members are willing to participate for variety of reasons, the most common being the financial incentive. In this research, however, data from a different type of panel provider is used. ComScore tracks all the online activities of its panel members by installing a piece of software on their computer.

Using Internet panels has both advantages and disadvantages. It allows easy targeting of an interest group as members can be pre-screened on specific variables. It also has the advantage of self-administrated results, such as eliminating the effect of the researcher, social desirability and time pressure (Kiesler and Sproull, 1986; Schwarz et al., 1991; Schwarz, 1997). On the downside, it has its representational concerns. The three main issues of coverage error, sampling error, and non-response error (Lindner, Murphy and Briers, 2001; Weisberg, 2005; Lang, 2002; Yu and Cooper, 1983) are associated with this data. Coverage error is the portion of the population of interest who are not covered by the medium. As we are looking at online consumers, the Internet covers the entire population and therefore the coverage error is zero for this study. Non-response error in terms of recruitment of panel members can not be known; however, non-response rate for the members is zero for comScore data. As activities of all panel members are recorded by the software, they are all included in the sample. In this case, the main error is the sampling error. The limitation of this type of data is due to volunteer participation, as panel members might have particular characteristics (Bucklin and Sismeiro, 2008). It is not only related to the demographics but also other characteristics that motivate them to participate. Generally, online panels are non-probability panels and have limitations in being representative of the society. It has been suggested, however, that in order to avoid the problem of generalization and for the sample to be representative, it is selected randomly (Montgomery, 2001). ComScore also claims that it "recruits panellists through a variety of online methods designed to ensure a demographically-balanced and representative sample". It in fact uses "a unique census-level data collection method" to provide complementary data that integrates consumers' online behaviour with audience-measurement insights from the comScore panel.

The above shortcomings were discussed for online panels; however, there are limitations associated with any type of data source. ComScore is a great data source that has interesting potential. Using a large sample offers unique opportunities. It can illustrate the actual behaviour of online consumers over time, eliminating the limitations of laboratory experiments. In addition, it captures the behaviour as it occurs and does not rely on self-reported behaviour. Until a better source of data which addresses these limitations is available, it provides researchers with an opportunity which has not been available before. We believe that combining this data with other sources can offer higher levels of insight into online consumer behaviour phenomena.

Research data

As mentioned above, data from comScore, which is a commercial Internet panel data provider, is used for macro-level analysis. It provides insight into consumers' browsing, buying and service usage behaviour on the Internet. It was founded in 1999 by Magid Abraham and Chairman Gian Fulgoni, its President and CEO. It is "a global leader in measuring the digital world and the preferred source of digital marketing intelligence". It provides data on both PC-based and mobile usage. In 2008, it became the leading source of Internet data with the acquisition of M:Metrics. It tracks more than 3 million websites and has nearly 2 million registered users in 170 countries around the world. It is the largest global online research panel. The UK sample is over 60,000.

In order to gather data, a program is installed on the computer where the browser program is running. It records the URLs of all pages which are viewed in the browser. URLs are transmitted from the user's computer to the panel-data supplier (Bucklin and Sismeiro, 2008). The program records the actual pages viewed and eliminates the problem of cached requests as the data is collected on the consumer side rather than by the server. It also records how long a window has been active. One recent study which has uses comScore data is by Huang, Lurie and Mitra (2009). However, they have used the disaggregated data from 2004 and their measures are therefore different.

In addition to comScore, data from the Google Ad planner is used. This is an intelligence tool providing valuable data on the behaviour of visitors to various websites. It was used to provide confirmatory data, as well as filling some missing values. General market data was also included in order to evaluate the overall market behaviour and characteristics.

Units of analysis

Before explaining the methodology, the units of analysis should be defined. The number of unique visitors is a commonly used measurement for studying online visitors. Unique visitors (UV) is "the estimated number of different individuals that visited any content of a website, a category, a channel or an application during the reporting period" (comScore, 2009). The UV of retailers' websites is an indicator of their online share of visitors. It indicates the extent to which a retailer is accessed by different online consumers (Tarafdar and Zhang, 2005). In fact, this figure shows the number of visitors who have used that retailer's services at some point during their consumer journey, for search, purchase or post-purchase activities. Repeated visits by one visitor are ignored, that is those visiting the same website more than once in the reporting period are only counted once. The reporting period is an average of three months in this research. Table (4.1) below shows the number of unique visitors of the panel used in this research. The last column depicts the percentage of the total Internet population visiting the websites in each category. It can be seen that banks and telecommunications websites are used by nearly half of all Internet users in the UK.

Table 4.1: Unique visitors in comScore sample for the UK market

Audience	Total Unique Visitors (000)	Reach %
Total Internet	41,544	100.0
Banking sites	20,052	48.3
Top 8 banks	16,367	39.2
Telecommunication sites	20,021	48.2
Top 6 network providers	12,886	30.2

Procedure

Three types of comScore report were run for each sector in order to collect the required data. Data on comScore general market reports was used to identify the total unique visitors of the markets, unique visitors of each particular website, and unique visitors of each particular section of a website. Other reports (cross-visiting and duplication reports) were run to gather data on the cross-visiting rate between websites and the number of duplicated and unduplicated unique visitors. These numbers are utilized to assess different aspects of consumer behaviour on multiple retailers. These three reports on the banking sector are based on statistics for an average of three months ending September 2011. Reports on mobile network operators were based on statistics for the average of three months ending November 2011. The output of these reports will be explained in the following chapter.

General data on each sector has also been extracted and combined with the online data. It was gathered from company reports such as annual reports and other industry publications. Information from broadsheet newspapers including *Times Online*, *Guardian* and *Daily Mail*; Ofcom, the independent regulator and competition authority for the UK communications industries; Mintel reports on UK markets; and other sources were used for further verification. A few missing data items for the banking sector were collected through email communication with the Head of Media Relations, Head of Corporate Communications and Investor Relations Officer of the relevant banks.

4.3.3 Concepts and measurement development

As mentioned above, use of this data in this context is new, and therefore new measures have to be developed to turn this raw data into meaningful information. Some concepts and measurements are borrowed from marketing and Internet studies, while others are developed for interpretation of this particular data.

These measurements can only be developed based on the fields of the data available in the reports. However, they are not only based on the number of unique visitors, which serves as the main unit of analysis, but also on other fields of data available in these reports. Some of the main fields in the comScore reports are: Reach (the percentage of the total universe accounted for by the total site visitors), Total Unique Visitors (the estimated number of different individuals that visited any content of a website, a category, a channel, or an application during the reporting period), Total Visits (the total number of times during a report period that a unique person accessed content within the website, category, channel, with at least a 30 minute (or greater) break in between times of access), Total Pages Viewed (the total number of pages viewed at the website during the report month), Total Minutes (the total number of (usage) minutes spent by visitors at the website during the report month), Average Visits per Visitor (the average number of visits made during the report month by those visiting the website), Average Pages per Visitor (the average number of pages viewed during a month by persons visiting the website), and Average Minutes per Visit (the average number of minutes spent on the website during each visit).

As a final note, fields of data retrieved from the reports are used to define new measurements for behavioural concepts. Measurements are generated for the behaviour from three different angles: overall behaviour, cross-visiting behaviour, and detailed behaviour on an individual website. They are specifically developed to provide a comprehensive macro-level measurement for online behaviour, explained in detail in the next chapter and aligned with the data presentation.

4.4 Individual-level analysis

Online purchase decision-making processes are very dynamic. They are shaped through the interactions of consumers with the Internet. Therefore, behaviour during the interaction should be captured and finally modelled. A methodology is designed that is able to capture the dynamic consumer behaviour at different stages of the purchase process and then model it using standard modelling techniques. This methodology uses laboratory experiments during which decision-making processes are recorded by video recording techniques and the think-aloud method, followed by a semi- structured interview. The processes are then modelled by business process modelling techniques and adaptation of the path configuration method. At this level of analysis, data is collected for individuals and is analyzed qualitatively.

4.4.1 Methodological justification for capturing processes

One of the best ways to trace a decision-making process is to track it as it unfolds so that knowledge of the final outcome does not affect the perception (Langley et al., 1995). In addition, observation of consumers as they follow the process facilitates identification of different behavioural patterns (Ranaweera, McDougall, and Bansal, 2005). Therefore, a method that allows for the recording of the process, as it occurs, is the best way to capture the process and identify existing patterns.

Video recording technique can capture the entire process as it occurs. It provides a "direct insight into process" and a "clear view of the flow of interaction" (Weingart, 1997). Therefore, in this research the video recording technique has been used. Similar experiments have also used video recording for modelling processes (Holschke, 2010; Reijers and Mendling, 2008), capturing the behaviour of Internet users (Byrne et al., 1999), exploring decision-making processes (Kushniruk and Patel, 1998) and analyzing behavioural phases (Weingart, 1997). Video recording is able to capture all the stages that consumers go through and identify those that they might repeat or skip. Therefore, it can examine the stages of the purchase process and verify the proposed model.

Other researchers have used logs of decision makers' interactions with websites (Petrusel and Mican, 2010). This method is able to collect all interactions and the process that decision makers follow. However, it lacks the context in which the activity takes place (Byrne et al., 1999) and does not capture the rationale behind actions. Knowing the context of consumers is crucial. When modelling the decision-making process, "it is necessary to know *what* content or information is processed and *how* it is processed" (Svenson, 1979). If the context of decision making is not the same, the behaviour can not be modelled and compared. Behaviour consists of different elements which are connected and dependent of previous elements and could only be analyzed as a whole. The same behaviour might also mean different things. Only by knowing the context of the process these issues can be understood. In addition, this method ignores the mental processes that decision makers perform in their mind without generating an external action; for example: formulation of the decision problem, evaluation and appraisal. Logs of activities can not codify this information. Formulation of the mental model requires direct contact with the decision maker, which is not possible through secondary data. However, tracing the process through experiments eliminates the shortcomings of log files for this particular study. Experiments with qualitative methods can define the context in a context-dependent phenomenon (Kaplan and Duchon, 1988). As Calder (1977) suggested, "Qualitative research provides an in-depth, if necessarily subjective, understanding of the consumer". It unfolds consumer behaviour and captures the unexpected, and is therefore an important prerequisite for theory building and concept formation (Schiffman and Kanuk, 1997).

Another method which has been used for modelling decision-making processes is the recalling approach. Asking participants to recall a decision process, despite simplifying the data collection and allowing for a larger sample, is also not appropriate for this study, as actual behaviour is different from the recalled behaviour (Ericsson and Simon, 1980). Individuals have difficulty in recalling the cognitive processes they have gone through (Nisbett and Wilson, 1977; Smith and Miller, 1978; Moore and Lehmann, 1980). The memory of the decision making is affected by the final outcome. Therefore, using methodologies that trace the process is more appropriate (Jacoby, Chestnut and Fisher, 1978). For example, the consumer's mental model changes over time but the final model is what consumers remember at the end.

However, at any point, consumers evaluate the current alternatives based on the criteria and situational understanding at that particular point. Therefore, it is essential to understand the changes during the process rather than the final memory. Process tracing methods measure the process without disturbing it (Bettman, Johnson and Payne, 1991).

In order to capture the parts of the decision process that occur in the mind of participants, video recording sessions are accompanied by the think-aloud method. Mental processes during the decision making can be captured by the combination of these methods. Think-aloud is a type of verbal protocol analysis which is simultaneous. “Protocol analysis consists of asking the users to perform a specific task and ‘think aloud’ as they work” (Benbunan-Fich, 2001). Verbal protocol has been widely used in consumer research (e.g. Payne, 1976; Park, Iyer and Smith, 1989). It is beneficial in cases where researchers are capturing a process (Todd and Benbasat, 1987) and also modelling formulation processes (Sen and Vinze, 1997). Without this data, details of heuristics will be lost (Bettman, Johnson and Payne, 1991). Think-aloud has also been used to define the consumer decision-making process and choice of alternatives (Dhar and Sherman, 1996; Johnson, 1984; Kivetz and Simonson, 2000). Johnson (1984) has, in fact, combined the video recording of eye fixations and think-aloud techniques to capture the choice behaviour. It is the most suitable method when the decision-making process requires a long period of time (Svenson, 1979). It also makes the interpretation of data more objective than asking participants to provide their own description of the process. In addition, the think-aloud method allows clarification of participants’ actions through their own explanation. An important issue in the analysis of consumer behaviour is that the behaviour might be attributed to different reasons. For instance, search at the beginning could be a general information search but at the end of the process might indicate uncertainty and doubt. Only by asking them to say aloud what they are doing or how they are feeling can such differences be identified. Inaccuracy resulting from differences between actual and recalled processes is also reduced by this method (Ericsson and Simon, 1980). On the downside, simultaneous verbal reports or think-aloud methods are to some extent obstructive as simultaneous talking requires mental effort that might influence the process (Svenson, 1979). However, its importance for this research cannot be neglected.

Video recording of the purchase process and verbal protocols can be collected by experiments. In general, experiments allow for meaningful evaluation of the outcome and high internal validity (Holschke, 2010; Reijers and Mendling, 2008) that is required for the analysis of complex processes. Experiments provide a deeper understanding of the fundamental principles of individuals' interaction with their environment (Lee, Chen and Ilie, 2012). As mentioned by Darley, Blankson and Luethge (2010), experiments are beneficial for studying online consumer behaviour and decision making. They have revealed that only 31% of research on online consumer behaviour and decision making employs experimental methods, which they believe is disappointing. They refer to the concern of Cowart and Goldsmith (2007) on "conducting experiments to determine whether causal relationships exist". Experiments also account for the context in which the activity occurs (Kaplan and Duchon, 1988). Desmeules (2002) has proposed an experiment that is "able to see all the steps taken by participants in order to arrive at a decision".

4.4.2 Research design

In order for the experiment to be successful, the research should be designed carefully. It includes designing the task, choosing measurements and participants, and conducting the experiment.

Experiment procedure and measurements

The experiment was conducted individually for each participant. A different scenario of purchase was defined for the two sectors. Current accounts, the main personal product offered by banks, and mobile phone subscription, the main product offered by network providers, were selected. For the banking sector a scenario was designed for participants to choose a current account with a bank in the UK. "Current accounts are an essential financial tool that nearly everyone needs, 93% of UK adults over 16 own one" (Mintel, 2011a). For mobile networks, the scenario was choosing a package that includes a Smartphone and a calling plan with one of the providers.

Participants sat at a computer and received a printed booklet containing two questionnaires and a task description. They were asked to fill in one questionnaire upon their arrival. This consisted of questions on their demographics, IT expertise, Web skills and online shopping experience, product and market knowledge, and their maximization tendency. IT expertise, Web skills and online shopping experience were measured in order to ensure that all participants were capable of completing the task. IT expertise and Web skills were assessed by one and three questions respectively, using a 5-point Likert scale. Measurement of Web skills was adopted from Novak, Hoffman and Yung (1998). Participants' prior knowledge of the product and market was measured by two separate questions (5-point Likert scale). The maximization tendency was calculated by the measurement developed by Schwartz et al. (2002). This measurement includes 13 self-report items measured on a 7-point Likert-type scale. It indicates an individual's "tendency to seek optimality" on a one-dimensional satisficing-maximizing continuum. It has been previously used by other researchers, such as Griffin and Broniarczyk (2010), Chowdhury, Ratneshwar and Mohanty (2009), Oulasvirta, Hukkinen and Schwartz (2009), Dar-Nimrod et al. (2009), Bergman, Nyland and Burns (2007), and Scheibehenne, Greifeneder and Todd (2009).

Following the administration of the questionnaire, the participants were introduced to the task description. Twenty-five participants were asked to choose a current account and thirty individuals were tasked with the selection of a mobile phone package. Participants were given no instructions on how to proceed, in order for the task to be as realistic as possible. As mentioned by Byrne et al. (1999), undirected user behaviour is much more complex than directed behaviour. They were free to visit any website and collect any information on the Internet as long and as often as they wanted. This eliminated the limitations with fictitious websites and use of a single type of online retailer (Ballantine, 2005). Participants were ensured that there was no right or wrong way of doing the task. Description of the tasks for the two sectors and measurements used in this study are presented in Appendix B.

As they were sitting in front of a computer, a video camera was located next to them, facing the monitor. The camera had only the monitor in its frame. A high-quality microphone was placed in front of participants and was connected to the video recorder. It allowed simultaneous collection of process and verbal protocols. The think-aloud technique was used to produce the verbal protocols. Participants were instructed to say aloud what they were doing and how they were feeling during each stage of the interaction. The talk-aloud technique not only helped in confirming the stages of process captured by video but also in identifying the alterations to the formulation of the decision problem which could only be understood by their own description of their thoughts. Participants were asked to stop when they had decided on their favourable product but before completing the purchase. The technique of video recording was duration recording, which captures the entire length of behaviour.

At the end of the session, participants were asked to complete the second short questionnaire in the booklet. Questions on their intention to adopt the decision, satisfaction with their choice and the process were included. Although their answers to the questions regarding their intention to adopt the decision might not be exactly as in real life, according to Ajzen (1991), behavioural intention is a strong predictor of actual behaviour. Therefore, customer Intentions were used instead to measure the purchase behaviour. Some researchers have used a single item on a bipolar scale for measuring satisfaction (Westbrook, 1980; Ballantine, 2005; LaBarbera and Mazursky, 1983). They have argued that use of a single-item overall measure represents a subjective summary of several factors by participants themselves. Others have used summative scales to measure satisfaction (Anderson and Srinivasan, 2003; Szymanski and Hise, 2000). La Barbera and Mazursky (1983) mentioned that use of single questions is more appropriate in two cases: firstly in long questionnaires to avoid bias in responses due to the length, and secondly where a limited number of issues are examined in order to eliminate superficial answers. However, this was not the case in this study. In addition, understanding different aspects of satisfaction, such as satisfaction with the process and the choice, was necessary. Measures of satisfaction with choice and process have been developed by Fitzsimons, Greenleaf and Lehmann (1997) and utilized by Fitzsimons (2000), Zhang and Fitzsimons (1999) and Chang and Burke (2007). Each measure has a six-item scale. It is important to separate these two different types of satisfaction, although both contribute to overall satisfaction.

The experiment was followed by a semi-structured interview with each participant, for verification purposes. Interviews assisted in checking the accuracy of process interpretation and coding as well as identifying issues which participants did not mention during the process. It also gave participants the opportunity to explain their experience in their own words. Questions on their behaviour at different stages of the process were asked; such as overall process flow, criteria and alternatives considered, change of criteria and alternatives, search behaviour, sources of information and the reason for choosing those sources, evaluation strategy, use of cross-channel search and purchase in real-life settings, purchase intention and the reason for such intention, and finally the total experience of the task. Interviews were recorded by a digital sound recorder.

Research data

Pilot study: A pilot study with three participants was conducted in order to ensure that the decision-making process and selected behaviour could be recorded and codified by this method. It led to defining the depth and breadth of the behavioural categories which were of interest to this research. It will be discussed in the preparation for modelling section.

Participants: The sample consisted of 25 participants for the banking sector and 30 for mobile network operators who were recruited for the experiment. In order to keep the discussion meaningful, random sampling is not appropriate and the sample was chosen purposefully. Participants were selected based on their level of IT and Web skills, as average or above. They had to have previous experience of online shopping in order to be representative of the potential consumers who would use the Internet for research and purchase. In the banking sector, fifteen postgraduate students enrolled in PhD or MBA programmes were recruited, in addition to ten participants working in academia and industry; the age range was 25 to 43. According to Mintel (2010), the population most likely to switch accounts is in the 25-34 age group (Mintel, 2011a). There were seventeen males and eight females in the sample. All had experience of online shopping over the last year, ranging from twice to fifteen times. In the mobile sector, 20 postgraduate students enrolled in PhD or MSc courses and 10 employed individuals in academia and industry were recruited. Their ages ranged from 23 to 52. The sample consisted of 16 males and 14 females. All had purchased a product online over the past year, ranging from 2 to 30 times.

Table 4.2: Participants' demographics

	Gender		Age		Occupation			IT skills	Web Skills
	Male	Female	Minimum	Maximum	Students	Academic	Industry		
Banking	17	8	25	43	15	6	4	3-5	3.3-5
Mobile Network Operators	16	14	23	52	20	6	4	3-5	3.3-5
Total	33	22			35	12	8		

Participants were asked to perform the task online, take part in a short interview of approximately 10 minutes, and answer the two questionnaires. The experiment was conducted individually, taking around one to one and a half hours in total for each individual.

This type of data collection is very intensive and generates a huge amount of data. It creates a large number of instances of various behaviours. Therefore, the number of participants is limited. Similar studies that have used video recording to record the behaviour of participants from the monitor and collect their verbal protocols for purchase decision, search behaviour and interactions with a website have recruited 11 (Johnson, 1984), 8 (Byrne et al., 1999) and 8 (Benbunan-Fich, 2001) participants respectively. Byrne et al. (1999), for instance, collected 5.75 hours of video files from the 8 participants. Similarly, protocol analysis provides very rich data and therefore researchers argue that a large sample size is not necessary for this type of research (Benbunan-Fich, 2001; Sen and Vinze, 1997; Todd and Benbasat, 1987). The small group should be representative of the target population. However, I have used a much larger sample in this study (55 participants) as it is a complex process.

Collected Data: Approximately 11 hours and 10 minutes of video and 4 hours and 22 minutes of interview were collected from the 25 participants in the banking sector. The time spent on the process varied from 12 to 45 minutes for different individuals. In the mobile task, 8 hours and 57 minutes of video and 5 hours and 35 minutes of interview were recorded. Participants spent 8 to 49 minutes on the online task.

4.4.3 Choice of modelling technique

After collecting the data, video files are coded and modelled. There are a number of issues that need to be considered for successful modelling.

Successful modelling

According to Langley et al. (1995), processes can be analyzed by various modelling strategies. A process model illustrates the knowledge of the process in a visual and easy to understand format which would be very complicated in other formats. In fact, "it represents an ordered, structured and consistent representation of the process knowledge" (Holt, 2005) and is able to provide a comprehensive understanding of a process (Aguilar-Saven, 2004). Models can have particular benefit for complex processes as they are a "simplification of reality" (Caine and Robson, 1993). Decision-making processes can be complex, comprising various activities.

According to Bandara, Gable and Rosemann (2005), in order to model successfully, "modelling-related factors" which are specific to process modelling, and "project-specific factors" are important. Project-specific factors in this study involve experiment design factors. Modelling-related factors consist of modelling methodology, modelling language and modelling tools (Figure 4.2). Therefore, this part of the chapter is dedicated to investigation of the most suitable modelling-related factors in order to ensure a meaningful outcome.

It is important to identify at the very beginning the aim and purpose of the model and the reality which we are trying to analyze (Holt, 2005; Papamichail and Robertson, 2008). Defining the aim of the model determines the required outcome and consequently identifies the information that should be provided (Hlupic and Robinson, 1998). Choice of model depends on the information that it is expected to illustrate. There is a wide variety of models representing processes from different angles. Therefore, it is critical to choose one which is aligned with the research and depicts the information that we are interested in. In addition to the purpose of the model, "knowledge of the available process modelling techniques and tools" is important for selecting the right model (Aguilar-Saven, 2004). Different techniques serve different purposes and audiences (Phalp, 1998). The availability of a large number of methodologies, modelling techniques and tools has made selection of the right one relatively complex (Aguilar-Saven, 2004). Kettinger, Teng and Guha (1997) and Aguilar-Saven (2004) have attempted to review and classify different techniques and tools of Business Process Modelling and re-engineering to provide guidelines for practitioners.

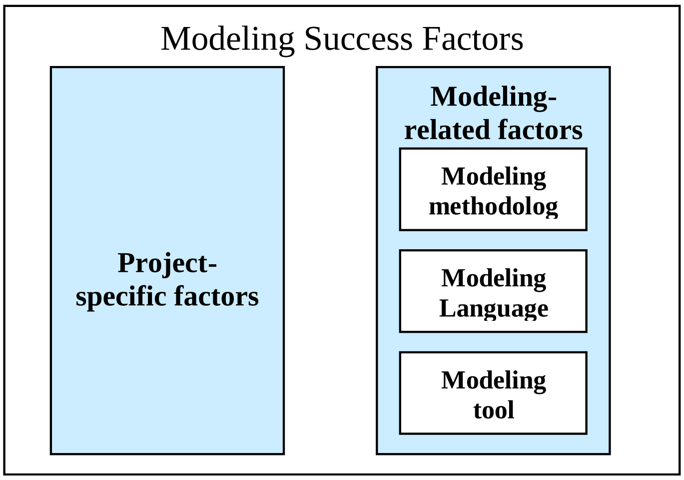


Figure 4.2: Modelling success factors

In this study, illustration of the flow of the purchase decision-making process and the way it is shaped through interaction of the different stages is the main objective. The stages of decision making, phases of interactions and activities that are involved in each stage and, most importantly, behavioural patterns of process flow need to be depicted. This process is highly dynamic and fairly complex. There are a large number of interactions between stages. Consumers tend to repeat and skip some stages. Having these aims and characteristics in mind, we have reviewed a number of methods.

Review of modelling techniques

Modelling the process in a meaningful way requires the choice of the right modelling method. Business Process Modelling can be used as a method to study decision processes (Papamichail and Robertson, 2008). Some types of the business process model are suitable for showing "what" a process does rather than "how" it does it. However, we are interested in the behavioural aspect of the process that deals with the “how” question. It therefore led to elimination of other types of model such as data flow diagrams (DFDs and IDEF0) which are suitable for the general view of a process (Plaia and Carrie, 1995).

Among behavioural models, flowcharts are capable of showing the course of events. However, they are too flexible, the boundary of a process cannot be clearly defined and the main and sub-activities cannot be separated (Aguilar-Saven, 2004). In this study, setting the boundaries of the process and its sub-activities is crucial so that comparison of patterns is possible. When models are too flexible, comparing the same elements is not meaningful. The IDEF3 Process Description Capture method also has a behavioural view of a process (Aguilar-Saven, 2004). It “captures precedence and causality relations between situation and events” (Plaia and Carrie, 1995). It can indicate the sequences of the activities in a process but the emphasis is on causality, which in not the aim of this research.

Petri Nets have been suggested for decision analysis. They indicate the decision-making points and the branches which are followed (Rozinat and van der Aalst, 2006). In contrast, Petrusel and Mican (2010) argue that decision-making processes are unique to each person or those who have the exact same knowledge. Even a single individual does not always follow the same thinking pattern. Petri Nets are not suitable for decision-making processes as “the properties [...] that change the path followed for a decision point cannot map to the properties of the mental activities captured in the decision workflow” (Petrusel and Mican, 2010). In this study we do not aim to provide a decision tree that indicates decision points, but the purpose is illustrating the patterns of behaviour and their variations. In the online context there can be countless decision points. Decision makers are constantly making decisions on sources, links, and pieces of information. In fact, each step is a decision point with numerous options. In order to be able to model the patterns of activities, a model that focuses on activities tends to be more suitable. Eshuis and Wieringa (2002) have suggested that despite the widespread use of Petri Nets for workflow modelling, UML activity diagrams are more suitable for “event-driven behaviour”. The behaviour of workflows can be better modelled by use of activity diagrams. The review indicated that UML activity diagrams serve the purpose of this research.

Choice of modelling method: activity diagrams

UML, which is the standard of object oriented techniques, has been proven to be successful in modelling large and complex processes. It has nine different diagrams that are dynamic by their nature (Aguilar-Saven, 2004). The activity diagram is a business process modelling approach that illustrates a process from a behavioural perspective. It is designed for modelling activities and actions, indicating the way processes are carried out and steps that are followed by individuals (Chang et al., 2000). Therefore, this method is able to model decision-making processes which can be decomposed to order of activities (Holt, 2005). As was mentioned before, decision-making processes could be considered as workflows (Petrusel and Mican, 2010) and activity diagrams are very useful in modelling the process definition of the workflow (Chang et al., 2000; Caire et al., 2002; Wohed et al., 2005; Eshuis and Wieringa, 2002; Dumas and Hofstede, 2001). They have been previously used to capture and analyze workflow patterns (e.g. Wohed et al., 2005; Dumas and ter Hofstede, 2001).

In addition, variations between processes that different people follow can be identified by this method. Decision processes are influenced by actors whose behaviour is not deterministic (Volkner and Werners, 2002). As a result, UML activity diagrams were selected and drawn using Visio 2007 as the selected tool.

4.4.4 Preparation for coding the process

After selecting the modelling method, the data can be coded and modelled for analysis.

Interviews

Interviews were transcribed into text. Themes were developed based on the conceptual model and stages of the decision-making process as well as decision output variables. The links to the process models were created as required.

Video recordings and verbal protocols

Video files were coded by means of business process modelling and the use of activity diagrams into a process flow. This will be discussed in the following sections. Participants' talk-aloud protocol was coded as either a stage of decision making or a descriptive text linked to a stage of the process model. According to Svenson (1979), a verbal protocol can only be coded with a model or a theory for the decision process. As the conceptual model defined the coding theme and verbal protocols were accompanied by the video files, coding was relatively clear.

During the pilot study, an open coding stage of data analysis was run in order to find any "emerging" theme in the data. Stages of the process in the conceptual model were used as "seed categories" (Miles and Huberman, 1999). However, no evidence for the existence of a new stage emerged from the data. Therefore, the stages of the conceptual model which are driven from consumer behaviour and decision-making process models were imposed as the structure in the activity diagrams.

The coded process was then checked with participants' own description of the process flow and decision-making strategy explained in the interview. This not only ensured the accuracy of coding but also identified the different phases of decision making that participants have gone through (section 6.2.4) such as initial formulation, initial evaluation and so on.

Defining the boundaries, roles and the level of abstraction

As already discussed, successful modelling requires the choice of the right modelling methodology, language and tool. However, there are other issues that need careful consideration in order to prepare for modelling that will now be discussed. Decisions on the boundaries of the model, roles involved and level of abstraction should be made.

Boundaries. Before coding the process, the boundaries of the process should be set (Holt, 2005). In this study, the stages of need recognition, purchase and post-purchase behaviour are excluded from modelling for a number of reasons. As the task is defined in the experiment, generation of need recognition is meaningless. In addition, the main aim of this research is to examine the way purchase decision-making unfolds and leads to the final choice of a product. Therefore, choice is the last stage considered. Participants were asked to stop the process before the purchase stage. Performing the purchase stage is very complicated, unfeasible and time consuming in selected sectors. However, according to Ajzen (1991) and Fishbein and Ajzen (1975), behavioural intention is a strong predictor of actual behaviour. Therefore, customer intentions are used instead to indicate the adoption of the decision. Moreover, post-purchase behaviour can only be analyzed by longitudinal studies.

Some parts of the process are observable through the interactions of the buyer with the interface, while other parts occur in the mind of the decision maker. Any instance of a decision-making process model has cognitive processes that need to be captured. Despite being in the mind of the actor, cognitive activities are crucial in the process progression and outcome. They not only affect the result of the process but also decisions on the order and sequence of activities and the way a process unfolds. They can indicate the reason for different instances of a process adapted by different individuals (Weidlich, Dijkman and Weske, 2010). There is little empirical research on the cognitive processes involved in a process model. Holschke (2010) uses diagrams as "exteriorized" forms of mental processes that can be easily communicated. Similarly, we exteriorize these parts of the decision-making process. Formulation, evaluation and appraisal stages deal with the mental aspect of the process.

Level of abstraction. Business processes can be described at different levels of abstraction according to the amount of detail that the modeller defines in analysis. The level of abstraction is derived from the aim of modelling and needs to be decided prior to modelling. However, it is usually challenging to decide on this level and create a meaningful model (Warboys et al., 1999). A model needs to show all the information necessary to the research while avoiding unnecessary details. In this study, interactions with the interface are not the focus. Therefore, details of interactions are not considered, to avoid confusion. As a result, the model is limited to the main activities that occur at each stage of purchase decision making process. The activities are not decomposed into sub-activities as this was beyond the scope of this study. For the purpose of this research, the final model should illustrate roles, their responsibilities, activities they contain and progression (Papamichail and Robertson, 2008).

Roles. It has been suggested by previous studies that stakeholders and individuals involved in a process should be identified (Papamichail and Robertson, 2008). In activity diagrams, they are illustrated by different roles. Identifying the roles that individuals assume in the process is an integral part of business process modelling. Roles are the modules of the behaviour that interact with each other. They include a set of related activities to achieve the goal of that particular role (Warboys et al., 1999). Activities are “items of behaviour”. Activities under a role are related to each other as they follow the same goal and their relations define the behaviour within a role. They constantly interact with each other as the process goes on.

However, in the online purchase decision-making process, the consumer is the only actor and is the affected individual. Consumers undertake different roles and perform activities in order to reach the final goal of choosing a product. The decision is the outcome of interactions among these roles. The stages of the purchase decision-making process can be considered as roles in an activity diagram. Table 4.3 shows the stages and their corresponding roles. Roles should be defined before modelling starts. Activities involved in each role are created during modelling. Therefore, the roles of initiator, decision problem modeller, information seeker, evaluator, reviewer and selector (table 4.3) were defined before modelling the process, while the activities were created as the process was generated by participants.

Table 4.3: Stages of the purchase decision-making process and corresponding roles

Stages of online purchase decision making process	Roles associated with each stage	Description of roles
Need recognition	Initiator	Initiate the process
Formulation	Decision problem modeller	Develop the mental model of the decision problem
Information research	Information seeker	Find reliable information that is required for decision making
Evaluation	Evaluator	Evaluate and compare sources, information and products
Appraisal	Reviewer	Double-check the process and alternatives
Choice	Selector	Select the best option among the alternatives

4.4.5 Coding and generation of the individual processes

As already mentioned, the roles were defined before starting the coding. Activities and flow of the process were identified during the coding. In order to decompose the process into activities in the videoed decision-making process, cues in the video files were identified. Cues are types of actions and dialogues (Table 4.4 shows these cues). Actions are activities performed in the environment and dialogues are verbal protocols. Each action was coded to the relevant activity. Coding dialogues is more complicated and requires knowledge of the context. They were only coded to an activity if they were relevant to an action in the purchase process. For instance, “I prefer the other website” is coded as comparing two websites (evaluation). “I am looking for the type of card” is coded as looking for information (search). “Oh, they have mobile banking, that's very good for me” is coded as adding criteria (formulation of decision problem) and so on.

Table 4.4: Types of cue used in coding the video data

Types of Cue	Cues used for coding
Actions	Opening a webpage, Typing, Navigating, Scanning, Reading
Dialogues	Explaining the process plan, Explaining the current, previous or next action, Expressing feelings and needs, Explaining mental evaluation or changes in criteria or alternatives

In the activity diagram, each activity that was captured by these cues was allocated to a role based on its goal. As the video files were coded, activities that were followed by each other were identified. Consequently, the sequential process was modelled for each individual. An activity could be followed by another activity in the same role or another role. Activities under a role are related to each other as they follow the same goal. By the end of coding the video file for an individual, his/her decision-making process is modelled. Figure 4.3 shows part of a process model instance for one individual. The models are dynamic and generated by the participants as the process goes on. Participants dynamically decide on the next activity to perform. Therefore, they follow different decision-making paths that create different instances of the process. However, general patterns and a basic logic in decision making can be captured (Boonstra, 2003). Table 4.5 illustrates all the related activities that each role contained. However, not all the participants performed all the activities in the list. Some activities were common to all individuals while others were performed in fewer instances.

In total in the banking sector, 1,727 activities and 991 transitions between different stages was coded; for mobile networks there were 1,356 activities and 883 transitions.

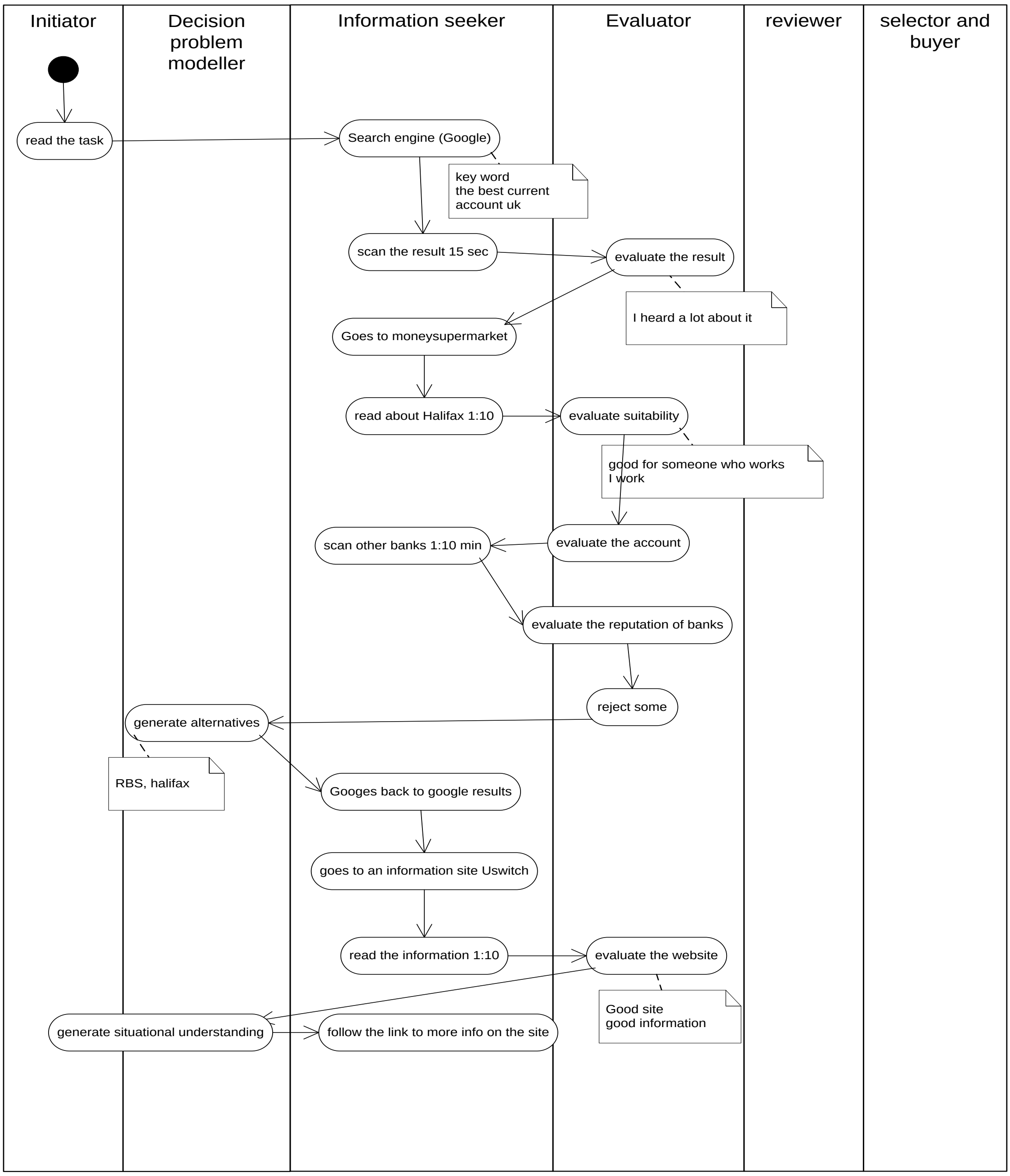


Figure 4.3: An example of an activity diagram model for one individual

Table 4.5: Activities involved in each role

Activities involved in each role	
Roles of online participants	**Tasks included in each role**
Initiator	Read the task
Decision problem modeller	Generate alternative (retailer or product), Generate criteria, Remember an alternative, Generate situational understanding, Generate source of information
Information seeker	Use search engines (for: general search, specific retailer, information website, specific information), Scan search results (Google, internal search in a website), Change key words, Go to a site (retailer, information site), Go to the list of products, Go to a product page (from list page or directly from other sites), Scan the page (for information or product link), Scan the list of products/table, Scan the product information, Read the information, Read the summary of the product, Read the details of the product, Use/change the filtering option, Go to comparison of product page, Go to a link for information, Come across a new product, Look for specific information (in a page, navigate, internal search, Google), Check the new criteria for a product, Use branch locator
Evaluator	Evaluate the website, Evaluate the information, Compare two websites (retailer or comparison sites), Evaluate the product, Compare the pros and cons of one product, Compare products, Compare products based on one criterion only, Compare products of one retailer (in a table or list), Evaluate a retailer, Compare retailers, Narrow down the options, Reject a retailer, Reject a product, Evaluate the process, Evaluate the suitability, Evaluate the result of search and comparison site lists, Evaluate extra benefit, Evaluate benefits of buying through comparison, Evaluate specific piece of information
Reviewer	Review all alternatives, Review the last two alternatives, Review a particular retailer, Reject without evaluation, Reject after review, Review the benefits, Read about terms and conditions at the end, Give more weight to some retailers due to having more confidence in them, Narrow alternatives to two
Selector	Select a product to read about, Select an information site, Select a related link, Select a product, Select a retailer not a product, Postpone, Go to branch/shop

Clustering similar activities and eliminating the details can illustrate the main responsibilities of each role. As can be seen from Table 4.5, there are different activities under each role which perform similar tasks in a different context. By grouping these activities together a higher level of abstraction is achievable. For example, scanning search results, scanning the list of products/tables and scanning the product information can all be clustered under “scanning activity”. Similar categorization could be done for comparing two websites, comparing the pros and cons of one product, comparing products, and comparing retailers which all indicate the “comparison activity”. The grouped activities indicate the main responsibilities of each role (Table 4.6).

Table 4.6: Responsibilities of each role based on clustered activities

Responsibilities of each role based on clustered activities	
Roles	**Responsibilities**
Initiator	Understanding and initiating the task
Decision problem modeller	Generating alternatives and criteria, changing the situational understanding, assessing the knowledge
Information seeker	Searching, locating, discovering, filtering, scanning and reading information
Evaluator	Evaluating, comparing, narrowing down and rejecting
Reviewer	Reviewing, eliminating and checking the consequences of potential alternatives
Selector	Choosing, postponing or opting for another channel

Although the main stages are driven from the theory, it was important to look for new stages that might be derived from the data. However, no other stage was identified.

This study aims to identify the general behavioural patterns in addition to the detailed behaviour of consumers. The general purchase decision-making process model for each segment of consumers shows an overall model that describes the behaviour of that segment. However, it is adapted by each individual. The general purchase decision-making process model is generated from individual models in an aggregated level.

General purchase decision-making process models for each segment of consumers

After developing the individual processes, a general decision-making process model for each segment of consumers was generated in order to identify characteristics of the process for that segment. All the individual models of participants in one segment were brought together. The general model illustrates the decision-making activities that are likely to occur and their sequences at a high level of abstraction. The boxes of the general model were generated from the roles presented in Table 4.3 and their relations were identified by summarizing the interactions of different roles in Individual process models. Activity diagrams make the relations between different roles readily recognizable. Each purchase decision-making process carried out by a consumer is an instance and adaptation of the general model.

Adaptation of path configuration method

Although general models can show the intensity of transitions between different stages, the flow of the process is missing. In this study, the flow and the way that a process unfolds are very important. The path configuration method introduced by Mintzberg et al. (1976) has the advantage of identifying the patterns and the flow of the process. However, the activities involved in each stage can not be depicted. Therefore, after coding the process into activity diagrams, in addition to the general model, I have also adapted the path configuration method. It is used to illustrate the flow of the process for one participant in each segment who exhibits a typical behaviour. Path configuration models were generated based on the activity diagrams for each individual. They can only be used for a single process and cannot be aggregated. This method has been adapted by Boonstra (2003) to show that decisions fall into different categories based on different factors. Therefore, depending on the factors that influence the decision-making process, various paths can be observed. Together with general models, path configuration can show all the aspects of individual decision processes. However, we have used an adaptation of this method in order to link stages while using the stages of the purchase process developed for this research.

Decomposing the process into phases

The path configuration method illustrates the differences in the flow of the process. However, meaningful separation between the phases of the decision-making process is still not clearly modelled. According to Petrusel and Mican (2010), “people prefer to work in chunks” and therefore a decision-making process can be divided into several sets of related activities that share a main objective. We refer to these sets of activities as phases of the decision-making process. Activities in one phase have the same mission. This mission is different from the aim of a role in activity diagrams. The activities of a phase are not all related to one role but they are across different roles. For instance, a participant's short-term aim is to find alternatives; to do so he/she will perform search and evaluation and as a result re-formulate the decision problem. It is in fact a set of activities under three different roles that shapes this phase of behaviour. The aim at a given point of time can only be understood through the analysis of participants' own explanations. The think-aloud method made it possible to identify phases. Each process model was analyzed along with the verbal protocol in order to define the critical points where the transition to other phases occurs. In this way the whole process was decomposed into phases (Benbunan-Fich, 2001). As can be seen in the analysis chapter, this is a new adaptation of the path configuration method which illustrates the flow and phases of the decision-making process.

To summarize, three different level of analysis were made in this study (Table 4.7). The low-level model is the individual activity diagram which shows all the details and activities. An adaptation of Mintzburg's path configuration method is used to depict different phases of behaviour. General process models are the aggregation of activity diagrams.

Table 4.7: Levels of data presentation

Level of analysis	Units of behaviour	Analysis based on identification of…	Modelling method
Low	Activities	Activities and their sequence	UML activity diagrams
	Phases (Sets of sequential activities)	Aims and patterns of sequential activities	Path configuration method
High	Process	Behaviour, occurrence and patterns of phases	General integrated model

4.4.6 Reliability

According to Thomas (2006), the trustworthiness of data analysis can be identified by consistency checks where another coder performs a partial coding or stakeholder reliability checks where a participant for instance comments on the categories or interpretation. All the video files and interviews were coded and transcribed by one judge. In order to check interpreter reliability, another independent judge modelled the process for two randomly selected participants. This method is the most common reliability check which has been widely used in previous studies (e.g. Alavi and Joachimsthaler, 1992; Jessup, Connolly and Galegher, 1990). The reliability of the coding of video recordings (Christensen and Schunn, 2007) and verbal protocols (Svenson, 1979; Gardial et al., 1994) can be easily determined by having different judges coding the same protocol.

