Transformation of Consumer Brand Loyalty/WebSite Loyalty: A Study of a Multi-Channel Business and its Website in the Taiwan E-Commerce Market

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謹獻給至愛的雙親,大阿姨與在天堂的爺爺

This thesis is dedicated to

My beloved parents and aunt

Huei-Fu WANG,

Da-Ping WANG, and

Shiao-Ping WANG

And my beloved grandfather

Zhi-Qian WANG

Who is in heaven taking care of me

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Abstract

This thesis investigates how consumers transform their "existing brand loyalty in the traditional retail market" to "loyalty to the brand's e-tailing Website in the Internet market" and how their cognitive styles in terms of innovativeness and involvement impact on this loyalty transformation.

The research is based on 1,044 Taiwan buyers randomly selected from the consumer database of a B2C Website (sampling error $\leq \pm 0.03$). The Internet survey comprising the e-mail invitation and Web-based questionnaire was used to collect data (response rate=29.0%). The non-response error was found not to be a threat. Cronbach alpha coefficients (0.70 ~ 0.75) indicated an acceptable reliability. This study demonstrated scientific and rigorous survey methods (a well-defined population, a complete/valid sample frame, random sampling method, and sampling/non-response error examination) could also apply to an Internet survey and generate valid, reliable and generalisable results.

The proposed brand loyalty/Website loyalty transformation model comprising five factors: commitment, re-purchase intention, distrust, personal loss, and attitudinal Q Website loyalty showed its robustness (adjusted R^2=0.50). Moreover, this study confirmed Foxall and Bhate's (1993a) finding that *more-involved adaptors* were responsible for the highest purchase frequency. It also demonstrated the effectiveness of cognitive-style segmentation by showing four segments that differed significantly ($p< 0.05$) on these five factors, the model as a whole, on 3 socio-demographic characteristics, and on 7 Internet use/buying behaviours. Although consumers' attitudinal Website loyalty did not lead to their behavioural Website loyalty (actual purchase), this finding is considered tentative due to the early developmental stage of Taiwan's B2C e-commerce market at the time of the survey.

From the behavioural Website loyalty perspective, it is suggested multi-channel businesses selling durable goods (e.g. printer, scanner and digital camera) position their brands' Websites as service-oriented rather than sales oriented due to the lower purchase frequency of these products. **From the attitudinal Website loyalty perspective,** Internet marketing strategies of Website activities and loyalty scheme are recommended to fit the underlying different cognitive styles of the four consumer segments, namely, *less-involved adaptors, more-involved adaptors, less-involved innovators* and *more-involved innovators*. In this way, managers will effectively and efficiently enhance consumers' attitudinal loyalty to the brand/Website and take full advantage of the Internet technology.

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Chapter 1 Introduction to the Study

1.1 Research Rationale

1.2 Theoretical Background

1.3 Research Aims

1.4 Research Philosophy

1.5 Thesis Structure

1.6 Glossary of Terms

1.1 Research Rationale

The Internet is an extremely important new technology, and it is no surprise that it has received so much attention from entrepreneurs, executives, investors, and business observers (Porter 2001).

The Internet has changed the way firms do business (Alba *et al.* 1997; Liang and Huang 1998; Yelkur and DaCosta 2001). The Internet offers companies inexpensive and sophisticated tools for marketing their profile/image/brand/products, taking and placing orders, offering instant/personalised consumer services, and communicating with worldwide consumers 24 hours a day. Given its strong marketing and communicating power, it is not surprising that, today, business-to-consumer (B2C) e-commerce has built its position as a promising buying channel for consumers and become a trend exhibiting stronger sales growth rate than the remaining traditional channels worldwide (Forrester Research 2000; Levy & Weitz 2001).

The high global Internet population and penetration rate has made a company Website, not only an economic necessity, but also a competitive necessity for companies. Internet World Stats (http://www.internetworldstats.com) indicated that by September 2004, North America had 223.0 million Internet users (an average penetration rate of 68.6%), 25 European member countries had 201.7 million Internet users (an average penetration rate of 44.2%), and in Asia the top five countries had a 115.8 million Internet population. Individual Internet penetration rate of the five top Asian countries was: Hong Kong (72.5%), South Korea (62.4%), Singapore (60.0%), Japan (52.1%) and Taiwan (51.1%).

Not surprisingly, considerable attention has focused on the Internet's commercial potential (Hart *et al.* 2000; Reichheld & Schefter 2000; Smith 2004) due to the explosive growth and great volume of worldwide Internet users. From the company's perspective, established businesses in the traditional market are bringing tremendous competitive advantages to the Internet market: the brand value, consumer relationship, ability to leverage their scale, distribution networks, and purchasing synergies by delivering a superior multi-channel operation. However, Porter (2001) indicated that it is more important than ever for companies to distinguish themselves through strategy because the Internet tends to weaken industry profitability without providing proprietary operational advantages. Thus, how multi-channel businesses should position their Websites has become a crucial strategic challenge for managers. Should the Website be sales-oriented, becoming another sales channel apart from the traditional one? Should the Website be service-oriented, promoting company/product information and offering customer services in order to reinforce brand image/loyalty and benefit