The coding scheme that defined different stages and roles was explained to the second judge. A few differences were observed. As in the above studies where the differences are resolved by discussion, the two coders discussed each of the variations to reach a conclusion. The decision-making process models of the second coder had a variation of 0.085 (7 transitions were different for the two process models with a total of 82 transitions: 7/82). Therefore approximately 91% of the process models mapped to the first coder's. Despite the intensiveness of the coding process, the stages and verbal protocols are clear and easily identified, so a high reliability was achieved.

The coded process was also double-checked with the participants' own description in the interview to ensure a reliable interpretation of the process. Although this is not the same as a stakeholder check where participants check the coded data, this method was not feasible due to the time gap between the experiment and the availability of the modelled process. Decision-making processes will not be remembered by participants over this period. The follow-up interview is a better test of reliability.

In addition, the coding themes for the process models were based on roles which are derived from consumer behaviour and the decision science literature. In the pilot study, an open coding stage of data analysis was run in order not to lose the insight rooted in the data by looking for "emerging themes". These themes were used as "seed categories" (Miles and Huberman, 1999). However, no new theme emerged from the data. Therefore, they were imposed as the structure in the coding and drove the analysis of this research.

4.5 Summary

This research has a multi-level mixed-method design. Qualitative and quantitative research is conducted in order to answer different research questions, using Concurrent Nested Strategy. Data from an Internet panel data provider (comScore), video recording sessions, interviews and questionnaires are collected and analysed. Putting these data sources together provides a broader perspective on online purchase decision-making behaviour in retail banking and mobile network markets. ComScore offers data on real behaviour of consumers but does not consider the consumer environment or context of behaviour. Measurements developed for comScore data can assess the aggregated behaviour of consumers from three different angles as well as the market characteristics. On the other hand, experiments capture more information on consumers while having the limitations of the laboratory environment. The combination of video recording techniques and verbal protocols collects rich data. Business process modelling, which is a strong method for modelling processes, is used to code and model the process. Activity diagrams in particular are selected as they can illustrate the behavioural aspect of the process. An adaptation of the path configuration method is also used to show the flow and phases of the process. This research design can capture four typologies of behaviour based on prior knowledge and decision-making styles in two selected markets. The outcome of the process as intention to adopt the decision and satisfaction with the choice and process are also collected for each individual and compared across categories. This research is a move forward in mixed-method research as it pays particular attention to the qualitative aspect of the research.

5 MARKET-LEVEL ANALYSIS

5.1 Chapter overview

In this chapter, the result of the macro-level analysis is demonstrated. This analysis is conducted to examine the macro-behaviour of online consumers in two markets: retail banking and mobile network providers. In addition, characteristics of these markets (market structure, level of competition and nature of competition) are identified. The result not only identifies certain aspects of behaviour which cannot be addressed by any other method but also explains some of the underlying reasons for the individual behaviour discussed in the next chapter. This analysis, as explained in the previous chapter, uses data on real behaviour of consumers in the market.

Analyzing the macro-behaviour of consumers provides an understanding of their actual behaviour on the market. It can identify patterns of behaviour based on the aggregated actions of a very large population. Macro-analysis in traditional settings, mainly in the form of market research, has been examined to measure market structure and the success of companies. However, it has not been used to assess the behaviour of online consumers. Previous Internet studies, on the other hand, have been concerned with consumer behaviour in one particular website. Internet panel data provides a unique opportunity to measure online behaviour of consumers within a market.

In this chapter, macro-analysis is conducted. Data from comScore, the Internet panel data provider, is analyzed with reference to general market data in order to provide a broader context for online behaviour. However, this rich data has not been previously employed for this purpose. New concepts and measurements are needed in order to interpret the data. The measures developed for this analysis are explained at the beginning of the chapter. The following two sections present the results of the application of these measures in the two selected sectors.

5.2 *Online Panel Data Analysis*

Macro-level analysis provides insight into the behaviour of online consumers in the UK market. It is based on real behaviour which is not dependent on the survey results and experiment conditions. For the purpose of this research, consumer behaviour was analysed from three different views (Figure 5.1).

1) Consumer behaviour in the overall market (overall market behaviour)
2) Consumer collective behaviour in terms of interactions with multiple retailers (cross-visiting behaviour)
3) Consumer detailed behaviour with an online retailer (detailed behaviour in an individual website)

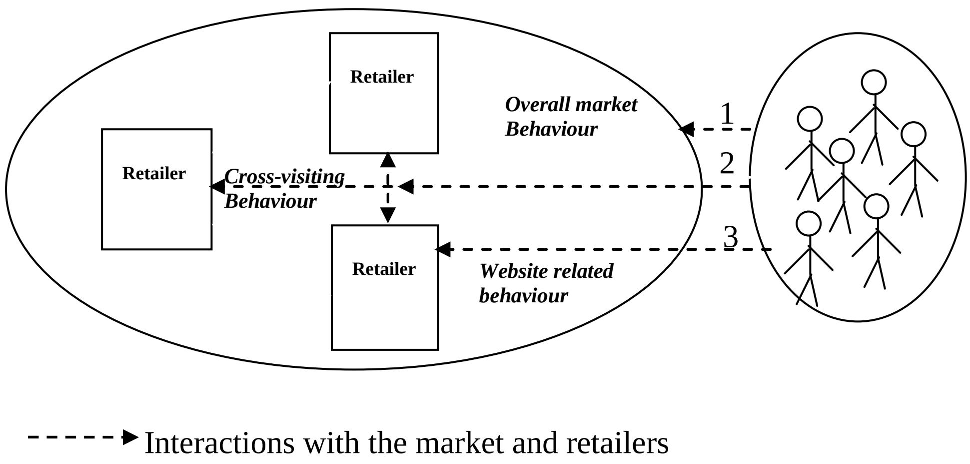


Figure 5.1: Three views of macro-level analysis

The overall behaviour indicates how consumers of a particular online market are behaving. It shapes the market structure and level of competition. The overall behaviour is based on collective interactions of consumers with different retailers, referred to as cross-visiting behaviour. Therefore, the second angle investigates characteristics of interactions with multiple retailers. It shows the nature of competition within the market. The third one aims to understand the behaviour of consumers with a particular retailer. These three angles are specifically developed as a comprehensive macro-measurement for examining behaviour based on online user activities.

5.3 Concepts and measurement development

Although measuring the behaviour on a particular website is a well-developed area in IS research, studying consumer behaviour in the market and competitor websites is new. It is necessary to introduce the concepts at the beginning of this chapter. Table 5.1 shows the concepts from different viewpoints.

Table 5.1: Three views of macro-analysis and their concepts

Different views of analysis	Macro-level behavioural concepts
Overall behaviour	• Overall adoption of the Internet in a sector • Consumer distribution ratio
Cross-visiting behaviour	• Overall cross-visiting rate • Extent of cross-visiting • Patterns of cross-visiting across multiple websites
Detailed behaviour on an individual website	• Distribution of UV within a website • Rate of repeated visits • Usage duration • Number of pages visited

5.3.1 Overall behaviour

The overall behaviour is the first angle of macro-analysis with the highest degree of abstraction. It illustrates the aggregated behaviour of consumers within a market. Different measures are developed for its assessment. Understanding the "overall adoption of the Internet" in each sector is the first step. In addition, examining the extent to which the Internet affects the behavioural patterns is crucial. It could be assessed by measuring the impact of the Internet on aggregated consumers' decisions to visit different retailers. Therefore a measure of "consumer distribution ratio" is defined.

Overall adoption of the Internet

One of the most commonly used measures of Internet usage is reach, which shows the portion of the population visiting a particular website or sector (Rajgopal, Venkatachalam and Kotha, 2003). It has been mainly used to show the number of visitors to a website (see for example Tarafdar and Zhang, 2008; Li and Wang, 2011). However, it can measure the total access to websites in one sector. ComScore data provides the opportunity to measure the reach of a specific sector as a portion of the total population. It is a direct measure of Internet adoption by consumers in that sector. We refer to this as the "overall adoption of the Internet". It captures the total number of consumers as unique visitors (UV) who have used the Internet for online search, purchase or use of e-services.

Consumer distribution ratio

In order to examine the impact of the Internet on the visiting behaviour of consumers, a new measurement of "consumer distribution ratio" is introduced. It is defined as the distribution of consumers among online retailers, regardless of the latter's size. This concept shows the extent to which consumers decide to consider or ignore a retailer on the Internet.

Measures of traditional and online market behaviour need to be combined for this concept. Market share, an indicator of consumer macro-behaviour (Catry and Chevalier, 1974), was selected for this purpose. In traditional settings, overall behaviour is commonly measured by market share (Russell and Kamakura, 1994; McKee, Varadarajan and Pride, 1989; Kirca, Jayachandran and Bearden, 2005). It "is the result of many decisions made by many consumers" (Wiley and Bushnell, 1979) and therefore reflects the aggregated behaviour. It is also a direct indicator of retailer size as of the number of consumers. Incorporating the market share eliminates the impact of size. On the other hand, online behaviour is measured through other concepts. Website traffic is a common measure of behaviour (Tarafdar and Zhang, 2005; Tarafdar and Zhang, 2008; Rajgopal, Venkatachalam and Kotha, 2000). It is based on the number of unique visitors, as defined in the research methodology chapter. Accordingly, we have introduced the "share of unique visitors". Share of unique visitors and market share are both consumer-based measurements that illustrate macro-behaviour in terms of distribution over retailers (Anderson, Fornell and Lehmann, 1994). The "consumer distribution ratio" is the metric share of unique visitors relative to the share of customers (i.e. market share).

$$\text{Consumer distribution ratio} = \frac{\textbf{Share of unique visitors}}{\textbf{Market share}}$$

Share of consumers and unique visitors were calculated for main market players in order to measure the consumer distribution ratio. A ratio greater than one indicates a higher rate of online visits compared to other retailers, relative to the market share. A score equal to one shows the same behavioural pattern via the Internet for that retailer compared to others. A score of less than one indicates that the retailer is less visited online compared to other retailers in relation to its size. The further the scores are from one, different behaviour is observed on the Internet. Scores close to one imply a similar patter through the online channel.

In fact, this analysis indicates whether consumer behaviour fundamentally changes in terms of visiting different retailers on the Internet. Consumers might visit smaller retailers due to their increased visibility, be attracted to main market players or feature the same behaviour as in traditional markets.

5.3.2 Cross-visiting behaviour

This angle of macro-analysis investigates the online behaviour of consumers while interacting with different competitors in the market. As it is a new concept, it is important to be clearly defined and its measurements need to be established. When potential consumers go through the stages of purchase decision making, they visit different retailers and information sources to reach a conclusion. Therefore, this analysis requires comparable online data about consumer behaviour from several retailers, which increases its complexity. ComScore provides data in patterns of usage across multiple websites. This is termed cross-visiting data.

The aim is to identify the collective behaviour of consumers as of cross-visiting various competitors. Understanding the portion of consumers who cross-visit is the first step, therefore the concept of “overall cross-visiting rate” was defined. Another factor that can indicate cross-visiting behaviour is the number of options that consumers consider. The measure of “extent of cross-visiting” is developed showing the number of websites visited by one consumer. It is also helpful to know the groups of retailers that are visited by the same consumers and those which are perceived to be too different to be compared. A set of analyses is subsequently performed to examine the "patterns of cross-visiting across multiple websites". These concepts together provide valuable insights into the collective behaviour of consumers in a particular sector that can only be explored using this type of methodology. At the end of this analysis, the main comparison sites or intermediary sites are also examined as they play an important role in consumer decision making in both sectors.

Overall cross-visiting rate

This concept is important in studying the behaviour of consumers. It indicates the portion of consumers who visit multiple retailers on the Internet. Multiple retailers in a market are competitors who are striving to win online consumers. ComScore's audience duplication report is used for this purpose. Although this measure does not indicate the purpose of cross-visiting, it is of particular interest as online purchase decision making process normally includes comparison of different retailers and therefore cross-visiting.

Extent of cross-visiting

In addition to the number of consumers who cross-visit, it is important to know the number of retailers they visit. The "extent of cross-visiting" is developed for this purpose. It shows the average number of retailers visited by consumers who have cross-visited. It is one of the characteristics of purchase behaviour related to the size of consideration set. The rate is measured for those visiting more than one website only.

In order to calculate the extent of cross-visiting, the total number of unique visitors of the considered retailers is added up. This number shows the total visits to their websites. It is not equal to the number of unique visitors. Removing the number of visitors who have only visited one website from the total visits provides the total visits of consumers who have cross-visited. Dividing this number by total consumers shows the average cross-visiting rate.

$$\frac{\sum_{k=1}^{n} UV(k) - \text{Number of UV visiting one retailer}}{\text{Number of UV cross-visited}}$$

Patterns of cross-visiting across multiple websites

Patterns of cross-visiting are measured by identifying retailers who are visited by the same consumers. It provides a better understanding of the nature of cross-visiting in each market. Using comScore data, the rate of cross-visiting between any two selected retailers can be readily examined. It indicates the portion of consumers who have visited both websites and compared them against each other. A clustering analysis of consumer behaviour on multiple websites is also performed to identify patterns of usage across different websites. Customers of retailers which are grouped together have a similar cross-visiting behaviour on other retailers. Use of comparison sites along with main retailers is also examined.

5.3.3 Detailed behaviour on an individual website

Detailed behaviour on an individual website is concerned with the behaviour of consumers towards a particular retailer. Although this type of analysis has not been used over a market, it has been widely employed to measure the performance of individual websites. Therefore, its measurements are well-established. Behaviour related to a particular website has been mainly measured by usage variables. However, Internet panel data provides the opportunity to track more detailed behaviour. Specific sections of the website visited can be identified, determining the purpose of the visit. This is one of the most important measures of behaviour.

In addition, usage intensity, which is related to the nature of a particular visit, is examined. Usage intensity shows the depth of online activities in which consumers are engaged, such as research or use of e-services. It has been previously measured by frequency of use and duration (Ip and Wagner, 2008; Thorbjornsen and Supphellen, 2004) and the number of pages visited (Rozic-Hristovski, Hristovski and Todorovski, 2002). Accordingly, rate of repeated visits, usage duration and number of pages visited are used to capture the macro-behaviour of consumers in a particular website. It is important to clarify that this indicator measures the usage of a particular website and is not similar to the "web usage intensity" suggested by other researchers (e.g. Lassar, Manolis and Lassar, 2005), which assesses the level of adoption and use of the Web by individuals.

Purpose of visit

Previously, determining the purpose of visit to a website was not possible. By using Internet panel data, we are now able to examine the purpose of visit. Purpose is analyzed by the portion of unique visitors to each particular part of a website. Looking at product pages shows research, while visiting login pages is related to the use of post-purchase services.

Rate of repeated visits

One of the common indicators of usage intensity is the rate of repeated visits to a website. It is defined as the average number of visits per individual (Chaffey and Smith, 2008). Although it has been mainly used to measure loyalty and retention, this definition is only meaningful for particular markets. In other words, the purpose of visit indicates the meaning of repeated visits. In the case of the banking sector and network providers, repeated visits in a month can mainly be due to the use of post-purchase services and research over a period of time rather than repeated purchase.

Usage duration

Duration of visit can also explain the behaviour of consumers. It is defined as the average length of time individuals spend on a website (Chaffey and Smith, 2008). It has been argued that longer visits could be the result of many factors such as confusing navigation, slow loading times or difficulty in understanding the content and performing the shopping task. However, visitors to a website are continually making a "judgment as to the value of continuing on at a given site or clicking away" (Holland and Baker, 2001). Therefore, if consumers remain at a site by choice, then there should be value in exchange for their time. As a result, duration can still be a good indicator of behaviour on a website that can be compared across different retailers.

Number of pages visited

The number of pages that consumers visit has been used as an indicator of behaviour. Although use of this measurement is precarious as it is not independent of website design, by considering the website design and assessing it along with the usage duration it can illustrate the intensity of behaviour on a retailer.

Table 5.2 summarizes the macro-level concepts, their definition and the way they are measured.

Table 5.2: Concepts and measurements of macro-level analysis

	Concept	Definition	Measurement
Overall behaviour	Overall adoption of the Internet	Total number of consumers who have used the Internet in one sector for online research, purchase or use of e-services.	Total access to websites of one sector as a portion of total population
	Consumer distribution ratio	Distribution of consumers among online retailers, regardless of size	Metric share of unique visitors relative to share of customers
Cross-visiting behaviour	Overall cross-visiting rate	Portion of consumers who visit multiple retailers in a market	Portion of unique visitors who visited more than one website in a particular market
	Extent of cross-visiting	Number of retailers that consumers visit	Average number of websites in market visited by consumers who cross-visit
	Patterns of cross-visiting across multiple websites	Retailers which are likely to be visited by same consumers, Consumers who have similar cross-visiting behaviour	Rate of cross-visiting between any two selected retailers, Clustering analysis of consumers with similar behaviour on different websites

Table 5.2 continued			
Detailed behaviour on an individual website	Purpose of visit	Portion of consumers visiting the website for a particular purpose	Portion of unique visitors of each particular part of a website
	Rate of repeated visits	Number of times consumers visit one retailer	Average number of visits to a website per individual
	Usage duration	Time consumers spend on performing tasks on a retailer's website	Average length of time individuals spend on a website
	Number of pages visited	Number of pages consumers navigate through on a website	Average number of pages of a website in an individual visit

5.4 Retail banking

The macro-analysis is first conducted for retail banking in the UK. Analysis can only be performed if the structure of the market is known. Therefore, as groundwork, banking groups and their brands were identified. Six banking groups and their main brands at the time were Lloyds Banking Group (Lloyds TSB, Halifax, Bank of Scotland); Santander; HSBC Group (HSBC, First Direct); RBS Group (RBS, NatWest); Barclays; and Nationwide. Eight banks were selected for further analysis. According to the Mintel report (2011a), these eight banks dominated the UK market, with 87% of market share. The remaining banks and building societies which have a share lower than 4% were eliminated from the analysis.

5.4.1 Overall behaviour

As mentioned above, this analysis aims to answer two questions: a) Are consumers in this market using the Internet channel? b) Has the behaviour of consumers in terms of visiting banks altered as a result of the Internet? Accordingly the following two concepts were measured.

Overall adoption of the Internet in the UK banking sector

The overall adoption of the Internet in the banking sector was measured by reach. It shows the portion of Internet users who have visited banking websites in the UK and is therefore a direct measure of the Internet adoption rate. Figures were extracted from the comScore report on the UK banking market (Table 5.3).

Table 5.3*: Overall adoption of the Internet in the UK banking sector (ComScore, 2011)*

Audience	Total Unique visitors (000)	Reach %
Total Internet	41,544	100.0
Banking sites	20,052	48.3
Top 8 banks by share of consumers	16,367	39.2

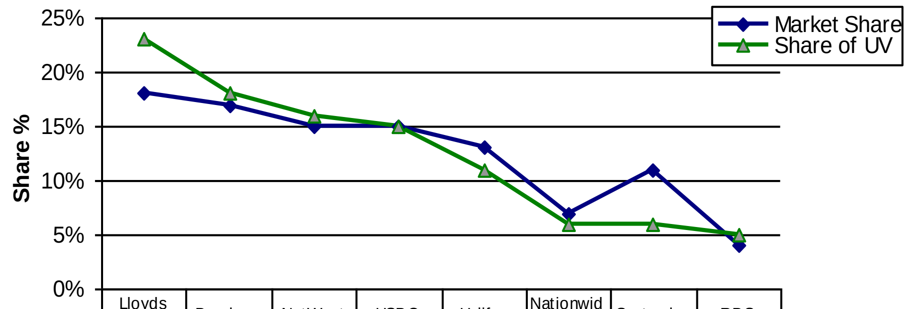
Banks websites are used by nearly half of Internet users in the UK. In addition, nearly 40% of the online population have visited one of the top 8 banks over a period of one month. This shows that the adoption rate is high and banks are successful in attracting consumers online. However, it does not indicate the usage rate for different banks or the purpose of visits (e.g. online banking or research into new products).

Consumer distribution ratio

This analysis aims to identify the impact of the Internet on consumers' decisions about visiting banks. The online behaviour is compared against the overall behaviour and finally the consumer distribution pattern for online banks, regardless of their size, is measured.

As mentioned above, market share and share of unique visitors are calculated. In order to understand the overall behaviour of consumers in the market, the main banks based on their market share and numbers of unique visitors were chosen. Data for each of the market players was gathered from their annual reports, information offered to bank investors and other industry publications. A few missing data items were collected by email communication with the Head of Media Relations, Head of Corporate Communications and Investor Relations Officer of related banks. In addition, data from newspapers, including *Times Online*, *Guardian* and *Daily Mail* was checked for further verification. The collected data was used to identify each bank's market share. Table 5.4 shows the results. The overall market shares of the top banks were grossed up to 100% to enable a direct comparison. The number of unique visitors for the personal banking section of each bank was collected. The data was based on statistics for a 3-month average ending September 2011. The selection process revealed that the top banks in terms of market share have the highest number of unique visitors. The share of unique visitors was also calculated (Table 5.4).

Figure 5.2 plots the distribution of customers and unique visitors. It seems that the Internet distribution of unique visitors maps almost exactly on to the distribution of market share in a standard Share-Rank plot. The behaviour of consumers in terms of choosing banks to visit online is correlated with the number of banks' consumers. The overall online behaviour is still very similar to the general behaviour. If consumers were conducting extensive research into competitor banks then one would expect the distribution of Internet visitors to be much flatter than that of the overall market share distribution, but this is clearly not the case. In fact, the curve for the share of unique visitors is slightly steeper. Therefore, the overall behaviour of consumers in the market is not significantly changed by the Internet. It appears that behavioural patterns online and in general are similar.



	Lloyds TSB	Barclays	NatWest	HSBC	Halifax	Nationwide	Santander	RBS
Market Share	18%	17%	15%	15%	13%	7%	11%	4%
Share of UV	23%	18%	16%	15%	11%	6%	6%	5%

Figure 5.2: Consumer distribution of market share and share of unique visitors, banking sector

Table 5.4: Market share, share of UV and consumer distribution ratio of main UK banks

Brands of Banks	Number of unique visitors (000)	Share of unique visitors	Number of current accounts (Million)	Market share of current accounts	UV/ Market share
Lloyds TSB	4,975	23%	12	18%	1.3
Barclays	3,972	18%	11.7	17%	1.1
NatWest	3,487	16%	10.1	15%	1.1
HSBC	3,350	15%	10	15%	1.0
Halifax	2,506	11%	8.5	13%	0.8
Nationwide	1,416	6%	4.8	7%	0.9
Santander	1,281	6%	7.3	11%	0.5
RBS	1,114	5%	2.5	4%	1.3
Total	22,101	100%	66.9	100%	1

The plot shows that top banks in terms of market share have the highest number of unique visitors. In fact, dominant banks attract more consumers online. The consumer distribution ratio eliminates the impact of size. The result shows that larger banks are, however, more visited by consumers relative to their size, in particular the market leader Lloyds TSB. This is illustrated by having a consumer distribution ratio of higher than 1. Others, like Halifax, Nationwide and Santander, are less attractive to online consumers. With the exception of RBS, it seems that the ratio drops slightly with the size. Consumers decide to visit larger banks slightly more online. The case of RBS is discussed shortly. In order to better understand the macro-level behaviour, interactions of consumers with different players are monitored.

5.4.2 Cross-visiting behaviour

In order to determine the behaviour of online consumers across a sector, various cross-visiting measures are developed. Data from comScore was extracted for this analysis. The results are presented here.

Overall cross-visiting rate

The overall cross-visiting rate is the portion of unique visitors who have visited more than one banking site. A comScore audience duplication report was run for the top 8 visited banks. Table 5.5 shows the result. The number of unduplicated unique visitors is the total unique visitors of these 8 banks. Duplicated unique visitors are those who have visited two or more banks. Based on the result, 25% of visitors (4,117/16,367) have cross-visited. Others (75%) have visited one bank, which may be for finding specific information, researching into a particular bank/product or using e-banking services. They have not performed a purchase decision-making process online, which requires comparison between banks. Among these 25% some might be doing multiple account management. Therefore, the portion of online consumers that visit bank websites to choose between them is less than 25%. These are potential customers that banks should be concerned about, to facilitate their purchase decision-making processes to win them over competitors.

Table 5.5: Consumers' cross-visiting rate, banking sector

Category of unique visitors	Unique visitors (000s)	Unique visitors (%)
Unduplicated unique visitors	16,367	100%
Duplicated unique visitors: cross-visited	4,117	25%
Unique visitors who visit one website only	12,250	75%

Extent of cross-visiting

The extent of cross-visiting is the average number of banks that those consumers who did cross-visit have visited. As mentioned in section 5.3.2, the average cross-visiting rate was calculated as:

Total visits to banks: $\sum_{k=1}^{8} UV(k) = 22{,}503$

$22{,}503 - 12{,}250 = 10{,}253$

Extent of cross-visiting: $10{,}253 / 4{,}117 = 2.49$

Consumers who visit more than one banking website visit 2.49 banks on average. If we assume that all of those cross-visiting are doing online research, the extent of cross-visiting is the size of their consideration set that is 2.49. It suggests that online researchers only look at two or three banks. The size of the online consideration set is relatively small as there are seven major retail banks in the market. In fact, even consumers who use the Internet for research into the banking sector do not use the accessibility provided by the Internet to look at more alternatives. Due to the nature of this sector, some of these consumers perform multiple account management that influences the average. Therefore, relating the extent of cross-visiting to the size of the consideration set needs to be treated carefully. However, as will be discussed later, over 20% of banking consumers are researching. This assumption is relatively valid.

Patterns of cross-visiting across multiple websites

Patterns of cross-visiting behaviour for these banks were measured using cross-visiting reports from comScore. Table 5.6 illustrates the rate between any two specific banks. For instance, 10.4% of Lloyds TSB visitors also visit Barclays; 8.4% of them visit NatWest. The cross-visiting between banking websites ranges from 1.7% to 21.6%. It is important to mention that this rate is size related. For instance, 10.4% of Lloyds TSB visitors visit Barclays, while this number accounts for 13.2% of Barclays' consumers. The higher rate of cross-visiting between two websites indicates that more consumers visit both websites. These banks are more likely to be compared against each other or to be owned by the same consumers and therefore be suitable for the same individuals.

Table 5.6*:* Cross-visiting between the main banks

Cross-visiting behaviour of banks visitors on other websites (%)								
	Lloyds TSB	***Barclays***	***NatWest***	***HSBC***	***Halifax***	***Nationwide***	***Santander***	***RBS***
Lloyds TSB		10.4	8.4	6.9	7.1	4.6	6.1	1.7
Barclays	13.2		10.1	8	8.2	4	5.3	2
NatWest	12.5	11.7		13.4	8.2	6	4	2
HSBC	13	11.9	17		6.7	5.3	3.7	2.7
Halifax	16.7	15.2	13.1	8.4		10.2	6.2	2.8
Nationwide	15.1	10.4	13.3	9.2	14.2		6.8	2
Santander	21.6	14.7	9.5	7	9.3	7.3		2.4
RBS	9.1	8.5	7.3	7.7	6.5	3.4	3.7	

The rate of cross-visiting is very low for RBS. The average length of the time consumers have been with their provider is shown in Table 5.7. RBS has had a much lower rate of attracting consumers in recent years than the average of the market. This explains why RBS is less likely to be considered by consumers. In addition, out of 651 branches of RBS only 311 are based in England and most are located in Scotland; whereas, the rest of the banks on the list have more presence in England. This explains the low level of cross-visiting with other banks.

Table 5.7: The average length of the time consumers have been with their bank: (Mintel, 2011a)

Period with the provider	Total average banking sector: Percentage of consumers (%)	RBS Percentage of consumers (%)
Less than a year	6	1
1-3 years	16	13
4-9 years	22	17
10 years or more	56	69

Table 5.6 illustrates the behaviour in terms of interaction with any two banks. Behavioural patterns across multiple websites can enhance our understanding of consumers in the market. Classification of behavioural patterns could be done by clustering similar cross-visiting behaviour. Table 5.6 is the result of the interactions of each bank's consumers with all other banks. Performing a clustering analysis on the table above categorizes banks by visitors who exhibit similar behaviour in visiting other banks.

Clustering analysis is a statistical method which is mainly used as a classification tool. Unlike other statistical methods of classification, no prior assumption about important differences within a population is made (Punj and Stewart, 1983). This makes clustering analysis a perfect choice for grouping macro-level data. The two-stage cluster analysis methodology suggested by Punj and Stewart (1983) was conducted. The preliminary clusters were identified by a hierarchical method of Ward's minimum variance. It guarantees a level of dissimilarity between clusters. The number of clusters identified by this method was then used for refinement, via an iterative partitioning procedure. Deciding on the optimum number of clusters is largely subjective; however, looking at a dendrogram can provide guidance. K-means, which is an iterative method, was selected for reassignment to clusters. At the first stage, we ran a hierarchical clustering test, using Ward's method. Square Euclidean distance, a frequently used method, was selected as it is suitable for continuous variables. The figures were not standardized. As they were in percentages, the scale was the same and also variability was important. In fact, a small percentage of visits could represent a thousand visitors. Figure 5.3 shows the result of the clustering analysis. Clustering starts with each case as a separate cluster. It then combines the clusters sequentially, reducing the number of clusters at each step, until only one cluster is left. In Figure 5.3, vertical lines show the joined clusters. The distances are rescaled to fall into the range of 1 to 25. They are not the actual distances but the ratio of the rescaled distances. The smaller the distance, the greater the similarity. On the first vertical line on the left, NatWest and HSBC are very similar. Distances at the following three stages are close. They also have a close coefficient in Table 5.8. However, a jump afterwards can be seen, showing that after stage 4 dissimilar clusters are joined together. Therefore, we stopped at stage 4, where 4 clusters are shaped (8-4 = 4). Similar results can be seen from Table 5.8, where the coefficient jumps a little higher between stages 4 and 5.

Figure 5.3 shows that the behaviour of NatWest and HSBC visitors is very similar. Their consumers tend to visit/ignore similar banks. The distance between Lloyds TSB and Santander is also small, followed by Halifax and Nationwide. RBS is not clustered with any bank.

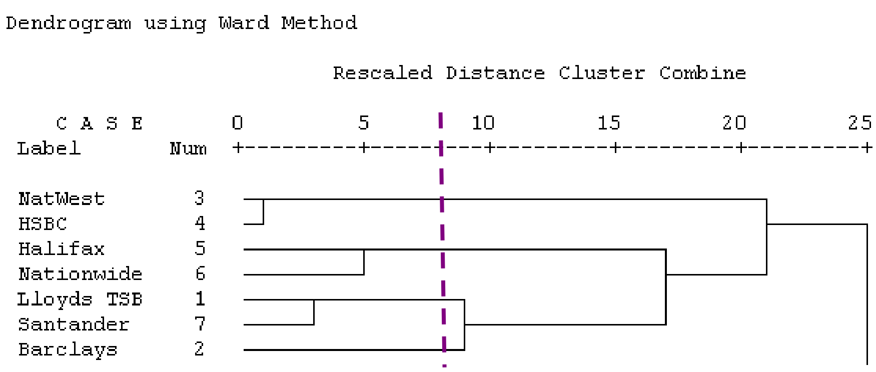


Figure 5.3: Hierarchical clustering test Dendrogram, banking sector

Table 5.8: Hierarchical clustering test Coefficient, banking sector

Agglomeration Schedule						
Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	3	4	.720	0	0	6
2	1	7	1.469	0	0	4
3	5	6	2.242	0	0	5
4	1	2	3.055	2	0	5
5	1	5	3.956	4	3	6
6	1	3	4.905	5	1	7
7	1	8	5.902	6	0	0

In the second stage, based on the result of the hierarchical clustering, we ran a K-means clustering defining 4 different clusters. The clustering results are the same as above. Table 5.9(a) & (b) shows cluster membership and their distances. Consumers of banks in one cluster have similar visiting behaviour. Table 5.10 (a) & (b) shows the Euclidean distances between the final cluster centres. Greater distance reflects greater dissimilarities. Therefore, consumers in clusters at a smaller distance tend to have more similar behaviour. Cluster 2, which only includes RBS, has the greatest distance to other clusters. Clusters 3 and 4, and also 1 and 4 are close, followed by clusters 1 and 3. Therefore consumers of RBS are isolated; whilst consumers in cluster 3 tend to have closer behaviour to those in cluster 4 than 1.

Table 5.9: Cluster memberships, banking sector

Clusters	Number of banks in the cluster	Members of the cluster
1	2	Lloyds TSB, Santander
2	1	RBS
3	2	Halifax, Nationwide
4	3	NatWest, HSBC, Barclays

(a)

Case Number	Banks	Cluster	Distance
1	Lloyds TSB	1	.612
2	Barclays	4	.745
3	NatWest	4	.702
4	HSBC	4	.710
5	Halifax	3	.622
6	Nationwide	3	.622
7	Santander	1	.612
8	RBS	2	.000

(b)

Table 5.10: Euclidean distances between cluster centres, banking sector

Distances between Final Cluster Centres				
Cluster	1	2	3	4
1		1.214	.949	.879
2	1.214		1.219	1.138
3	.949	1.219		.873
4	.879	1.138	.873	

(a)

Final Cluster Centres				
	Cluster			
	1	2	3	4
Lloyds	.61	.09	.16	.13
Barclays	.13	.08	.13	.41
NatWest	.09	.07	.13	.42
HSBC	.07	.08	.09	.40
Halifax	.08	.06	.57	.08
Nationwide	.06	.03	.55	.05
Santander	.53	.04	.06	.04
RBS	.02	1.00	.02	.02

(b)

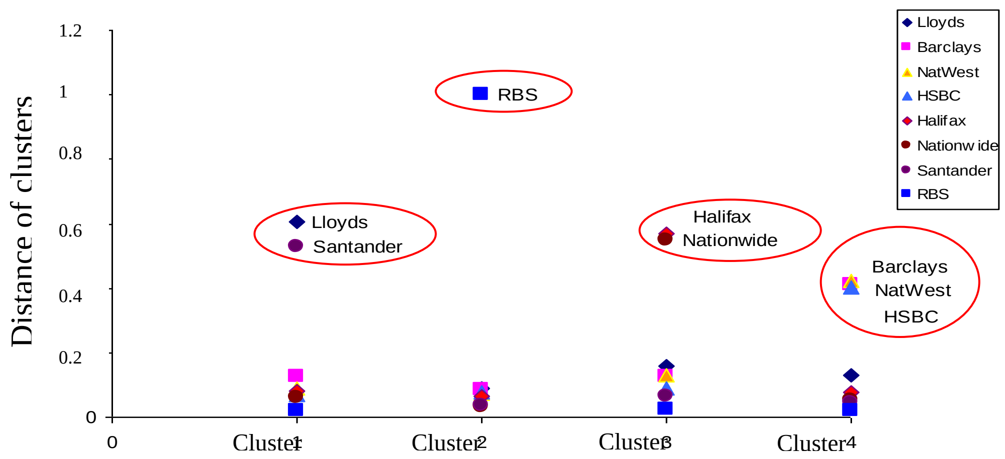


Figure 5.4: Plot of distance of clusters, banking sector

Figure 5.4, drawn from Table 5.10(b), indicates how well consumers of each bank predict the score in a cluster. It shows the behaviour of those consumers in that particular cluster. As can be noticed from the plot and final cluster centres (Table 5.10(b)), in cluster 1, Lloyds and Santander are predicted to be more visited. In this cluster, the chance of visiting Barclays is higher than other banks. Cluster 2 is somewhat separated from other clusters. In cluster 3, apart from Halifax and Nationwide, Lloyds, Barclays and NatWest have a higher chance of visit than the other two banks. Consumers grouped in cluster 4 have a higher tendency to visit more banks, including Lloyds, in addition to the main banks in the cluster. This indicates that these banks are more likely to be compared against each other. They might have products that support the needs of certain individuals or have a similar brand perception among consumers. However, what is important is the fact that online consumers, despite accessibility to all alternatives, are selective in their choice of banks and shape certain segments.

Comparison websites

In order to have a complete picture of the cross-visiting behaviour, consumers' interactions with comparison sites are also assessed. Among all comparison websites, MoneySavingExpert.com (MSE) and MoneySupermarket.com (MS) are by far the most consulted websites in the financial sector, and are therefore selected for further analysis.

Table 5.11 shows the portion of bank visitors who have visited the two main comparison websites. These figures indicate that comparison sites play an important role in the decision making of consumers.

Table 5.11: cross-visiting between banks and comparison sites

Banks	Banks' visitors visiting MSE (%)	Banks visitors visiting MS (%)
Lloyds TSB	13.2	9.3
Barclays	16.8	12.4
NatWest	15.2	10.9
HSBC	15.8	12.7
Halifax	18.1	13.6
Nationwide	18.7	14.5
Santander	19.4	11.7
RBS	15.9	11.3
AVG	16.6	12.05

In order to have a better view of consumer behaviour in the market, the following market structure has been measured. The portion of banking consumers that consider visiting the two main comparison sites is:

AVG [MSE visited by 8 banking visitors] + AVG [MS visited by 8 banking visitors] – Cross-visiting between two websites

AVG [MSE visits by banking visitors] = 16.6% (Table 5.11)
AVG [MS visits by banking visitors] = 12.5% (Table 5.11)

If we assume that all consumers who cross-visit these two comparison sites also visit banking sites:

Banks' visitors cross-visiting between two websites= UV [cross-visit two sites (840)]/total 8 bank UV (16,367)

However, total cross-visiting between the two websites includes consumers who might not visit the banks. The cross-visiting between the comparison sites and banks could range from zero to the total cross-visiting of MSE and MS. Therefore, the portion of the top 8 banking website visitors who consider visiting the two main comparison sites could range from:

Maximum: 16.6 %+ 12.05 %= 28.65%
Minimum: 16.6 %+ 12.05 %- (5.1%) = 23.55%

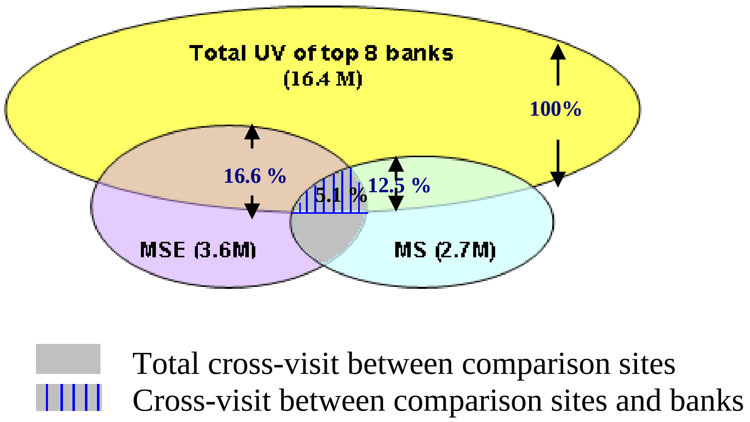


Figure 5.5: Banking consumers cross-visiting comparison sites

Therefore, at least 23% of unique visitors of the banking sector are users of comparison sites and might consider using them to make a purchase decision. Their role in the decision-making processes needs to be understood by individual analysis of consumer behaviour (Figure 5.5).

5.4.3 Detailed behaviour on an individual website

As mentioned above, these concepts explore the detailed behaviour of consumers on one particular website. It can be measured by four main indicators: "purpose of visit", "rate of repeated visits", "usage duration", and "number of pages visited", explained at the beginning of this chapter. The last three measurements provide statistics on usage intensity while the first assesses the intention of consumers for visiting a website.

Purpose of visit

Consumers visit banking websites for various reasons: research into new products, use of online services and looking for specific information. Researching into products and use of online services are the two main usages during the consumer journey (see Figure 3.17). It is important to know their reasons for visits, in order to understand their behaviour. This was examined by tracking their visits to different sub-domains through comScore reports. Those visiting product-related sections were researching into products whereas those using the login page were using the online banking services. The number of unique visitors for different parts of the website was collected. However, depending on the structure of the website, this data was not available for all banks. The number of unique visitors of online banking services was clear. The URLs of online banking for Lloyds TSB, NatWest, Nationwide and RBS are “Lloyds TSB - Personal Banking Logon”, “NWOLB.COM”, “RBSDIGITAL.COM” and “NATIONET.COM”, respectively. On the other hand, numbers of visitors of product-related sections were distributed over different product pages, and therefore were added together. As these sections are offering completely different products, there should be no overlap between their visitors. A consumer who is researching insurance is not expected to check the current account section. Tables 5.12 and 5.13 show the portion of consumers visiting the website for online banking and research into products. In order to measure the portion of visitors with a specific purpose, the number of unique visitors of that section was divided by the total number of unique visitors.

Table 5.12: Portion of UV using the website for research into products, banking sector

Banking website	Product sub-sections UV (000)	Portion of UV using the website for research/purchase
Lloyds TSB	558	9%
Barclays	NA	NA
NatWest	NA	NA
HSBC	NA	NA
Halifax	814	36%
Nationwide	144	9%
Santander brand	382	25%
RBS	NA	NA
Average		20%

Table 5.13: Portion of UV using the website for online banking services

Banking website	Online banking sub-sections UV (000)	Portion of UV using the website for online banking services
Lloyds TSB	4125	70%
Barclays	NA	NA
NatWest	2887	83%
HSBC	NA	NA
Halifax	NA	NA
Nationwide	1177	76%
Santander brand	NA	NA
RBS	771	76%
Average		76%

Banking consumers mainly visit bank websites in order to use online banking services. Based on the data available, 76% of consumers are using online services while 20% are researching into product information. However, the portion of consumers who do research varies across different websites (Table 5.12), although their number is similar. This shows that the Internet is mainly used as a service channel and has changed the behaviour of consumers in this sector by shifting their post-purchase behaviour online rather than through branch use.

Rate of repeated visits, usage duration and number of pages visited

The rate of repeated visits to a website and usage duration (average minutes per visit) was directly retrieved from comScore. Table 5.14 shows these figures. Number of pages visited was calculated by:

$$\text{Number of pages visited in each visit} = \frac{\text{Total pages viewed}}{\text{Total visits}}$$

In order to have a better understanding of characteristics of research behaviour on comparison sites, their usage intensity was also extracted. The results show that on average, main banking sites are visited 4.4 times in a month. The rate of repeated visits is high. This figure for comparison sites is remarkably low. Looking at this rate for different sections of a website shows that the rate of repeated visits for login pages is much higher than for product-related sections. Product sections have just over 1 visit by unique visitors (Appendix C). Repeated visits therefore stem from use of online banking services. However, this is not surprising, as banking products have a low frequency of purchase.

For the purpose of this research, I am interested in the behaviour on product pages where the purchase decision-making process occurs. Therefore, in order to compare the behaviour of visitors in a meaningful way, the indicators for product sections of the websites were measured separately (Appendix C). The concentration is on the time that consumers spend on searching and evaluating products rather than use of online banking. Therefore, the average time spent on product-related sections for each bank was calculated. Table 5.14 and Figure 5.6 show the intensity of research in terms of duration and number of pages visited. Consumers spend 1.3 to 1.6 minutes on these sections, looking at 1.5 to 2.4 pages. Therefore, the intensity of research for products appears fairly low.

Table 5.14: Usage intensity on product section of banks' websites

Websites	Usage duration (min)	Number of pages visited	Rate of repeated visits (per month)
Lloyds TSB	1.3	2	1.3
Barclays	NA	NA	NA
NatWest	NA	NA	NA
HSBC	1.5	2.4	1.3
Halifax	1.5	2.4	1.5
Nationwide	1.4	1.7	1.2
Santander	1.6	1.5	1.5
RBS	NA	NA	NA
AVG for 8 banking sites	1.46	2	1.36
MoneySavingExpert	3.7	3.4	2
MoneySupermarket	5.0	6.2	1.7

Another interesting outcome is that the intensity of usage for comparison sites is higher. This is due to the use of these websites for research, which requires reading the information. It shows that if consumers use the online channel for research, this time would be spent on comparison sites rather than on the banks' websites themselves.

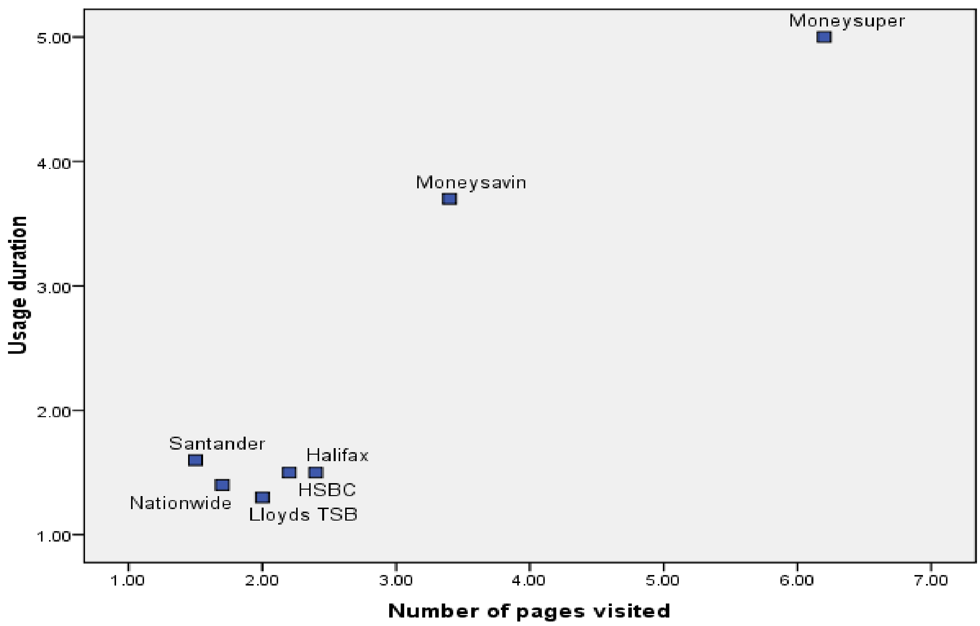


Figure 5.6: Usage intensity for product-related sections of banks' websites

5.4.4 Summary of key results for banking sector

Macro-analysis of online consumer behaviour revealed a relatively high Internet adoption in the UK banking sector (nearly 50%). However, larger banks have a higher share of visitors. Similar distributions of unique visitors and market share show that the Internet has not significantly changed the overall behaviour of consumers in terms of visiting banks. Consumers visit banks in correlation to their size. The measure of "consumer distribution ratio", which eliminates the size factor, also confirmed a relatively similar online attractiveness for banks. It was however slightly higher for larger ones.

Further analysis was performed to determine consumers' purpose of visit. Results indicated that 76% of consumers are using online services while 20% are researching into product information. The Internet has a high adoption and is mainly used as a service channel. Therefore, we can conclude that the similar distribution (Figure 5.2) is due to consumers using their own bank services rather than researching products. Use of services creates a high rate of repeated visits (4.4 times a month). Although 20% of consumers use banking sites for research, which is still a large proportion of the online population, they do not get involved in in-depth decision making. Usage intensity of visits to product-related sections is very low (1.3 to 1.6 minutes, looking at 1.5 to 2.4 pages). On average, consumers do not use the Internet as a serious information channel. Making a decision on a banking product cannot be made in less than 2 minutes and by visiting 2 pages. Low intensity of product research shows that the Internet has changed the behaviour of consumers in this sector by shifting their post-purchase behaviour online.

In order to understand the behaviour of consumers who use the Internet as a research channel, their activities across multiple banks were measured. Based on the result, 25% of consumers have cross-visited, on average visiting 2.49 banks. In most cases this will illustrate the size of consumers' consideration sets. Due to the nature of this sector and the unknown number of consumers who perform multiple account management, the 25% might overstate the portion of consumers performing research and 2.49 might understate the number of alternatives visited. However, as 20% of consumers are researching into products by looking at product pages, the two data sources confirm each other.

Therefore, out of 7 major banks, only 2 or 3 are visited for purchase decision making. At least 23% of banking consumers are users of two main financial comparison sites and are likely to use them to make a purchase decision. These websites also have much higher usage intensity. This shows that if consumers use the online channel for research, this would occur on comparison sites rather than on the banks' websites themselves.

Consumers were also classified based on their cross-visiting behaviour. Accordingly, four groups of consumers were identified. Consumers of RBS tend to be isolated. Consumers of Lloyds TSB and Santander cross-visit more and have the same behaviour. A similar pattern for consumers of Halifax and Nationwide can be observed. The final group of consumers has a higher tendency to visit more banks, including NatWest, HSBC and Barclays, as well as Lloyds which is not in the same cluster. This shows that consumers are different in their visiting behaviour and visit different groups of banks according to their needs.

5.5 Mobile Network Providers

In order to understand the market structure of mobile network providers, actual mobile network operators and virtual mobile network operators in the UK were identified. The research indicated that O2, Orange, Vodafone, Three and T-mobile are leading the UK market. There are, however, virtual mobile network operators that provide services directly to their own customers but do not own key network assets and lease them from network operators. Of these, Virgin mobile and Tesco are the major ones, Virgin mobile using the T-mobile network and Tesco the O2 network.

5.5.1 Overall behaviour

As with the banking sector, the two concepts of Internet adoption and consumer distribution ratio were measured for mobile network providers.

Overall adoption of the Internet in the UK mobile network operators sector

The overall adoption of the Internet in this sector was measured by reach. Table 5.15 shows the adoption rate of this sector. Nearly half of Internet users in the UK visit telecommunication websites. However, the telecommunication sector is broader than mobile network providers. The six main providers have over 30% reach of the population. This shows a relatively good penetration in the market. However, it does not indicate the nature of use, which can be research into products, online purchase or use of online services.

Table 5.15: Overall adoption of the Internet in the UK mobile network sector

Audience	Total Unique visitors (000)	Reach %
Total Internet	42,634	100.0
Telecommunication sites	20,021	48.2
Top 6 network providers by share of consumers	12,886	30.2

Consumer distribution ratio

In order to assess the impact of the Internet on consumers' decisions to visit retailers, market share and share of UV were measured and compared. They were then used to calculate the consumer distribution ratio. Data on the number of mobile customers of each market player was gathered from their company reports and websites. It was further confirmed by market reports published in newspapers. Market share was accordingly measured (Table 5.16). According to Ofcom and the Mintel report (2011b), these operators dominated 95.3% of the UK market. The other 4.7% was removed from the total to simplify the analysis. The number of unique visitors for each provider was also collected from comScore reports and its share was calculated (Table 5.16). Orange, however, showed a particularly high rate of visit, and further investigation into the structure of all websites revealed that the Orange website has a sub-domain which provides news and entertainment. Visitors of this sub-section (web.orange.co.uk) were eliminated for meaningful analysis. According to Alexa, this sub-domain attracts 47% of Orange visitors. Therefore, 47% of the total unique visitors were excluded, making the mobile network visitors 2,734,000 (5158000*53%). In order to confirm and validate this figure, Google Ad planner was used as a second source. Total unique visitors of the Orange website were almost equal to the unique visitors of web.orange.co.uk plus the network-related sections, confirming that the visitors of these sub-sections are different.

The two shares are plotted in Figure 5.7. With the exception of a few small retailers, the Internet distribution of unique visitors is similar to the distribution of market share. Therefore the pattern of visiting has stayed the same with slight changes for some of the smaller retailers.

The consumer distribution ratio was also measured (Table 5.16). The top three providers are considered and visited by online consumers as in the traditional market (ratio = 1). Some of the smaller providers may benefit from the Internet by being much more visible to consumers (ratio > 1).

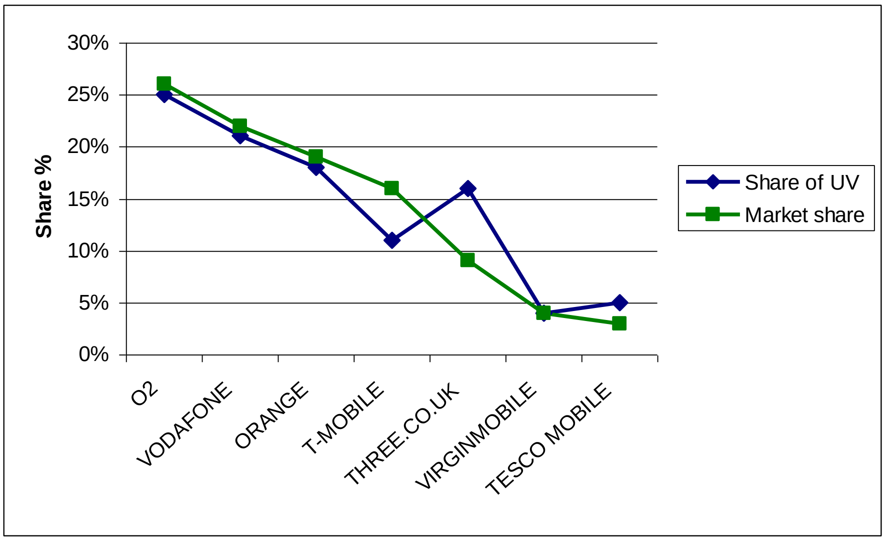


Figure 5.7: Consumer distribution of market share and share of unique visitors, mobile networks

Table 5.16: Market share, Share of UV and Consumer distribution ratio, mobile networks

Brands of mobile network providers	Number of unique visitors (000)	Share of unique visitors	Number of customers (Million)	Market share	UV/ Market share
O2	3,907	25%	22.2	26%	1.0
VODAFONE	3,176	21%	19	22%	1.0
ORANGE	2,734	18%	16.4	19%	0.9
T-MOBILE	1,676	11%	13.6	16%	0.7
THREE.CO.UK	2,393	16%	7.5	9%	1.8
VIRGINMOBILE	674	4%	3	4%	1.0
TESCO MOBILE	830*	5%	2.8	3%	1.7
Total	15,390	100%	84.5	100%	-

5.5.2 Cross-visiting behaviour

Cross-visiting behaviour in this sector was measured by using comScore audience duplication and cross-visiting reports.

Overall cross-visiting rate

The number of consumers who have cross-visited was similarly measured (Table 5.17). However, due to the unavailability of data on Tesco mobile, comScore's audience duplication report was run only for the other 6 providers. Results show that

79% of consumers have not cross-visited. They have either used online services, looked for specific information or researched into a particular retailer/product without performing online comparisons. Fewer than 21% of consumers have performed active research on the online market.

Table 5.17: Consumers' cross-visiting rate, mobile networks

Category of unique visitors	Unique visitors (000s)	Unique visitors (%)
Unduplicated unique visitors	12,886	100%
Duplicated unique visitors	1,727	21%
Unique visitors who visit one website only	10,159	79%

Extent of cross-visiting

The extent of cross-visiting for consumers was measured for the 6 providers excluding Tesco mobile. If we assume that all of those cross-visiting are doing online research, the size of their consideration set is 2.55. In fact, those who visit more than one website are doing research on only two or three providers out of six.

Total visits to Network operators: $\sum_{k=1}^{6} UV(k) = 14{,}560$

14,560– 10,159= 4,401

Extent of cross-visiting: 4,401/ 1,727= 2.55

Patterns of cross-visiting across multiple websites

Patterns of cross-visiting for any two providers were retrieved from comScore (Table 5.18). The cross-visiting between these websites ranged from 2.8% to 29.6%. A higher rate of cross-visiting between two websites indicates that these websites are visited by the same consumers in more instances. Therefore, they are more often in one consideration set or owned by the same consumers.

Table 5.18: Cross-visiting between the network providers

Cross-visiting behaviour of mobile network visitors on other websites (%)						
	O2	*VODAFONE*	*ORANGE*	*T-MOBILE*	*THREE*	*VIRGIN MOBILE*
O2	100.0	17.0	19.2	11.1	13.3	3.5
VODAFONE	20.9	100.0	20.9	14.1	14.5	2.8
ORANGE	14.6	12.9	100.0	9.8	9.8	3.9
T-MOBILE	25.8	26.8	30.0	100.0	23.2	8.6
THREE	21.7	19.2	21.0	16.2	100.0	4.7
VIRGIN MOBILE	20.3	13.2	29.6	21.3	16.5	100.0

Behavioural patterns across multiple websites were measured by clustering similar behaviour in terms of visiting retailers. Therefore, a clustering analysis on Table 5.18 was performed in order to group consumers who exhibit similar behaviour across multiple providers. All the stages of clustering analysis described in section 5.4.2 were followed. Figure 5.8 shows the dendrogram of analysis. Consumers of Vodafone and T-mobile have a very similar behaviour on other competitors. At the next level, O2, Three, Vodafone and T-mobile can be grouped together. However, they are still relatively distanced. The coefficient also indicates a jump after the first stage (Table 5.19). Continuing the steps would result in clustering dissimilar consumers. Therefore, 5 clusters (6-1) were identified. It shows a very different behaviour across the sector.

```
 Dendrogram using Ward Method

                         Rescaled Distance Cluster Combine

    C A S E      0         5        10        15        20        25
  Label     Num  +---------+---------+---------+---------+---------+

  VODAFONE    2   -+-------+
  T-MOBILE    4   -+       |
  O2          1   ---------+-------+
  THREE       5   ---------+       +--------------------------------+
  ORANGE      3   -----------------+                                |
  VIRGIN M    6   --------------------------------------------------+
```

Figure 5.8: Hierarchical clustering test Dendrogram, mobile networks

Table 5.19: Hierarchical clustering test Coefficient, mobile networks

Agglomeration Schedule						
Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	2	4	6476.600	0	0	2
2	1	2	13286.127	0	1	3
3	1	5	20120.177	2	0	4
4	1	3	27264.640	3	0	5
5	1	6	35789.943	4	0	0

In the second stage, based on the results of the hierarchical clustering, a K-means clustering defining 5 different clusters was run. The results are shown in Table 5.20(a) & (b). Consumers of Vodafone and T-mobile are grouped together while others are the only member of their clusters. Table 5.21(a) & (b) shows the Euclidean distances between the final cluster centres. Larger distances indicate greater dissimilarities. Distances show that cluster 2, comprising consumers of Vodafone and T-mobile, are relatively closer to other clusters. Virgin (cluster 4) is far from all other groups. Orange consumers are relatively different from Three and T-mobile and slightly closer to O2.

Table 5.20: Cluster memberships, mobile networks

Clusters	**Number of retailers in the cluster**	**Members of the cluster**
1	1	O2
2	2	Vodafone, T-mobile
3	1	Orange
4	1	Virgin Mobile
5	1	Three

(a)

Cluster Membership			
Case Number	VAR00007	Cluster	Distance
1	O2	1	.000
2	VODAFONE	2	56.906
3	ORANGE	3	.000
4	T-MOBILE	2	56.906
5	THREE	5	.000
6	VIRGIN M	4	.000

(b)

Table 5.21: Euclidean distances between cluster centres, mobile networks

Final Cluster Centres					
	Cluster				
	1	2	3	4	5
O2	100.00	23.35	14.60	20.30	21.70
VODAFONE	17.00	63.40	12.90	13.20	19.20
ORANGE	19.20	25.45	100.00	29.60	21.00
T-MOBILE	11.10	57.05	9.80	21.30	16.20
THREE	13.30	18.85	9.80	16.50	100.00
VIRGIN M	3.50	5.70	3.90	100.00	4.70

(a)

Distances between Final Cluster Centres					
Cluster	1	2	3	4	5
1		101.066	117.698	126.100	116.976
2	101.066		102.480	112.795	101.149
3	117.698	102.480		120.005	120.452
4	126.100	112.795	120.005		127.249
5	116.976	101.149	120.452	127.249	

(b)

Plotting distances shows the probability of each retailer being visited in a cluster (Figure 5.9). For further explanation refer to section 5.4.2. Among those providers outside the cluster, Orange seems to have a higher chance of being visited, particularly in case of Virgin mobile. In its cluster, however, other retailers seem to be distanced. Virgin is very far from all clusters. Consumers in cluster 2 have a higher tendency to visit more providers. T-mobile and Vodafone have a distance of nearly 60 and 3 of other providers with distance of almost 20 from the centre.

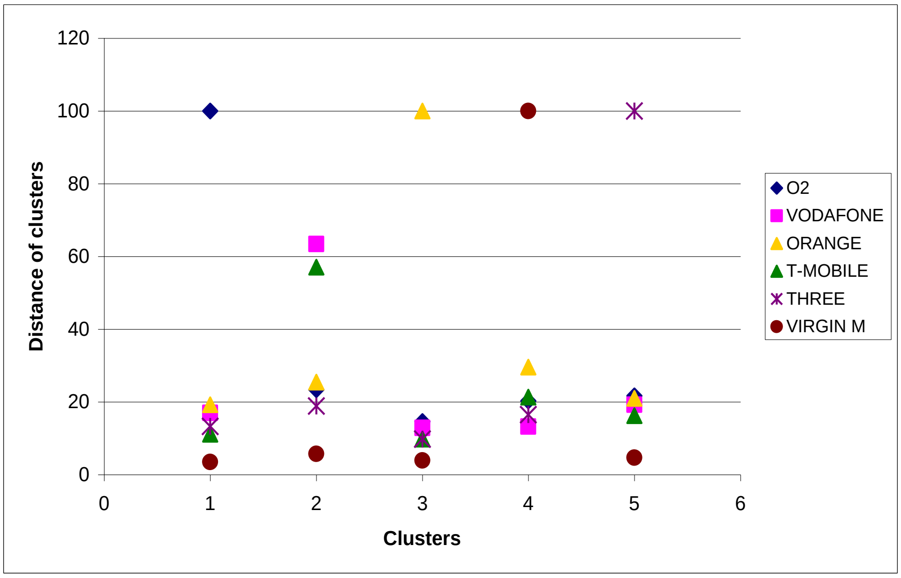


Figure 5.9: Plot of distance of clusters, mobile networks

Comparison websites

According to the comScore report on the telecoms sector, CarphoneWarehouse and Phones4U are the most visited comparison sites. Table 5.22 shows the cross-visiting rate between the consumers of network providers and these two websites. The rate of usage for these websites is high, showing their impact on consumer decision-making processes. This rate is noticeably higher for smaller retailers. Therefore, the existence of these sites is an advantage for smaller providers, leading to their inclusion in the consideration set of consumers.

Table 5.22: Cross-visiting between network providers and comparison sites

Mobile network operators	Network operators' visitors visiting CarphoneWarehouse (%)	Network operators' visitors visiting Phones4U (%)
O2	17.9	14.0
VODAFONE	17.8	13.4
ORANGE	12.1	10.1
T-MOBILE	27.6	21.1
THREE	21.3	13.8
VIRGIN MOBILE	26.6	22.7
TESCO MOBILE	NA	NA
AVG	20.6	15.9

Figure 5.10 is drawn to provide a better picture of their impact. A minimum of 31% of consumers use these websites to reach a decision. Therefore, their impact cannot be neglected. As mentioned in section 5.4.2, the numbers are calculated by the following formula:

AVG [CarPhoneWarehouse visits by network visitors] = **20.6**% (Table 5.22)
AVG [Phones4U visits by network visitors] = **15.9**% (Table 5.22)

Network visitors cross-visiting between two websites = UV [cross-visit two sites (665)]/total 6 network sites UV (12,886) = 5.2%

Maximum: 20.6 %+ 15.9 % = 36.4%
Minimum: 20.6 %+ 15.9 %- (5.2%) = 31.2%

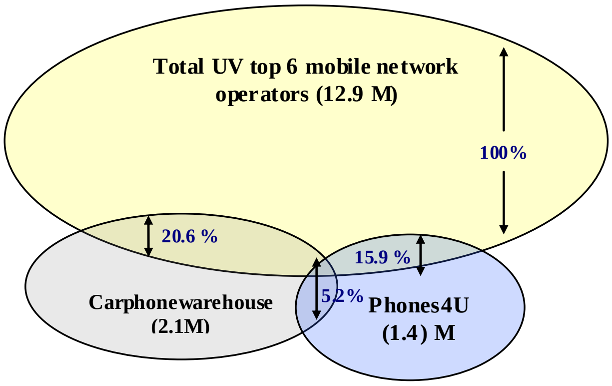


Figure 5.10: Consumers of network providers cross-visiting comparison sites

5.5.3 Detailed behaviour on individual websites

Behaviour of consumers in terms of purpose of visit and intensity of use were measured in this sector. Intensity can be assessed using the three indicators of “rate of repeated visits”, “usage duration”, and “number of pages visited”. The results are presented here.

Purpose of visit

In order to identify the purpose of visit to a provider, data on its sub-domains was extracted from comScore reports. The sub-domains and distribution of consumers were straight forward for this sector. URLs for login pages for O2, Vodafone, Orange, T-mobile and Three were myo2services.o2.co.uk, billcentre.vodafone.co.uk, youraccount.orange.co.uk, my.t-mobile.com and my3.three.co.uk. In order to measure the proportion of visitors who have a certain purpose, the number of unique visitors of that section was divided by the total number of unique visitors. The results are illustrated in Tables 5.23 and 5.24 and Figure 5.11.

Nearly half of consumers visit providers’ websites with the purpose of researching into products. This shows that the Internet is mainly used for research and purchase purposes. There is a remarkable difference in the use of online services of different networks, ranging from 34% to 5%. Three websites, for instance, have a low rate of online service usage despite the high online traffic.

Table 5.23: Portion of UV using the website for research into products, mobile networks

Mobile website	Product sub-sections UV (000)	Portion of UV using the website for research/purchase
O2	2,200	56%
VODAFONE	1,800	57%
ORANGE	1,300	48%
T-MOBILE	NA	NA
THREE	750	31%
VIRGIN MOBILE	NA	NA
TESCO MOBILE	NA	NA
Average		48%

Table 5.24: Portion of UV using the website for online services, mobile networks

Mobile website	Online service sub-sections UV (000)	Portion of UV using the website for online services
O2	830	21%
VODAFONE	700	22%
ORANGE	920	34%
T-MOBILE	240	14%
THREE	220	9%
VIRGIN MOBILE	NA	NA
TESCO MOBILE	39	5%
Average		18%

Rate of repeated visits, usage duration and number of pages visited

The rate of repeated visits and usage duration (average minutes per visit) were collected for providers and the two comparison sites from comScore reports (Table 5.25). The number of pages visited was calculated by:

$$\text{Number of pages visited in each visit} = \frac{\text{Total pages viewed}}{\text{Total visits}}$$

Table 5.25: Usage intensity on providers' websites

Websites	Usage duration (min)	Number of pages visited	Rate of repeated visits (per month)
O2	5.3	11.4	*2.7*
VODAFONE	5.7	12.0	*2.1*
ORANGE	5.9	8.2	*6.6*
T-MOBILE	6.6	8.3	*2*
THREE	2.3	3.7	*4.6*
VIRGIN MOBILE	4.1	8.3	*1.7*
TESCO MOBILE	-	-	*2.4**
AVG	5.0	8.7	3.2
CarphoneWarehouse	5.0	10.3	2
Phones4U	3.3	5.3	1.7

On average, the rate of repeated visits is 3.2 times per month. However, it is relatively higher for Orange because, as explained above, its website structure includes entertainment sections as well as extra services such as "Orange Wednesdays". Excluding Orange, the others tend to have a repeated visit of 2.6 times per month.

The number of pages visited and usage duration are relatively high. Consumers spend on average 5 minutes and visit more than 8 pages, which is similar to CarphoneWarehouse and slightly higher than Phones4U. It shows high usage intensity for online retailers. Three is not used as much by online consumers, while the products of T-mobile, Orange, Vodafone and O2 are well researched (Figure 5.11).

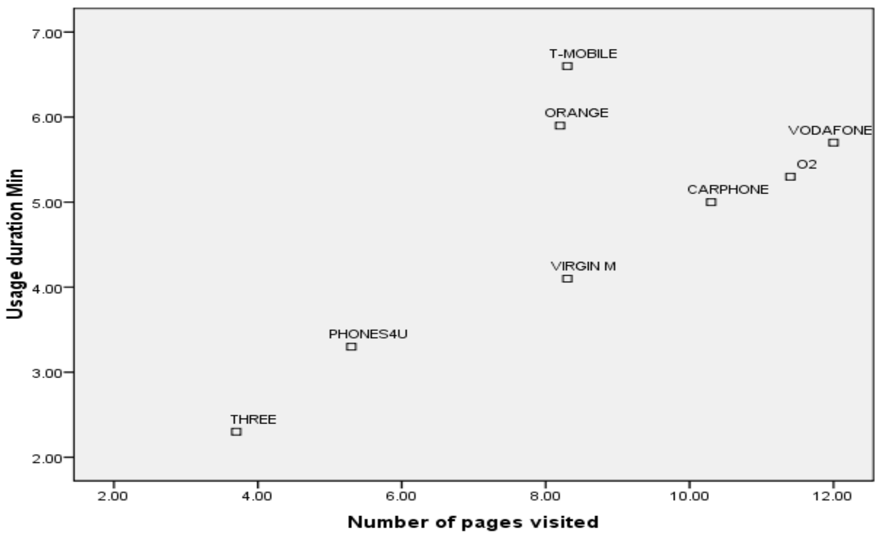


Figure 5.11: Usage intensity for providers' website

5.5.4 Summary of key results for mobile network providers

Analysis of online consumers showed that the Internet has a good penetration in this sector. More than 30% of the online population have visited one of the main 6 providers. Larger retailers still tend to have a higher portion of visitors. The consumer distribution ratio shows that larger providers are treated in the same way on the Internet. A few smaller providers have a higher visibility online. The higher cross-visiting between these smaller retailers and comparison sites indicated that the higher visibility might be due to the appearance of these sites.

The main purpose of visit in this sector is research (48%) and the Internet is mainly a research/purchase channel. The research into products is also in-depth and consumers spend 5 minutes and visit more than 8 pages. The rate of repeated visits is high (3.2). This may indicate that purchase decision making is performed over a period of time rather than one visit. This channel is therefore used for researching into products and has altered the way consumers visit and interact with different retailers. Although the portion of visitors who research is similar across websites, a different pattern for online service usage is observed.

Details of consumers' interactions with multiple websites identified the nature of their research. In this sector, 48% of consumers research while only 21% of them have cross-visited. Therefore, many consumers visit only the one retailer which they have in mind or perform their research on comparison sites. Those who cross-visit have visited 2.55 retailers. A minimum of 31% use the two main comparison sites to reach a decision. This could explain the reason for such a low extent of cross-visiting, as comparison occurs on these websites. Cross-visiting with comparison sites is noticeably higher for smaller providers. Consumers visit smaller retailers and include them in their consideration set as a result of comparison sites. Therefore, these sites are one of the reasons for change of overall behaviour on the Internet, which makes small retailers more visible.

Groups of consumers based on their cross-visiting behaviour were identified. The result of clustering revealed that consumers are grouped into 5 categories. Consumers of Vodafone and T-mobile were grouped together, with others being too different to be clustered. Virgin mobile is relatively distanced from other groups. Having many clusters with 1 or 2 providers in each group in addition to the low portion of researchers that cross-visit supports finding of small consideration sets. Each group of consumers tend to visit few alternatives. Among those providers outside the cluster, Orange seems to have a higher chance of being visited. Consumers of T-mobile and Vodafone (cluster 2) have a higher tendency to visit more providers, with the three other providers being relatively close. Consumers are different in their needs and visit specific retailers accordingly.

5.6 Comparison of results and discussion of theory

The main findings of macro-level analysis are discussed based on the three viewpoints described at the beginning of this chapter.

5.6.1 Overall behaviour in the market

Macro-level analysis of online consumer behaviour in the two sectors reported a high Internet penetration rate for both markets. The fact that larger retailers attract more online consumers is evident and therefore overall behaviour is not dramatically transformed. Theoretically, consumers are expected to use markets more proportionately in a way that market competition increases and the power of larger retailers decrease (Daniel and Klimis, 1999; Bakos, 1991; 1997). After eliminating retailers' size factor, a slight sign of this effect could be observed for mobile networks; however, the result was slightly opposite for banking. Behaviour of consumers in retail banking remains the same on the Internet, with even marginal advantage for larger banks. The study by Jayawardhena and Foley (2000) suggested that the UK banking market would be affected by the Internet and the possibility of having newcomers with low operating costs which could take a large market share. Online consumers would have access to comparison sites which provide them with the best offer and would be able to change their banks "at the press of a button". A decade later, researchers based on the history of Internet in banking sector stated that: "Internet banking did not fundamentally change the nature of competition in the market rather it reformed the existing market making it more efficient" (Laffey and

Gandy, 2009a). This is, in fact, in line with the analysis of actual consumer behaviour presented in this chapter. It is rooted in the purpose of visit. Consumers mainly use the bank websites as a service channel (76%) with poor amount of effort in product research (Karimi, Papamichail and Holland, 2011a). There is therefore a high rate of repeated visits to their own bank. The mobile network market, on the other hand, has gone through slight changes. The results are closer to what is expected from an online market. A few smaller retailers are enjoying higher visibility and attracting more consumers through the Internet. Consumers of mobile network providers use the Internet as a research channel, looking at products on their websites. However, there are important differences in the way the Internet is used in different sectors, as stated by Wikstrom (2005). In addition, the results imply that analysis of consumer macro-level behaviour without considering the purpose of visit can not reflect the actual behaviour.

5.6.2 Detailed behaviour on individual websites

Detailed analysis of behaviour on a particular website supports the main use of the Internet in each sector. Research into the banking sector did not include a high level of effort, visitors spending a short period of time and visiting a limited number of information pages. However, mobile network consumers investigated more in-depth, visiting the website a few times, retrieving several pages and spending time on reading the information. This implies that use of the Internet for information search and purchase is well-established in this sector. Earlier studies such as that by Johnson et al. (2004) have found very low research intensity for different categories of product (books, CDs and travel websites). Information overload is one of the main causes of limited pre-purchase information search (Zhang, Agarwal and Lucas, 2011). The individual level analysis described in the next chapter addresses this issue.

5.6.3 Cross-visiting behaviour across the market

In terms of cross-visiting different retailers in the market, the rate was low in both sectors, with a limited number of retailers being visited. There is little research on the actual size of online consideration sets. Johnson et al. (2004) have found that online consideration sets were very small for three categories of products/services (1.2-1.8). Clustering analysis supported this result. It shows that consumers are grouped into many clusters, each visiting only a few retailers. Therefore, their consideration set is small. This does not follow the theory that in an online market, consumers have access to all suppliers and are capable of searching many retailers (Daniel and Klimis, 1999) which would result in a large consideration set. They visit limited number of retailers based on their needs.

A new trend was also noticed that seems to be influential in both markets. Use of comparison sites, where consumers are able to compare different offerings, is relatively high in both sectors. Their impact and importance in the UK market has been previously acknowledged. In 2008, 10% of online sales in the UK were made through these websites (Laffey and Gandy, 2009b). A survey of mobile network consumers has also revealed that they consumers have difficulty in comparing alternatives due to the variety of options with complex rate structures. Therefore, use of comparison services in this sector was encouraged (Xavier, 2008). However, there is little research exploring their impact on mobile consumers. Bruggemann and Breitner (2005) found that the German-speaking comparison sites in this sector were unlikely to be accepted in the immediate future. However, my results for the UK market show that they are already well-established. In the UK retail financial services, Laffey and Gandy (2009a) found that the role of comparison websites is prominent and that they have become a fundamental part of the market. Their influence on the UK insurance industry has also been examined, showing rapid change in the previously stable market (Robertshaw, 2011). These works are, however, based on case studies. Analyzing the actual behaviour of online consumers in the UK found similar results for the banking sector. The effort put into research on these websites in terms of usage intensity is also high. Therefore some part of the decision-making process occurs on these sites, which might explain the limited visits to banks. Retailers have a better chance of reaching consumers by appearing on these sites, and several smaller network providers are making good use of this strategy. It is important to understand their impact on research and purchase decisions (Laffey and Gandy, 2009a).

This chapter presented a comprehensive macro-analysis of consumer behaviour. Actual patterns of behaviour on the market were explained. The next chapter completes the findings of this study by exploring the individual behaviour of online consumers while making a purchase decision.

6 INDIVIDUAL-LEVEL ANALYSIS

6.1 Chapter overview

This chapter presents the findings of this research for the experiments which were conducted at the individual level. It is divided into two sections for each of the selected sectors. It focuses on the main research questions: "What is the purchase decision-making process followed by consumers?" and "How do the characteristics of individuals and markets influence the process?" Individuals are segmented into four groups based on their decision-making style and prior knowledge. The analysis goes beyond modelling the purchase decision-making process of each segment addressing the variations in behaviour of consumers through all stages of decision making. It finally highlights how the differences in individual characteristics and variations in the process lead to different outputs in terms of intention to pursue the choice, and satisfaction; these are then compared across sectors.

6.2 Retail banking sector

As mentioned in the research methodology chapter, decision-making processes for 25 participants were modelled by UML activity diagrams. The details of the modelling technique were explained in section 4.4.5. It resulted in 1,727 activities and 991 transitions between different stages. Participants were grouped into four categories based on their score on a maximization scale and their reported knowledge of the market and product. Purchase decision-making process models, characteristics of the overall process, behaviour at each stage, the flow of the process as well as the process outcome are analyzed for each group.

6.2.1 Consumer segmentation

Responses to the 13 items of the maximization scale (7-point Likert scale) were combined and averaged to provide a single composite score. Maximization tendency ranged from 3.1 to 6.3. Figure 6.1 shows the distribution of participants on the scale.

In line with Schwartz et al. (2002) who developed the scale, as well as the studies of Iyengar, Wells and Schwartz (2006) and Love (2009), the median split (4.46) was used to differentiate between maximizers and satisficers.

In order to assess the representativeness of the sample, it was compared against previous studies of maximization tendency. The range of maximization tendency was slightly narrower than that of Schwartz et al. (2002) (2.6 to 6.7). However, the main issue was classification of participants into maximizers or satisficers. The median of 4.46 was slightly higher than that of Schwartz et al. (2002)'s sample (4.2) and Love (2009)'s sample (4.15, from a population of 1,680). There was one individuals in my sample with a maximization score between 4.2<x< 4.46. I used the median of 4.46 to split the sample into 13 maximizers and 12 satisficers. The maximizers' group mean on the maximization scale was 5.12 with (*SD* _ 0.554). The satisficers' group mean was 3.8 with (*SD* _ 0.428).

The scores of the participants on the maximization scale were more towards the maximizing end of the scale (9 participants scored 5 to 7), or the middle (16 participants scored 3 to 5). This, however, is in line with other research such as that by Schwartz et al. (2002) and Iyengar, Wells and Schwartz (2006), in the sense that the average score lies on the maximizing side of the scale. Similarly, Love (2009), who measured the maximization tendency of 1680 participants, had 357 on the maximization side of the scale, 1263 in the middle group and only 60 in the satisficing group. Therefore, our sample appears to be representative.

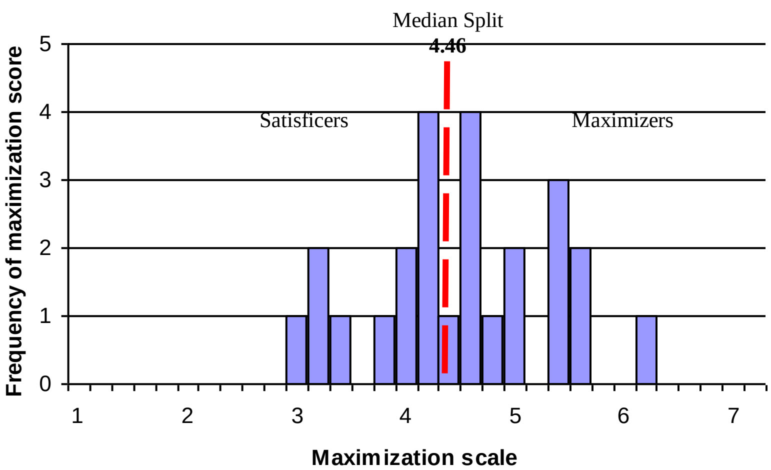


Figure 6.1: Distribution of participants on the maximization scale, banking sector (N=25)

Knowledge, on the other hand, was measured by two questions about the knowledge of banks and current accounts, on a 5-point Likert scale. Participants were accordingly grouped into two categories of high or low knowledge. Table 6.1 shows the number of participants in each group as well as the total number of transitions between different stages and the average transition for a participant.

Table 6.1: Segmentation of participants into four groups, banking sector

	Satisficers			**Maximizers**		
Low level of knowledge	Number of participants	Number of transitions	Average number of transitions per participant	Number of participants	Number of transitions	Average number of transitions per participant
	7	**288**	**41.1**	**5**	**206**	**41.2**
High level of knowledge	Number of participants	Number of transitions	Average number of transition per participant	Number of participants	Number of transitions	Average number of transition per participant
	5	**162**	**32.4**	**8**	**337**	**42.1**

6.2.2 Insight into the general process model and its characteristics

In this section the general decision-making process model for each segment and its characteristics are presented. The general process model graphically illustrates the decision-making process. Characteristics of the general process are explained in terms of behavioural intensity, allocation of effort and the duration of the process.

The first step in understanding the behaviour of consumers is to understand their decision-making process and the stages that follow one another. Therefore, the number of times each stage was followed by another one was captured through the activity diagrams for each individual. The average for each segment was measured and used to generate the general process model of that segment. Table 6.2 shows the average transition between different stages and the average transition between stages as a proportion of total activities. Figures are based on the aggregated behaviour of participants within one category. These numbers show iterations between different stages. Activities that follow each other within a single stage were not included. For instance, a participant might have performed a number of search activities continuously without moving to another stage, but this did not represent a movement between stages. In addition, the aggregated behaviour was checked against the individual processes to eliminate the impact of outliers which might have influenced the average.

As can be seen from Table 6.2, there are not many columns containing a zero value. This suggests that consumers might generate loops from one stage to almost any other stage. It increases the complexity of the process and is an indicator of its unstructured nature.

This aggregated information was utilized to model the general decision-making process for each segment as well as uncovering variations in the characteristics of the process such as intensity of cycles and allocation of effort. Duration of the process was also captured for each individual.

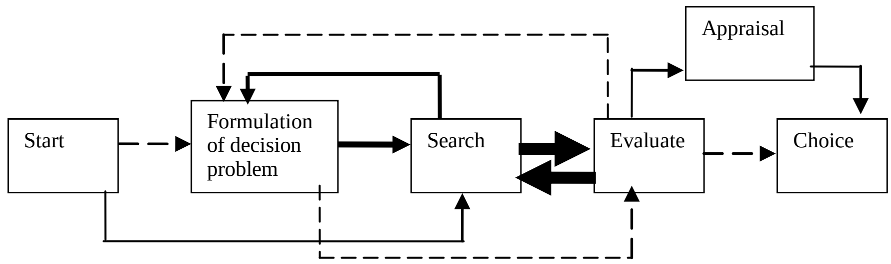
General decision-making processes

According to this aggregated result and individual behaviour, the general decision-making process models for each category were developed (Figure 6.2). The method of modelling was discussed in the research methodology chapter. The models illustrate the most common traces of steps which are followed by each category of participants. The rare instances of behaviour that were performed by very few participants were eliminated as they did not represent the behaviour of the category. Types and thickness of arrows illustrate the frequency of occurrence. Dotted arrows show that this transition has been performed by a number of participants in the sample and should not be ignored. Thinner arrows show a common link. As they become thicker, arrows depict a stronger link. The thickness indicates the extent of iterations. Iterations define the complexity of the process. Therefore, purchase decisions are complex processes in this sector. Each individual process model is an instance of the general model. Consumers decide on the flow of the process as the process goes on.

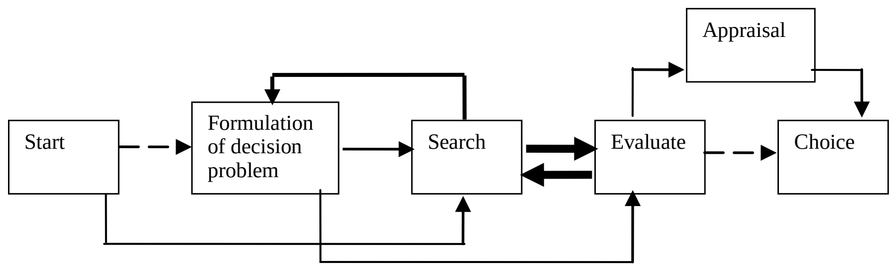
Table 6.2: Transition between stages of the online purchase decision-making process, banking sector

Stages	Average transition between different stages and its frequency as a portion of total activities							
	Satisficers with low level of knowledge		Satisficers with high level of knowledge		Maximizers with low level of knowledge		Maximizers with high level of knowledge	
	Average transition	Frequency in the process	Average transition	Frequency in the process	Average transition	Frequency in the process	Average transition	Frequency in the process
Start to formulation	0.3	1%	0.4	1%	1	2%	0.4	1%
Start to search	0.7	2%	0.6	2%	0	0%	0.6	1%
Formulation to search	4	10%	2.8	9%	6.8	17%	4.4	10%
Formulation to evaluation	1	2%	2.2	7%	1.5	4%	0.7	2%
Search to formulation	3.9	9%	3.4	10%	4	10%	2.1	5%
Search to evaluation	13.3	32%	9.4	29%	11.5	28%	12.6	30%
Search to appraisal	0.6	1%	0.2	1%	0	0%	2.4	6%
Search to choice	0	0%	0	0%	0.3	1%	0.3	1%
Evaluation to search	12	29%	8.6	27%	7.5	18%	9	21%
Evaluation to formulation	1	2%	1.4	4%	3.3	8%	2.7	6%
Evaluation to choice	1	2%	1	3%	1.8	4%	1.3	3%
Evaluation to appraisal	0.9	2%	0.6	2%	1	2%	1	2%
Choice to search	0.4	1%	0.2	1%	0	0%	0.7	2%
Appraisal to choice	0.4	1%	0.4	1%	0	0%	0	0%
Choice to appraisal	0	0%	0.2	1%	0.3	1%	0	0%
Formulation to appraisal	0.4	1%	0.2	1%	0	0%	0.3	1%
Appraisal to formulation	0.3	1%	0	0%	0	0%	0.1	0%
Appraisal to search	0.7	2%	0.8	2%	1.3	3%	2.4	6%
Choice to evaluation	0	0%	0	0%	0.5	1%	0	0%
Appraisal to evaluation	0.3	1%	0	0%	0	0%	1	2%
Formulation to choice	0	0%	0	0%	0	0%	0.1	0%
Choice to formulation	0	0%	0	0%	0.3	1%	0	0%
Total	41.1	100%	32.4	100%	41.2	100%	42.1	100%

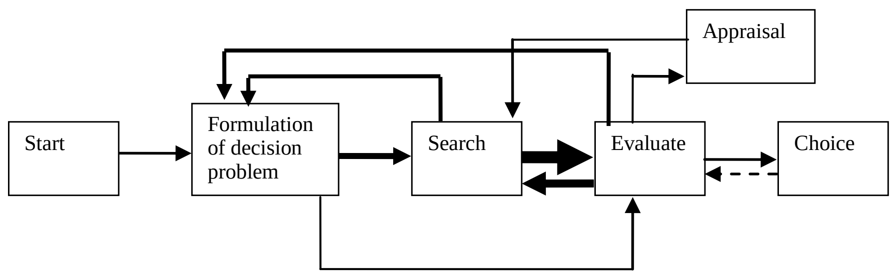
Satisficers with low level of knowledge



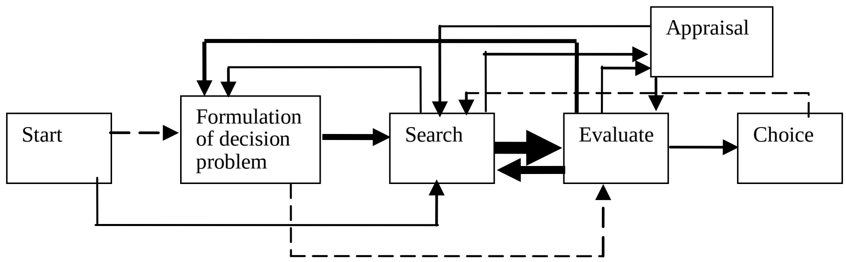
Satisficers with high level of knowledge



Maximizers with low level of knowledge



Maximizers with high level of knowledge



Strongest link repetition
Very strong link repetition
Strong link repetition
A few occurrences of a link repetition
Common link
Performed by a noticeable number of participants

Figure 6.2: General purchase decision-making process models for each category, banking sector

As can be seen, the majority of cycles occur between search and evaluation. The iteration between these two stages is constantly taking place. Meanwhile, consumers revisit the formulation stage. As a result, a relatively strong link between formulation and search stages can be identified, indicating that formulation of the decision problem derives the search activity. On the other hand, coming across new information changes the formulation of the decision problem in the mind of buyers. This is in fact a very crucial stage of the purchase decision making as it determines how encountered information can affect the mind and further behaviour of consumers. Evidence of appraisal was also found in all groups. More iteration indicates more complexity in a process. The purchase process in the banking sector is highly complex, due to the large number of iterations.

Intensity of cycles in purchase decision-making process

The overall view of the process is illustrated in Figure 6.2 above. The intensity of cycles in a decision-making process is very important as it indicates the complexity and the effort put into making the decision. As mentioned before, it is expected that "prior knowledge negatively and maximization level positively influences the number of cycles in the process". Table 6.2 shows that maximizers have a high number of iterations. They, in any case, engage in an intensive decision-making process. Satisficers, on the other hand, have fewer cycles only if their level of knowledge is high. When their knowledge is low or the maximization tendency is high, little difference in the total number of cycles can be observed. Satisficers with low knowledge increase their maximizing behaviour by performing many cycles, because of the nature of banking products which is associated with a high level of importance.

Allocation of effort

The total number of cycles for the entire process was discussed above. Allocation of effort is measured by the frequency of entry to a certain stage (Table 6.3). It illustrates the level of effort that consumers allocate to each activity. In order to measure entry to each stage, the values in the rows of the table that show entry to a certain stage were totalled. The most effort is allocated to search and evaluation, followed by formulation.

Table 6.3: Allocation of effort, banking sector

Stages	Average entry to different stages and its frequency as a portion of total activities							
	Satisficers with low level of knowledge		Satisficers with high level of knowledge		Maximizers with low level of knowledge		Maximizers with high level of knowledge	
	Average entry	Frequency in the process	Average entry	Frequency in the process	Average entry	Frequency in the process	Average entry	Frequency in the process
Entry to formulation	5.5	13%	5.2	15%	8.6	21%	5.3	12%
Entry to search	17.8	44%	13	41%	15.6	38%	17.1	40%
Entry to evaluation	14.6	35%	11.6	36%	13.5	33%	14.3	34%
Entry to appraisal	1.9	4%	1.2	5%	1.3	3%	3.7	9%
Entry to choice	1.4	3%	1.4	4%	2.1	5%	1.7	4%
Total	41.1	100%	32.4	100%	41.2	100%	42.1	100%

Formulation: Based on the literature, it was expected that prior knowledge would negatively influence the number of reformulations of the mental model (section 3.8). Results show that those with a low level of knowledge have more entries to formulation. Maximizers also have more reformulation in their decision-making process than do satisficers. The number of reformulations for maximizers with low knowledge stands out. However, the overall number of reformulations is high in this sector.

Search: Satisficers with high knowledge have the least amount of entry to search, as was expected. The results for other segments are relatively close. The behaviour of satisficers with low knowledge can be explained as a tendency to maximizing behaviour for this product type, as Figure 6.2 shows. Surprisingly, maximizers with a low level of knowledge have a relatively low rate of search activities. This could be explained by their inability to perform many cycles of search due to their lack of knowledge, the complexity of the task and their tendency to read all the information; this will be discussed below. However, entering the search stage is not equivalent to the amount of information search as it does not account for the depth and breadth of search behaviour.

Evaluation: Similarly, satisficers with high knowledge have the least number of entries to evaluation. Entry to this stage for other segments seems to be similar. Satisficers with low knowledge show maximization tendency. As most of the information found needs to be evaluated, entry to this stage and search are related. The similarity of satisficers with low knowledge to maximizers can be for the above reasons.

Appraisal: Although it was expected that the maximization level positively influences appraising the decision-making process (section 3.8), entry to this stage is more frequent only for maximizers with a high level of knowledge (Figure 6.2). Participants in this group need to assure themselves of their choice and therefore perform appraisal. Maximizers with low knowledge, however, are too involved in a complex process and are mainly too confused to step back and review.

Duration of decision-making process

In addition to the number of cycles, time spent on the process indicates the effort put into the decision-making process. It is expected that knowledge negatively and maximization positively influence the duration. Table 6.4 shows the average duration for each group. The average time spent by maximizers is higher, as expected. In addition, those with a low level of knowledge spend more time on the process.

Table 6.4: Duration of the process, banking sector

	Average time	SD-time
Satisficers with low level of knowledge	24:50	4.5617
Satisficers with high level of knowledge	18:20	5.263
Maximizers with low level of knowledge	33:40	6.7601
Maximizers with high level of knowledge	28:20	7.1501

However, the standard deviation (SD) was high for all groups, showing noticeable differences between participants. In order to verify a statistically significant difference between maximizers and satisficers, the T-test was executed. The result shows a P-value of 0.003951 (<0.05) which rejects the null hypothesis and supports significant difference between the two groups of maximizers and satisficers. However, no significant difference between those with high and low levels of knowledge can be observed. The impact of the maximization tendency seems to be higher.

An ANOVA test of the four categories (P-value: 0.004275) also supports the time difference for these categories. The T-test between the four groups suggests that satisficers with high knowledge are significantly different from maximizers with low (P-value: 0.004044) and high (P-value: 0.013886) knowledge. Satisficers with high knowledge spend the least time on the process. Maximizers with low and high knowledge are similar (P-value: 0.201816). Satisficers with low knowledge are similar to maximizers with high knowledge and different from the others. In fact, satisficers with low knowledge show the behaviour of maximizers with high knowledge in terms of duration.

Table 6.5: T-test and ANOVA test for duration of the process, banking sector

Tests for different groups	***P-value***
ANOVA *(four groups)*	0.004275
T-test for maximizers and satisficers	0.003951
T-test for those with high knowledge and low knowledge	0.093054
T-test for satisficers with high knowledge & satisficers with low knowledge	0.052242
T-test for satisficers with high knowledge & maximizers with low knowledge	0.004044
T-test for satisficers with high knowledge & maximizers with high knowledge	0.013886
T-test for Satisficers with low knowledge & maximizers with low knowledge	0.039146
T-test for Satisficers with low knowledge & maximizers with high knowledge	0.272694
T-test for maximizers with low knowledge & maximizers with high knowledge	0.201816

6.2.3 Insight into the characteristics of each stage of the decision-making process

Although aggregated process models, frequencies and intensity of behaviour can identify many of the characteristics of a process, the detailed behaviour at each stage is still unknown. The different segments of consumers behave differently at each stage of the purchase process. In this section, characteristics of the decision-making process at each stage are analyzed and compared across different segments. Some are measured in terms of numbers and intensity, while certain characteristics are assessed by interpretation of observed behaviour and verbal protocols. Those characteristics which are of interest were explained in section 3.6.

Starting the process

The way that consumers start a purchase task can influence the subsequent stages, so it is important to know whether they refer to their own knowledge at the very beginning or let the Internet offer them various solutions. Results indicated that different consumers start the task differently. As Figure 6.3 clearly shows, maximizers with a low level of knowledge tend to be more concerned about formulating the decision problem at the beginning of the process. They all start the process with the formulation stage, generating alternatives, criteria and making a plan for their actions; whilst satisficers with a low level of knowledge start the activity by search. This could be due to the fact that using search rather than retrieving internal information reduces the mental effort. Those with knowledge started the activity by search. However it is not a concept formation search but one directed towards specific banks.

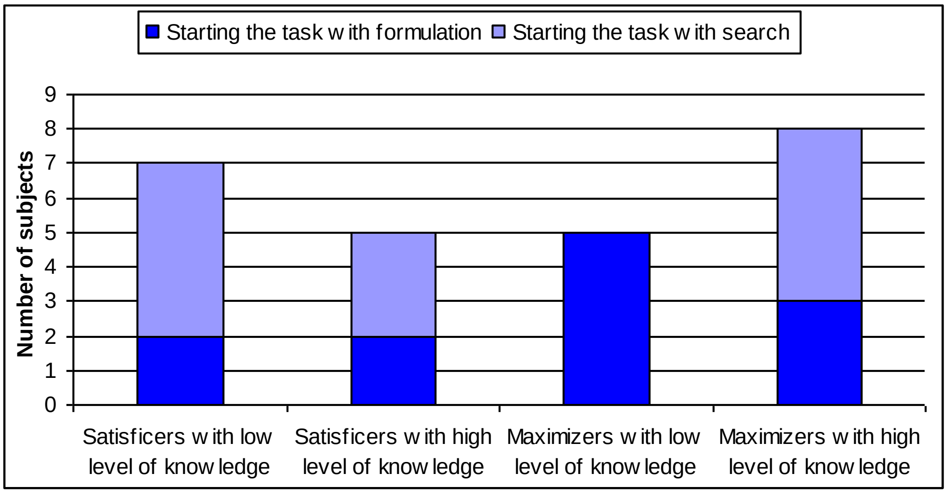


Figure 6.3: Starting the decision-making process, banking sector

Formulation

The number of alternatives and criteria used in the decision-making process was measured for each individual and averaged within a group. The results are illustrated in Table 6.6. Maximization level was expected to positively influence and prior knowledge negatively influence the number of evaluated attributes and alternatives. It can be clearly seen that maximizers have remarkably more criteria and evaluate more alternatives. In addition, among both maximizers and satisficers, those with a lower level of knowledge look at 1.3 more alternatives and have on average 0.5 more criteria.

It was also expected that maximizers would leave their options open towards the end. However, evidence of this behaviour is only found for maximizers with a low level of knowledge. The other maximizers are more decisive as they have the knowledge to reject unsuitable alternatives on the spot.

Search

The search activity was measured in terms of depth and breadth of search and the type of information sources visited (see section 3.6.3).

In the allocation of effort, entry to the search stage was measured. However, this alone cannot define the amount of search performed by consumers. Amount of search was measured by depth and breadth of observed behaviour, expected to be negatively influenced by prior knowledge and positively by maximization level. The results are illustrated in Table 6.6. They suggest that breadth of search is more dependent on the knowledge of consumers, those with high knowledge searching fewer sources. Depth of search is, however, a matter of maximization tendency. Maximizers read information in depth, going through links to read more about a product while satisficers look at information in less detail.

Another dimension of search behaviour is the type of sources used by consumers. Figure 6.4 shows the use of different sources by consumers. It should be noted that the bank-only column shows those who have not used any other source of information, while the first two columns show those who have used other sources in addition to banks. Maximizers with a low level of knowledge are likely to use only bank websites for information, while satisficers with low knowledge are more likely to use comparison sites. This could be due to their attempt to use simplification strategies in collecting the information and evaluating it. As mentioned by some of them:

> “They have done the research for me, so I can just use it”
>
> “I don't have time to look at everything and I trust the information they provide”

We could not find any pattern in using user-generated content by different segments.

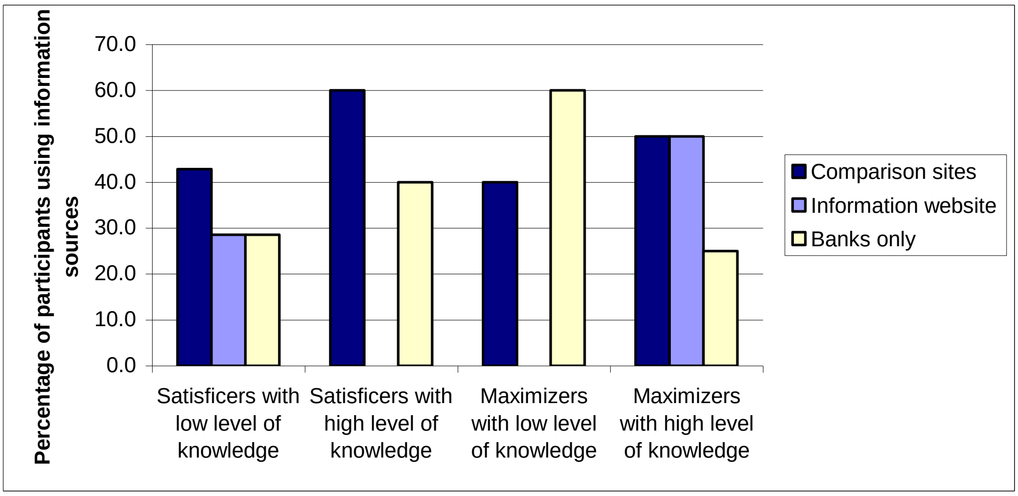


Figure 6.4: Use of different information sources by different segments, banking sector

Evaluation

Characteristics of the evaluation stage cannot be examined by numbers but through the observation of strategies utilized by consumers and their verbal protocols. It was expected that prior knowledge positively and maximization level negatively influence selectivity of information processing. As summarized in Table 6.6, the results of this research found support only for the impact of maximization tendency. All satisficers are selective in their information processing and maximizers evaluate all the available information. As this product is considered to be associated with high risk and importance, maximizers with high knowledge evaluate all the information in order to be assured.

It was also expected that satisficers perform more sequential evaluation of alternatives. This is supported, as satisficers are inclined to perform alternative-based evaluation. They assess one alternative before moving to another one. Maximizers are constantly performing attribute-based evaluation, comparing all alternatives against one criterion. It should be emphasized that there is no participant who utilizes only one evaluation strategy. They combine both methods during the process. For instance, satisficers might perform an attribute-based evaluation at the very final stage between two remaining alternatives. However, the dominant strategy is clearly observable.

The negative Impact of prior knowledge on difficulty of evaluation and maximization level on use of simplification strategies has also been suggested. Difficulty and complexity of evaluation were measured subjectively by examining the evaluation and comparison activities. The self-reported expressions in the verbal protocol guided this measurement, which is independent of the number of iterations and was measured for each evaluation cycle. It is not surprising that consumers with a low level of knowledge perform a more complex evaluation and have more difficulty in assessing the information. The impact of maximization tendency is also observable. Therefore, satisficers with high knowledge perform simple evaluation and maximizers with low knowledge have the most complicated and difficult evaluation. Satisficers with low knowledge are in the middle with relatively average complexity. On the other hand, maximizers with knowledge do not have difficulty in their evaluation, although they do intensive evaluation and clearly do not simplify. Use of comparison sites by satisficers, as mentioned above, could be due to their simplification strategies.

Appraisal

In the frequency analysis, we concluded that all maximizers appraise while only some satisficers perform this stage. However, another fundamental difference is that maximizers review the process to check whether it is on track while satisficers appraise the alternative before making a final choice, to ensure a satisfactory decision.

6.2.4 Insight into the flow of the process

In the previous sections, general process models and characteristics of the process at each stage were analyzed. However, in order to have a complete picture of the behaviour, the way in which processes unfold is very important. Differences of the process are observable not only in the process model but also in the way that activities change over time. In this section, questions regarding *"how"* the process follows and *"how"* certain activities are performed are explained. The flow of the process also varies across segments. For example, not only the number of alternatives varies but also the phases at which they are generated differ.

As mentioned in the methodology chapter, an adaptation of Mintzberg's path configuration method is used to illustrate the flow of the process for each category. Therefore, archetypal process models based on the decision-making process of one of the participants in each segment exhibiting typical behaviour for that segment were modelled. Five phases of behaviour were identified: initial formulation, initial evaluation, main evaluation and formulation, refinement and choice were defined. The archetypal models are presented in Figures 6.5, 6.6, 6.7 and 6.8 and the detailed characteristics of each are explained.

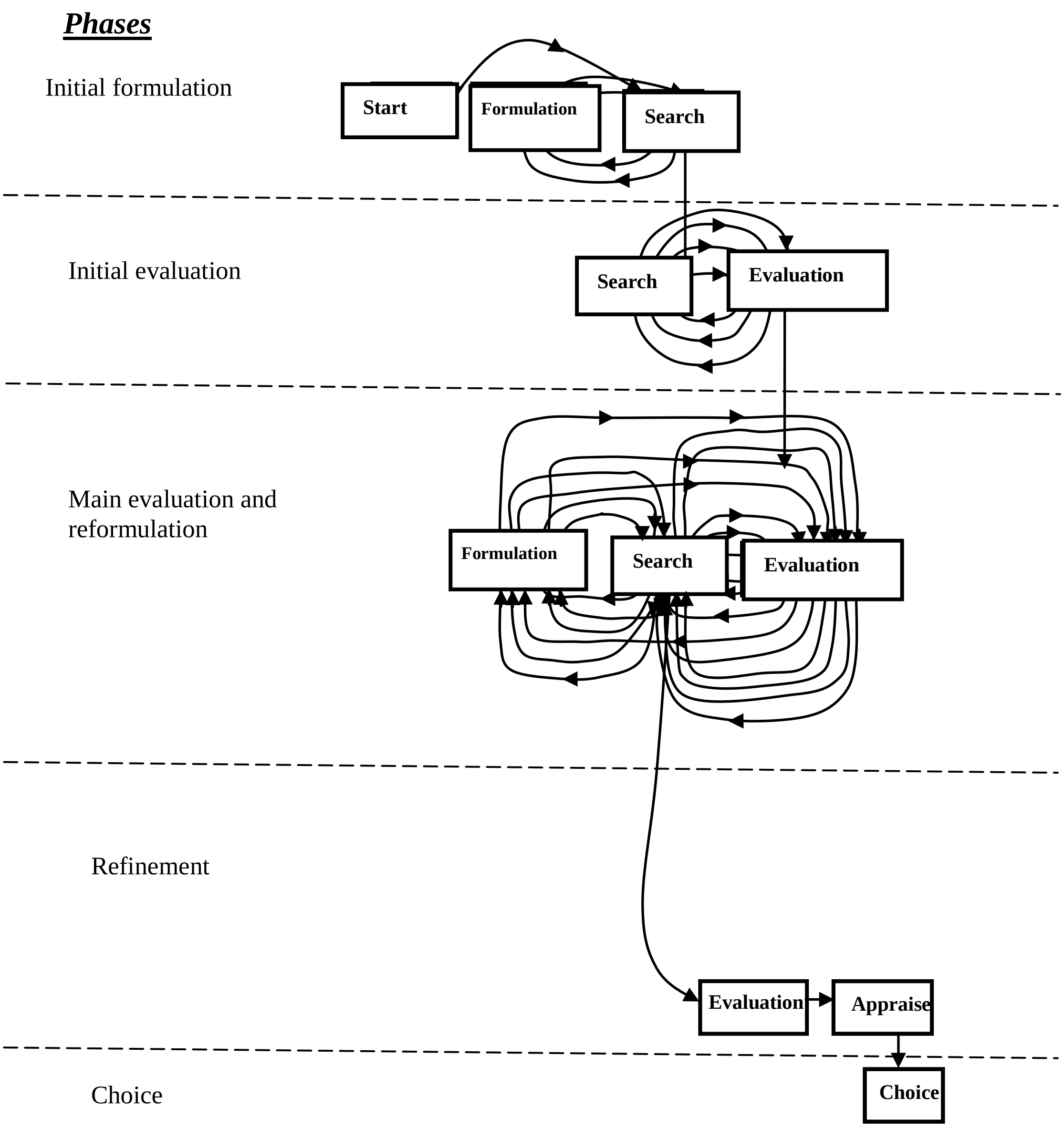


Figure 6.5: Archetypal flow model for satisficers with low level of knowledge, banking sector

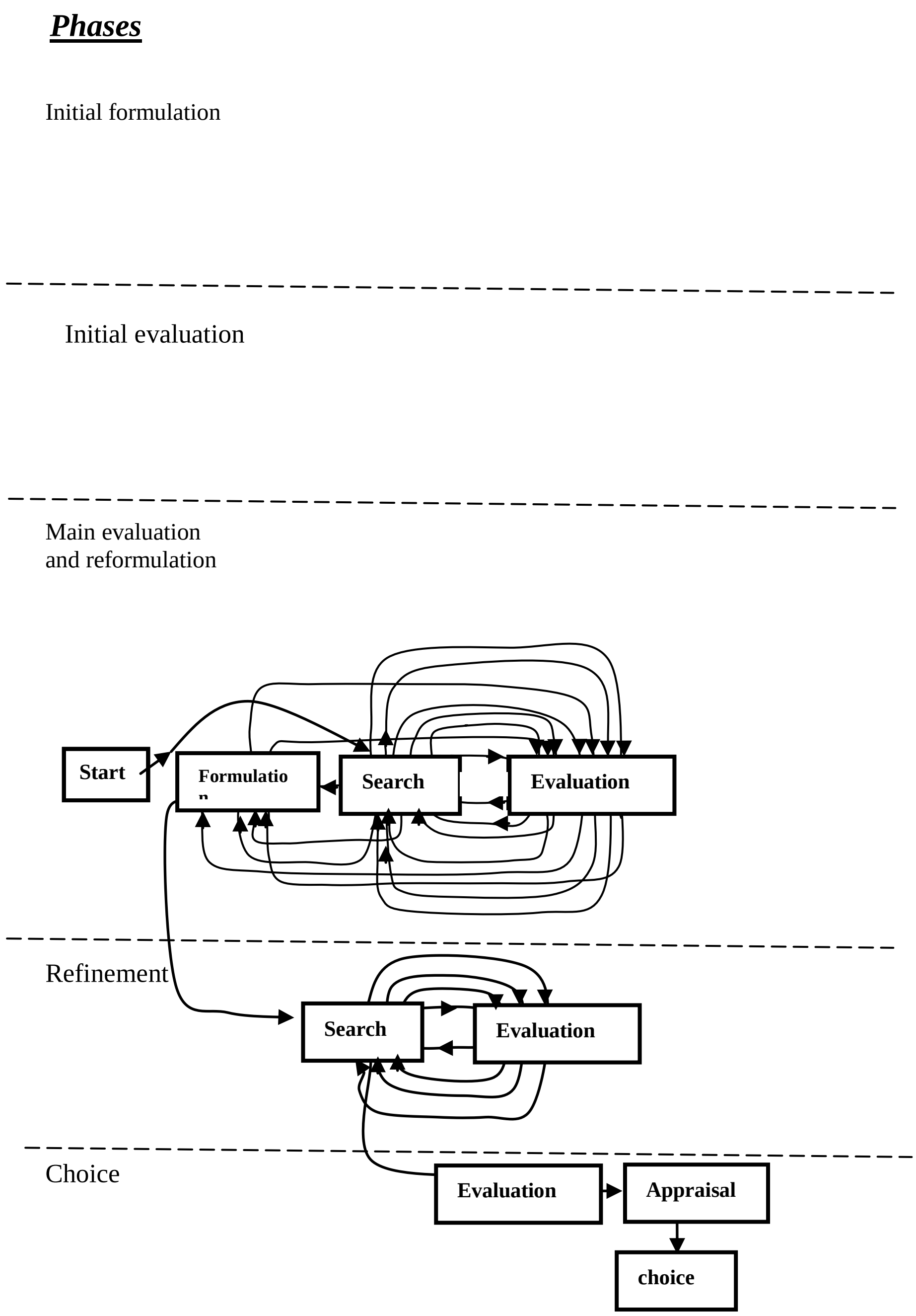


Figure 6.6: Figure 6.6: Archetypal flow model for satisficers with high level of knowledge, banking sector

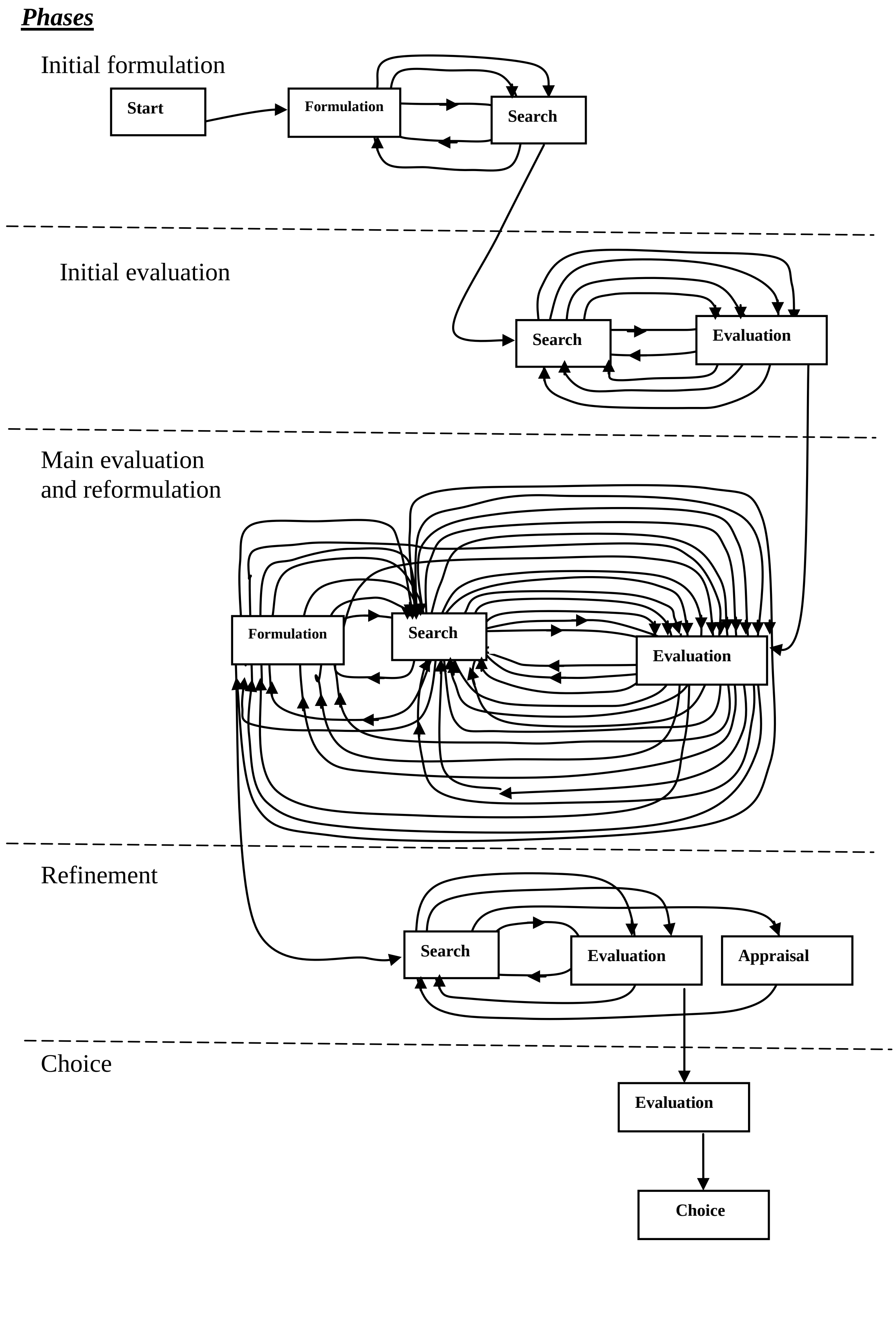


Figure 6.7: Archetypal flow model for maximizers with low level of knowledge, banking sector

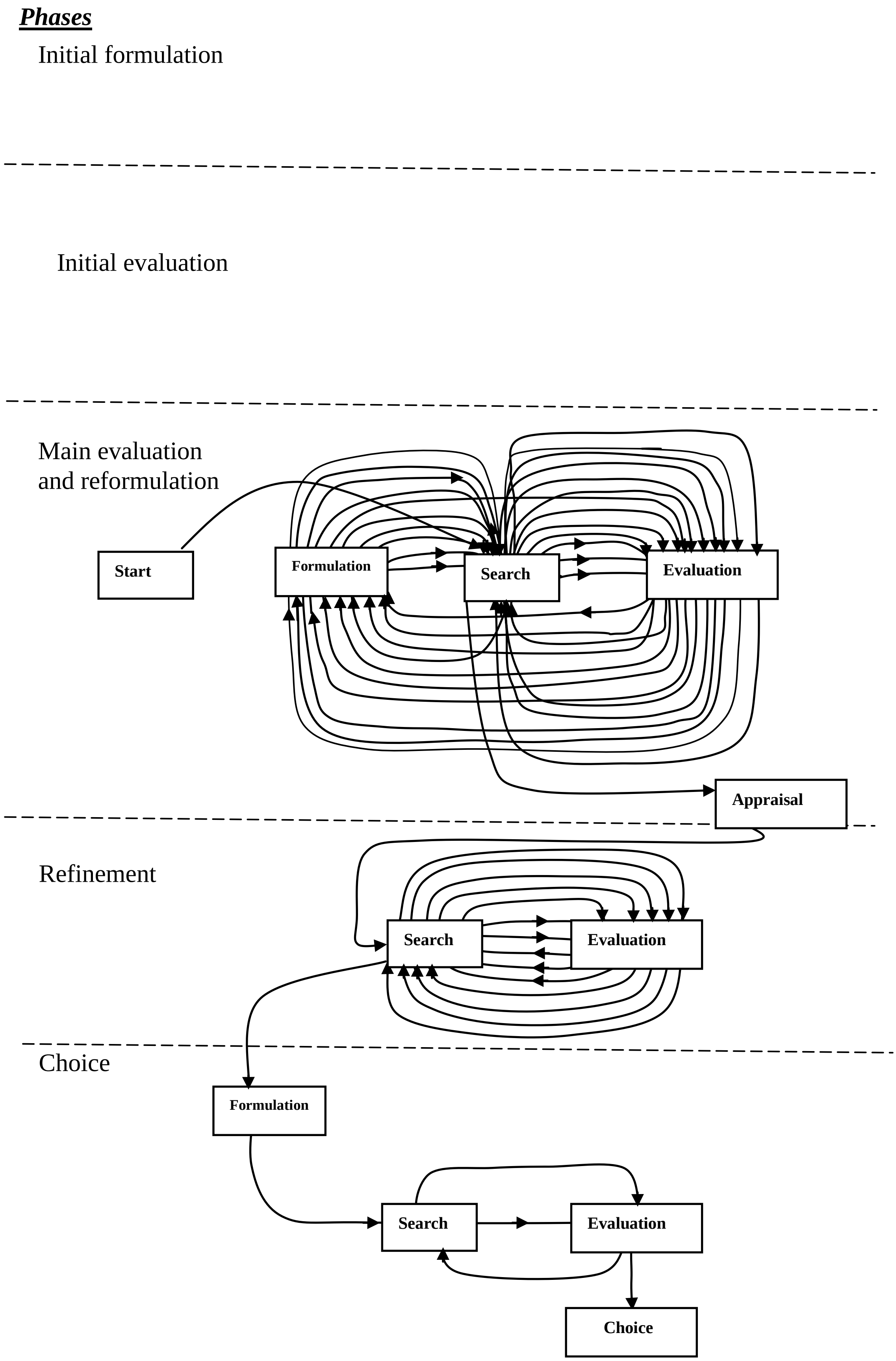


Figure 6.8: Archetypal flow model for maximizers with high level of knowledge, banking sector

As can be seen, all processes include a large number of iterations between stages. Maximizers have a more complex process flow. On the other hand, one of the main differences is between those with low and high levels of knowledge. The first two phases of initial formulation and initial evaluation are performed by consumers with a low level of knowledge. These two stages are performed in order to form their understanding and concept of the decision problem. This confirms the expected result that prior knowledge is negatively related to the performance of concept formation. Other phases, despite variations, are carried through by all participants. Maximizers with a high level of knowledge, however, tend to perform extra steps which we refer to as checkpoints; they stop and check the process and their current mental model.

In order to understand the similarities and variation across different segments, an archetypal process model for each segment is explained, including different characteristics.

Archetypal process of satisficers with low level of knowledge

These tend to start the activity by searching directly for information, before formulating the decision problem. In the first phase, they try to develop a general understanding of the decision problem by searching and generating a few alternatives and a few criteria that matter to them, but they do not evaluate them. In the second phase, they search slightly into these alternatives and criteria to develop basic knowledge. Up to this point, the concept formation is occurring. Afterwards (third phase), they go back to previously performed phases to thoroughly define the decision problem, search and evaluate the solutions. For this purpose, they start a more iterative process that includes search, evaluation and formulation. They generate more alternatives at the beginning, search them, increase their knowledge, evaluate each alternative and then slowly reject some and reduce the options. Their criteria might change slightly during this process, but not significantly. It is important to mention that search for these consumers includes visiting a remarkable number of information sources and web pages while spending less time on deeply reading and assessing them. They enter the search-evaluation stage repetitively but search the alternatives in less depth. Therefore, despite the large number of search and evaluation stages, the time spent is lower than by maximizers. They select the information they want to evaluate, concentrating on the main criteria. Selectivity in processing the information can be clearly seen. They perform alternative-based evaluation and assess each alternative separately without comparing attributes against each other and deciding whether it is satisfactory or not. Emotions also play a role in elimination of alternatives, such as perception towards the brand name. This could be due to the fact that they try to simplify the evaluation without going through intensive evaluation. Finally (phase 4), they evaluate the shortlisted alternative against the most important criteria and make a decision. In some cases the decision will be reviewed before completion of the task.

Archetypal process of satisficers with high level of knowledge

Although some start the activity by search and some by formulation, the aim of the first set of activities is formulation of the decision problem and identification of the criteria and alternatives. For this purpose they search, and evaluate the information which in turn shapes their mental model. A few alternatives and the main criteria are defined during this phase. Afterwards (phase 2), they move towards the assessment of defined alternatives based on criteria. More information about the alternatives which were defined in the previous phase is gathered and evaluated. The loop between search and evaluation stages shows the performed activities. They look at a limited number of sources and do not research into them in much depth. They selectively assess the information. The fact that they are just looking at a good enough option that passes their criteria can be clearly noticed here. They perform simple evaluation and assess the alternatives sequentially just by their important criteria. Finally (phase 3), the short-listed alternatives are evaluated and the decision based on the evaluated information is made. In some cases the decision will be reviewed before completion of the task. These consumers are decisive in their decision making.

Archetypal process of maximizers with low level of knowledge

Unlike satisficers with the same level of knowledge, this group starts the activity by formulating the known information. They tend not to skip the formulation at the beginning of the process. The first three phases of their process are similar to satisficers with a low level of knowledge, although with more cycles and therefore being more complicated. In the first phase, they develop a general understanding of the decision problem by searching and generating a few criteria and a number of alternatives without evaluating them. Then (phase 2), they search these alternatives and criteria to develop basic knowledge (concept formation). Afterwards (phase 3), they do a comprehensive search, evaluate solutions and form their mental model. At this point, they generate a large number of alternatives and many criteria. Their search is very intensive (depth and breadth), including visits to a lot of pages. They also devote more time to the available information. They read all the information and intensively evaluate it. In fact, every criterion seems to be important to them and the option that meets the most with the lower price seems to be their preference. As they search and increase their knowledge, their criteria alter. The new knowledge is employed and new criteria are used in evaluation of other alternatives. Therefore, their mental model and criteria constantly change. In fact, until the end of this step alternatives and criteria continue to change. They keep their options open and do not reject the majority of alternatives at this step. Although it seems that up to this stage they behave like satisficers with low knowledge, they concentrate on many more criteria than do satisficers, and compare all the alternatives against each other. Satisficers, on the other hand, compare each alternative based on a few criteria and do not change their mental model as often. Afterwards (phase 4), they again perform an extra search and evaluation step that satisficers avoid. At this point they compare all the alternatives at the same time against the criteria and also review the process. They suddenly narrow down their options. They might use a not very important criterion to choose between similar options, leaving no space for emotional decisions. Maximizers review the process, while satisficers review the information only at the end. Participants who scored very high on the maximization scale all performed appraisal after the evaluation. Finally (phase 5), they evaluate the few remaining alternatives and make a decision.

Archetypal process of maximizers with high level of knowledge

Most of maximizers who are knowledgeable about the sector start the activity by search while some formulate their mental model. In the first set of activities they try to formulate the decision problem and identify the criteria and alternatives. For this purpose they perform search and evaluate the information, which in return shape their mental model. A number of alternatives and a large set of criteria are developed at the beginning of this phase. They do a very intensive search and evaluation, performing a lot of loops that lead to formulation of a large consideration set. In comparison with maximizers with low knowledge, they visit fewer pages and information sources but still spend a lot of time on each piece of information. The search is in depth and detailed. They evaluate all the available information on the page carefully. A few rounds of attribute-based evaluation are performed. They slowly eliminate some options. When they are left with a handful of alternatives, they stop to appraise the process and the generated mental model (end of phase 3). This stage could be clearly seen for all participants in this group. Afterwards (phase 4), they move towards the assessment of all the shortlisted alternatives based on a large set of criteria. They execute an extensive search on each alternative and evaluate them. Although the number of alternatives is few at this point, they are assessed based on a large number of criteria and compared against each other. Even comparatively unimportant criteria, such as extra benefits, seem to play an important role in the decision making. They then perform another checkpoint and revisit the mental model before moving to the final decision. Finally, the last information search and evaluation is performed and the decision is made.

The summary of characteristics of the consumer segments is illustrated in Table 6.6.

6.2.5 Insight into the outcome of the process

As mentioned before, it is important to understand variations in the outcome of the process. Individual characteristics not only influence the decision-making process but also its outcome. We measured the outcome by intention to adopt the decision, and satisfaction with the process and with choice.

Intention to adopt the decision

Intention to adopt the decision is associated with purchasing the selected alternative. It was asked as a single item question and also in the follow-up interviews. Figure 6.9) shows this intention for different groups. It can be noticed seen that maximizers in general are more certain of their decisions, as the intention to adopt the decision is higher for this group. Surprisingly, satisficers with a high level of knowledge are more hesitant to finalize the purchase although they are very decisive in their choice process. In fact, they perform simple a decision-making process which does not involve extensive search and evaluation. Nevertheless, at the end they do not reach the decision point. As stated by Chowdhury, Ratneshwar and Mohanty (2009), they seem to perform "superficial search processes". Satisficers are therefore less likely to finalize the purchase through an online decision-making process than are maximizers in this sector. During the interviews they particularly mentioned that:

> *"I couldn't find all the information I wanted, so I will need to talk to staff."*
> *"It is much easier to ask my questions from a person, I am not sure if I have seen all the details."*
> *"I prefer to go to a branch where someone can explain everything to me."*

Therefore, we can conclude that satisficers spend less time researching. They need more straightforward presentation of information and they do not go through a very complex process to locate and evaluate information. Therefore, their process is simpler but a final decision may not be reached. Maximizers, on the other hand, read all the available information and evaluate it. For this sector, this process is very complex. They are able to make a decision as they have found all the required information. The impact of maximization is more significant than level of knowledge on intention for this sector. Consumers of banking products seem to rely more on information than the experience of others or a feeling for the product. Therefore if the information is available, intention is high.

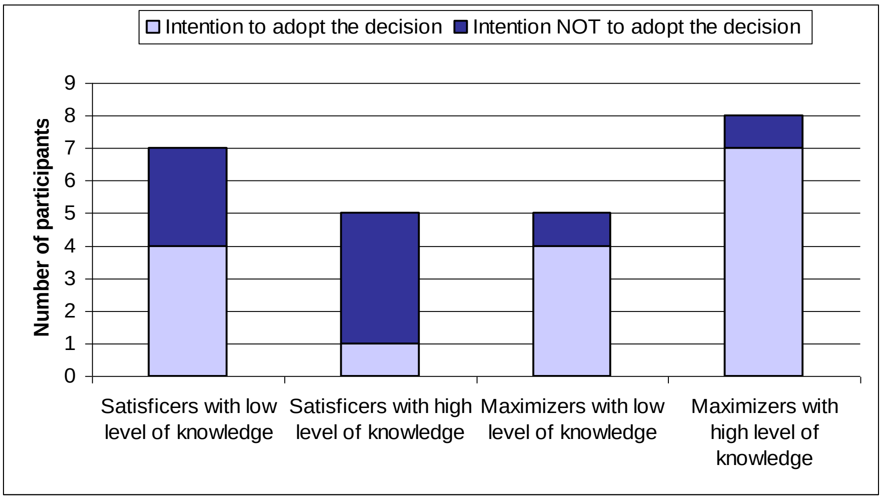


Figure 6.9: Intention to adopt the decision for each segment, banking sector

Satisfaction with the choice

Figure 6.10 shows the result of satisfaction with the choice. In the analysis of the banking sector, satisfaction with the process and choice were measured by polar questions. Therefore, the result is based on the number of participants rather than showing the level of satisfaction. The majority of participants were satisfied with their choice. Dissatisfaction with the choice was higher among satisficers. This could be due to the complex nature of financial products; a large amount of data needs to be evaluated online in order to reach a satisfactory choice. In giving their reasons, the majority admitted that they were not happy with their choice as they were unable to find the required information.

> *"There might be some information hidden on the website"*
> *"It is very frustrating to find information and I don't know which one is a good account for me."*
> *"I can't see the type of card they are offering."*

Similar explanations can be given as to why satisficers put less effort into locating information. Despite making a choice, they are not happy as they do not know all the characteristics of the selected product. Maximizers read all the information available, even the terms and conditions, before making a decision. It might appear that maximizers with low knowledge make the worst decision as they do not have defined criteria and are indecisive. In many cases they even make the final choice based on criteria which are not very important to them. However, they tend to be satisfied with their decision. They are sure that their choice is the best solution as they have gone through intensive search.

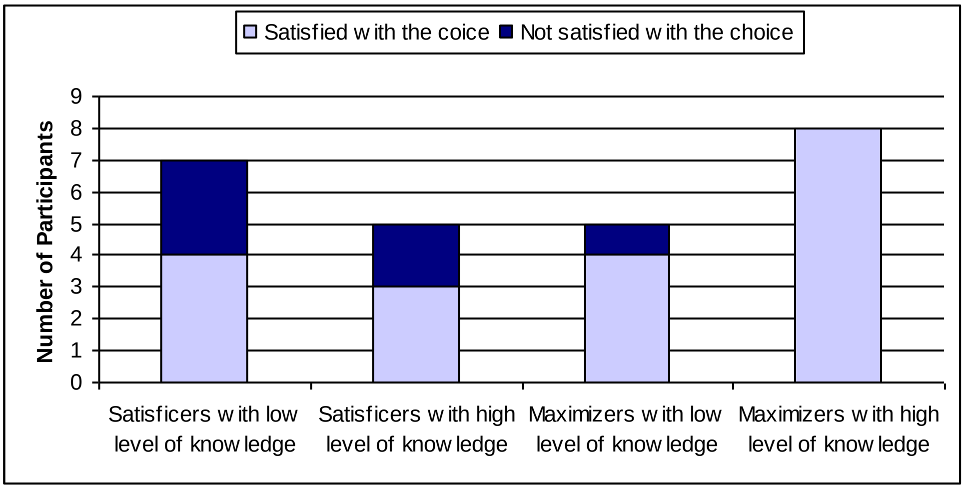


Figure 6.10: Satisfaction with the choice for each segment, banking sector

Satisfaction with the process

On the contrary, maximizers are less satisfied with the process than are satisficers. Satisficers with high knowledge are the only group that found the process easy. However, the reason for dissatisfaction with the process is different for different groups. All satisficers with a low level of knowledge found the task tiring and difficult. Those who are satisfied believed that the "boring" and "tiring" process is due to the nature of the product. Maximizers with a low level of knowledge believe that the information and websites are not "straightforward" and are therefore difficult. Maximizers with a high level of knowledge, on the contrary, have problems with information overload and inability to evaluate all the information, saying:

> *"There is too much too read"*
> *"It [would have been] much easier if they had a table that shows you all features"*

This explains the complexity of their process and the large number of loop backs.

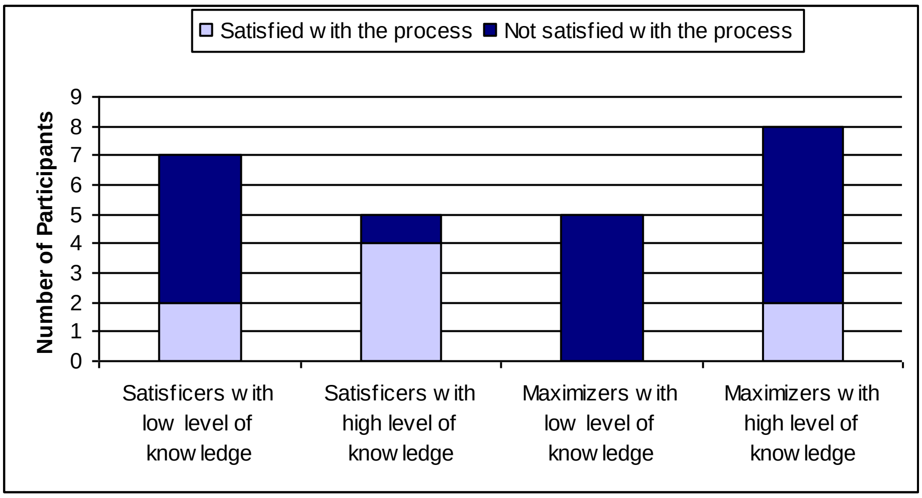


Figure 6.11: Satisfaction with the process for each segment, banking sector

Therefore, the expectation that maximizers are less satisfied with their choice and the process is only true for the process in this sector. This emphasizes the importance of separating satisfaction into the two dimensions of choice and process. It shows that maximizers are finishers; when they get involved in a task and spend time, they reach an outcome. Satisficers, however, go for easier alternatives which may be a visit to the bank. Table 6.6 shows the outcome of the process for each consumer segment.

Table 6.6 also summarizes all the above analysis. The detailed assessment revealed that the behaviour of these four categories is different. Not only are the prominent actions, frequency of occurrences and characteristics of each stage different, but also the way that the process proceeds over time vary. In addition, the outcome of the process in terms of intention to adopt the decision and satisfaction with the choice and process is not identical. Different segments were found to have several distinctive differences and similarities.

6.2.6 Summary of key results for banking sector

Online purchase decision-making processes were modelled for each individual and their characteristics were explored. Results revealed that consumers perform all the stages of the proposed model. Formulation in particular was identified as a very important stage that ought to be included in consumer decision-making models, as it influences all other stages and leads the flow of the process. Appraisal is also performed by a noticeable portion of consumers and therefore cannot be neglected.

The processes in this sector are unstructured, including cycles from one stage to almost any other stage. The most effort is allocated to search and evaluation. Consumers constantly cycle between them and reformulate their mental model at certain points. There is a high number of iteration. However, the number of banks and products that consumers visit and evaluate (number of alternatives) is limited. Therefore, these cycles are not the result of visiting a large number of competitors or a very active product research. In fact, information search and evaluation stages for of one product happen repetitively. Observing the behaviour of consumers on various banking sites indicated that a few banks which offer filtering features and tabular presentations have noticeably improved the decision-making process.

Detailed analysis of individual behaviour revealed that decision-making style and product knowledge are both very important influences on consumers' behaviour. The behaviour of the four segments of online consumers was measured in terms of their decision-making process, characteristics of the process, with a detailed analysis of behaviour at each stage and the outcome of the process. Variations across process models can be observed. Table 6.6 summarizes the characteristics of each segment.

Maximizers have a more complex process than satisficers. On the other hand, those with a low level of knowledge perform additional phases to develop their understanding of the decision problem (concept formation). According to the results of this study, satisficers with low knowledge showed maximizing behaviour with reference to intensity of cycles, allocation of effort in search and evaluation, and duration of the process. Satisficers with a high degree of knowledge exhibited very different behaviour.

In addition to process characteristics, behaviour at each stage of the process varies. Satisficers have fewer criteria and alternatives, search in less depth, are selective in their information processing, perform alternative-based evaluation, and use simplification strategies. Despite the large number of iterations, satisficers with a low level of knowledge do not spend time in reading information in depth. They actively look for sources that could offer them simplified information rather than reading the context carefully. Maximizers, on the other hand, have a higher number of criteria and alternatives, search for information in depth, evaluate all available information, and perform attribute-based evaluation. Consumers with a low level of knowledge have more criteria and evaluate more alternatives. They search more broadly by looking at more sources. However, it is the combination of these two characteristics that defines the behaviour of consumers (Table 6.6).

The outcome of the process is also different for the different segments. The results are rather surprising. Satisficers are more hesitant to finalize the purchase, in particular those with a high level of knowledge. Although they are decisive in their decision making process, they are not satisfied with their choice and do not reach the decision point. This is not in line with previous research (e.g. Mick, Broniarczyk and Haidt, 2004; Schwartz et al., 2002). It results from performing superficial searches and not getting involved in extensive evaluation. Financial products are very complex and a large amount of data needs to be evaluated online in order to make a satisfactory choice. Maximizers are, however, more satisfied with their choice and confident in their decisions. Maximizers perform intensive search and evaluation and read all the information available. Therefore, they believe that have selected the best option. On the other hand, maximizers are less satisfied with the process than satisficers who have a simpler process.

Table 6.6: Summary of behaviour of each segment in all stages of the purchase decision-making process, banking sector

Typology of individuals	Process	Start	Formulation	Search	Evaluation	Appraisal	Outcome (number of participants)
Satisficers with low level of knowledge	High degree of recursion AVG time spent: 24.9 min. Simple iterative with concept formation	Search and formulation	AVG number of criteria:3.7 Developed at the beginning with slight changes later, AVG number of alternatives: 4.3 First increased and then gradually reduced	Type of source: all sources, majority use comparison sites Large number of information sources but not in-depth	Evaluation with middling complexity, Selective information processing, Alternative-based evaluation, Less comparison and parallel evaluation, Evidence of evaluation by emotions and brand perception, Decide by most important criteria	Some cases Review of selected alternative	Medium intention to adopt the decision Medium satisfaction with the choice Low satisfaction with the process
Satisficers with high level of knowledge	Medium degree of recursion AVG time spent:18.2 min. Simple iterative	Search and formulation	AVG number of criteria:3.2 Developed at the beginning and stays the same AVG number of alternatives:3 Generated at the beginning and stays the same	Type of source: Bank websites and comparison sites, majority comparison sites Limited sources of information, not in-depth	Simple evaluation, Selective information processing, Alternative-based evaluation, less comparison and parallel evaluation, Decide by most important criteria	Some cases Review of selected alternative	Low intention to adopt the decision Medium satisfaction with the choice High satisfaction with the process

Table 6.6 continued

Maximizers with low level of knowledge	High degree of recursion AVG time spent: 33.8 min. Complex iterative with concept formation	Formulation	AVG number of criteria: 5.7 Constantly changing, AVG number of alternatives: 6.3 Constantly changing, Options left open to the end	Type of source: Banks' websites and comparison sites, majority bank sites only Large number of information sources, in-depth and detailed	Complex evaluation, Evaluation of all the available information, Attribute-based evaluation Lots of comparison and parallel evaluation No emotion in making a decision, Decide by large number of criteria, might use an unimportant criterion to filter choices	All cases Review of the process	High intention to adopt the decision High satisfaction with the choice Very low satisfaction with the process
Maximizers with high level of knowledge	High degree of recursion AVG time spent: 28.4 min. Complex iterative with checkpoints	Search and formulation	AVG number of criteria:5.2 Developed at the beginning and stays the same AVG number of alternatives: 5 Generated slowly and gradually reduced	Type of source: All sources Limited sources of information, in-depth and detailed	Intensive evaluation with checkpoints, Evaluation of all the available information, Attribute-based evaluation Lots of comparison and parallel evaluation Decide by large number of criteria and also extra benefits	All cases, Review of the process and mental model	High intention to adopt the decision Very high satisfaction with the choice Low satisfaction with the process

6.3 Mobile network operators

In this sector, decision-making processes for 30 participants were modelled by UML activity diagrams. There were 1,356 activities and 883 transitions between stages. Participants were similarly grouped into four categories based on their score on the maximization scale and their knowledge of the market and products. The general process model, behaviour of consumers in all stages of the process, process flow and process outcomes were analyzed for each segment and compared.

6.3.1 Consumer segmentation

The level of maximization tendency was measured by averaging 13 items of maximization measure in order to provide a single composite score. It ranged from 3.5 to 5.6. The median split was similarly used to differentiate between maximizers and satisficers. Figure 6.12 shows the distribution of participants.

In order to assess the representativeness of this sample, it was compared against previous studies. The range of participants' maximization tendency was slightly narrower than that of Schwartz et al. (2002) and a higher percentage of participants scored above the median split (4.4615). The median was almost the same as for the banking sector. It was higher than previous studies by Schwartz et al. (2002) (with median of 4.2) and Love (2009) (with median of 4.15). However, there was only one participant who scored between 4.46 and 4.15 with a maximization level of 4.2. Her behaviour however tended towards satisficers and she was therefore classified as a satisficer. Accordingly, 16 maximizers and 14 satisficers were in the sample. The maximizers' group mean on the maximization scale was 5.0 with (*SD* _ 0.442). The satisficers' group mean was 3.9 with (*SD* _ 0.170). Maximization tendencies were closer to the maximizing end of the scale. In relation to previous studies, as with the banking sector (section 6.2.1), the sample appears to be representative.

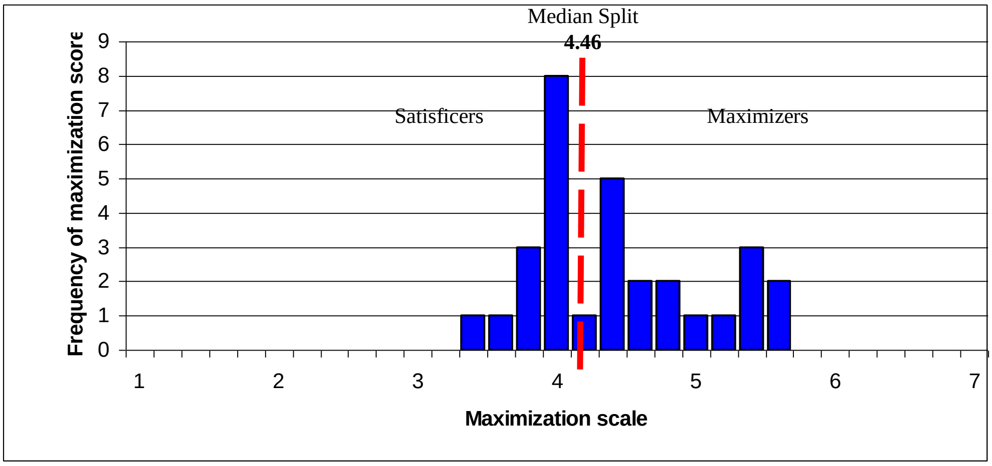


Figure 6.12: Distribution of participants on the maximization scale, mobile networks (N=30)

Knowledge was measured by averaging two questions on the knowledge of network operators and mobile phone contracts on a 5-point Likert scale. Participants were classified into two groups, consumers with a high level or a low level of knowledge. Table 6.7 shows the segmentation of participants in this 2*2 framework.

Table 6.7: Segmentation of participants in four segments, mobile networks

	Satisficers			**Maximizers**		
Low level of knowledge	Number of participants	Number of transitions	Average number of transitions per participant	Number of participants	Number of transitions	Average number of transitions per participant
	7	**191**	**27.3**	**8**	**336**	**42**
High level of knowledge	Number of participants	Number of transitions	Average number of transitions per participant	Number of participants	Number of transitions	Average number of transitions per participant
	7	**153**	**21.9**	**8**	**234**	**29.3**

6.3.2 Insight into the general process model

The general decision-making process model and its characteristics concerning intensity of cycles, allocation of effort and duration of the process are explained in this section. As mentioned above, in order to identify the general process model for each segment, the aggregated behaviour of participants in that segment was measured. Defining stages that follow one another is one of the first issues in understanding the characteristics of the process. Table 6.7 shows the aggregated behaviour of participants in terms of transition between stages of the process within one category. The average transition between stages and average transition as a portion of total activities are illustrated. For reliability purposes, aggregated numbers were compared against the individual processes to eliminate the impact of outliers which might have influenced the average. Transitions are more structured in this sector. Consumers perform specific movements and do not jump from one stage to any other one. The number of zeros in the table shows that not all transitions are performed. The behavioural intensities and allocation of effort as important characteristics of decision making process were analyzed. The duration of each process was also measured.

General decision-making processes

According to the aggregated occurrence of transitions, the general decision-making process model for each segment was developed (Figure 6.13). Common occurrences of transitions between stages are illustrated for each segment of consumers. Each individual process model is an instance of the general model. Individuals repeat different stages and decide on the flow of the process as they move towards a decision. Types and thickness of arrows illustrate the frequency of occurrences. The thickness indicates the iterations which, coupled with loop backs, define the complexity of the process. The general models are relatively similar for the different segments in this sector. The process is complex but relatively structured.

The main transitions include search-evaluation, evaluation-search and formulation-search, followed by search-formulation and evaluation-formulation. These links show that the main activities occur between search and evaluation. Meanwhile, the mental model is reformulated. Formulation of the decision problem leads the search activity, whereas evaluating new information reformulates the decision problem. The result emphasizes the importance of including formulation in purchase decision making process for complex products. Appraisal, on the other hand, was not performed by many consumers.

Entering the choice stage occurs more in this sector, because consumers need to make a few interlinked decisions, including choice of handset, network provider and calling plan.

Table 6.8: Transition between stages of the online purchase decision-making process, mobile networks

Stages	Average transition between different stages and its frequency as a portion of total activities							
	Satisficers with low level of knowledge		Satisficers with high level of knowledge		Maximizers with low level of knowledge		Maximizers with high level of knowledge	
	Average transition	Frequency in the process	Average transition	Frequency in the process	Average transition	Frequency in the process	Average transition	Frequency in the process
Start to formulation	0.4	1%	0.7	3%	0.8	2%	0.8	3%
Start to search	0.6	2%	0.3	1%	0.3	1%	0.3	1%
Formulation to search	4	15%	2.6	12%	5.1	12%	3.8	13%
Formulation to evaluation	0.3	1%	0	0%	0.3	1%	0.4	1%
Search to formulation	2	7%	1.3	6%	2.3	5%	2.8	10%
Search to evaluation	8.7	32%	7	32%	14.6	35%	8.3	28%
Search to appraisal	0	0%	0.1	0%	0	0%	0	0%
Search to choice	0	0%	0	0%	0.1	0%	0.1	0%
Evaluation to search	5.1	19%	4.7	21%	10.1	24%	5.9	20%
Evaluation to formulation	1.9	7%	1.3	6%	3	7%	1.9	6%
Evaluation to choice	2	7%	1.1	5%	2	5%	1.5	5%
Evaluation to appraisal	0.4	1%	0.1	0%	0.6	1%	0.4	1%
Choice to search	1.1	4%	1.1	5%	1.5	4%	1.3	4%
Appraisal to choice	0	0%	0.1	0%	0	0%	0.1	0%
Choice to appraisal	0	0%	0	0%	0	0%	0.1	0%
Formulation to appraisal	0	0%	0	0%	0	0%	0	0%
Appraisal to formulation	0	0%	0	0%	0	0%	0	0%
Appraisal to search	0.1	0%	0	0%	0.4	1%	0.1	0%
Choice to evaluation	0	0%	0	0%	0.1	0%	0	0%
Appraisal to evaluation	0.3	1%	0.1	0%	0.3	1%	0.3	1%
Formulation to choice	0.3	1%	1.1	5%	0.5	1%	0.9	3%
Choice to formulation	0.1	0%	0.3	1%	0	0%	0.3	1%
Total	27.3	100%	21.9	100%	42	100%	29.3	100%

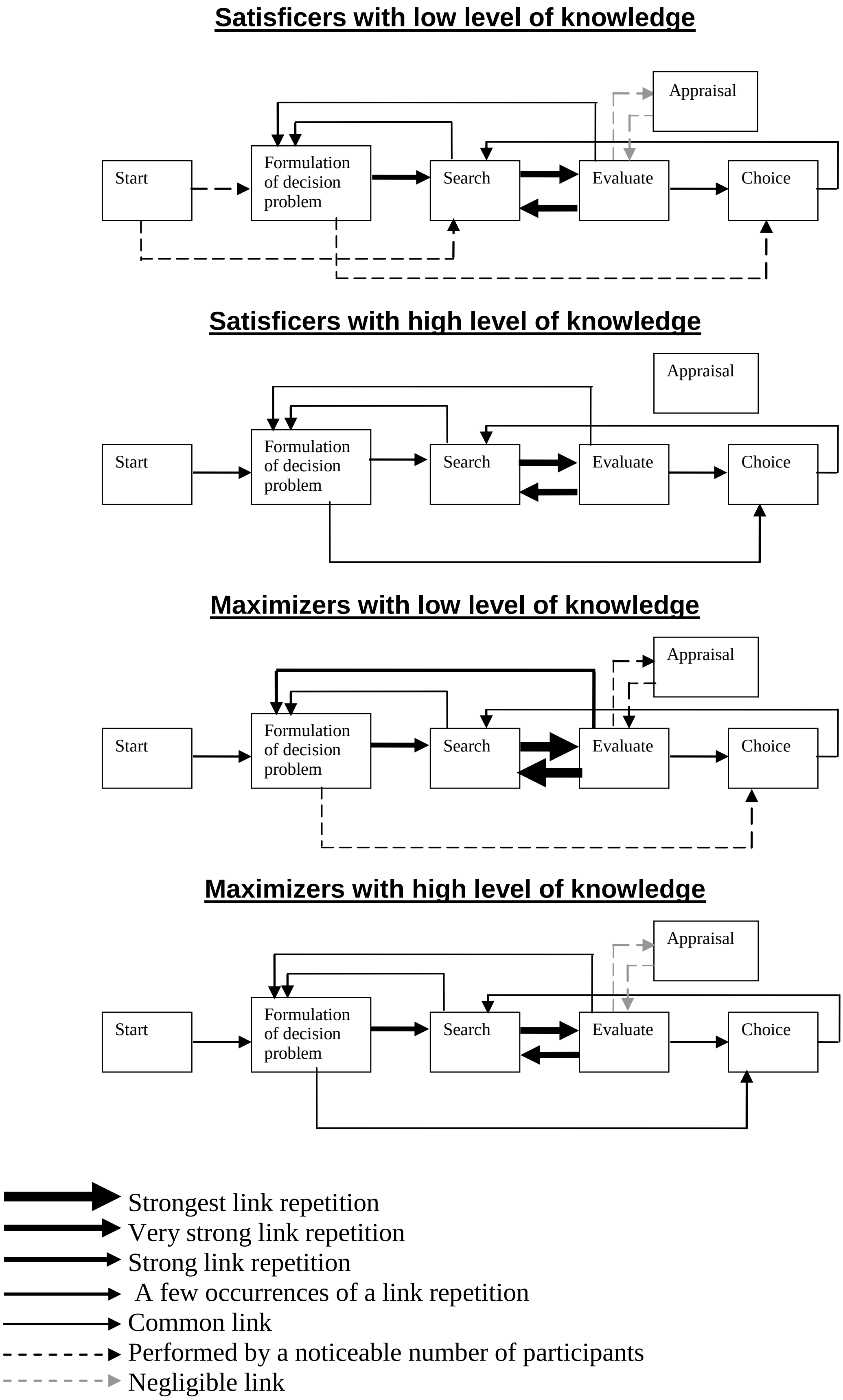


Figure 6.13: General purchase decision-making process models for each segment, mobile networks

As the analysis revealed, the different segments of consumers tend to have different behaviour. The extent of variations is different across different groups. Differences in the intensity of cycles for the entire process, allocation of effort and duration are discussed below.

Intensity of cycles in purchase decision making process

The intensity of cycles in a decision-making process is an indicator of process complexity. The number of cycles in the process is expected to be more for maximizers and those with a lower level of knowledge. Results (Table 6.8) show that maximizers have a high number of iterations. Among maximizers and satisficers those with a low level of knowledge have also performed more cycles.

In this scenario, maximizers with low knowledge have the highest and satisficers with high knowledge have the lowest number of cycles. The difference is very noticeable. Satisficers with low knowledge and maximizers with high knowledge have a medium amount of cycles, relatively close to each other. It is however, closer to the behaviour of satisficers with high level of knowledge. This shows that in this sector, maximizers with high knowledge have a tendency towards the behaviour of satisficers. Once again it emphasizes the influence of both individual characteristics on the process.

Allocation of effort

Allocation of effort is measured by the frequency of entry to each stage. It is measured by adding up rows in the table (6.8) which are related to entry to one stage. The most effort is allocated to search and evaluation, followed by formulation (Table 6.9).

Table 6.9: Allocation of effort, mobile networks

Stages	Average entry to different stages and its frequency as a portion of total activities							
	Satisficers with low level of knowledge		Satisficers with high level of knowledge		Maximizers with low level of knowledge		Maximizers with high level of knowledge	
	Average entry	Frequency in the process	Average entry	Frequency in the process	Average entry	Frequency in the process	Average entry	Frequency in the process
Entry to formulation	4.4	15%	3.6	16%	6.1	14%	5.8	20%
Entry to search	10.9	40%	8.7	39%	17.4	42%	11.4	38%
Entry to evaluation	9.3	34%	7.1	32%	15.3	37%	9	30%
Entry to appraisal	0.4	1%	0.2	0%	0.6	1%	0.5	1%
Entry to choice	2.3	8%	2.3	10%	2.6	6%	2.6	8%
Total	27.3	100%	21.9	100%	42	100%	29.3	100%

Formulation: It was expected that prior knowledge would negatively influence the number of reformulations of the mental model. Maximizers perform more reformulation than satisficers. Among maximizers/satisficers those with low knowledge have also more entries to this stage. Similarly, the biggest difference is between maximizers with low knowledge with the highest amount of reformulation and satisficers with high knowledge with the lowest amount of reformulation.

Search: Maximizers have a higher amount of entry to the search stage compared to satisficers, as expected. Within maximizers/satisficers, those with low knowledge search more. Satisficers with high knowledge enter this stage less than others and maximizers with low knowledge have the highest amount of search, more than double. The remaining two groups stand in the middle, being closer to satisficers. Therefore, maximizers with high knowledge exhibit behaviour similar to that of satisficers. However, this figure does not indicate the intensity of search (depth and breadth), which will be discussed in the next section.

Evaluation: A similar pattern of frequency can be seen in the evaluation stage. Maximizers with low knowledge have the highest entry, while others showing behaviour similar to that of satisficers (Figure 6.13). However, characteristics of the evaluation stage are not the same, as will be discussed shortly. Entry to evaluation and search stages are related, as collected information is mostly evaluated.

Appraisal: It was expected that the amount of appraisal would be higher for maximizers. The amount of appraisal is very low in this sector. Only half of the maximizers with low knowledge appraise, and it is even lower in the other categories. Maximizers with low knowledge become very involved in an iterative process and cannot step back to review.

Duration of decision-making process

It was expected that knowledge negatively influences the duration, while the impact of maximization is positively related to duration. Table 6.10 shows the average duration of the decision-making process for each group. Average duration for those with low knowledge is higher, as expected. In addition, maximizers spend more time on the process. The standard deviation is high, with the exception of maximizers with a low level of knowledge.

Table 6.10: Duration of the process, mobile networks

Segments	Average time	SD-time
Satisficers with low level of knowledge	16:20	5.8389
Satisficers with high level of knowledge	12:47	2.8152
Maximizers with low level of knowledge	26:20	0.4233
Maximizers with high level of knowledge	15:18	6.4700

In order to verify a statistically significant difference between the segments, ANOVA and T-tests were executed. The T-test of maximizers and satisficers, and of those with low and high levels of knowledge, confirmed a significant difference between each two groups.

ANOVA test of the four segments (P-value: 0.00637) supported variations in the duration among these categories. In order to test the differences between each two groups, the T-test was run. T-tests between the four groups suggest that maximizers with low knowledge are different from satisficers with low knowledge (P-value: 0.022269), satisficers with high knowledge (P-value: 0.003385) and maximizers with high knowledge (P-value 0.011233). No strong difference in duration for satisficers and maximizers with high levels of knowledge can be seen. Therefore, in terms of duration, maximizers with high knowledge spend less time than other maximizers and behave similar to satisficers.

Table 6.11: T-test and ANOVA test for duration of the process, mobile networks

Tests for different groups	***P-value***
ANOVA *(four groups)*	0.00637
T-test for maximizers and satisficers	0.017667
T-test for those with high knowledge and low knowledge	0.010717
T-test for satisficers with high knowledge & satisficers with low knowledge	0.17332
T-test for satisficers with high knowledge & maximizers with low knowledge	0.003385
T-test for satisficers with high knowledge & maximizers with high knowledge	0.148987
T-test for Satisficers with low knowledge & maximizers with low knowledge	0.022269
T-test for Satisficers with low knowledge & maximizers with high knowledge	0.435839
T-test for maximizers with low knowledge & maximizers with high knowledge	0.011233

6.3.3 Insight into the characteristics of each stage of the decision-making process

After explanation of aggregated process models and its characteristics, the behaviour of consumers at each stage is analyzed and compared across different segments. Certain behaviours were measured in terms of numbers while others were examined by interpretation of observed behaviour and analysis of verbal protocols during the process. For the behaviour which is of interest refer to section 3.6.

Starting the process

Starting the process seems to be more by formulation of the decision problem; this is however less likely for satisficers with a low level of knowledge. This group might start the process by searching, as they do not know what they are interested in and also want to reduce their cognitive effort and generate alternatives by looking at the list of possible solutions. Others, however, tend to formulate first. Mobile phones are more frequently purchased; therefore, consumers are capable of generating alternatives and criteria.

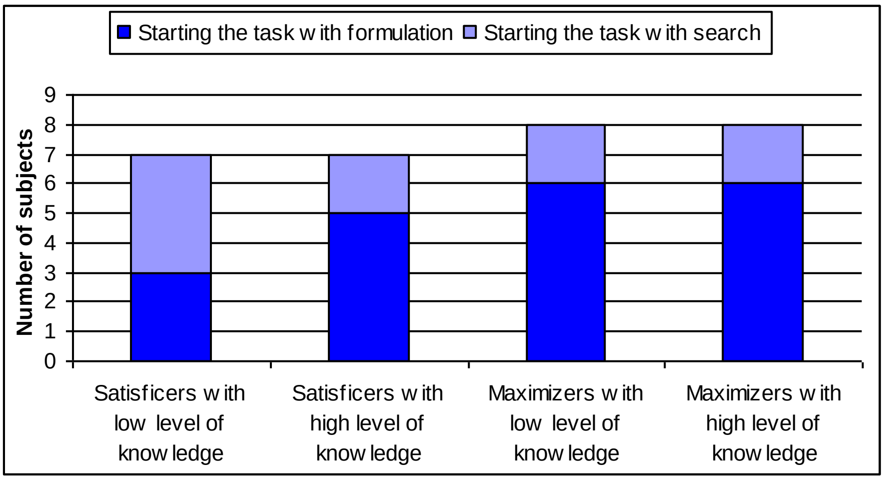


Figure 6.14: Starting the decision-making process, mobile networks

Formulation

The number of alternatives evaluated and the criteria used by each decision maker were measured and averaged for each segment. Table 6.12 shows the results. The maximization level was expected to positively and prior knowledge negatively influence the number of evaluated attributes and alternatives. The number of alternatives is significantly higher for maximizers. Among maximizers and satisficers, it is lower for those with a high level of knowledge. The gap between maximizers with low knowledge and satisficers with high knowledge is wide, being more than 2.5 times. The number of criteria is also slightly higher for those with low knowledge and maximizers. However, the variation is marginal and the number of criteria is almost stable for all groups. The similar number of criteria is due to the presentation of information that has all the possible criteria shown in a table format. As a result, criteria can be readily defined.

It was also expected that maximizers would leave their options open towards the end. Maximizers with a low level of knowledge were the only group who left a few options open until the end, but the number of these alternatives was limited relative to the banking sector. This is because participants could more easily assess the value of alternatives and decide on their appropriateness.

Search

Characteristics of the search stage were measured by depth and breadth of search and type of sources used (see section 3.6.3).

The depth and breadth are expected to be negatively influenced by prior knowledge and positively by maximization level. Table 6.12 shows the results. Breadth of search is more dependent on the knowledge of consumers, those with high knowledge searching limited sources. Depth of search is related to the maximization tendency, with maximizers reading information in more depth and detail.

Type of sources used by consumers is also a characteristic of search behaviour. Figure 6.15 shows the use of different sources by consumers. The columns "network providers only" and "comparison sites only" show those consumers who have not used any other source of information; the first two columns show those who have used other sources in addition to network providers and comparison sites. Comparison sites are heavily used in this sector, perhaps because of the long existence of Phones4U and CarphoneWarehouse. A large amount of search and evaluation occurs on these websites, which also makes the process easier. A few participants only used comparison sites and did not visit providers' websites (last column in Figure 6.15). They were among the participants with a low level of knowledge who believed that "These sites have all the options in one place" and offer all the possible alternatives. On the other hand, no one used only the retailers' websites (column 3). Use of information sites was much higher among satisficers. They particularly used the professional review websites where different phones are assessed. This behaviour is related to using simplification strategies rather than reading the specifications of each phone for themselves.

Use of user-generated content was very low and there was no specific pattern for different segments.

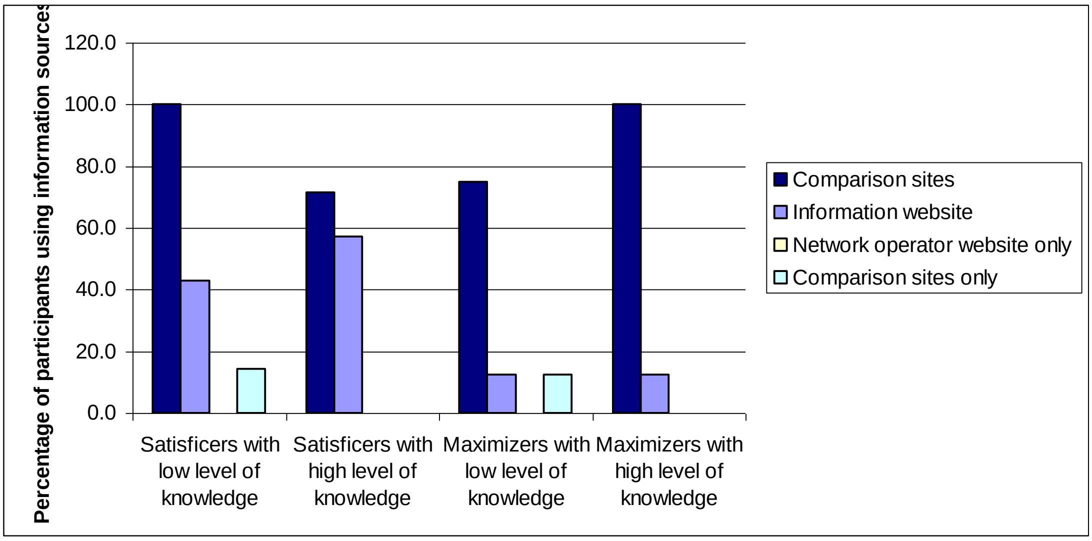


Figure 6.15: Use of different information sources by different segments, mobile networks

Evaluation

Observation of behaviour along with the think-aloud method was used to examine the characteristics of this stage. It was expected that prior knowledge positively and maximization level negatively influence selectivity of information processing. Support only for the impact of maximization tendency was found. Satisficers are selective in their information processing, while maximizers evaluate all the available information. This could be due to the nature of the products. In the case of less risky products, maximizers with a high knowledge might be more selective in information processing.

As expected, satisficers perform more sequential evaluation of alternatives. They tend to perform alternative-based evaluation, assessing one alternative at a time. Maximizers on the other hand are constantly comparing all alternatives against one criterion (alternative-based evaluation). Participants however combine different evaluation strategies during the process, while having a dominant method.

Prior knowledge negatively influences the evaluation difficulty and maximization level negatively influences use of simplification strategies. This is a subjective measure for one stage of evaluation which is independent of iterations and is based on consumers' self-reported expressions. Complexity of evaluation is higher for maximizers and consumers with a low level of knowledge. As a result, satisficers with high knowledge perform simple evaluation and maximizers with low knowledge have a very complex evaluation. Satisficers with low knowledge and maximizers with high knowledge stand in the middle with a relatively average complexity. Use of comparison sites by satisficers seems to be due to their simplification strategies, while for maximizers it is an assurance that they have visited all possible alternatives and no offer is missed out.

Appraisal

In the frequency analysis, it was mentioned that the occurrence of appraisal is much lower in this sector. In addition, appraisal is limited to reviews of alternatives.

6.3.4 Insight into the flow of the process

As explained above, understanding the decision-making process is more than the stages and intensity of transitions. It also includes the flow of the process. Therefore, an adaptation of Mintzberg's path configuration method is used to illustrate *how* the process flows. The flow varies across segments. An archetypal process model based on one typical participant from each segment was constructed. Various phases of behaviour were identified, namely initial formulation, initial evaluation, main evaluation and formulation, refinement and choice. Figures 6.16, 6.17, 6.18 and 6.19 show the archetypal process flow for each segment.

There are a number of iterations in the process models. The process for maximizers is more complex. It is clear that the first two phases are merely performed by consumers with a low level of knowledge, showing that prior knowledge is negatively related to the performance of concept formation. Other phases are performed by all participants. The models are presented here and their similarities and differences are discussed.

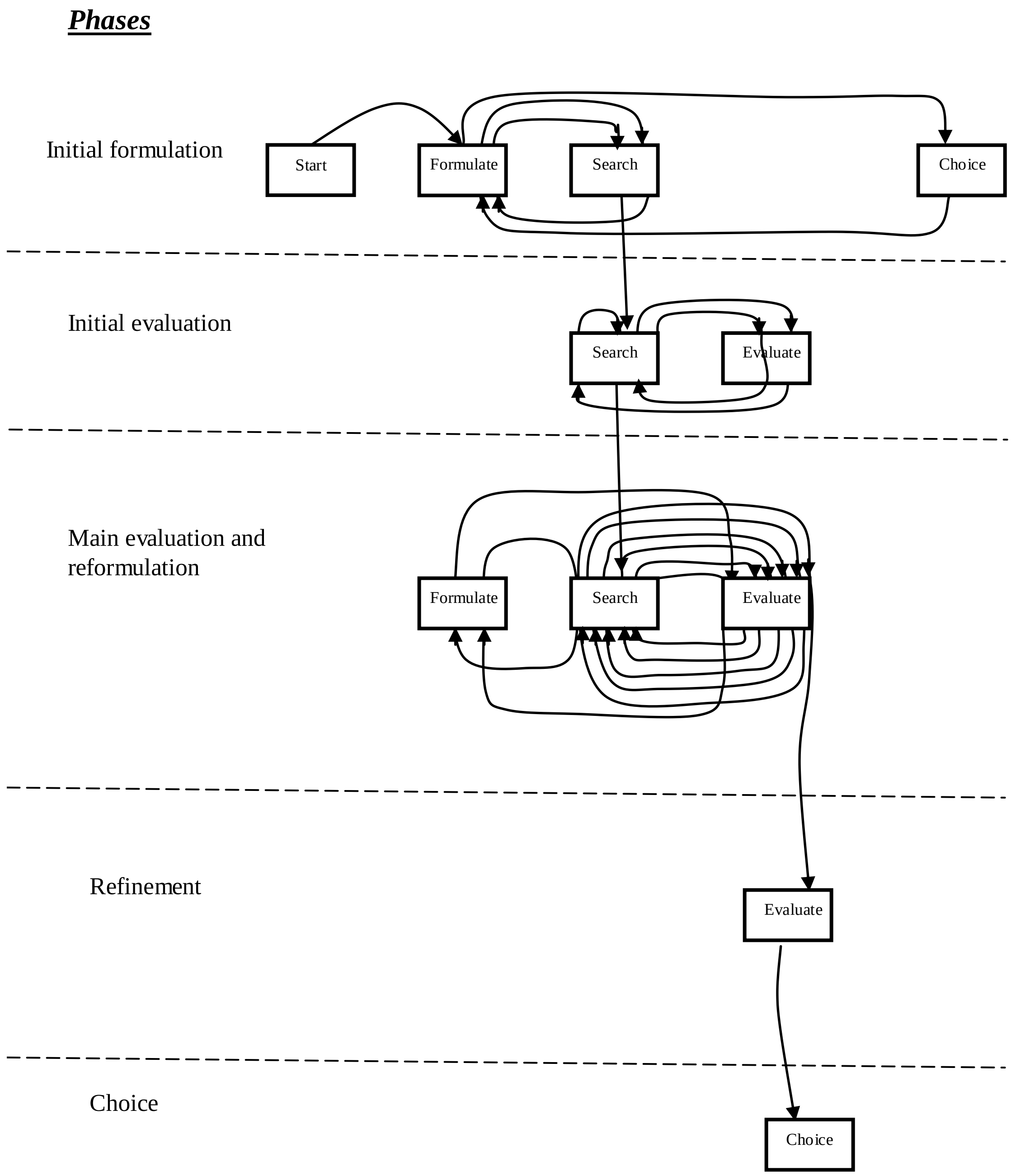


Figure 6.16: Archetypal flow model for satisficers with low level of knowledge, mobile networks

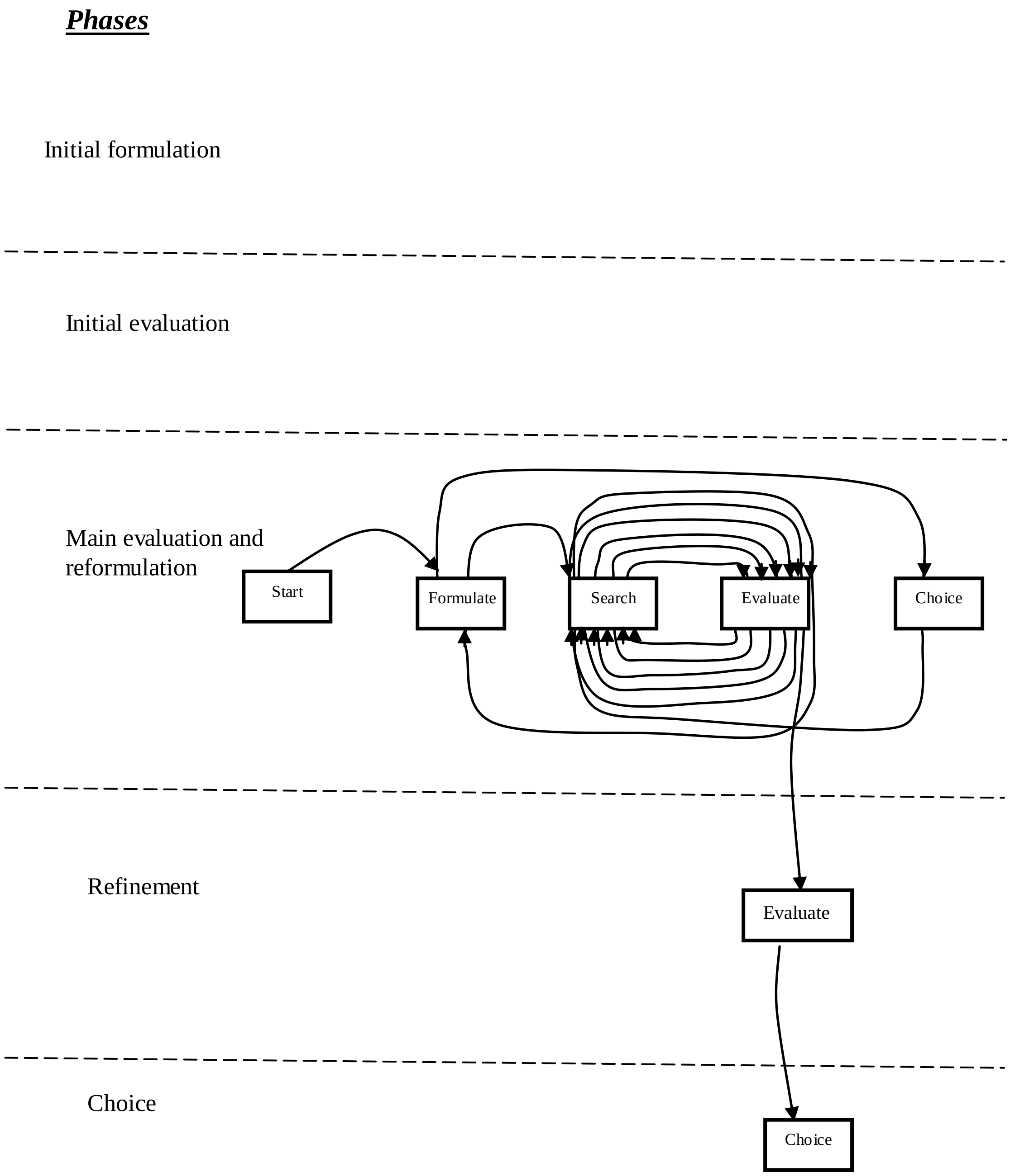


Figure 6.17: Archetypal flow model for satisficers with high level of knowledge, mobile networks

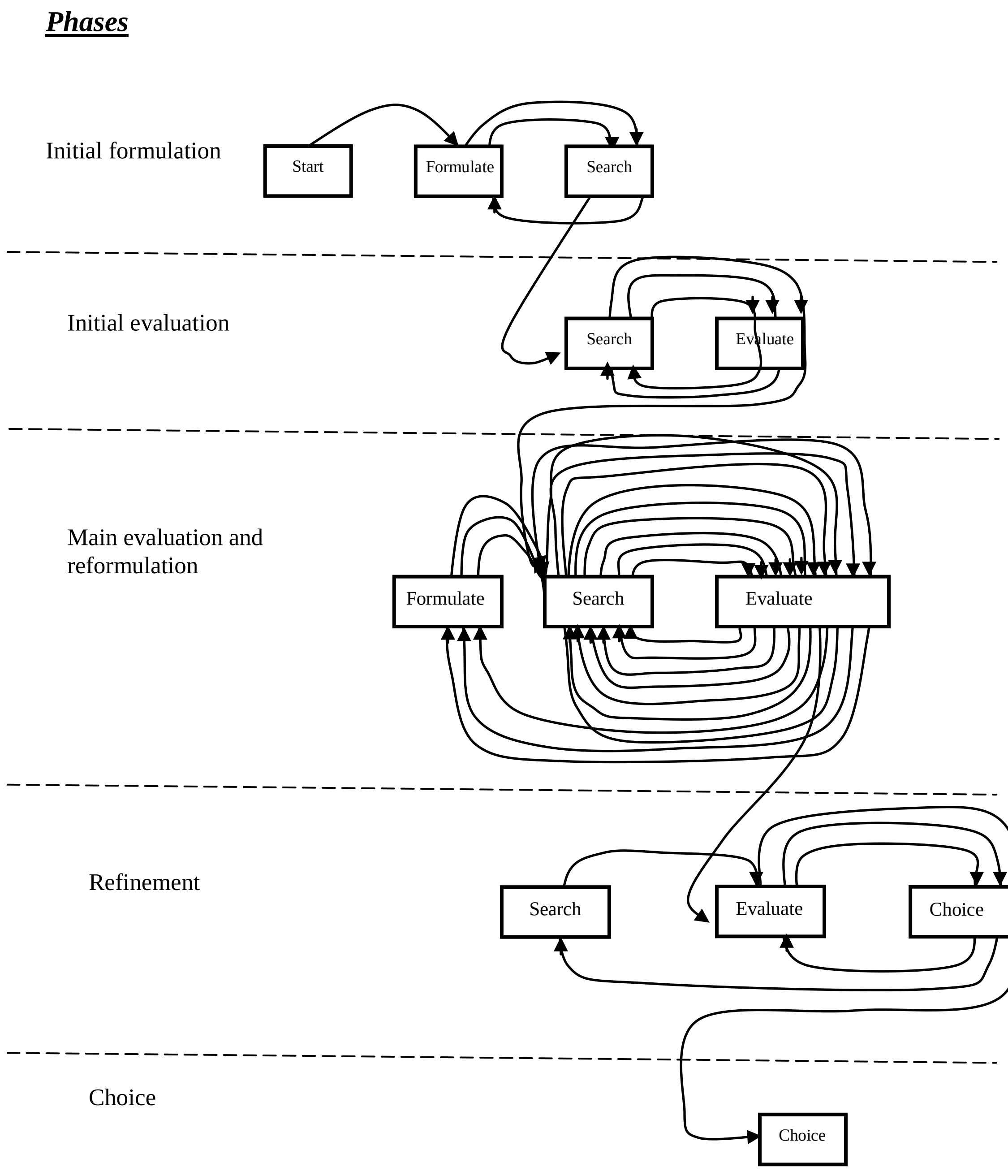


Figure 6.18: Archetypal flow model for maximizers with low level of knowledge, mobile networks

Phases

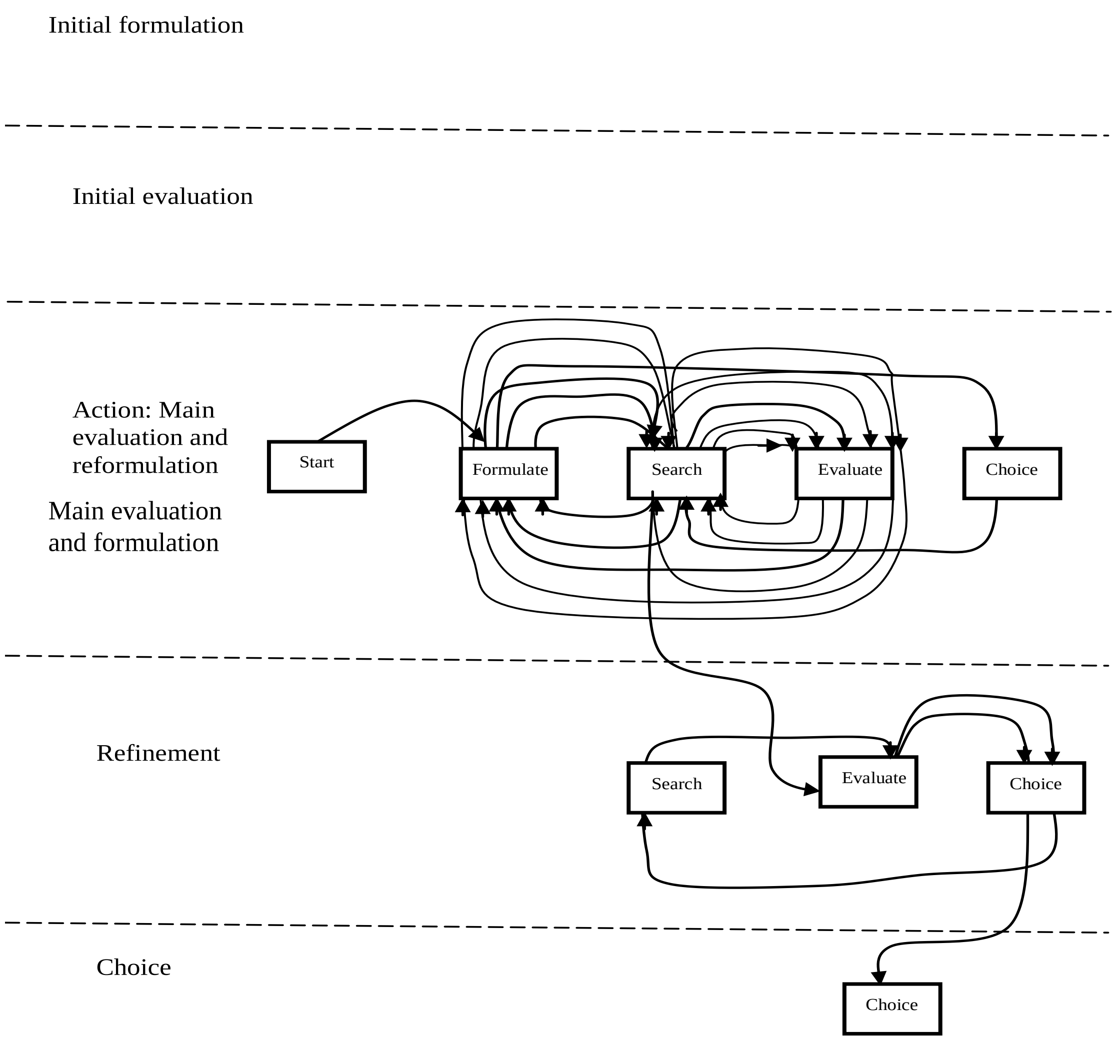


Figure 6.19: Archetypal flow model for maximizers with high level of knowledge, mobile networks

Archetypal process of satisficers with low level of knowledge

This is the only segment in which many members start the activity by searching for information rather than formulating the decision problem. In the first phase, they perform a limited search in order to formulate the decision problem. In many cases satisficers with a low level of knowledge choose the mobile phone at the very beginning. If they are not sure about the phone, they select only about two handsets to be evaluated. They develop their criteria and a few alternatives by searching without evaluating them. In the initial evaluation phase, these consumers search these alternatives to develop basic knowledge of the market (concept formation). In the main evaluation and reformulation stage, they identify more alternatives and evaluate these. The search and evaluation in this phase is more intense, leading to generation of more alternatives and rejection of some. If consumers have not yet selected the handset, they decide on that first. The decision on the suitability of an alternative is made on the spot. Therefore, the consideration set at any time is limited (2 to 3). Alternative packages offered by one network are evaluated and only one survives within the consideration set. The consideration set therefore has a few calling plans with different networks, indicating that evaluation and comparison are easier. All our participants used comparison sites, while a few used only these sites to reach a decision without visiting retailers' websites. They found comparison sites and the information they offer adequate for a decision. Consumers in this segment visit a moderate number of information sources and web pages and do not search in depth. They are selective in their information processing and perform alternative-based evaluation, concentrating on the main criteria. These consumers eliminate networks based on emotional information processing and their image of the brand. At the refinement phase, they only compare a few alternatives and make a decision. They rarely enter the appraisal phase.

Archetypal process of satisficers with high level of knowledge

Satisficers with a high level of knowledge enter the main formulation and evaluation phase at the very beginning. The majority start the activity by formulating their decision problem. They develop a few criteria and a few alternatives at the beginning. In most cases, a decision on the phone is made. Consumers directly move to searching and evaluating those alternatives. They might soon come across a new alternative but usually those alternatives generated at the first formulation stage are considered. They search a few networks and only evaluate the contracts which offer them what they need. A limited number of sources is used and search is in less depth. They select the information that they process and evaluate each alternative separately based on their limited criteria. These consumers perform simple evaluation. Their intention to identify a good enough option is obvious. In the next phase (refinement), the few alternatives in the consideration set are evaluated and the decision is made. We could not identify any evidence of appraisal for this group.

Archetypal process of maximizers with low level of knowledge

These consumers mainly start the activity by formulation. They perform limited search to formulate their decision problem and generate a number of criteria and alternatives during the first phase. Although some consumers know the handset they are interested in and select it, most of them evaluate different handsets. In the second phase, they search for alternatives and evaluate information to develop an understanding of the decision problem. In the third phase, they move to the main evaluation and reformulation stage. This stage is more complicated and includes many cycles for this group. During search and evaluation the number of alternatives increases and the mental model is reformulated constantly. Those who do not have a specific handset in mind will search for different phones. They consider more phones (3 or 4) to be evaluated. They do not necessarily evaluate the handsets first but look at the combination of the handset and package to get the best offer, making the process even more complicated. Their search is very much in depth and detailed, including visits to many pages. This group looks at more tariffs from each provider and compares them by attribute to select the one that offers more for a less price. All available information is evaluated. They calculate a lot of details, many even using a calculator. Active search lasts till the end and therefore their consideration set constantly changes. Afterwards (phase 4), when they feel that they have seen everything, they perform a final search and evaluation step that satisficers avoid. All the alternatives are compared at the same time against the criteria. Almost half review the alternatives and make a decision.

Archetypal process of maximizers with high level of knowledge

Most of the maximizers with knowledge start the process by formulating the decision problem and generating a number of criteria and alternatives that they are aware of. In the first set of activities they try to formulate the decision problem and identify all possible alternatives. Therefore, they perform search, evaluate the information, visit different alternatives and assess them. Whenever they remember a provider, they visit it. They execute an extensive search for each alternative and read all the information. They visit fewer pages and sources but still spend a lot of time on each piece of information. They compare alternatives against each other, performing attribute-based evaluation. In the refinement stage, further search and evaluation on the best alternatives is performed and a decision is made.

Table 6.12 summarizes the characteristics of each consumer segments discussed above.

6.3.5 Insight into the outcome of the process

Individual characteristics affect the outcome of the decision-making process. Outcome was measured by intention to adopt the decision, and satisfaction with the choice and the process.

Intention to adopt the decision

Intention to pursue the purchase of the selected alternative was asked as a single item question and also in the follow-up interviews. Figure 6.20 shows the result. In this sector, intention to adopt the decision is higher among individuals with a high level of knowledge. Only half of those with lower knowledge intend to complete the purchase. This could be due to the clarity of product information in this sector. Satisficers with high knowledge find all the required information and intend to finalize the purchase. As mentioned by consumers with knowledge:

> *"They had all the deals online and I read everything myself"*

"It is better than going to the shop because sales people do not influence your decision"

Those with a low level of knowledge, rely on their reference group experiences as well as the feel of the product. This indicates that these consumers need some other sources to be able to reach a final decision and they do "not make a decision in one go". A few of those with low knowledge said that:

"I need to spend more time and ask friends."
"I have to see the phone before buying it"

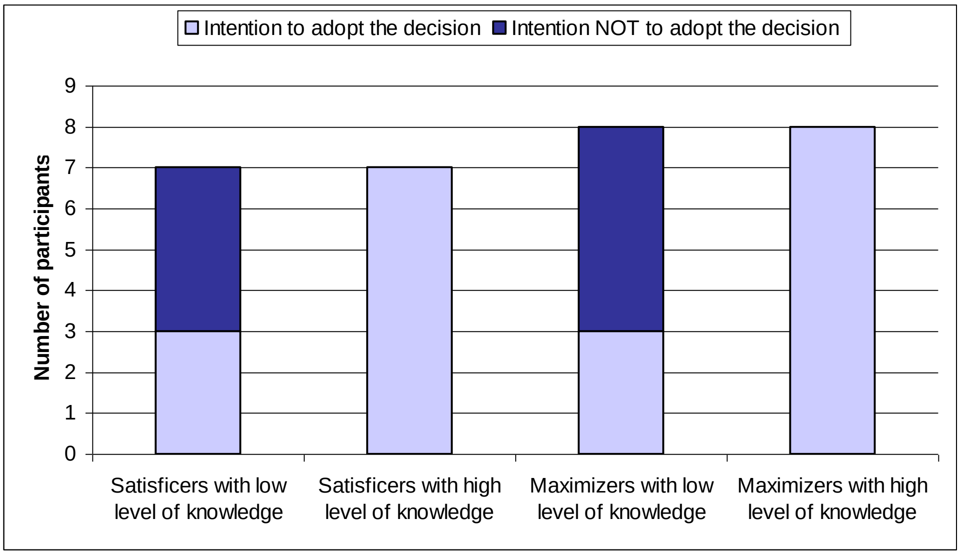


Figure 6.20: Intention to adopt the decision for each segment, mobile networks

Satisfaction with the choice

Satisfaction with choice was measured on a six-item scale. The majority of participants were satisfied with their choice (Figure 6.21). However, the degree of satisfaction varies. It is slightly higher for maximizers with a high level of knowledge and marginally lower for satisficers with a high level of knowledge.

They made statements that indicate they found all the required information, managed to evaluate it and made a satisfactory decision:

"It has everything I need."
"It is much cheaper than other networks; I couldn't get that much data with any other company with this price"

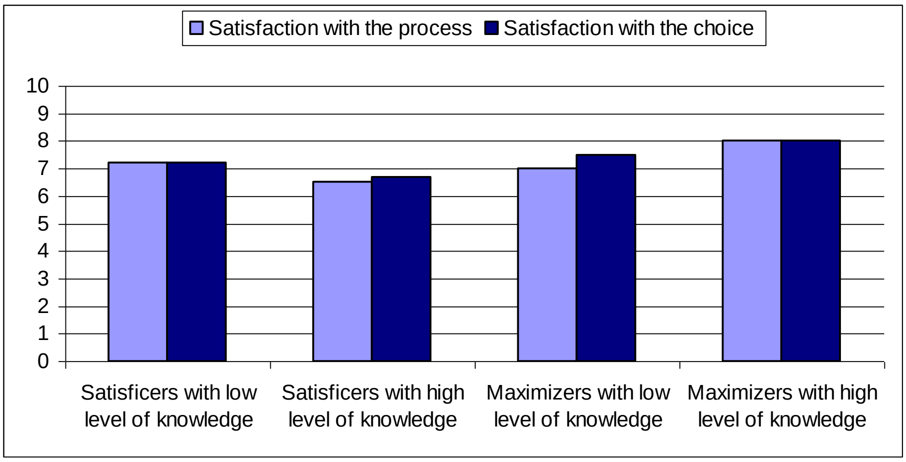


Figure 6.21: Satisfaction with the choice and process for each segment, mobile networks

Satisfaction with the process

Satisfaction with the process was measured on a six-item scale. The majority of participants were satisfied with the process. Satisfaction with the choice and process are very similar for each segment. Although maximizers become involved in a more complex process, clear presentation of information reduces frustration of consumers. Even maximizers with a low level of knowledge mentioned that the process was “easy”, “clear” and “involving”.

Table 6.12 summarizes all the above analysis. The detailed assessment revealed that the behaviour of these four categories is different in terms of frequency of occurrences, characteristics of each stage, process flow and process outcome.

6.3.6 Summary of key results for mobile network providers

Analysis of purchase decision-making behaviour in this sector addressed similarities and variations of processes and their outcome for different segments of consumers. All the stages of the process suggested in the proposed model are performed with the exception of appraisal. Formulation of mental model was found to be a prominent stage, repeatedly visited by consumers. Processes are complex but relatively structured in this sector. They are iterative; constantly moving between search and evaluation which in some cases leads to reformulation of the mental model. In this sector, the number of alternatives which are evaluated is high and cycles are the result of searching and evaluating alternatives. Consumers are able to easily locate the information and evaluate it in a systematic way. This is not only due to the product characteristics but also presentation of information which is clear and easily comparable. Consumers evaluate an alternative once and either add it to their consideration set or reject it. Although that alternative might be afterwards compared against other alternatives, it can be entirely evaluated in one evaluation cycle.

Despite similarities, behaviour of consumers is influenced by their decision-making style and knowledge. The characteristics of each segment are illustrated in Table 6.12. The process is more complex for maximizers. Two extra phases with the aim of concept formation are only performed by consumers with a low level of knowledge. However, maximizers with a high degree of knowledge act in similar fashion to satisficers in terms of intensity of cycles, allocation of effort to search and evaluate, and duration of the process. Maximizers with a low degree of knowledge have a longer and more intensive process.

More detailed variations can be observed in the behaviour of consumers at each stage of the process. Satisficers have fewer criteria and alternatives, search in less depth, are selective in their information processing, perform alternative-based evaluation, and use simplification strategies. Conversely, maximizers have a higher number of criteria and alternatives, search for information in depth, assess all the available information, and perform attribute-based evaluation. Consumers with a low level of knowledge have more criteria and evaluate more alternatives. They search more broadly by looking at more sources. However, the unique behaviour of each segment stems from the influence of both factors.

The outcome of the process also varies for different segments. The majority of participants were satisfied. Satisfaction with the choice and process is nearly constant across segments. Clear presentation of information assists those with a low level of knowledge to find the information and reduces dissatisfaction for those performing an intensive process. However, intention to adopt the decision was higher among consumers with a high level of knowledge. If the level of knowledge is low, consumers require the approval of their reference group and consider the feel of the product in order to complete a purchase.

Table 6.12: Summary of behaviour of each segment at all stages of the purchase decision-making process, mobile networks

Typology of individuals	Process	Start	Formulation	Search	Evaluation	Appraisal	Outcome (intention and level of satisfaction)
Satisficers with low level of knowledge	Medium degree of recursion AVG time spent: 16:20 min. Simple iterative with concept formation	Search and formulation	AVG number of criteria:3.9 Developed at the beginning and stays the same AVG number of alternatives (package): 6.4 AVG number of networked considered: 2.7 AVG number of alternative phones: 1.6 Generated at the beginning and changes until the middle of the process	Type of source: Comparison websites, Providers' websites, Information websites Medium number of information sources but not in-depth	Evaluation with middling complexity, Selective information processing, Alternative-based evaluation, Less comparison and parallel evaluation, Evidence of evaluation by emotions and brand perception, Decide by most important criteria	A few cases Review of selected alternative	Medium intention to adopt the decision High satisfaction with the choice High satisfaction with the process
Satisficers with high level of knowledge	Low degree of recursion AVG time spent: 12:47 min. Simple iterative	Search and more formulation	AVG number of criteria: 3.3 Developed at the beginning and stays the same AVG number of alternatives (package):3.4 AVG number of networked considered: 2.7 AVG number of alternative phones: 1.3 Generated at the beginning and stays the same	Type of source: Comparison websites , Providers' websites, Information websites Limited sources of information, not in-depth	Simple evaluation, Selective information processing, Alternative-based evaluation, less comparison and parallel evaluation, Decide by most important criteria	Do not appraise	High intention to adopt the decision Above average satisfaction with the choice Above average satisfaction with the process

Table 6.12 continued

Maximizers with low level of knowledge	High degree of recursion AVG time spent: 26:20 min. Complex Iterative with concept formation	Search and more formulation	AVG number of criteria: 4.1 Developed at the beginning and stays the same, AVG number of alternatives (package): 9.1 AVG number of networked considered: 4.1 AVG number of alternative phones: 2.1 Constantly changing, A few options left open till the end, but some are eliminated promptly	Type of source: Comparison websites, Providers' websites Large number of information sources, In-depth and detailed	Complex evaluation, Evaluation of all the available information, Attribute-based evaluation Lots of comparison and parallel evaluation No emotion in making a decision, Decide by large number of criteria	Half of the cases, Review of selected alternative	Medium intention to adopt the decision High satisfaction with the choice High satisfaction with the process
Maximizers with high level of knowledge	Medium degree of recursion AVG time spent: 15:18 min. Complex Iterative without checkpoints	Search and more formulation	AVG number of criteria:3.9 Developed at the beginning and stays the same AVG number of alternatives (package): 7.1 AVG number of networked considered: 3.0 AVG number of alternative phones: 1.9 Generated at the beginning and stays the same	Type of source: Comparison websites, Providers' websites Limited sources of information, In-depth and detailed	Evaluation with middling complexity, Evaluation of all the available information even if they know what they want, Attribute-based evaluation Lots of comparison and parallel evaluation Decide by large number of criteria and best price for the deal	A few cases Review of selected alternative	High intention to adopt the decision Very high satisfaction with the choice Very high satisfaction with the process

6.4 Comparison of results and discussion of theory

In this chapter, results of individual-level analysis of consumer purchase decision-making behaviour were presented. Online purchase processes for four segments of consumer were modelled. The behaviour of each segment in terms of general patterns of process model and characteristics of the process (intensity of cycles, allocation of effort and duration), flow of the process, behaviour at each stage, and process outcome (intention to adopt the decision and satisfaction with the choice and process) was explored in two sectors. Certain behaviour was expected based on previous literature, and was examined throughout the chapter.

6.4.1 Stages of online purchase decision-making model

All the stages of the purchase process presented in the proposed model were performed. In addition to the stages of the classical purchase model (Engel, Kollat and Blackwell, 1968; Howard and Sheth, 1969; Nicosia, 1966; Erasmus, Boshoff and Rousseau, 2001), formulation and appraisal were identified. Formulation of mental model which is drawn from the decision science literature (Holtzman, 1989) was found to be a very important stage. Including formulation in the purchase decision-making model increases its explanatory power. The self-service nature of online purchase increases the importance of this stage where consumers formulate their understanding of the task by themselves. Results illustrated that this stage leads the flow of the process. Appraisal is another stage which is overlooked in consumer research. The analysis found evidence of its occurrence by consumers in the banking sector, particularly among maximizers. However, understanding the reason for performing or skipping this stage requires further research.

This analysis revealed that video recording of online purchase decision-making processes provides rich and complete insights into the process without losing its context. In addition, UML activity diagrams and adaptation of the Mintzberg path configuration method can be jointly used in order to examine various aspect of a process.

6.4.2 General process characteristics

The two sets of data found relatively similar behaviour for online consumers. Purchase decision-making processes in both sectors are complex and iterative. Maximizers' decision-making process is more complex, including more cycles and longer duration. The most effort is dedicated to search and evaluation, followed by formulation. More cycles and longer duration for maximizers support the results of Chowdhury, Ratneshwar and Mohanty (2009) in an online shopping context. In general, the same result is found for those with a low level of knowledge. The impact of knowledge on intensity has also been previously suggested (Moore and Lehmann, 1980). Therefore, satisficers with a high level of knowledge and maximizers with a low level of knowledge show very different behaviour in terms of intensity of cycles and duration. In the banking sector, satisficers with low knowledge illustrate a shift towards the way maximizers behave. Conversely, maximizers with high knowledge tend towards the behaviour of satisficers in choosing a network provider. As mentioned by Schwartz et al. (2002) and Wright (1975), maximization tendency depends on the decision context. This finding to some extent supports Bettman and Park (1980) and Malhotra (1983), who concluded that consumers with a low level of knowledge are not able to search and evaluate the information and those with high knowledge lack the motivation to do so. We rephrase this by including the impact of the decision-making style:

When the importance and complexity of the task is higher (banking sector), satisficers with a low level of knowledge behave more like maximizers in terms of intensity of the process as they are not capable of searching and evaluating effectively. When the importance and complexity is less (network providers), maximizers with a high level of knowledge act more like satisficers as they lack the motivation to search and evaluate the information.

Slight variations between the two sectors were identified. Purchase decision-making processes are more unstructured in the banking sector than mobile networks. Although consumers in the banking sector perform more iteration, the number of evaluated alternatives is smaller. This shows that cycles are not the result of evaluating a large number of competitors, but are due to the difficulty of assessing an alternative which requires a few cycles of evaluation. In the mobile network sector, the number of alternatives is high and cycles are the result of searching and evaluating many options. An alternative can be entirely assessed in one evaluation cycle, because of the product characteristics as well as the clear presentation of information.

6.4.3 Behaviour during each stage of the process

Characteristics of behaviour during formulation, search and evaluation stages vary for each segment, although they are similar for both sectors. More criteria and alternatives are generated by maximizers. They perform more in-depth search than satisficers. Evaluation is attribute-based and all the available information is assessed. Satisficers evaluate by alternatives, are selective in their information processing and use simplification strategies. This behaviour for maximizers and satisficers during the formulation, search and evaluation is consistent with previous studies of decision-making style (e.g. Chowdhury, Ratneshwar and Mohanty, 2009; Schwartz et al., 2002; Iyengar, Wells and Schwartz, 2006). Knowledge also affects the formulation and search behaviour. A higher level of knowledge results in the generation of fewer criteria and alternatives and a broader search. Previous studies of consumers also supported such behaviour during formulation (e.g. Sproule and Archer, 2000; Kaas, 1982; Brucks, 1985; Cowley and Mitchell, 2003) and search (Moore and Lehmann, 1980).

However, no evidence for the relation between prior knowledge and selectivity of information processing during evaluation was found, as opposed to the studies of Huffman and Kahn (1998) and Chang and Burke (2007).

6.4.4 Process flow

Flow of the process is also different for different segments. It is more complex for maximizers. On the other hand, those with a low level of knowledge perform additional phases to develop understanding of the decision problem (concept formation). Existence of this phase for consumers with a lower level of knowledge has been addressed by Sproule and Archer (2000) and Kaas (1982). A similar flow for each segment is observed over both sectors, being slightly more complex in banking.

6.4.5 Process outcome

The outcome of the process also varies for each segment. Different segments adopt different channels for purchase. In the banking sector, satisficers are less likely to purchase online as they prefer to get information from a member of staff for simplification. This is due to the large amount of information which is attributed to each product. For mobile network operators, those with a high level of knowledge tend to be the online shoppers. Less informed consumers rely on the experience of their reference group to make a decision. The results for satisfaction are also different. In the mobile sector, satisfaction with choice and process is high. However, in the banking sector satisfaction with the choice is higher than satisfaction with the process. Therefore, in accordance with Fitzsimons (2000), Zhang and Fitzsimons (1999) and Iyengar and Lepper (2000), this result suggests that satisfaction should be separated into satisfaction with the choice and with the process. The nature of the banking products and unhelpful design of websites do not support the consumer decision-making process. This is justified by the theory of Dimoka, Hong and Pavlou (2012) who have discussed the impact of product uncertainty on consumers. They have suggested that product uncertainty is an information problem and can be improved by certain signals on the website. Network providers' websites, on the contrary, are relatively mature in assisting consumers and providing appropriate presentation of information. Despite the complexity of choosing a mobile contract, the process seems to be efficient and satisfactory. Xia and Sudharshan (2002)'s claim, that consumer satisfaction with the choice indicates the decision's effectiveness, was not found to be the case in this research. In the banking sector, maximizers in particular are not efficient in their process. However, satisfaction is higher among this group. Although this study highlighted the variations, more research into the relationship between individual characteristics, intention to adopt the decision and satisfaction is required.

Finally, during the interviews many participants mentioned the use of both online and traditional channels in searching for products. Therefore, it is crucial to understand the multi-channel behaviour of current consumers and the fact that the Internet creates added value rather than replacing the traditional forms of retailers in these sectors. Gefen and Straub (2003) have addressed this issue by saying that each channel fits better to a specific task. Similar results have been suggested for the banking sector by Tih and Ennis (2006), Wikstrom, Yakhlef and Osterlund (2003) and Wikstrom (2005).

Individuals' purchase decision-making behaviour in the online context was comprehensively explored in this chapter. Results indicated the existence of four segments of consumers, based on maximization tendency and knowledge of the market and product. Each has specific purchase behaviour which remains relatively similar in different contexts. The practical implications of this are discussed in the next chapter.

7 DISCUSSION AND CONCLUSION

7.1 Chapter overview

The results of the research were presented and discussed in detail in chapters five and six. In this final chapter, a brief summary of the thesis is presented and the findings from the multi-level mixed-method research are brought together. The discussion highlights main findings by drawing on the market- and individual-level analysis. Possible applications of this study in terms of theoretical and practical contributions are discussed. The limitations are explained and opportunities for further research are suggested. Finally, a conclusion is presented which emphasizes the importance of new types of research into online consumer behaviour and various segments of consumers.

7.2 Summary and discussion

This study explores online consumer behaviour. It examined a) individual purchase decision-making processes during interaction with the online environment, and b) actual aggregated behaviour on the Internet over a period of three months.

An "online purchase decision-making process model" was proposed which has synthesized the elements of models developed in consumer behaviour and the decision science discipline. The proposed model explains real-world decision-making behaviour by having a dynamic and flexible structure and allowing for the decision maker's role in the process. It can therefore describe the adaptive processes and their variations for different individuals in different contexts. Despite supporting complex and unstructured online processes, it is operationalizable and can be empirically analyzed. It has provided the basis for this research. Due to the complexity of online purchase behaviour, modelling is a suitable approach to enhance our understanding of this phenomenon (Caine and Robson, 1993). As the intensive review of literature revealed, no suitable purchase model was available for this study. Traditional models could not explain the dynamic behaviour of online consumers and had to be revised and validated for the

Internet context (Butler and Peppard, 1998). Previous Internet-based models have mainly concentrated on adapting the contextual factors for this environment and are not concerned with the decision-making processes. In addition, the empirical evaluation of Internet models was very limited (Moon, 2004).

As mentioned in section 2.8, online consumer research needs a new paradigm. In order to address the objectives of this study and use the potential offered by the Internet panel data, multi-level mixed-method research was designed. A combination of two levels of analysis addressed different behavioural aspects which would not have been possible otherwise. Two sectors, banking and mobile networks in the UK, were selected (refer to section 3.9.2). Decision-making processes in both sectors are complex for a number of reasons: multiple criteria are involved in the decision, offers are not uniform so the best alternative is difficult to identify, and products include intangible aspects and have a long-term impact. Internet panel data from comScore was used to identify the actual behaviour of online consumers and the impact of the Internet in these two sectors. ComScore tracks the behaviour of over 60,000 Internet users in the UK. As use of this data is new, some macro-level concepts and measures were specifically developed for this study; others were borrowed from the literature. Only such a methodology could achieve the purpose of this research. The results provided an understanding of consumers' actual behaviour in the entire online market and across multiple retailers. Various patterns of behaviour were identified. In addition, individual-level experiments were analyzed using qualitative research methods. It aimed to capture the decision-making processes and identify the impact of two individual characteristics (decision-making style and knowledge of the product) on the process and process outcome. These two characteristics have been found to have a prominent influence on purchase decision-making behaviour. They are taken from different areas of literature, but their composite impact has not been examined prior to this research. Based on these two factors, we proposed four segments of online consumers: satisficers with a low level of knowledge, satisficers with a high level of knowledge, maximizers with a low level of knowledge, and maximizers with a high level of knowledge. Decision-making processes for each segment were captured by video recording and modelled by activity diagrams and an adaptation of the path configuration method. While activity diagrams illustrated the intensity and frequency of patterns, the path configuration method successfully depicted the flow of this complex process. Different process typologies were identified for each segment and their patterns of behaviour were explored. In addition to the process models, the detailed behaviour at all stages of the decision making was explored. Interesting variations across segments were observed and the composite impact of two individual factors was proven. Consumer behaviour was tested and compared across two sectors.

The analysis of the two-level research provides a great amount of detail on how online consumers behave. Summaries of key results for the mobile network and banking sectors are given in sections 5.5.4, 6.3.6, 5.4.4 and 6.2.6. Detailed discussion of results and their linkage to theory, as well as a comparison of the two sectors, are presented in sections 5.6 and 6.4. As mentioned before, the two levels of analysis answer different research questions, while together providing a big picture of online purchase decision-making phenomena. In the following sections, the main results of the research are highlighted and the knowledge gained from individual and market analysis is combined, answering the objectives of this research which were discussed in the introduction. The key findings from the synthesized results are classified into:

- Behaviour in terms of using the Internet in selected sectors
- Behaviour in terms of interaction with different retailers in the market
- Behaviour in terms of the purchase decision-making process followed
- Behaviour in terms of allocation of time and effort in the process
- Behavioural variations across consumer segments and sectors.

Use of the Internet in selected sectors

The first important finding is how the Internet is used in each sector. The aggregated behaviour at the macro-level illustrated that the Internet has been widely adopted in both sectors by UK consumers; nevertheless, the main issue is that the preliminary usage varies. Although Featherman and Pavlou (2003) have distinguished between the use of online services and online purchase, their classification is subtle. In this study, the use of the website for search/purchase and online services is clearly differentiated and measured. Results show that the banking sector is very successful in offering e-services to its consumers and the preliminary use of the Internet is for online banking. Although a noticeable portion of consumers visit banks for research and banks are offering information-intensive websites and trying to appear on comparison sites, the intensity of online research is limited. Mobile networks, conversely, receive a high proportion of potential consumers on their websites who perform intensive research. These results imply that a meaningful interpretation of consumer macro-behaviour requires understanding of the purpose of visit to the website.

However, in banking sector, the question is: “whether consumers are not willing to use the Internet or websites do not support their decision-making processes”. The analysis of individual decision-making processes answered this question. It revealed that banking websites do not support decision-making processes. Web pages include large amounts of text that consumers find difficult to read and evaluate; it results in dissatisfaction with the process or uncertainty about the choice (see section 6.2.5). According to Dimoka, Hong and Pavlou (2012), product uncertainty, which is a type of information problem, can be enhanced by the websites’ interface. As shown in section 6.2.6, consumers have to perform a few cycles of search and evaluation for each product to be able to assess it. The unstructured purchase process in the banking sector, which was verified in the empirical work, confirms this. Consumers constantly jump between stages and therefore they are not directed through the stages. In an ideal situation they should be directed through the process, generating desired patterns of flow. One might argue that it is due to the nature of financial products, but I observed that a few banks with filtering features and tabular presentation have noticeably improved the decision-making process. On the other hand, some consumers (in particular satisficers) constantly mentioned their preference for going to the branch. Bucklin et al. (2002) and Zhang, Agarwal and Lucas (2011) have addressed the role of both consumer and marketer in shaping the purchase process. It seems that for the Internet to be used as a purchase channel in the banking sector, changes in both the website support for consumer decision making and consumers’ attitude towards this channel are required. Mobile network websites, on the contrary, are broadly used for research and purchase. These websites support the purchase decision-making process by having a clear presentation of information. The value of each criterion is clearly illustrated, making search and evaluation effective; this increases satisfaction with the choice and the process. Based on the results, there are fewer cycles despite evaluation of more alternatives. The purchase process on the Internet is efficient and satisfactory, regardless of the number of interlinked decisions which have to be made (section 6.3.5). Agreeing with the work of Xia and Sudharshan (2002), this outcome suggests that the effectiveness of the decision process is related to satisfaction with the process. Decision-making processes were structured in the mobile network sector, showing that consumers follow a clearer flow, with certain identifiable stages at each point during the process.

However, this research supports previous studies which have suggested a multi-channel strategy. Choudhury and Karahanna (2008) suggested that consumers disaggregate the stages of the purchase process on different channels. Vishwanath and Mulvin (2001) suggested that "the Internet means different things" in different sectors and, in order to benefit from its potential, its role in a specific channel should be addressed. There are certain stages of the process that are more suitable to be performed on the Internet. The Internet is still a supplementary channel rather than a replacement for traditional shops in most sectors.

Interactions with different retailers in the market

One of the important issues related to consumers' behaviour is the way they interact with different retailers in the market. Previously, it was not possible to measure these interactions due to the lack of data tracking the entire purchase activity. However, Internet panel data has made this type of analysis possible. Macro-analysis of visiting multiple retailers revealed that the number of visits to a bank on the Internet is related to its size, being marginally better for larger banks. However, this result does not take into account the purpose of visit. As later analysis indicated, higher visibility for larger banks is due to the use of online banking rather than purchase. Although a recent study by Laffey and Gandy (2009a) claims that the Internet has not fundamentally altered behaviour in the market, we argue that the behaviour has changed as services are shifted online. Among mobile network providers, a few smaller network providers are more likely to be visited online, relative to their size. All these providers were highly visited by consumers of comparison sites. Therefore, the Internet leads to more visibility for some smaller network providers and has the potential to change the behaviour of consumers in terms of visiting retailers. In line with the theoretical prediction that consumers use markets more proportionately on the Internet (Bakos, 1997), the Internet can provide some smaller retailers with an advantage in certain sectors.

Previous research has suggested that consumers have online access to all retailers, and therefore their consideration set should be large (Daniel and Klimis, 1999). According to the macro-analysis, the portion of consumers who visit more than one retailer on the Internet and compare competing offers online is low (20%-25%). In terms of the number of retailers in their consideration set, macro-level data illustrated that consumers who visit more than one retailer are on average visiting 2.49 banks and 2.55 network providers. In fact, consumers have preferences for alternatives and can be accordingly clustered. The consideration set in individual-level analysis was higher. This could be the impact of laboratory experiment or use of the Internet as a complementary channel where only parts of the process are performed online. High level of cross-visiting with comparison sites was found based on macro-level data; individual processes also confirmed this. In addition, research on these websites in terms of usage intensity is high, showing that decision-making activities are carried out. Laffey and Gandy (2009a) stressed the importance of these websites in the financial sector. Their work suggests that only the websites of those retailers which survive the comparison on comparison sites are visited. This outcome has important implications for marketers.

Online purchase decision-making processes followed

After understanding the higher-level behaviour in terms of using of the Internet and visiting various retailers, the detailed characteristics of consumers' purchase decision-making behaviour is examined. For this purpose a model was proposed in chapter 3 that provides the basis for online consumer behaviour and was tested in two sectors. The results of examining this dynamic model revealed that all the stages of the model are performed by all consumers with the exception of appraisal. The majority of cycles are between search and evaluation stages, followed by formulation. Formulation of mental model, drawn from the decision science literature (Holtzman, 1989), was identified as a very important stage in the purchase process. It influences other stages and directs the flow of the process. It explains the behaviour in more detail and increases the descriptive ability of the model. Appraisal is also performed by a noticeable portion of consumers, particularly maximizers. However, more research is required to understand the nature of this stage. As expected, online purchase decision-making processes include a lot of iteration. They were slightly more structured for mobile networks. Modelling results found that in addition to the stages, there is another dimension to the process which I refer to as “phases” of behaviour, related to the flow of the process. Consumers follow different phases to reach a decision. Each phase includes iteration between stages.

Allocation of time and effort to the purchase decision-making process

These findings are related to the behaviour of consumers while following the purchase process. As I showed above, the majority of effort in individual processes is dedicated to search and evaluation of information in both contexts. However, consumers take time to reformulate their mental model several times during the process. This includes both generating criteria and alternatives.

In addition to the effort they put into the process stages and iterations they perform, the time consumers dedicate to the evaluation of alternatives is also important. Consumers in the banking sector spend on average 18'20" to 33'40" minutes on the task (individual-level experiment), depending on their individual characteristics. They look at 3.2 to 6.3 alternatives over this time. In reality (macro-level analysis), they spend less than 2 minutes on product-related sections of banking websites. If online consumers were using the banking sites for research, the average time spent should have been noticeably higher. Information overload or choice overload is one of the main reasons for the very limited pre-purchase information search. It can however be addressed by understanding individual needs and offering personalized information (Zhang, Agarwal and Lucas, 2011), and emphasizes the importance of online consumer segmentation.

Consumers of network providers spend 12'47" to 26'20" minutes on 2.7 to 4.1 websites, as measured by the experiments. This matches the average of the actual time spent on a retailer's website, approximately 5 minutes. It again supports the use of the Internet for research in the mobile sector. The results of Johnson et al. (2004), of very low research intensity for different products, are not aligned with our result in mobile networks. Holland and Baker (2001) stated that if consumers do not spend time on a website is because they do not see any value in continuing to research on a given site. Banking consumers, therefore, do not see value in researching banks websites as their decision-making process is not facilitated. The results show that a similar amount of time was spent on comparison sites.

Variations of the purchase decision-making process across consumer segments

As discussed in section 2.6.3, research on differences between online consumers based on their individual characteristics is necessary but currently limited. The findings of this study help to narrow this gap. Results demonstrate the effect of decision-making style and the degree of the consumers' knowledge on purchase decision-making behaviour. Accordingly, four segments of consumers were introduces: satisficers with a low level of knowledge, satisficers with a high level of knowledge, maximizers with a low level of knowledge and maximizers with a high level of knowledge. The behaviour of the four segments was measured, concerning their patterns of decision making process, and its characteristics, process flow, detailed analysis of behaviour at each stage, and outcome of the process. Variation across segments was observed.

Each segment has unique attributes. Findings of this research confirm the impact of both individual characteristics on behaviour. In fact, it is their combination which can predict the behaviour. The majority of characteristics are identical across sectors such as their process models, flow of the process through phases and behaviour at each stage of decision making (such as generation of criteria and alternatives, search behaviour and evaluation strategies). Satisficers were found to have fewer criteria and alternatives, search in less depth, act selective in their information processing, perform alternative-based evaluation, and use simplification strategies. Maximizers, conversely, have a higher number of criteria and alternatives, search for information in depth, evaluate all the available information, and perform attribute-based evaluation. These results are consistent with previous research such as that by Chowdhury, Ratneshwar and Mohanty (2009), Schwartz et al. (2002) and Iyengar, Wells and Schwartz (2006). Consumers with a low level of knowledge perform concept formation, have more criteria and evaluate more alternatives. They search broader by looking at more sources. Similarly, the impact of knowledge was aligned with other research; for example, Sproule and Archer (2000), Brucks (1985), Cowley and Mitchell (2003) and Moore and Lehmann (1980). Among expected results, the impact of prior knowledge on selectivity of information processing was not supported, in contrast to the study of Huffman and Kahn (1998) and Chang and Burke (2007). The composite impact of these two characteristics defines the archetypal behaviour of each segment. The detailed description of the behaviour of each segment was summarized in Tables 6.6 and 6.12.

On the other hand, there are a few characteristics which slightly change according to the decision task (choosing a bank account or mobile contract), namely: intensity of cycles, allocation of effort and duration. Although in general the value of these characteristics is higher for maximizers and those with a low level of knowledge, as other studies have suggested (e.g. Chowdhury, Ratneshwar and Mohanty, 2009; Moore and Lehmann, 1980), it might shift slightly with the nature of the market. Consumers might behave differently from the expected behaviour which is defined according to their individual characteristics (see section 3.8). For example, satisficers with a high level of knowledge and maximizers with a low level of knowledge have disparate behaviour**.** However during more unknown and complex processes (banking sector), satisficers with low knowledge show a shift towards maximizing the decision. Conversely, in more familiar and less complex situations (network providers) maximizers with high knowledge lean towards the behaviour of satisficers. Schwartz et al. (2002) and Wright (1975) have mentioned that maximization tendency depends on the task. Nevertheless, the nature of this dependency was not explored prior to this research. This study has filled in this gap by illustrating how maximization tendency is amplified by the market characteristics that shape the nature of the task.

The outcome of the process in terms of consumers' intention to pursue the choice and satisfaction is of particular interest as it leads to sales and consumer retention for companies. The outcome of the process was assessed for each segment, but contradictory results were found. Intention to purchase online is higher among maximizers in the banking sector and for consumers with a high level of knowledge in mobile networks. Their own explanation indicated that preference for collecting comprehensible information from sellers and reliance on experience of their reference group are, respectively, the main reasons for hesitation to purchase. The result for satisfaction was also adverse, emphasizing the fundamental difference between satisfaction with the choice and the process (Fitzsimons, 2000). In the mobile sector, satisfaction with the choice and process are high, whereas in the banking sector satisfaction with the choice is higher than satisfaction with the process. The constant value of satisfaction across segments in mobile networks suggests that well designed e-retail sites can improve satisfaction even where the process is complex and has much iteration. Satisfaction is a consequence of consumers' experience during all stages of the purchase process (section 2.7.3). Increasing the level of satisfaction requires enhancement of all stages.

One of the main concentrations of this research has been on consumer segmentation based on their individual characteristics. In addition, macro-analysis indicated that certain consumers tend to visit a set of specific retailers. Internet panel data provided the opportunity to classify consumers based on their consideration set. Consumers of banking services were accordingly classified into four groups. Those in one group exhibit similar behaviour in terms of visiting competitors and go to at two or three specific banks. There are fewer mobile network providers in the market, nevertheless more groups were identified, that is each group of consumers visited one and in some cases two providers. This clustering based on retailers in the consideration set shows that despite the accessibility of all alternatives on the Internet, consumers visit a few specific ones. In other words, the segmentation of consumers in terms of their needs and preferences for certain retailers still exists. The reason for visiting certain competitors is beyond the scope of this research.

Revised model of the online purchase decision-making process

As a final conclusion on results of this research, the proposed conceptual model of online purchase decision-making process (Figure 3.15) is revised. In addition, the combined impact of two individual characteristics (decision making style and knowledge of the product) and market characteristics on the behaviour in each stage of the purchase process are included. Figure 7.1 shows the final model.

Results of individual level analysis indicated that consumers perform all the stages of the proposed model to reach a decision. That includes the stages of classical purchase behaviour model (need recognition, search, evaluation, and choice) as well as the formulation and appraisal stages. Formulation which has been previously overlooked in purchase models, was found to be a very important stage that needs to be included in consumer decision-making models. It influences the behaviour in search and evaluation stages and leads the flow of the process. Appraisal on the other hand is performed by a portion of consumers (illustrated by dotted lines) and therefore cannot be neglected. As figure (7.1) illustrates, the most effort is allocated to search and evaluation. Consumers constantly cycle between them (thicker arrows); meanwhile, they revisit the formulation stage.

The process is, however, influenced by individual and market characteristics. Analysis of behaviour for four segments of consumers supported the impact of both individual characteristics (decision making style and knowledge of the product) on the process. Decision making style in terms of maximization tendency and knowledge of the product both influence the flow of the process and the behaviour in formulation, search and evaluation stages in terms of intensity of cycles, allocation of effort and duration. In addition, maximization tendency has a direct impact on four stages: formulation (number of generated criteria and alternatives), search (depth of search and type of information sources), evaluation (selectivity of information processing and evaluation strategy) and also performance of appraisal stage. Knowledge of the product also influences the behaviour in the former three stages: formulation (number of generated criteria and alternatives), search (breadth of search) and evaluation (difficulty of evaluation).

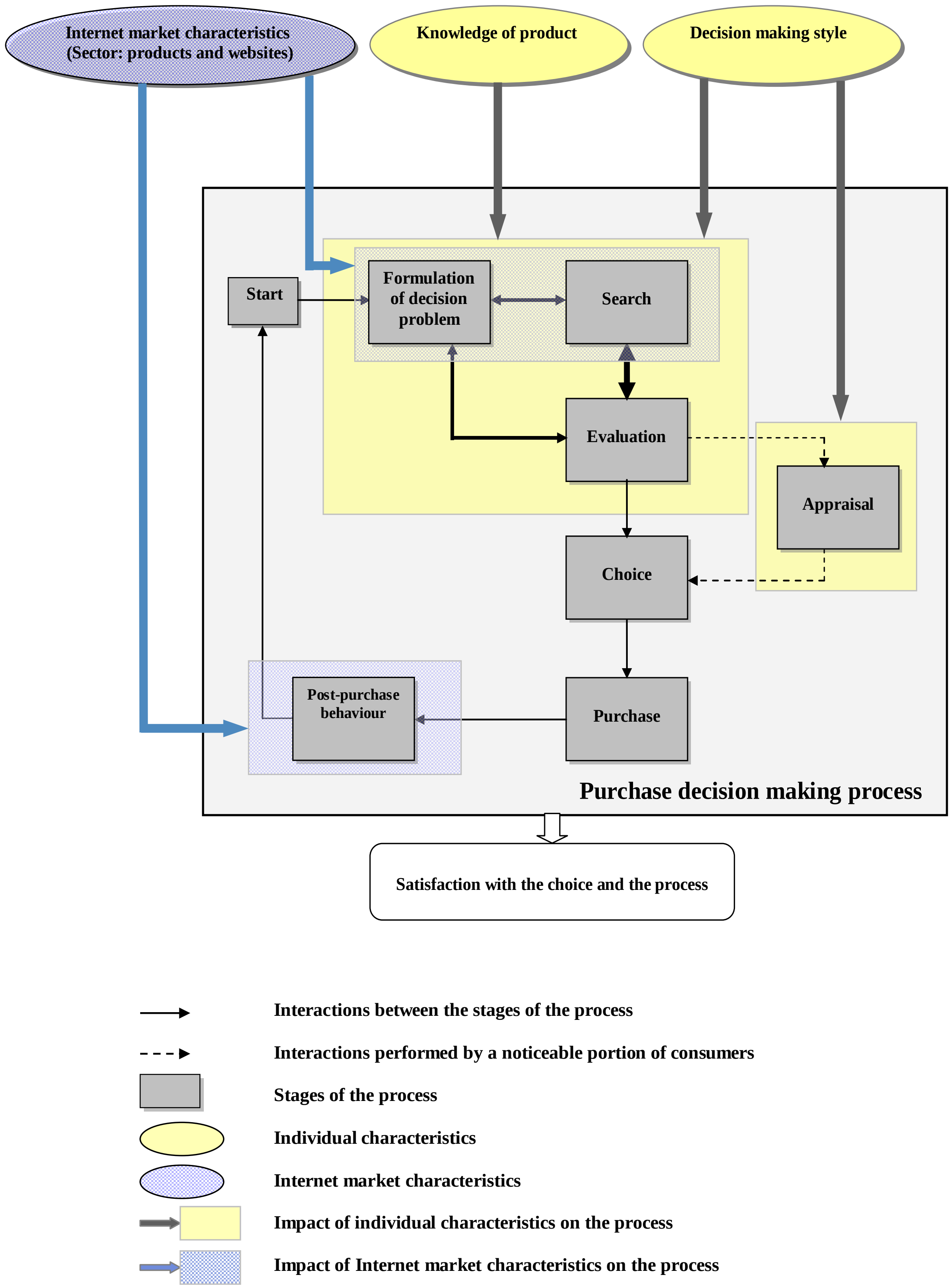


Figure 22: Revised model of online purchase decision making process

Internet market characteristics also have an influence on the decision making process. Individual-level analysis as well as the market-level analysis identified the impact of the Internet market characteristics (sector) on the search and evaluation stages by altering the number of alternatives, amount and duration of research. Results identified that, in addition to the characteristics of the product in each sector, design of the websites in each sector has an impact on the amount and duration of the research. Market-level analysis also revealed the influence of Internet market characteristic on the post-purchase behaviour of consumers (use of e-services).

Finally, the way in which the online purchase decision making process is performed influences satisfaction and intention to adoption the decision. Depending on their intentions, consumers might postpone the purchase stage or complete it through online or offline channel.

7.3 Theoretical contribution

From a theoretical standpoint, the results contributed to the existing literature in a number of ways. Due to the multi-disciplinary and multi-level nature of this research its contributions are broad. To the best of my knowledge this is the first study which provides such a comprehensive analysis of online consumer behaviour at all stages of purchase decision making at macro- and micro-levels. It informs the literature of this study, specifically, consumer behaviour and decision analysis. The main contributions are classified into three areas and discussed next.

7.3.1 Consumer behaviour literature

Over the past years, a limited number of conceptual models have been developed to explain the behaviour of online consumers while making a purchase decision. Moreover, the majority of the available models are unable to explain the nature of the online purchase decision-making processes. Hence, a new “online purchase decision-making process model" was proposed. It draws on the classical model of consumer behaviour and decision making models developed in the decision science discipline (see section 3.5). The synthesized model improves on previously suggested ones in a number of aspects:

- It illustrates high-level stages of the purchase decision-making process. The stages are well defined and have a particular role; whereas the detailed interrelations in some of the previous models which cannot be empirically tested are eliminated. Therefore the proposed model can be tested in its entirety.
- It includes two stages of formulation and appraisal which are based on decision science theory. According to the results, they increase the descriptive abilities of the model.
- It is a dynamic process model that allows moving between and skipping stages, by including loops. It is therefore capable of illustrating the complexity of real-world decisions.
- The flexible and dynamic structure of the model allows for adaptive processes. Hence, it is operationalizable and can be applied in different decision tasks and situations.
- It supports an actor-driven constructive process and acknowledges the role of decision makers in the process. Therefore, by accounting for individual variations it can provide a meaningful explanation of behaviour. The formulation of the mental model leads the flow of the process and results in different purchase processes for different consumers.

In addition, prior empirical evidence on the decision-making behaviour of online consumers is notably poor. This research is one of the early steps towards multi-level analysis of online consumer behaviour. More specifically, it provides empirical evidence for the behaviour of consumers at two levels.

First, the macro-level analysis contributes to the consumer behaviour literature by developing new concepts which indicate online behaviour of consumers. It is the first study to assess behaviour over the entire online market. The results support the belief that understanding the behaviour over a market has great potential and can offer a comprehensive picture of actual behaviour. In addition, the “cross-visiting” behaviour, that is the behaviour across multiple competing retailers, was addressed. Cross-visiting has been previously overlooked while being a very important aspect of online behaviour. This research goes one step forward by including the cross-visiting between retailers and comparison sites. It has led to a better explanation of specific behaviour. It also uses an innovative approach to use panel data for classification of online visitors to a retail site, based on the purpose of their visit.

Second, the individual-level analysis has interesting contributions to consumer research literature. As an attempt towards segmentation of online consumers, four segments based on their decision-making style and knowledge of the product/market are proposed. This shows fundamental differences in their decision-making behaviour and decision outcomes which can explain behavioural variations. Investigating this segmentation should be taken forward. Moreover, this research is a broad study which measures the behaviour during all the stages of the purchase process, rather than using the common approach of focusing on search and evaluation. In addition to stages drawn from the literature, a data-driven dimension of “phase” is introduced. It indicates phases that consumers go through in order to reach a decision. In addition, it takes into account the impact of recent trends such as use of comparison sites along with retailers in a single study. Finally, this research provides a cross-sector analysis considering the similarities and differences that exist in the behaviour of online consumers for different products/services.

7.3.2 Decision science literature

In addition to consumer behaviour, this research contributes to the decision science literature. First, most of the current decision-making process literature concentrates on organizational or group decision processes; whilst this research is an intensive study of individual decision making on the most widely used medium of the Internet. It shows that there are many issues underlying individual decisions which have not yet been explored. Second, despite being developed for Internet purchase decision making, the proposed model can be adapted and tested in other contexts of individual decision making. Third, it investigates the occurrence and nature of formulation and appraisal stages in individual decision-making processes. These stages were captured as the process was performed. This is very important, as these stages are performed in the mind of consumers and cannot be captured by recalling the process.

7.3.3 Measurements, methods and modelling techniques

This research supplements the shift towards multi-level analysis in management and marketing studies by providing an example of its use in online consumer behaviour research. Its contributions in terms of new measurements and methods of analysis are listed below.

- The multi-level mixed-method approach explored the interplay between the aggregated behaviour of consumers in the market and their detailed individual behaviour. This approach provides a comprehensive understanding of this complex phenomenon.
- New measurements and analysis methods are developed in order to use online panel data. An analysis method is suggested that can explore the behaviour in an online market using actual usage data. This method can be applied in other sectors.
- A modelling technique that can depict different aspects of a process is used. Video recoding techniques, Business Process Modelling (UML activity diagrams) and the Mintzberg path configuration method are combined for this purpose. Video recording of decision-making processes, accompanied by consumers' verbal protocols, captures the entire process. UML activity diagrams are appropriate for modelling interactions of stages for this type of process as they are dynamic while still having a structure. Therefore, common patterns that "structure the unstructured processes" are identifiable. Adaptation of the path configuration method illustrates the flow of the process. This method can be used to capture and model other types of process. The study also proved that the Business Process Modelling technique can be used to model individual consumer behaviour.

7.4 Practical implications and recommendations

This study holds important practical contributions. It offers suggestions to online retailers based on knowledge of their consumers in different ways. This research suggests that depending on the type of product and the characteristics of the industry, the Internet might be used as a purchase and/or service channel. Some stages of the process might occur online while others are performed via traditional shops. The Internet is not a replacement channel but a complementary one. Hence, retailers need to understand their consumers' needs during each stage of the process and the benefit from a multi-channel strategy. Moreover, by understanding different segments of consumers and variations in their behaviour, they can identify the needs of each particular group and facilitate their decision-making processes on their websites. It would help them in attracting consumers, increasing their Internet purchase conversion rate and gaining market share. In addition, the results hinted at a high rate of usage for comparison sites. Therefore, retailers should appear in the lists on these websites in order to be more visible to consumers.

Along with the general implications, this research has contributed specifically to the banking sector and mobile network operators by providing a comprehensive picture of their consumers' behaviour. In the banking sector, online information search and purchase is still backward. Although this is to some extent related to the nature of their product, the main issue is websites' online structure and presentation of information. For example, the insurance sector is very successful on the Internet and could be looked upon as a leader in the financial sector. Mobile network providers, on the other hand, are overall well-established on the Internet.

Based on the individual-level analysis, the following recommendations are put forward in order to facilitate online purchase processes. Retailers' websites are the main interaction point with online consumers. Therefore, it is crucial to have a well-structured interface that guides consumers through the process. Improving the process will result in a higher level of consumer satisfaction. The following recommendations identify consumers who require assistance during each stage of the process and suggest a way to enhance their decision-making process. They consider the phases of decision making that consumers follow in addition to the stages. However, primary research would be required to make more specific recommendations on the process improvement. Figure 7.2 illustrates these recommendations. For further detail of the behaviours discussed here refer to Tables 6.6 and 6.12.

Formulation: Consumers with a low level of knowledge require assistance in defining their criteria. In particular, maximizers constantly change their criteria and increase the complexity of the process. This could be improved by illustrating the alternatives by criteria. This segment of consumers also has the tendency to generate many alternatives and keep all options open, which makes evaluation more difficult. Adding stages that enable them to select a few alternatives for further evaluation could be a step forward.

Search: Maximizers should be presented with easy to read information which does not consume a lot of time. Satisficers should be encouraged to read all the important information. This avoids dissatisfaction with the choice due to lack of information.

Evaluation: In this stage, maximizers need the most assistance in order to evaluate the information. There are many technological features that could be included in retailers' websites, making the comparison easier.

Appraisal: This seems to be performed mainly by maximizers with a high level of knowledge. As they are the consumers most satisfied with their choice, there might be a relation between appraisal and satisfaction with choice. Retailers might want to facilitate engagement at this stage for their consumers. However, further research is required.

Outcome: The results illustrated that satisficers do not enter the purchase stage because of lack of assurance, as they have not received sufficient information from sellers. This is the group that might be interested in using chat features. In the mobile network sector, consumers with a low level of knowledge rely on the opinion of people who have used the phone or service. Therefore, access to user-generated content might push them towards purchase.

Phases: In order to assist consumers to go through the phases, it is crucial to simplify the concept formation (initial formulation and initial evaluation). Those with a low level of knowledge should be presented with basic information and the main criteria at the very beginning. It will help them understand the concept faster, reduce the number of cycles and simplify the process. Phases run through different stages and therefore the recommendations are beyond a particular stage (Figure 7.2).

Overall, maximizers need to be assisted by simplification strategies that increase their satisfaction with the process. Satisficers should be encouraged to be involved in the process in order to increase their satisfaction with their choice and intention to purchase.

Formulation	Search	Evaluation	Appraisal	Choice *(One of the outcome)*
Those with low level of knowledge, in particular maximizers require help to identify criteria at the beginning Maximizers with low knowledge need help to identify suitable alternatives and reject unwanted ones	Satisficers require being encouraged to read all the information on the important criteria Maximizers require be presented with clear information that they can read fast	Maximizers should be provided with features that simplify their decision making (comparison engines, tabular information)	Satisficers and those with low level of knowledge require be directed to appraisal	Satisficers should be offered to talk to sellers and be presented with a full review of select product in an easy to read format Consumers with low knowledge should offered to visit reviews of consumers
Satisfaction (outcome): a) Satisficers: encourage to be involved b) Maximizers: simplify their process Phases: Consumers with low level of knowledge: simplify concept formation				

Figure 7.23: Recommendations for facilitating online consumer purchase decision-making process

7.5 *Limitations and further research*

As in most research this study has some limitations, which need to be taken into account when interpreting the results. The first limitation concerns the representativeness of the sample. Despite its large sample, comScore uses data only from registered users. These users might not be representative of the entire online population in the UK. However, currently it is the largest online panel available and its value should not be underestimated. In individual-level analysis, the sample size was quite large compared to sample sizes of intensive video recording studies (see section 4.4.2: participants). The participants were all highly educated, however in terms of decision making style (maximizer/ satisficer) and knowledge of the product (low/high) they belonged to one of the four segments of this study. The distribution of the maximization tendency was also similar to previous quantitative research with a larger sample (see section 6.2.1 and 6.3.1). They were also all UK consumers and therefore, the implications of this for other contexts should be treated with care.

Another limitation is that in interpreting comScore data, a few assumptions have been made, such as the website cross-visiting rate in the banking sector (section 5.4.2). Other sources and different measures were checked for reliability where possible. In addition, some of the concepts developed for macro-analysis were easily measured as the number of key players in these two selected markets is small. Examining some measures will be laborious in fragmented markets with many players.

Experiments also have some limitations. Participants' behaviour might be affected by being aware of the video recorder. However, this issue is more important when its influence is in some way relevant to the aim of the study, which is not the case here. In an experiment, participants might behave slightly differently from how they would in a real-life setting. However, the design of the task, as mentioned in the research method, aimed to reduce this effect as much as possible. Two measures implemented for this reason were: assuring participants that there is no favourable behaviour and giving them as little direction and as much freedom as possible. The benefits of this method outweighed its limitations for the purpose of this research.
Moreover, the results are based on consumer behaviour in two sectors. This is a potential limitation to the generalizability of the results. However, given that certain behavioural patterns are identical across the two sectors, it is worth being investigated in other contexts. Another limitation is related to the selected individual factors. In addition to decision-making style and knowledge of the product, other dimensions might influence

the behaviour, and it would be useful to identify such dimensions of individual characteristics. This would expand the scope of understanding online consumer segmentation. Finally, satisfaction in the banking sector was measured by a polar question, so the degree of satisfaction was unknown. In the mobile networks previously developed satisfaction measures were used to assess the level of satisfaction. Using a multi-level mixed-method approach has provided a higher level of insight into the online purchase decision making behaviour of consumers and has reduced the limitations associated with a single research method. Table 7.1 summarizes the value and limitation of each research method and indicates benefits of combining them for the purpose of this research.

I propose future directions for research in online consumer behaviour. This research emphasized the importance and potential of Internet panel data. Further research should utilize the developed measures in other online markets and also aim to advance them. Particularly, cross-visiting behaviour requires more attention from researchers. In addition to cross-visiting retailers, the actual online behaviour comprises visiting comparison sites. Although there have recently been a number of studies on comparison sites, interactions of consumers with them and retailers should be investigated together. This research was a step on this way; however, more research in different markets is required. Clustering analysis indicated that there are clusters of consumers who have a different cross-visiting behaviour. Further research could find the reason for such segmentation where access to all options is easily available. Behaviour of four proposed segments was also assessed in detail using qualitative methods. Future studies can build on the knowledge provided by this research and examine the expected behaviour through quantitative methods. Two sectors were analyzed in this research and relatively similar behaviour was observed for both, but this should be tested on other sectors. The results of this study indicated variations in the output of the process among different segments and provided preliminary explanation based on consumers' self-reported answers. However, further research is required to assess the exact relation between individual characteristics and process outcome.

Table 1: Limitations and value of multi-level analysis

<table>
<tr><th>Data</th><th>Value</th><th colspan="2">Limitations</th></tr>
<tr><td>Individual-level analysis (Experiments)</td><td>○ Capturing the entire decision-making process
○ Direct contact with consumers: capturing more information on consumers
○ Identifying the impact of combined individual characteristics on the process
○ Similar distribution of maximizers and satisfiers as the previous studies of maximization tendency</td><td>○ Limitations of the laboratory environment (being aware of the video recorder, social desirability)
○ 55 participants
○ Participants were all highly educated, and were all UK consumers</td><td rowspan="2">Two sectors:
potential limitation to the generalizability of the results</td></tr>
<tr><td>Market-level analysis (Internet panel data: comScore)</td><td>○ Indicating the actual behaviour of online consumers on multiple retailers
○ Self-administrated: eliminating the effect of the researcher, social desirability and time pressure
○ Large sample: currently it is the largest online panel available
○ Eliminating the limitations of laboratory experiment</td><td>○ Lack of direct contact with consumers
○ Not considering the consumers' environment and the context of behaviour
○ Representational concerns (volunteer participation)</td></tr>
<tr><td colspan="4">Synthesis

Combining qualitative and quantitative data can offer more insight into online consumer behaviour phenomena by:

○ reducing the limitations of each data set
○ addressing different aspect of behaviour which cannot be achieved by using a single methodology

Quantitative data provided understanding of the actual behaviour of online consumers across multiple retailers as well as the characteristics of the market; Whereas qualitative data examined the detailed behaviour of consumers, considering their context and characteristics.</td></tr>
</table>

Evidence of performing the appraisal stage was found, although the reason for its occurrence needs to be investigated. In addition to the stages, the data-driven dimension of "phase" was introduced. This is a new concept in purchase models and goes beyond the analysis of stages. Although it was found to be similar in the two selected sectors, its nature in other purchase contexts should be assessed.

7.6 Conclusion

In this research, a new and comprehensive approach to the study of online consumer behaviour was introduced that explored this complex phenomenon from different angles. A broader picture was provided by understanding consumer macro-behaviour. It illustrated the degree, purpose and attributes of Internet usage in a market and across multiple retailers. The intensive analysis of individuals indicated the detailed behavioural patterns and the reason for their variations. It depicted the complexity of online purchase decision-making processes and provided evidence for their dependence on individual differences and market characteristics. Individual analysis proposed four segments of online consumers, based on the two individual characteristics of decision-making style and knowledge of the product. Combination of these two characteristics made it possible to describe behavioural variations, and has theoretical and practical implications. The attributes of behaviour assigned to each segment can be constant or depend on the market. Characteristics in terms of the way stages are performed are identical across selected sectors. However, behaviour in relation to intensity of decision-making cycles, duration of the process and the process outcome is a function of individual characteristics as well as the characteristics of the sector, depending on its importance and frequency of purchase. Specific measures are required to assist online purchase decision-making processes based on the needs of each segment of consumers. Several recommendations were suggested. Finally, the results suggested a multi-channel strategy for current retailers, now and in the near future, contradicting the early perception of the Internet as a replacement channel.

8 REFRENCES

Aguilar-Saven, R. S. "Business process modelling: Review and framework," *International Journal of Production Economics* (90:2) 2004, pp 129-149.

Aguinis, H., Boyd, B. K., Pierce, C. A., and Short, J. C. "Walking new avenues in management research methods and theories: Bridging micro and macro domains," *Journal of Management* (37:2) 2011, pp 395-403.

Ajzen, I. "From intentions to actions: A theory of planned behavior," I.J.K. J.Beckmann (ed.), Springer, Heidelberg , Germany, 1985, pp. pp. 11–39.

Ajzen, I. "The theory of planned behavior," *Organizational behavior and human decision processes* (50:2) 1991, pp 179-211.

Ajzen, I. "Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior1," *Journal of Applied Social Psychology* (32:4) 2002, pp 665-683.

Ajzen, I., Fishbein, M., and Heilbroner, R. L. *Understanding attitudes and predicting social behavior* Prentice-Hall Englewood Cliffs, NJ, 1980.

Alavi, M., and Joachimsthaler, E. A. "Revisiting DSS implementation research: A meta-analysis of the literature and suggestions for researchers," *MIS quarterly*) 1992, pp 95-116.

Alba, J. W., and Hutchinson, J. W. "Dimensions of consumer expertise," *Journal of Consumer Research*) 1987, pp 411-454.

Anderson, E. W., Fornell, C., and Lehmann, D. R. "Customer satisfaction, market share, and profitability: findings from Sweden," *The Journal of Marketing*) 1994, pp 53-66.

Anderson, R. E., and Srinivasan, S. S. "E-satisfaction and e-loyalty: A contingency framework," *Psychology and Marketing* (20:2) 2003, pp 123-138.

Andreassen, T. W., and Lindestad, B. "Customer loyalty and complex services: The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise," *International Journal of Service Industry Management* (9:1) 1998, pp 7-23.

Ariely, D., and Zakay, D. "A timely account of the role of duration in decision making," *Acta Psychologica* (108:2) 2001, pp 187-207.

Assael, H. *Consumer Behavior and Marketing Action*, (5 Ed.) South-Western Collage Publishing, 1995.

Atkinson, M. A., and Kydd, C. "Individual characteristics associated with World Wide Web use: an empirical study of playfulness and motivation," *ACM SIGMIS Database* (28:2) 1997, pp 53-62.

Ayanso, A., and Yoogalingam, R. "Profiling retail Web site functionalities and conversion rates: A cluster analysis," *International Journal of Electronic Commerce* (14:1) 2009, pp 79-114.

Bai, X., and Luo, M. "How Much Is Trust Worth? Evidence from the International Online Textbook Market," *Journal of Internet Commerce* (10:4) 2011, pp 245-260.

Bakos, J. Y. "A strategic analysis of electronic marketplaces," *MIS quarterly* (15:3) 1991, pp 295-310.

Bakos, J. Y. "Reducing buyer search costs: implications for electronic marketplaces," *Management science* (43:12) 1997, pp 1676-1692.

Balabanis, G., and Reynolds, N. L. " Consumer Attitudes towards Multi-Channel Retailers' Web Sites: The Role of Involvement, Brand Attitude, Internet Knowledge and Visit Duration," *Journal of Business* (18:2) 2008, p 105.

Ballantine, P. W. "Effects of interactivity and product information on consumer satisfaction in an online retail setting," *International Journal of Retail & Distribution Management* (33:6) 2005, pp 461-471.

Bamberger, P. "Beyond contextualization: Using context theories to narrow the micro-macro gap in management research," *The Academy of Management Journal ARCHIVE* (51:5) 2008, pp 839-846.

Bandara, W., Gable, G. G., and Rosemann, M. "Factors and measures of business process modelling: model building through a multiple case study," *European Journal of Information Systems* (14:4) 2005, pp 347-360.

Battleson, B., Booth, A., and Weintrop, J. "Usability testing of an academic library web site: a case study," *The Journal of Academic Librarianship* (27:3) 2001, pp 188-198.

Bauer, H. H., Grether, M., and Leach, M. "Building customer relations over the Internet," *Industrial Marketing Management* (31:2) 2002, pp 155-163.

Bazeley, P. "Mixed methods in management research," *Dictionary of qualitative management research*) 2008, pp 133-136.

Beach, L. R. "Broadening the definition of decision making: The role of prechoice screening of options," *Psychological Science* (4:4) 1993, pp 215-220.

Becerra, E. P., and Korgaonkar, P. K. "Effects of trust beliefs on consumers' online intentions," *European Journal of Marketing* (45:6) 2011, pp 936-962.

Becker, S. A., and Mottay, F. E. "A global perspective on web site usability," *Software, IEEE* (18:1) 2001, pp 54-61.

Belch, G. E., Belch, M.A. *Advertising and promotion: an integrated marketing communications perspective,* (4 ed.) Irwin, McGraw-Hill, 1998.

Benbasat, I., and Weber, R. "Research commentary: Rethinking “diversity” in information systems research," *Information systems research* (7:4) 1996, pp 389-399.

Benbunan-Fich, R. "Using protocol analysis to evaluate the usability of a commercial web site," *Information & Management* (39:2) 2001, pp 151-163.

Bennett, P. D., and Mandell, R. M. "Prepurchase information seeking behavior of new car purchasers: The learning hypothesis," *Journal of marketing research*) 1969, pp 430-433.

Bergman, A. J., Nyland, J. E., and Burns, L. R. "Correlates with perfectionism and the utility of a dual process model," *Personality and Individual Differences* (43:2) 2007, pp 389-399.

Bettman, J. R. *An information processing theory of consumer choice* Reading MA: Addison-Wesley, 1979.

Bettman, J. R., Johnson, E. J., and Payne, J. W. "Consumer decision making," *Handbook of consumer behavior*) 1991, pp 50-84.

Bettman, J. R., Luce, M. F., and Payne, J. W. "Constructive consumer choice processes," *Journal of Consumer Research* (25:3) 1998, pp 187-217.

Bettman, J. R., and Park, C. W. "Effects of prior knowledge and experience and phase of the choice process on consumer decision processes: A protocol analysis," *Journal of consumer research* (7:3) 1980, pp 234-248.

Bettman, J. R., and Zins, M. A. "Information format and choice task effects in decision making," *Journal of Consumer Research*) 1979, pp 141-153.

Bhatnagar, A., Misra, S., and Rao, H. R. "On risk, convenience, and Internet shopping behavior," *Communications of the ACM* (43:11) 2000, p 105.

Bhattacherjee, A. "Understanding information systems continuance: An expectation-confirmation model," *MIS quarterly*) 2001, pp 351-370.

Bigne, E., Ruiz, C., and Sanz, S. "The impact of internet user shopping patterns and demographics on consumer mobile buying behaviour," *Journal of Electronic Commerce Research* (6:3) 2005, pp 193-209.

Birke, D., and Swann, G. M. P. "Network effects and the choice of mobile phone operator," *Journal of Evolutionary Economics* (16:1) 2006, pp 65-84.

Bloch, P. H., Sherrell, D. L., and Ridgway, N. M. "Consumer search: An extended framework," *Journal of Consumer Research* (13:1) 1986, pp 119-126.

Boonstra, A. "Structure and analysis of IS decision-making processes," *European Journal of Information Systems* (12:3) 2003, pp 195-209.

Brucks, M. "The effects of product class knowledge on information search behavior," *Journal of*

Consumer Research (12:1) 1985, p 1.
Bruggemann, T., and Breitner, M. H. "Mobile Price Comparison Services," IEEE, 2005, pp. 193-201.
Bryman, A. "Barriers to integrating quantitative and qualitative research," *Journal of Mixed Methods Research* (1:1) 2007, pp 8-22.
Brynjolfsson, E., Dick, A. A., and Smith, M. D. "A nearly perfect market?," *Quantitative Marketing and Economics* (8:1) 2010, pp 1-33.
Buchanan, and O'Connell "A brief history of decision making," *Harvard Business Review* (84:1) 2006, pp 32–41.
Bucklin, R. E., Lattin, J. M., Ansari, A., Gupta, S., Bell, D., Coupey, E., Little, J. D. C., Mela, C., Montgomery, A., and Steckel, J. "Choice and the Internet: From clickstream to research stream," *Marketing Letters* (13:3) 2002, pp 245-258.
Bucklin, R. E., and Sismeiro, C. "Click here for Internet insight: Advances in clickstream data analysis in marketing," *Journal of Interactive Marketing, Forthcoming*) 2008.
Bughin, J., Doogan, J., and Vetvik, O. J. "A new way to measure word-of-mouth marketing," *McKinsey Quarterly* (3:2) 2010, pp 113-116.
Burns, A. C., and Gentry, J. W. "Toward improving household consumption behavior research: avoidance of pitfalls in using alternative household data collection procedures," *Advances in Consumer Research* (17) 1990, pp 518-523.
Butler, P., and Peppard, J. "Consumer purchasing on the Internet::: Processes and prospects," *European Management Journal* (16:5) 1998, pp 600-610.
Byrne, K. "How do consumers evaluate risk in financial products?," *Journal of Financial Services Marketing* (10:1) 2005, pp 21-36.
Byrne, M. D., John, B. E., Wehrle, N. S., and Crow, D. C. "The tangled web we wove: A taskonomy of WWW use," ACM, 1999, pp. 544-551.
Caine, D. J., and Robson, A. J. "Spreadsheet modelling: Guidelines for model development," *Management Decision* (31:1) 1993.
Caire, G., Coulier, W., Garijo, F., Gomez, J., Pavon, J., Leal, F., Chainho, P., Kearney, P., Stark, J., and Evans, R. "Agent oriented analysis using MESSAGE/UML," *Agent-Oriented Software Engineering II*) 2002, pp 119-135.
Calder, B. J. "Focus groups and the nature of qualitative marketing research," *Journal of marketing research*) 1977, pp 353-364.
Catry, B., and Chevalier, M. "Market share strategy and the product life cycle," *The Journal of Marketing*) 1974, pp 29-34.
Chaffey, D., and Smith, P. R. *eMarketing eXcellence: planning and optimizing your digital marketing* Butterworth-Heinemann, 2008.
Chang, C. A., and Burke, R. R. "Consumer choice of retail shopping aids," *Journal of Retailing and Consumer Services* (14:5) 2007, pp 339-346.
Chang, Y. L., Chen, S., Chen, C. C., and Chen, I. "Workflow process definition and their applications in e-commerce," IEEE, 2000, pp. 193-200.
Chen, L., Gillenson, M. L., and Sherrell, D. L. "Enticing online consumers: an extended technology acceptance perspective," *Information & Management* (39:8) 2002, pp 705-719.
Chen, S. J., and Chang, T. Z. "A descriptive model of online shopping process: some empirical results," *International Journal of Service Industry Management* (14:5) 2003, pp 556-569.
Chen, Z., and Dubinsky, A. J. "A conceptual model of perceived customer value in eâ€• commerce: A preliminary investigation," *Psychology and Marketing* (20:4) 2003, pp 323-347.
Cheung, C. M. K., and Lee, M. K. O. "The asymmetric effect of website attribute performance on satisfaction: an empirical study," IEEE, 2005, pp. 175c-175c.
Chiu, C. M., Hsu, M. H., Lai, H., and Chang, C. M. "Re-examining the influence of trust on online repeat purchase intention: The moderating role of habit and its antecedents,"

Decision Support Systems) 2012.
Choudhury, V., and Karahanna, E. "The relative advantage of electronic channels: a multidimensional view," *MIS quarterly* (32:1) 2008, p 179.
Choudrie, J., and Dwivedi, Y. K. "Broadband impact on household consumers: online habits and time allocation patterns on daily life activities," *International Journal of Mobile Communications* (5:2) 2007, pp 225-241.
Chowdhury, T. G., Ratneshwar, S., and Mohanty, P. "The time-harried shopper: Exploring the differences between maximizers and satisficers," *Marketing Letters* (20:2) 2009, pp 155-167.
Christensen, B. T., and Schunn, C. D. "The relationship of analogical distance to analogical function and preinventive structure: The case of engineering design," *Memory & cognition* (35:1) 2007, pp 29-38.
Coleman, J. S. "Psychological structure and social structure in economic models," *The Journal of Business* (59:4) 1986, pp 365-369.
Compeau, D. R., and Higgins, C. A. "Computer self-efficacy: Development of a measure and initial test," *MIS quarterly*) 1995, pp 189-211.
ComScore *Media Metrix User guide*) 2009.
Constantinides, E. "Influencing the online consumer's behavior: the Web experience," *Internet research* (14:2) 2004, pp 111-126.
Constantinides, E., and Fountain, S. J. "Web 2.0: Conceptual foundations and marketing issues," *Journal of Direct, Data and Digital Marketing Practice* (9:3) 2008, pp 231-244.
Court, D., Elzinga, D., Mulder, S., and Vetvik, O. J. "The Consumer Decision Journey," *McKinsey Quarterly* (3) 2009.
Courtney, J. F. "Decision making and knowledge management in inquiring organizations: toward a new decision-making paradigm for DSS," *Decision Support Systems* (31:1) 2001, pp 17-38.
Cowart, K. O., and Goldsmith, R. E. "The influence of consumer decision- making styles on online apparel consumption by college students," *International Journal of Consumer Studies* (31:6) 2007, pp 639-647.
Cowley, E., and Mitchell, A. A. "The moderating effect of product knowledge on the learning and organization of product information," *Journal of Consumer Research* (30:3) 2003, pp 443-454.
Creswell, J. W. *Research design: Qualitative, quantitative, and mixed methods approaches* Sage Publications, Inc, 2009.
Creswell, J. W., and Clark, V. L. P. *Designing and conducting mixed methods research* Wiley Online Library, 2007.
Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., and Hanson, W. E. "Advanced mixed methods research designs," *Handbook of mixed methods in social and behavioral research*) 2003, pp 209-240.
Cronin, J. J., Brady, M. K., Brand, R. R., Hightower Jr, R., and Shemwell, D. J. "A cross-sectional test of the effect and conceptualization of service value," *Journal of Services Marketing* (11:6) 1997, pp 375-391.
Cunningham, L. F., Gerlach, J. H., Harper, M. D., and Young, C. E. "Perceived risk and the consumer buying process: internet airline reservations," *International Journal of Service Industry Management* (16:4) 2005, pp 357-372.
Damasio, A. R., Grabowski, T. J., Bechara, A., Damasio, H., Ponto, L., Parvizi, J., and Hichwa, R. D. "Subcortical and cortical brain activity during the feeling of self-generated emotions," *Nature neuroscience* (3) 2000, pp 1049-1056.
Daniel, E., and Klimis, G. M. "The impact of electronic commerce on market structure::: An evaluation of the electronic market hypothesis," *European Management Journal* (17:3) 1999, pp 318-325.
Darley, W. K., Blankson, C., and Luethge, D. J. "Toward an integrated framework for online

consumer behavior and decision making process: A review," *Psychology and Marketing* (27:2) 2010, pp 94-116.

Dar-Nimrod, I., Rawn, C. D., Lehman, D. R., and Schwartz, B. "The maximization paradox: the costs of seeking alternatives," *Personality and Individual Differences* (46:5-6) 2009, pp 631-635.

Datamonitor "The Future of the Internet."

Davenport, T. H., Jarvenpaa, S. L., and Beers, M. C. "Improving knowledge work processes," *Sloan Management Review* (37) 1996, pp 53-66.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. "User acceptance of computer technology: a comparison of two theoretical models," *Management science*) 1989, pp 982-1003.

Decker, R., and Trusov, M. "Estimating aggregate consumer preferences from online product reviews," *International Journal of Research in Marketing* (27:4) 2010, pp 293-307.

Degeratu, A. M., Rangaswamy, A., and Wu, J. "Consumer choice behavior in online and traditional supermarkets: The effects of brand name, price, and other search attributes," *International Journal of Research in Marketing* (17:1) 2000, pp 55-78.

Dennis, C., Merrilees, B., Jayawardhena, C., and Wright, L. T. "E-consumer behaviour," *European Journal of Marketing* (43:9/10) 2009, pp 1121-1139.

Dennis, C., Morgan, A., Wright, L. T., and Jayawardhena, C. "The influences of social e-shopping in enhancing young women's online shopping behaviour," *Journal of Customer Behaviour* (9:2) 2010, pp 151-174.

Desmeules, R. "The impact of variety on consumer happiness: Marketing and the tyranny of freedom," *Academy of Marketing Science Review* (12) 2002, pp 1-18.

Devaraj, S., Fan, M., and Kohli, R. "Antecedents of B2C channel satisfaction and preference: validating e-commerce metrics," *Information systems research* (13:3) 2002, pp 316-333.

Dhar, R. "The effect of decision strategy on deciding to defer choice," *Journal of Behavioral Decision Making* (9:4) 1996, pp 265-281.

Dhar, R., and Sherman, S. J. "The effect of common and unique features in consumer choice," *Journal of Consumer Research*) 1996, pp 193-203.

Dimoka, A., Hong, Y., and Pavlou, P. "Product Uncertainty in Online Markets: Theory and Evidence," *MIS quarterly* (36) 2012.

Doktor, R. H., and Hamilton, W. F. "Cognitive style and the acceptance of management science recommendations," *Management science* (19:8) 1973, pp 884-894.

Doll, W. J., and Torkzadeh, G. "The measurement of end-user computing satisfaction," *MIS quarterly* (12:2) 1988, pp 259-274.

Doll, W. J., Xia, W., and Torkzadeh, G. "A confirmatory factor analysis of the end-user computing satisfaction instrument," *MIS quarterly*) 1994, pp 453-461.

Dorn, C., Burkhart, T., Werth, D., and Dustdar, S. "Self-adjusting recommendations for people-driven ad-hoc processes," *Business Process Management*) 2010, pp 327-342.

Doyle, P. *Marketing Management & Strategy* Prentice Hall, 1994.

Driver, M. J., and Mock, T. J. "Human information processing, decision style theory, and accounting information systems," *The Accounting Review* (50:3) 1975, pp 490-508.

Du Plessis, P. J., Rousseau, G. G., and Blem, N. H. *Consumer behaviour. A South African perspective* Pretoria, Sigma, 1991.

Dumas, M., and ter Hofstede, A. "UML activity diagrams as a workflow specification language," *«UML» 2001—The Unified Modeling Language. Modeling Languages, Concepts, and Tools*) 2001, pp 76-90.

Dustdar, S. "Caramba—a process-aware collaboration system supporting ad hoc and collaborative processes in virtual teams," *Distributed and Parallel Databases* (15:1) 2004, pp 45-66.

Dustdar, S., Hoffmann, T., and Van Der Aalst, W. "Mining of ad-hoc business processes with TeamLog," *Data & Knowledge Engineering* (55:2) 2005, pp 129-158.

Ellis, R. D., and Kurniawan, S. H. "Increasing the usability of online information for older users:

A case study in participatory design," *International Journal of Human-Computer Interaction* (12:2) 2000, pp 263-276.
Engel, J., Blackwell, R. D., and Miniard, P. *Consumer Behavior*, (8 ed.) Forth Worth, TX: Dryden, 1995.
Engel, J. F., Kollat, D. T., and Blackwell, R. D. "Consumer Behavior, New York: Holt, Rinehart and Winston," *One of the earliest presentations of a cognitive model of consumer choice.*) 1968.
Erasmus, A. C., Boshoff, E., and Rousseau, G. G. "Consumer decision-making models within the discipline of consumer science: a critical approach," *Journal of Family Ecology and Consumer Sciences/Tydskrif vir Gesinsekologie en Verbruikerswetenskappe* (29:0) 2001.
Ericsson, K. A., and Simon, H. A. "Verbal reports as data," *Psychological review* (87:3) 1980, p 215.
Eshuis, R., and Wieringa, R. "Verification support for workflow design with UML activity graphs," ACM, 2002, pp. 166-176.
Eurostat "ICT usage in households and by individuals."
Evanschitzky, H., Iyer, G. R., Hesse, J., and Ahlert, D. "E-satisfaction: a re-examination," *Journal of retailing* (80:3) 2004, pp 239-247.
Featherman, M. S., and Pavlou, P. A. "Predicting e-services adoption: a perceived risk facets perspective," *International Journal of Human-Computer Studies* (59:4) 2003, pp 451-474.
Fenech, T., and O'Cass, A. "Internet users' adoption of Web retailing: user and product dimensions," *Journal of Product & Brand Management* (10:6) 2001, pp 361-381.
Fishbein, M., and Ajzen, I. *Belief, attitude, intention and behavior: An introduction to theory and research,* 1975.
Fitzgerald, B., and Howcroft, D. "Towards dissolution of the IS research debate: from polarization to polarity," *Journal of Information Technology* (13) 1998, pp 313-326.
Fitzsimons, G. J. "Consumer response to stockouts," *Journal of Consumer Research* (27:2) 2000, pp 249-266.
Fitzsimons, G. J., Greenleaf, E. A., and Lehmann, D. R. "Decision and consumption satisfaction: Implications for channel relations," *Marketing Studies Center Working Paper Series*:313) 1997.
Flavián, C., Guinalíu, M., and Gurrea, R. "The role played by perceived usability, satisfaction and consumer trust on website loyalty," *Information & Management* (43:1) 2006, pp 1-14.
Foxall, G. *Consumer psychology in behavioral perspective* Beard Books, 1990.
Foxall, G. R. "Farmers' tractor purchase decisions: a study of interpersonal communication in industrial buying behaviour," *European Journal of Marketing* (13:8) 1993, pp 299-308.
Frambach, R. T., Roest, H. C. A., and Krishnan, T. V. "The impact of consumer Internet experience on channel preference and usage intentions across the different stages of the buying process," *Journal of Interactive Marketing* (21:2) 2007, pp 26-41.
French, S., Maule, J., and Papamichail, N. *Decision behaviour, analysis and support* Cambridge University Press Cambridge,, UK, 2009.
Gardial, S. F., Clemons, D. S., Woodruff, R. B., Schumann, D. W., and Burns, M. J. "Comparing consumers' recall of prepurchase and postpurchase product evaluation experiences," *Journal of Consumer Research*) 1994, pp 548-560.
Gefen, D., Karahanna, E., and Straub, D. W. "Trust and TAM in online shopping: An integrated model," *MIS quarterly*) 2003, pp 51-90.
Gefen, D., and Straub, D. W. "Managing user trust in B2C e-services," *E-service Journal* (2:2) 2003, pp 7-24.
George, J. F. "The theory of planned behavior and Internet purchasing," *Internet Research* (14:3) 2004, pp 198-212.
Gore, W. J. *Decision-making research: Some prospects and limitations In Mallick, S., and Van Ners, E. "Concepts and Issues in Administrative Behaviour," Englewood Cliffs.*, 1962.

Grabner-Krauter , S., and Faullant, R. "Consumer acceptance of internet banking: the influence of internet trust," *International Journal of Bank Marketing* (26:7) 2008, pp 483-504.
Graff, J., Sophonthummapharn, K., and Parida, V. "Post-purchase cognitive dissonance-evidence from the mobile phone market," *International Journal of Technology Marketing* (7:1) 2012, pp 32-46.
Graham, R. J. "The role of perception of time in consumer research," *Journal of Consumer Research* (7:4) 1981, pp 335-342.
Grazioli, S., and Jarvenpaa, S. L. "Perils of Internet fraud: An empirical investigation of deception and trust with experienced Internet consumers," *Systems, Man and Cybernetics, Part A: Systems and Humans, IEEE Transactions on* (30:4) 2002, pp 395-410.
Greenlight "Retail Banking Sector Report," Issue 10, October 2011. http://gossip.greenlightdigital.com/sector-reports-retail-banking/retail-banking-sector-report-issue-10-october-2011/, accessed June 2012
Griffin, J. G., and Broniarczyk, S. M. "The slippery slope: The impact of feature alignability on search and satisfaction," *Journal of marketing research* (47:2) 2010, pp 323-334.
Guba, E. G. *The paradigm dialog* Sage Publications, Incorporated, 1990.
Guttman, R. H., Moukas, A. G., and Maes, P. "Agent-mediated electronic commerce: a survey," *The Knowledge Engineering Review* (13:2) 1998, pp 147-159.
Hackman, D., Gundergan, S. P., Wang, P., and Daniel, K. "A service perspective on modelling intentions of on-line purchasing," *Journal of Services Marketing* (20:7) 2006, pp 459-470.
Hall, C. M. *Tourism planning: Policies, processes and relationships* Prentice Hall, 2008.
Hanson, D., and Grimmer, M. "The mix of qualitative and quantitative research in major marketing journals, 1993-2002," *European Journal of Marketing* (41:1/2) 2007, pp 58-70.
Harrison, R. L., and Reilly, T. M. "Mixed methods designs in marketing research," *Qualitative Market Research: An International Journal* (14:1) 2011, pp 7-26.
Hassanein, K., and Head, M. "Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping," *International Journal of Human-Computer Studies* (65:8) 2007, pp 689-708.
Häubl, G., and Trifts, V. "Consumer decision making in online shopping environments: The effects of interactive decision aids," *Marketing science* (19:1) 2000, pp 4-21.
Helander, M. G., and Khalid, H. M. "Modeling the customer in electronic commerce," *Applied Ergonomics* (31:6) 2000, pp 609-619.
Henderson, J. C., and Nutt, P. C. "The influence of decision style on decision making behavior," *Management Science*) 1980, pp 371-386.
Hernandez, J. M. C., and Mazzon, J. A. "Adoption of internet banking: proposition and implementation of an integrated methodology approach," *International Journal of Bank Marketing* (25:2) 2007, pp 72-88.
Hinz, O., Hann, I. H., and Spann, M. "Price discrimination in E-commerce? an examination of dynamic pricing in name-your-own price markets," *MIS quarterly* (35:1) 2011, pp 81-98.
Hitt, M. A., Beamish, P. W., Jackson, S. E., and Mathieu, J. E. "Building theoretical and empirical bridges across levels: Multilevel research in management," *The Academy of Management Journal ARCHIVE* (50:6) 2007, pp 1385-1399.
Hlupic, V., and Robinson, S. "Business process modelling and analysis using discrete-event simulation," IEEE, 1998, pp. 1363-1369.
Hoehle, H., Scornavacca, E., and Huff, S. "Three Decades of Research on Consumer Adoption and Utilization of Electronic Banking Channels: A Literature Analysis," *Decision Support Systems*) 2012.
Hoffman, D. L., and Novak, T. P. "Flow online: lessons learned and future prospects," *Journal of Interactive Marketing* (23:1) 2009, pp 23-34.

Holland, J., and Menzel Baker, S. "Customer participation in creating site brand loyalty," *Journal of Interactive Marketing* (15:4) 2001, pp 34-45.

Hölscher, C., and Strube, G. "Web search behavior of Internet experts and newbies," *Computer networks* (33:1-6) 2000, pp 337-346.

Holschke, O. "Impact of granularity on adjustment behavior in adaptive reuse of business process models," *Business Process Management*) 2010, pp 112-127.

Holt, J. *A pragmatic guide to business process modelling* British Computer Society, 2005.

Holtzman S. *Intelligent Decision Systems* Addison- Wesley, Reading, MA, 1989.

Hoshmand, L. T. "Can lessons of history and logical analysis ensure progress in psychological science?," *Theory & Psychology* (13:1) 2003, pp 39-44.

House of Common. "Competition and choice in retail banking - Treasury Contents", 2011. http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtreasy/612/61203.htm, accessed June 2012.

Houston, M. J., and Rothschild, M. L. *A paradigm for research on consumer involvement* Graduate School of Business, University of Wisconsin-Madison, 1977.

Howard, J. A., and Sheth, J. N. *The theory of buyer behavior* John Wiley and Sons, New York, 1969.

Howcroft, B., Hamilton, R., and Hewer, P. "Consumer attitude and the usage and adoption of home-based banking in the United Kingdom," *International Journal of Bank Marketing* (20:3) 2002, pp 111-121.

Howcroft, B., Hewer, P., and Hamilton, R. "Consumer decision-making styles and the purchase of financial services," *Service Industries Journal* (23:3) 2003, pp 63-81.

Hoyer, W. D. "An examination of consumer decision making for a common repeat purchase product," *Journal of Consumer Research*) 1984, pp 822-829.

Hsia, T. L., Wu, J. H., and Li, E. Y. "The e-commerce value matrix and use case model: A goal-driven methodology for eliciting B2C application requirements," *Information & Management* (45:5) 2008, pp 321-330.

Hu, X., Wu, G., Wu, Y., and Zhang, H. "The effects of Web assurance seals on consumers' initial trust in an online vendor: A functional perspective," *Decision Support Systems* (48:2) 2010, pp 407-418.

Huang, M. H., and Rust, R. T. "Sustainability and consumption," *Journal of the Academy of Marketing Science* (39:1) 2011, pp 40-54.

Huang, P., Lurie, N. H., and Mitra, S. "Searching for experience on the web: an empirical examination of consumer behavior for search and experience goods," *Journal of Marketing* (73:2) 2009, pp 55-69.

Huffman, C., and Kahn, B. E. "Variety for sale: mass customization or mass confusion?," *Journal of retailing* (74:4) 1998, pp 491-513.

Hung, K. H., and Li, S. Y. "The influence of eWOM on virtual consumer communities: Social capital, consumer learning, and behavioral outcomes," *Journal of advertising research* (47:4) 2007, pp 485-495.

Hunt, S. D., and Pappas, J. L. "A crucial test for the Howard-Sheth model of buyer behavior," *Journal of Marketing Research* (9:3) 1972, pp 346-348.

Igbaria, M. "User acceptance of microcomputer technology: An empirical test," *Omega* (21:1) 1993, pp 73-90.

Ip R. K. F., and Wagner C. "Weblogging: A study of social computing and its impact on organizations," *Decision Support Systems* (45:2) 2008, pp 242-250.

Işıklar, G., and Büyüközkan, G. "Using a multi-criteria decision making approach to evaluate mobile phone alternatives," *Computer Standards & Interfaces* (29:2) 2007, pp 265-274.

Iyengar, S. S., and Jiang, W. "Choosing not to choose: The effect of more choices on retirement savings decisions,") 2004.

Iyengar, S. S., and Lepper, M. R. "When choice is demotivating: Can one desire too much of a good thing?," *Journal of personality and social psychology* (79:6) 2000, p 995.

Iyengar, S. S., Wells, R. E., and Schwartz, B. "Doing better but feeling worse," *Psychological Science* (17:2) 2006, p 143.

Jacoby, J. "Perspectives on information overload," *The Journal of Consumer Research* (10:4) 1984, pp 432-435.

Jacoby, J., Chestnut, R. W., and Fisher, W. A. "A behavioral process approach to information acquisition in nondurable purchasing," *Journal of marketing research*) 1978, pp 532-544.

Janda, S., Trocchia, P. J., and Gwinner, K. P. "Consumer perceptions of Internet retail service quality," *International Journal of Service Industry Management* (13:5) 2002, pp 412-431.

Jarrett, K. "Interactivity is Evil! A critical investigation of Web 2.0," *First Monday* (13:3) 2008, pp 34-41.

Jayawardhena, C., and Foley, P. "Changes in the banking sector–the case of Internet banking in the UK," *Internet research* (10:1) 2000, pp 19-31.

Jessup, L. M., Connolly, T., and Galegher, J. "The effects of anonymity on GDSS group process with an idea-generating task," *MIS quarterly*) 1990, pp 313-321.

Jiang, Z., Chan, J., Tan, B., and Chua, W. S. "Effects of interactivity on website involvement and purchase intention," *Journal of the Association for Information Systems* (11:1) 2010, pp 34-59.

Johnson, E. J., Bellman, S., and Lohse, G. L. "Cognitive lock-in and the power law of practice," *Journal of Marketing*) 2003, pp 62-75.

Johnson, E. J., Moe, W. W., Fader, P. S., Bellman, S., and Lohse, G. L. "On the depth and dynamics of online search behavior," *Management science* (50:3) 2004, pp 299-308.

Johnson, M. D. "Consumer choice strategies for comparing noncomparable alternatives," *Journal of Consumer Research*) 1984, pp 741-753.

Johnson, R. B., and Onwuegbuzie, A. J. "Mixed methods research: A research paradigm whose time has come," *Educational researcher* (33:7) 2004, pp 14-26.

Johnson, R. B., Onwuegbuzie, A. J., and Turner, L. A. "Toward a definition of mixed methods research," *Journal of mixed methods research* (1:2) 2007, pp 112-133.

Kaas, K. P. "Consumer habit forming, information acquisition, and buying behavior," *Journal of Business Research* (10:1) 1982, pp 3-15.

Kaplan, B., and Duchon, D. "Combining qualitative and quantitative methods in information systems research: a case study," *MIS quarterly*) 1988, pp 571-586.

Kardes, F. R., Cronley, M. L., Kellaris, J. J., and Posavac, S. S. "The role of selective information processing in price-quality inference," *Journal of Consumer Research* (31:2) 2004, pp 368-374.

Karimi, S., Papamichail, K. N., and Holland, C. "A model of Internet shopper behavior, a cross sector analysis," 31st International Conference on Information Systems - ICIS, St Louis, Missouri, 2010.

Karimi, S., Papamichail, K. N., and Holland, C. P. "Online purchase decision making processes: an individual and market level analysis," in: *6th Mediterranean Conference on Information Systems (MCIS)*, Cyprus, 2011a.

Karimi, S., Papamichail, K. N., and Holland, C. P. "Consumers, online users and decision makers: individual characteristics affecting purchase processes," in: *Presented at the 71 PDW of Academy of Management Annual Meeting*, San Antonio, Texas, USA, 2011b.

Kassarjian "The development of consumer behavior theory," *Advances in Consumer Research* (9) 1982, pp 20-22.

Katona, G., and Mueller, E. "A study of purchase decisions," *Consumer behavior: The dynamics of consumer reaction* (1) 1955, pp 30-87.

Keeney, R. L. "Decision analysis: an overview," *Operations Research*) 1982, pp 803-838.

Kettinger, W. J., Teng, J. T. C., and Guha, S. "Business process change: a study of methodologies, techniques, and tools," *MIS quarterly* (21:1) 1997, pp 55-80.

Kiesler, S., and Sproull, L. S. "Response effects in the electronic survey," *Public Opinion Quarterly* (50:3) 1986, pp 402-413.

Kim, D. J., Ferrin, D. L., and Rao, H. R. "A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents," *Decision Support Systems* (44:2) 2008, pp 544-564.
Kim, J., and Park, J. "A consumer shopping channel extension model: attitude shift toward the online store," *Management* (9:1) 2005, pp 106-121.
Kirca, A. H., Jayachandran, S., and Bearden, W. O. "Market orientation: a meta-analytic review and assessment of its antecedents and impact on performance," *Journal of Marketing* (69:2) 2005, pp 24-41.
Kivetz, R., and Simonson, I. "The effects of incomplete information on consumer choice," *Journal of marketing research*) 2000, pp 427-448.
Klein, L. R. "Evaluating the potential of interactive media through a new lens: Search versus experience goods," *Journal of Business Research* (41:3) 1998, pp 195-203.
Klein, N. M., and Yadav, M. S. "Context effects on effort and accuracy in choice: An enquiry into adaptive decision making," *Journal of Consumer Research*) 1989, pp 411-421.
Klever, A. *Behavioural Targeting: An Online Analysis for Efficient Media Planning?* Diplomica Verlag Gmbh, 2009.
Kohli, R., Devaraj, S., and Mahmood, M. A. "Understanding determinants of online consumer satisfaction: A decision process perspective," *Journal of Management Information Systems* (21:1) 2004, pp 115-136.
Korgaonkar, P. K., and Wolin, L. D. "A multivariate analysis of web usage," *Journal of advertising research* (39:2) 1999.
Kotler, P., and Keller, K. L. *A framework for marketing management*, 2003.
Koufaris, M. "Applying the technology acceptance model and flow theory to online consumer behavior," *Information systems research* (13:2) 2003, pp 205-223.
Kumar, N., Lang, K. R., and Peng, Q. "Consumer search behavior in online shopping environments," IEEE, 2005, pp. 175b-175b.
Kushniruk, A. W., and Patel, V. L. "Cognitive evaluation of decision making processes and assessment of information technology in medicine," *International journal of medical informatics* (51:2) 1998, pp 83-90.
LaBarbera, P. A., and Mazursky, D. "A longitudinal assessment of consumer satisfaction/dissatisfaction: the dynamic aspect of the cognitive process," *Journal of marketing research*) 1983, pp 393-404.
Laffey, D., and Gandy, A. "Comparison websites in UK retail financial services," *Journal of Financial Services Marketing* (14:2) 2009a, pp 173-186.
Laffey, D., and Gandy, A. "Applying Stabell and Fjeldstad's value configurations to E-commerce: A cross-case analysis of UK comparison websites," *The Journal of Strategic Information Systems* (18:4) 2009b, pp 192-204.
Lang, M. "The use of web-based international surveys in information systems research,") 2002.
Langley, A., Mintzberg, H., Pitcher, P., Posada, E., and Saint-Macary, J. "Opening up decision making: The view from the black stool," *organization Science* (6:3) 1995, pp 260-279.
Lassar, W. M., Manolis, C., and Lassar, S. S. "The relationship between consumer innovativeness, personal characteristics, and online banking adoption," *International Journal of Bank Marketing* (23:2) 2005, pp 176-199.
Laurent, G., and Kapferer, J. N. "Measuring consumer involvement profiles," *Journal of marketing research* (22:1) 1985, pp 41-53.
Lee, K. S., and Tan, S. J. "E-retailing versus physical retailing:: A theoretical model and empirical test of consumer choice," *Journal of Business Research* (56:11) 2003, pp 877-885.
Lee, P. M. "Behavioral model of online purchasers in e-commerce environment," *Electronic Commerce Research* (2:1) 2002, pp 75-85.
Lee, Y., Chen, A. N. K., and Ilie, V. "Can Online Wait Be Managed? The Effect of Filler Interfaces and Presentation Modes on Perceived Waiting Time Online," *Management*

Information Systems Quarterly (36:2) 2012, pp 365-394.

Leitner, P., and Grechenig, T. "Collaborative Shopping Networks: Sharing the Wisdom of Crowds in E-Commerce Environments," *BLED 2008 Proceedings*) 2008, p 21.

Levinson, P. *Cellphone: The story of the world's most mobile medium and how it has transformed everything!* Palgrave Macmillan, 2004.

Li, X., and Hitt, L. M. "Price effects in online product reviews: an analytical model and empirical analysis," *MIS quarterly* (34:4) 2010, pp 809-832.

Li, Y., and Wang, G. "Evaluate the Result of Consumer to Consumer Site Promotion Using Correspondence Analysis," Management and Service Science, IEEE, 2011, pp. 1-4.

Limayem, M., Khalifa, M., and Frini, A. "What makes consumers buy from Internet? A longitudinal study of online shopping," *Systems, Man and Cybernetics, Part A: Systems and Humans, IEEE Transactions on* (30:4) 2002, pp 421-432.

Lindner, J. R., Murphy, T. H., and Briers, G. E. "Handling nonresponse in social science research," *Journal of Agricultural Education* (42:4) 2001, pp 43-53.

Livette, M. "A marketing perspective of private sector retirement housing and the effectiveness of the buyer behaviour of its purchasers," *Property Management* (24:4) 2006, pp 383-396.

Lohse, G., Bellman, S., and Johnson, E. "Consumer buying behavior on the Internet: Findings from panel data," *Journal of Interactive Marketing* (14:1) 2009, pp 15-29.

Loudon, D. L., and Bitta, A. J. D. *Consumer behavior: concepts and applications*, (4 ed.) McGraw Hill, 1993.

Louvieris, P., Driver, J., and Powell-Perry, J. "Managing customer behaviour dynamics in the multi-channel e-business environment: Enhancing customer relationship capital in the global hotel industry," *Journal of Vacation Marketing* (9:2) 2003, pp 164-173.

Love, R. W. B. "Maximizing and Relationships," University of Texas, 2009.

Maheswaran, D., and Meyers-Levy, J. "The influence of message framing and issue involvement," *Journal of marketing research* (27:3) 1990, pp 361-367.

Malhotra, N. K. "Information load and consumer decision making," *Journal of Consumer Research*) 1982, pp 419-430.

Malhotra, N. K. "On'Individual Differences in Search Behavior for a Nondurable'," *Journal of Consumer Research* (10:1) 1983, pp 125-131.

Malhotra, N. K. "Reflections on the information overload paradigm in consumer decision making," *The Journal of Consumer Research* (10:4) 1984, pp 436-440.

Malone, T. W., Yates, J., and Benjamin, R. I. "Electronic markets and electronic hierarchies," *Communications of the ACM* (30:6) 1987, pp 484-497.

March, J. G. "Bounded rationality, ambiguity, and the engineering of choice," *The Bell Journal of Economics*) 1978, pp 587-608.

March, J. G. "Ambiguity and the engineering of choice," *International Studies of Management & Organization* (9:3) 1979, pp 9-39.

Markus, M. L., and Robey, D. "Information technology and organizational change: causal structure in theory and research," *Management science*) 1988, pp 583-598.

McGaughey, R. E., and Mason, K. H. "The Internet as a marketing tool," *Journal of Marketing Theory and Practice* (6) 1998, pp 1-11.

McKee, D. O., Varadarajan, P. R., and Pride, W. M. "Strategic adaptability and firm performance: a market-contingent perspective," *The Journal of Marketing*) 1989, pp 21-35.

McKenney, J. L., and Keen, P. G. W. "How managers' minds work," *Harvard Business Review* (52:3) 1974, pp 79-90.

McKinney, V., and Yoon, K. "The measurement of web-customer satisfaction: An expectation and disconfirmation approach," *Information systems research* (13:3) 2002, pp 296-315.

Meyers-Levy, J., and Maheswaran, D. "Exploring differences in males' and females' processing strategies," *Journal of Consumer Research* (18:1) 1991, pp 63-70.

Meyers-Levy, J., and Sternthal, B. "Gender differences in the use of message cues and judgments," *Journal of marketing research* (28:1) 1991, pp 84-96.

Mick, D. G., Broniarczyk, S. M., and Haidt, J. "Choose, choose, choose, choose, choose, choose, choose: Emerging and prospective research on the deleterious effects of living in consumer hyperchoice," *Journal of Business Ethics* (52:2) 2004, pp 207-211.

Middleton, V. T. *Marketing travel and tourism* Butterworth- Heinemann, Oxford, 1994.

Miles, M. B., and Huberman, A. M. *Qualitative Data Analysis* Sage, London, 1999.

Mingers, J. "Combining IS research methods: towards a pluralist methodology," *Information systems research* (12:3) 2001, pp 240-259.

Mintel "Retail Banking Overview - UK ") 2010.

Mintel "Packaged and Current Accounts - UK ") 2011a.

Mintel "UK mobile phone retailing ") 2011b.

Mintel "UK mobile phone retailing ") 2012.

Mintzberg, H., Raisinghani, D., and Theoret, A. "The structure of" unstructured" decision processes," *Administrative science quarterly* (21:2) 1976, pp 246-275.

Mittal, B. "A theoretical analysis of two recent measures of involvement," *Advances in Consumer Research* (16:1) 1989, pp 697-702.

Mittal, V., and Kamakura, W. A. "Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics," *Journal of marketing research*) 2001, pp 131-142.

Moe, W. W. "Buying, searching, or browsing: Differentiating between online shoppers using in-store navigational clickstream," *Journal of Consumer Psychology* (13:1) 2003, pp 29-39.

Moe, W. W. "An empirical two-stage choice model with varying decision rules applied to Internet clickstream data," *Journal of Marketing Research*) 2006, pp 680-692.

Moe, W. W., and Fader, P. S. "Fast-Track: Article Using Advance Purchase Orders to Forecast New Product Sales," *Marketing science* (21:3) 2002, pp 347-364.

Molina-Azorin, J. F. "The use and added value of mixed methods in management research," *Journal of Mixed Methods Research* (5:1) 2011, pp 7-24.

Molla, A., and Licker, P. S. "E-commerce systems success: An attempt to extend and respecify the DeLone and McLean model of IS success," *Journal of Electronic Commerce Research* (2:4) 2001, pp 131-141.

Montgomery, A. L. "Applying quantitative marketing techniques to the Internet," *Interfaces* (31:2) 2001, pp 90-108.

Montgomery, A. L., Li, S., Srinivasan, K., and Liechty, J. C. "Modeling online browsing and path analysis using clickstream data," *Marketing science* (23:4) 2004, pp 579-595.

Montgomery, H., and Svenson, O. "On decision rules and information processing strategies for choices among multiattribute alternatives," *Scandinavian Journal of Psychology* (17:1) 1976, pp 283-291.

Moon, B. J. "Consumer adoption of the internet as an information search and product purchase channel: some research hypotheses," *International Journal of Internet Marketing and Advertising* (1:1) 2004, pp 104-118.

Moore, W. L., and Lehmann, D. R. "Individual differences in search behavior for a nondurable," *Journal of Consumer Research* (7:3) 1980, pp 296-307.

Morgan, D. L. "Paradigms Lost and Pragmatism Regained Methodological Implications of Combining Qualitative and Quantitative Methods," *Journal of mixed methods research* (1:1) 2007, pp 48-76.

Morrison, E. "From the Editors: OB in AMJ: What is Hot and What is Not?," *The Academy of Management Journal (AMJ)* (53:5) 2010, pp 932-936.

Morse, J. M. "Principles of mixed methods and multimethod research design," *Handbook of mixed methods in social and behavioral research*) 2003, pp 189-208.

Mudambi, S. M., and Schuff, D. "What makes a helpful online review? A study of customer reviews on Amazon. com," *MIS quarterly* (34:1) 2010, pp 185-200.

Nicosia, F. M. *Consumer Decision Processes:Marketing and Advertising Implications*

Prentice Hall, 1966, pp. 65-75.
Nisbett, R. E., and Wilson, T. D. "Telling more than we can know: Verbal reports on mental processes," *Psychological Review; Psychological Review* (84:3) 1977, p 231.
Novak, T. P., Hoffman, D. L., and Yung, Y. F. "Modeling the structure of the flow experience among web users," 1998.
Nutt, P. C. "The formulation processes and tactics used in organizational decision making," *organization Science* (4:2) 1993, pp 226-251.
O'Cass, A. "An assessment of consumers product, purchase decision, advertising and consumption involvement in fashion clothing," *Journal of Economic Psychology* (21:5) 2000, pp 545-576.
O'Cass, A., and Fenech, T. "Web retailing adoption: exploring the nature of internet users Web retailing behaviour," *Journal of Retailing and Consumer services* (10:2) 2003, pp 81-94.
Oestreicher-Singer, G., and Sundararajan, A. "Recommendation networks and the long tail of electronic commerce," *MIS quarterly*) 2012, pp 65-83.
Ofcom "The Communications Market 2009,").
Oliver, R. L. "A cognitive model of the antecedents and consequences of satisfaction decisions," *Journal of marketing research*) 1980, pp 460-469.
Oliver, R. L. "Satisfaction: A behavioral perspective on the customer," *New York*) 1997.
Oulasvirta, A., Hukkinen, J. P., and Schwartz, B. "When more is less: the paradox of choice in search engine use," ACM, 2009, pp. 516-523.
OxIS "Next Generation Users: The Internet in Britain ".
Pall, and GA *Quality Process Management* Prentice-Hall, N J, , 1987.
Palmer, A., and Koenig-Lewis, N. "An experiential, social network-based approach to direct marketing," *Direct Marketing: An International Journal* (3:3) 2009, pp 162-176.
Palmer, J. W. "Web site usability, design, and performance metrics," *Information systems research* (13:2) 2003, pp 151-167.
Papamichail, K., and Robertson, I. "Supporting societal decision making: a process perspective," *Journal of Multi‐ Criteria Decision Analysis* (12:2‐ 3) 2003, pp 203-212.
Papamichail, K. N., and Robertson, I. "Supporting distributed decision processes using an evolution model," *Operational Research* (8:3) 2008, pp 279-297.
Park, C. W., Iyer, E. S., and Smith, D. C. "The effects of situational factors on in-store grocery shopping behavior: the role of store environment and time available for shopping," *Journal of Consumer Research*) 1989, pp 422-433.
Park, C. W., and Lutz, R. J. "Decision plans and consumer choice dynamics," *Journal of marketing research*) 1982, pp 108-115.
Park, C. W., Mothersbaugh, D. L., and Feick, L. "Consumer knowledge assessment," *Journal of consumer research* (21:1) 1994, pp 71-82.
Park, Y. H., and Fader, P. S. "Modeling browsing behavior at multiple websites," *Marketing science* (23:3) 2004, pp 280-303.
Pavlou, P. A. "Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model," *International Journal of Electronic Commerce* (7:3) 2003, pp 101-134.
Pavlou, P. A., and Fygenson, M. "Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior," *MIS quarterly* (30:1) 2006, pp 115-143.
Pavlou, P. A., Liang, H., and Xue, Y. "Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective," *Management Information Systems Quarterly* (31:1) 2007, p 105.
Payne, J. W. "Task complexity and contingent processing in decision making: An information search and protocol analysis," *Organizational behavior and human performance* (16:2) 1976, pp 366-387.
Payne, J. W., Bettman, J. R., and Johnson, E. J. "Adaptive strategy selection in decision making," *Journal of Experimental Psychology: Learning, Memory, and Cognition* (14:3) 1988, p

534.
Payne, J. W., Bettman, J. R., and Johnson, E. J. *The adaptive decision maker* Cambridge Univ Pr, 1993.
Perkins, W. S., and Rao, R. C. "The role of experience in information use and decision making by marketing managers," *Journal of marketing research*) 1990, pp 1-10.
Perry, V. G., and Morris, M. D. "Who Is in Control? The Role of Self- Perception, Knowledge, and Income in Explaining Consumer Financial Behavior," *Journal of Consumer Affairs* (39:2) 2005, pp 299-313.
Peterson, R. A., and Merino, M. C. "Consumer information search behavior and the Internet," *Psychology and Marketing* (20:2) 2003, pp 99-121.
Petrusel, R., and Mican, D. "Mining Decision Activity Logs," Springer, 2010, p. 67.
Petruzzellis, L. "Mobile phone choice: technology versus marketing. The brand effect in the Italian market," *European Journal of Marketing* (44:5) 2010, pp 610-634.
Phalp, K. T. "The CAP framework for business process modelling1," *Information and Software Technology* (40:13) 1998, pp 731-744.
Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., and Pahnila, S. "Consumer acceptance of online banking: an extension of the technology acceptance model," *Internet Research* (14:3) 2004, pp 224-235.
Plaia, A., and Carrie, A. "Application and assessment of IDEF3-process flow description capture method," *International Journal of Operations & Production Management* (15:1) 1995, pp 63-73.
Powell, H., Mihalas, S., Onwuegbuzie, A. J., Suldo, S., and Daley, C. E. "Mixed methods research in school psychology: A mixed methods investigation of trends in the literature," *Psychology in the Schools* (45:4) 2008, pp 291-309.
Punj, G., and Stewart, D. W. "Cluster analysis in marketing research: review and suggestions for application," *Journal of marketing research*) 1983, pp 134-148.
Rajgopal, S., Venkatachalam, M., and Kotha, S. "The value relevance of network advantages: The case of e–commerce firms," *Journal of Accounting Research* (41:1) 2003, pp 135-162.
Ranaweera, C., McDougall, G., and Bansal, H. "A model of online customer behavior during the initial transaction: Moderating effects of customer characteristics," *Marketing Theory* (5:1) 2005, p 51.
Ranganathan, C., and Ganapathy, S. "Key dimensions of business-to-consumer web sites," *Information & Management* (39:6) 2002, pp 457-465.
Ranyard, R., Crozier, W. R., and Svenson, O. *Decision making: Cognitive models and explanations* Psychology Press, 1997.
Rao, A. R., and Monroe, K. B. "The moderating effect of prior knowledge on cue utilization in product evaluations," *Journal of Consumer Research* (15:2) 1988, pp 253-264.
Rao, A. R., and Sieben, W. A. "The effect of prior knowledge on price acceptability and the type of information examined," *Journal of Consumer Research* (19:2) 1992, pp 256-270.
Regan, P. J., and Holtzman, S. "R&D Decision Advisor: An interactive approach to normative decision system model construction," *European Journal of Operational Research* (84:1) 1995, pp 116-133.
Reijers, H., and Mendling, J. "Modularity in process models: Review and effects," *Business Process Management*) 2008, pp 20-35.
Rickwood, C., and White, L. "Pre-purchase decision-making for a complex service: retirement planning," *Journal of Services Marketing* (23:3) 2009, pp 145-153.
Riedl, R., Hubert, M., and Kenning, P. "Are there neural gender differences in online trust? An fMRI study on the perceived trustworthiness of eBay offers," *MIS quarterly* (34:2) 2010, pp 397-428.
Roberts, J. H., and Lattin, J. M. "Development and testing of a model of consideration set composition," *Journal of marketing research*) 1991, pp 429-440.

Robertshaw, G. S. "Online price comparisons sites: How technology has destabilised and transformed the UK insurance market," *Journal of Revenue & Pricing Management* (11:2) 2011, pp 137-145.

Robinson, P., Farris C., and Y. Wind *Industrial Buying and Creative Marketing* Allyn and Bacon Inc, Boston, 1967.

Rohm, A. J., and Swaminathan, V. "A typology of online shoppers based on shopping motivations," *Journal of Business Research* (57:7) 2004, pp 748-757.

Rose, S., Hair, N. and Clark, M. "Online Customer Experience: A Review of the Business-to-Consumer Online Purchase Context," *International Journal of Management Reviews* (13) 2011, pp 24–39.

Rousseau, D. M. "Issues of level in organizational research: Multi-level and cross-level perspectives," *Research in organizational behavior* (7:1) 1985, pp 1-37.

Rowley, J. "An analysis of the e-service literature: towards a research agenda," *Internet research* (16:3) 2006, pp 339-359.

Rozic-Hristovski, A., Hristovski, D., and Todorovski, L. "Users' information-seeking behavior on a medical library Website," *Journal of the Medical Library Association* (90:2) 2002, p 210.

Rozinat, A., and van der Aalst, W. "Decision mining in ProM," *Business Process Management*) 2006, pp 420-425.

Russell, G. J., and Kamakura, W. A. "Understanding brand competition using micro and macro scanner data," *Journal of marketing research*) 1994, pp 289-303.

Rust, R. T., and Lemon, K. N. "E-service and the consumer," *International Journal of Electronic Commerce* (5:3) 2001, pp 85-101.

Salam, A. F., Rao, H. R., and Pegels, C. C. "Consumer-perceived risk in e-commerce transactions," *Communications of the ACM* (46:12) 2003, pp 325-331.

Sarel, D., and Marmorstein, H. "Marketing online banking services: the voice of the customer," *Journal of Financial Services Marketing* (8:2) 2003, pp 106-118.

Sathye, M. "Adoption of Internet banking by Australian consumers: an empirical investigation," *International Journal of Bank Marketing* (17:7) 1999, pp 324-334.

Saxena, K. B. C. "Re-engineering public administration in developing countries," *Long Range Planning* (29:5) 1996, pp 703-711.

Schafer, J. B., Konstan, J. A., and Riedl, J. "E-commerce recommendation applications," *Data mining and knowledge discovery* (5:1) 2001, pp 115-153.

Scheibehenne, B., Greifeneder, R., and Todd, P. M. "What moderates the too much choice effect?," *Psychology and Marketing* (26:3) 2009, pp 229-253.

Schiffman, L., and Kanuk, L. *Consumer Behavior*, (6 ed.) Prentice-Hall, Upper Saddle River, NJ, 1997.

Schiffman, L. G., and Kanuk, L. L. *Consumer Behaviour: A European Outlook* Prentice Hall Financial Times, 2008.

Schlosser, A. E., White, T. B., and Lloyd, S. M. "Converting web site visitors into buyers: how web site investment increases consumer trusting beliefs and online purchase intentions," *Journal of Marketing* (70:2) 2006, pp 133-148.

Schmidt, J. B., and Spreng, R. A. "A proposed model of external consumer information search," *Journal of the Academy of Marketing Science* (24:3) 1996, pp 246-256.

Schwartz, B. "Self-determination: The tyranny of freedom," *American psychologist* (55:1) 2000, p 79.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., and Lehman, D. R. "Maximizing versus satisficing: Happiness is a matter of choice," *Journal of Personality and Social Psychology* (83:5) 2002, pp 1178-1197.

Schwarz, N. *Questionnaire design: The rocky road from concepts to answers* John Wiley & Sons, Inc., New York, 1997.

Schwarz, N., Strack, F., Hippler, H. J., and Bishop, G. "The impact of administration mode on

response effects in survey measurement," *Applied Cognitive Psychology* (5:3) 1991, pp 193-212.
Scott, S. G., and Bruce, R. A. "Decision-making style: The development and assessment of a new measure," *Educational and Psychological Measurement* (55:5) 1995, pp 818-831.
Sen, A., and Vinze, A. S. "Understanding the Complexity of the Model Formulation Process: A Protocol Analysis Approach*," *Decision Sciences* (28:2) 1997, pp 443-473.
Sheth, J. N., and Raju, P. S. "Sequential and cyclical nature of information processing models in repetitive choice behavior," *Advances in Consumer Research* (1) 1974, pp 348-358.
Sheth, J. N., and Venkatesan, M. "Risk-reduction processes in repetitive consumer behavior," *Journal of Marketing Research* (5:3) 1968, pp 307-310.
Shim, J., Warkentin, M., Courtney, J. F., Power, D. J., Sharda, R., and Carlsson, C. "Past, present, and future of decision support technology," *Decision Support Systems* (33:2) 2002, pp 111-126.
Shim, S., Eastlick, M. A., Lotz, S. L., and Warrington, P. "An online prepurchase intentions model: the role of intention to search," *Journal of retailing* (77:3) 2001, pp 397-416.
Shocker, A. D., Ben-Akiva, M., Boccara, B., and Nedungadi, P. "Consideration set influences on consumer decision-making and choice: Issues, models, and suggestions," *Marketing letters* (2:3) 1991, pp 181-197.
Shukla, P. "Effects of Perceived Sacrifice, Quality, Value, and Satisfaction on Behavioral Intentions in the Service Environment," *Services Marketing Quarterly* (31:4) 2010, pp 466-484.
Sia, C. L., Lim, K. H., Leung, K., Lee, M. K. O., Huang, W. W., and Benbasat, I. "Web strategies to promote internet shopping: is cultural-customization needed," *MIS quarterly* (33:3) 2009, pp 491-512.
Simon, H. A. "A behavioral model of rational choice," *The quarterly journal of economics* (69:1) 1955, pp 99-118.
Simon, H. A. "Rational choice and the structure of the environment," *Psychological Review; Psychological Review* (63:2) 1956, p 129.
Simon, H. A. *Administrative behavior* Cambridge Univ Press, 1957.
Simon, H. A. "The New Science of Management Decision," New York: Harper & Row, 1960.
Simon, H. A. "Invariants of human behavior," *Annual review of psychology* (41:1) 1990, pp 1-20.
Simon, H. A. *An empirically-based microeconomics* Cambridge University Press, 1997.
Simonson, I., and Nowlis, S. M. "The role of explanations and need for uniqueness in consumer decision making: Unconventional choices based on reasons," *Journal of Consumer Research* (27:1) 2000, pp 49-68.
Simonson, I., and Tversky, A. "Choice in context: tradeoff contrast and extremeness aversion," *Journal of marketing research*) 1992.
Sismeiro, C., and Bucklin, R. E. "Modeling purchase behavior at an e-commerce web site: a task-completion approach," *Journal of marketing research*) 2004, pp 306-323.
Smith, A. D., and Rupp, W. T. "Strategic online customer decision making: leveraging the transformational power of the Internet," *Online information review* (27:6) 2003, pp 418-432.
Smith, E. R., and Miller, F. D. "Limits on perception of cognitive processes: A reply to Nisbett and Wilson,") 1978.
So, W. C. M., Wong, T. N. D., and Sculli, D. "Factors affecting intentions to purchase via the internet," *Industrial Management & Data Systems* (105:9) 2005, pp 1225-1244.
Solomon, M. R. "Consumer Behavior: Buying Having and Being," Prentice-Hall of India, 2002.

Sprague, R. H. "A framework for the development of decisoin support systems," *MIS quarterly* (4:4) 1980, pp 1-26.
Spreng, R. A., MacKenzie, S. B., and Olshavsky, R. W. "A reexamination of the determinants of consumer satisfaction," *The Journal of Marketing*) 1996, pp 15-32.

Sproule, S., and Archer, N. "A buyer behavior framework for the development and design of software agents in e-commerce," *Internet Research: Electronic Networking Applications and Policy* (10:5) 2000, pp 396-405.
Srinivasan, N., and Ratchford, B. T. "An empirical test of a model of external search for automobiles," *Journal of Consumer Research* (18:2) 1991, pp 233-242.
Strothkamp, B., and Wannemacher, P. "EBUSINESS LEADERS: IT'S TIME TO TAKE FINANCIAL SERVICE COMPARISON WEB SITES SERIOUSLY," *Forrester*) 2010. http://www.forrester.com/eBusiness+Leaders+Its+Time+To+Take+Financial+Service+Comparison+Web+Sites+Seriously/fulltext/-/E-RES56743, accessed June 2012.
Su, B. C. "Consumer e-tailer choice strategies at on-line shopping comparison sites," *International Journal of Electronic Commerce* (11:3) 2007, pp 135-159.
Svenson, O. "Process descriptions of decision making," *Organizational behavior and human performance* (23:1) 1979, pp 86-112.
Szymanski, D. M., and Hise, R. T. "E-satisfaction: an initial examination," *Journal of retailing* (76:3) 2000, pp 309-322.
Talwar, R. "Business re-engineering--a strategy-driven approach," *Long Range Planning* (26:6) 1993, pp 22-40.
Tarafdar, M., and Zhang, J. "Analysis of critical website characteristics: a cross-category study of successful websites," *Journal of Computer Information Systems* (46:2) 2005, p 14.
Tarafdar, M., and Zhang, J. "Determinants of reach and loyalty-a study of Website performance and implications for Website design," *Journal of Computer Information Systems* (48:2) 2008, p 16.
Tashakkori, A., and Teddlie, C. *Mixed methodology: Combining qualitative and quantitative approaches* Sage Publications, Inc, 1998.
Tauber, E. M. "Why do people shop?," *The Journal of Marketing*) 1972, pp 46-49.
Taylor, S., and Todd, P. A. "Understanding information technology usage: A test of competing models," *Information systems research* (6:2) 1995, pp 144-176.
Teddlie, C., and Tashakkori, A. "Major issues and controveries in the use of mixed methods in the social and behvioral sciences," *Handbook of mixed methods in social & behavioral research*) 2003, pp 3-50.
Terpsidis, I., Moukas, A., Pergioudakis, B., Doukidis, G., and Maes, P. "The potential of electronic commerce in re-engineering consumer-retail relationships through intelligent agents," *Advances in Information Technologies: The Business Challenge*) 1997.
Terry, D. J., and Hogg, M. A. "Group norms and the attitude-behavior relationship: A role for group identification," *Personality and Social Psychology Bulletin* (22:8) 1996, p 776.
Thomas, D. R. "A general inductive approach for analyzing qualitative evaluation data," *American Journal of Evaluation* (27:2) 2006, pp 237-246.
Thorbjornsen, H., and Supphellen, M. "The impact of brand loyalty on website usage," *The Journal of Brand Management* (11:3) 2004, pp 199-208.
Tih, S., and Ennis, S. "Cross-industry analysis of consumer assessments of internet retailers' service performances," *International Journal of retail & distribution management* (34:4/5) 2006, pp 290-307.
Todd, P., and Benbasat, I. "Process tracing methods in decision support systems research: exploring the black box," *MIS quarterly*) 1987, pp 493-512.
Turnbull, P. W. "International Aspects of Bank Marketing," *European Journal of Marketing* (16:3) 1982, pp 102-105.
Turnbull, P. W., Leek, S., and Ying, G. "Customer confusion: The mobile phone market," *Journal of Marketing Management* (16:1-3) 2000, pp 143-163.
Tversky, A. "Intransitivity of preferences," *Psychological Review; Psychological Review* (76:1) 1969, p 31.
Valacich, J. S., Parboteeah, D. V., and Wells, J. D. "The online consumer's hierarchy of needs," *Communications of the ACM* (50:9) 2007, pp 84-90.

Van den Poel, D., and Buckinx, W. "Predicting online-purchasing behaviour," *European Journal of Operational Research* (166:2) 2005, pp 557-575.
Van der Heijden, H., Verhagen, T., and Creemers, M. "Understanding online purchase intentions: contributions from technology and trust perspectives," *European Journal of Information Systems* (12:1) 2003, pp 41-48.
Van Riel, A. C. R., Lemmink, J., Streukens, S., and Liljander, V. "Boost customer loyalty with online support: the case of mobile telecoms providers," *International Journal of Internet Marketing and Advertising* (1:1) 2004, pp 4-23.
VanderMeer, D., Dutta, K., and Datta, A. "A Cost-Based Database Request Distribution Technique for Online e-Commerce Applications," *Management Information Systems Quarterly* (36:2) 2012, pp 479-507.
Venkatesh, V. "Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model," *Information systems research* (11:4) 2000, pp 342-365.
Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. "User acceptance of information technology: Toward a unified view," *MIS quarterly*) 2003, pp 425-478.
Verhagen, T., and van Dolen, W. "Online purchase intentions: A multi-channel store image perspective," *Information & Management* (46:2) 2009, pp 77-82.
Vijayasarathy, L. R. "Predicting consumer intentions to use on-line shopping: the case for an augmented technology acceptance model," *Information & Management* (41:6) 2004, pp 747-762.
Vishwanath, V., and Mulvin, G. "Multi-Channels: The Real Winners in the B2C Internet Wars," *Business Strategy Review* (12:1) 2001, pp 25-33.
Volkner, P., and Werners, B. "A simulation-based decision support system for business process planning," *Fuzzy Sets and Systems* (125:3) 2002, pp 275-287.
Walczuch, R., and Lundgren, H. "Psychological antecedents of institution-based consumer trust in e-retailing," *Information & Management* (42:1) 2004, pp 159-177.
Wally, S., and Baum, J. R. "Personal and structural determinants of the pace of strategic decision making," *Academy of Management Journal* (37:4) 1994, pp 932-956.
Walters, C. *Consumer behavior. Theory and practice* Richard D Irwin, Ontario, 1978.
Wang, W., and Benbasat, I. "Interactive decision aids for consumer decision making in e-commerce: The influence of perceived strategy restrictiveness," *MIS quarterly* (33:2) 2009, p 293.
Wang, Y. S., Wang, Y. M., Lin, H. H., and Tang, T. I. "Determinants of user acceptance of Internet banking: an empirical study," *International Journal of Service Industry Management* (14:5) 2003, pp 501-519.
Warboys, B. C., Kawalek, P., Robertson, I., and Greenwood, M. *Business information systems: A process approach* McGraw-Hill Maidenhead, England, 1999.
Watchravesringkan, K., and Shim, S. "Information search and shopping intentions through Internet for apparel products," *Clothing and Textiles Research Journal* (21:1) 2003, p 1.
Weidlich, M., Dijkman, R., and Weske, M. "Deciding behaviour compatibility of complex correspondences between process models," *Business Process Management*) 2010, pp 78-94.
Weingart, L. R. "How did they do that? The ways and means of studying group processes," *Research in organizational behavior* (19) 1997, pp 189-240.
Weisberg, H. F. *The total survey error approach: A guide to the new science of survey research* University of Chicago Press, 2005.
Wells, J. D., Valacich, J. S., and Hess, T. J. "What signal are you sending? how website quality influences perceptions of product quality and purchase intentions," *MIS quarterly* (35:2) 2011, pp 373-396.
Westbrook, R. A. "A rating scale for measuring product/service satisfaction," *The Journal of Marketing*) 1980, pp 68-72.

Wikstrom, S. "From e-channel to channel mix and channel integration," *Journal of Marketing Management* (21:7) 2005, pp 725-753.
Wikstrom, S., Yakhlef, A., and Osterlund, D. "The Physical-Virtual back and forth: Lessons learned from the EXCEL e-banking case," *Building the Knowledge Economy: Issues, Applications, Case Studies*) 2003, pp 22-24.
Wiley, J. B., and Bushnell, R. "Market Share Estimates Based on Conjoint Analysis of Concepts," *Advances in Consumer Research* (6) 1979, pp 582-586.
Wilson, C., and Dowlatabadi, H. "Models of decision making and residential energy use," *Annu. Rev. Environ. Resour.* (32) 2007, pp 169-203.
Witte, E., Joost, N., and Thimm, A. L. "Field research on complex decision-making processes-the phase theorem," *International Studies of Management & Organization* (2:2) 1972, pp 156-182.
Wohed, P., der Aalst, W., Dumas, M., Hofstede, A., and Russell, N. "Pattern-based analysis of the control-flow perspective of UML activity diagrams," *Conceptual Modeling–ER 2005*) 2005, pp 63-78.
Woodruff, R. B. "Serving the marketing discipline through journal reviews," *Journal of the Academy of Marketing Science* (31:3) 2003, pp 327-330.
Wright, P. "Consumer choice strategies: Simplifying vs. optimizing," *Journal of marketing research* (12:1) 1975, pp 60-67.
Xavier, P. "Consumer information requirements and telecommunications regulation," *The Information Society* (24:5) 2008, pp 342-354.
Xia, L., and Sudharshan, D. "Effects of interruptions on consumer online decision processes," *Journal of Consumer Psychology* (12:3) 2002, pp 265-280.
Xu, Y. C., Zhang, C., Xue, L., and Yeo, L. L. "Product adoption in online social network,") 2008.
Yu, J., and Cooper, H. "A quantitative review of research design effects on response rates to questionnaires," *Journal of marketing research*) 1983, pp 36-44.
Zafar, A. "UK retail banking keywords hit 2.4m on Google," Financial Times, 2012. http://www.ftadviser.com/2012/01/19/investments/savings-and-isas/uk-retail-banking-keywords-hit-m-on-google-44GC5xkVWhj7Dv0WV5ti1K/article.html, accessed June 2012.
Zaichkowsky, J. L. "Measuring the involvement construct," *Journal of Consumer Research*) 1985, pp 341-352.
Zeithaml, V. A., Berry, L. L., and Parasuraman, A. "The behavioral consequences of service quality," *The Journal of Marketing*) 1996, pp 31-46.
Zeng, M., and Reinartz, W. "Beyond online search: The road to profitability," *California Management Review* (45:2) 2003, pp 107-130.
Zhang, S., and Fitzsimons, G. J. "Choice-process satisfaction: The influence of attribute alignability and option limitation," *Organizational behavior and human decision processes* (77:3) 1999, pp 192-214.
Zhang, T., Agarwal, R., and Lucas Jr, H. C. "The value of IT-enabled retailer learning: personalized product recommendations and customer store loyalty in electronic markets," *MIS Quarterly-Management Information Systems* (35:4) 2011, p 859.
Zickuhr K., and Smith, A. "Digital difference."
Zviran, M., Glezer, C., and Avni, I. "User satisfaction from commercial web sites: The effect of design and use," *Information & Management* (43:2) 2006, pp 157-178.

Appendix A: Explanation of individual factors in grand models

Andreason's model (1965) is one of the first models of consumer behaviour including large number of factors such as consumer attitudes, information sources, personality and previous experiences, impact of norms and other customers, and also constraints of consumers. In Howard-Sheth model of buyer behaviour (1969) which is one of the mostly cited models in consumer behaviour research, the influences of inputs (stimuli in the consumer's environment) are categorized in three groups of significative stimuli, symbolic stimuli and social environment. Besides inputs, there are Perceptual and Learning Constructs. Perceptual constructs are concerned with how a consumer receives and perceives the inputs which are dealt with in psychological research. However, they feed back to learning constructs which are related to the personal inputs of the consumers such as: motives, choice criteria, brand comprehension, attitude, confidence and intention. They are very important in decision making and could be treated as other inputs to the process. In the model of Engel-Kollat-Blackwell (1968), information inputs from both marketing and non-marketing sources are illustrated. There are also other variables influencing the decision process, namely, individual characteristics, social influences and situational influences. There is also an information processing phase which examines the process in consumer's mind, the '*black box'*. Holtwook and Hirschman (1982) believe that there are environmental inputs, consumer inputs, intervening responses, and output consequences, criteria, and learning effects that influence consumer behaviour. One of the novel contributions of this study is considering the symbolic meaning of products that they carry with themselves. Although they believe that symbolic meaning is important in entertainment, the arts, and leisure activities, we believe that today, even those products that perceived to be highly austere carry a symbolic meaning. In fact, the feeling and the image they provide are important to consumers.

Appendix B: Experiment design

Task descriptions

a) Banking sector

Imagine you want to open a current bank account online. You are currently based in the UK. According to your needs and knowledge, look for and select an account with a bank that suits you the most. You are entirely free in the way you perform the task. You can look at any website and piece of information on the Internet as long and as often as you want. There is no RESTRICTION or RIGHT way of doing the task. Continue till you have selected an account with a bank and you are satisfied with your choice. Please try to act and choose the account as you would have in a real life setting.

b) Mobile network sector

Imagine you want to select a mobile contract that offers a Smartphone and a calling plan. You are currently based in the UK. According to your needs and knowledge, look for and select a mobile contract that suits you the most. You are entirely free in the way you perform the task. You can look at any website and piece of information on the Internet as long and as often as you want. There is no RESTRICTION or RIGHT way of doing the task. Continue until you have selected a contract that you are satisfied with. Please try to act and choose the contract as you would have in a real life setting.

Measurements

IT expertise

1) What is your level of IT expertise?

Very basic	Basic	Average	High	IT expert
☐	☐	☐	☐	☐

Web skills (Novak, Hoffman and Yung, 1998)

1) I am very skilled at using the Web.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

2) I know how to find what I want on the Web.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

3) I know more about using the Web than most users.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Decision making style: maximization tendency measurement (Schwartz et al., 2002)

1) When I watch TV, I channel surf, often scanning through the available options even while attempting to watch one program.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

2) When I am in the car listening to the radio, I often check other stations to see if something better is playing, even if I'm relatively satisfied with what I'm listening to.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

3) I treat relationships like clothing: I expect to try a lot on before I get the perfect fit.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

4) No matter how satisfied I am with my job, it's only right for me to be on the lookout for better opportunities.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

5) I often fantasize about living in ways that are quite different from my actual life.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

6) I'm a big fan of lists that attempt to rank things (the best movies, the best singers, the best athletes, the best novels, etc.).

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

7) I often find it difficult to shop for a gift for a friend.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

8) When shopping, I have a hard time finding clothing that I really love.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

9) Renting videos is really difficult. I'm always struggling to pick the best one.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

10) I find that writing is very difficult, even if it's just writing a letter to a friend, because it's so hard to word things just right. I often do several drafts of even simple things.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

11) No matter what I do, I have the highest standards for myself.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

12) I never settle for second best.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

13) Whenever I'm faced with a choice, I try to imagine what all the other possibilities are, even ones that aren't present at the moment.

Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

Prior Knowledge

a) ***Banking sector***

Please rate your knowledge of different types of account.

Very little	Little	Neutral	High	Very high
☐	☐	☐	☐	☐

Please rate your knowledge of banks.

Very little	Little	Neutral	High	Very high
☐	☐	☐	☐	☐

b) ***Mobile network sector***

Please rate your knowledge of different types of mobile contracts.

Very little	Little	Neutral	High	Very high
☐	☐	☐	☐	☐

Please rate your knowledge of mobile network providers.

Very little	Little	Neutral	High	Very high
☐	☐	☐	☐	☐

Satisfaction with the process (Fitzsimons, Greenleaf and Lehmann, 1997)

1) I found the process of deciding which contract to buy frustrating.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

2) Several good options were available for me to choose between.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

3) How satisfied or dissatisfied are you with your experience of deciding which contract option to choose?

Extremely satisfied Extremely dissatisfied

1 2 3 4 5 6 7 8 9 10

4) I thought the choice selection was good.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

5) I would be happy to choose from the same set of contract options on my next purchase occasion.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

6) I found the process of deciding which contract to buy interesting.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

Satisfaction with the choice (Fitzsimons, Greenleaf and Lehmann, 1997)

1) My choice turned out better than I had expected.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

2) Given the identical set of alternatives to choose from, I would make the same choice again.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

3) How satisfied were you with the contract you chose?

Extremely satisfied Extremely dissatisfied

1 2 3 4 5 6 7 8 9 10

4) I am very displeased with the contract I chose.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

5) I am very happy with the contract I chose.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

6) Thinking of an ideal example of the contract I chose, my choice was very close to the ideal example.

Strongly agree Strongly disagree

1 2 3 4 5 6 7 8 9 10

Adoption of the decision

If it was a real experience would you continue to buy your selected product? Explain your reasons.

Appendix C: Detailed behaviour on Sub-domains of banks' website

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
LLOYDSTSB.COM	**3.8**	**7.6**	
Lloyds TSB - Personal Banking Logon	**0.8**	**1.9**	
Lloyds TSB - Current Accounts	**1.7**	**2.3**	**1.3**
Lloyds TSB - Credit Cards	**1.6**	**1.8**	**1.2**
Lloyds TSB – Loans	**1.3**	**2.7**	**1.3**
Lloyds TSB – Insurance	**0.5**	**1.3**	**1.2**
Lloyds TSB - Travel Money	**1.2**	**1.8**	**1.2**
Lloyds TSB - Savings And Investments	**1.6**	**2.1**	**1.4**
AVG for product related sections	**1.3**	**2**	**1.3**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
HALIFAX.CO.UK	**0.8**	**1.5**	**4.1**
HALIFAX-ONLINE.CO.UK	**4.5**	**8.2**	**5.3**
Halifax - Bank Accounts	**1.1**	**1.6**	**1.7**
Halifax – Savings	**1.7**	**2.1**	**1.6**
Halifax - Credit Cards	**1.2**	**1.5**	**1.3**
Halifax – Mortgages	**3.2**	**5.7**	**1.5**
Halifax – Loans	**2.5**	**3.9**	**1.3**
Halifax – Insurance	**0.9**	**1.4**	**1.2**
Halifax - Share Dealing	**0.7**	**1.7**	**2.6**
Halifax - Investments And Pensions	**1.2**	**2.4**	**1.3**
Halifax - Travel Money	**0.8**	**1.2**	**1.2**
AVG for product related sections	**1.5**	**2.4**	**1.5**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
HSBC.CO.UK	**5.6**	**11.2**	**3.9**
HSBC - Credit Cards	**1.6**	**2.1**	**1.3**
HSBC – Loans	**1.3**	**2.2**	**1.2**
AVG for product related sections	**1.5**	**2.4**	**1.3**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
SANTANDER.CO.UK	**3.5**	**5.7**	**3.6**
SANTANDER-PRODUCTS.CO.UK	**1.6**	**1.5**	**1.5**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
Nationwide.co.uk	**1.6**	**2.4**	**3.7**
NATIONET.COM	**4.9**	**14.9**	**3.9**
Nationwide – Loans	**1.4**	**1.8**	**1.4**
Nationwide - Credit Cards	**1.8**	**1.9**	**1.2**
Nationwide - Instant Savings	**1.0**	**1.3**	**1.1**
AVG for product related sections	**1.4**	**1.7**	**1.2**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
NATWEST.COM	**1.8**	**4.2**	**4.3**
NWOLB.COM	**4.0**	**10.0**	**4.3**

Bank website and its sub-sections	Usage duration (min)	Number of pages visited	Rate of repeated visits
RBS.CO.UK	**1.4**	**2.1**	**4.6**
RBSDIGITAL.COM	**3.3**	**8.7**	**4.5**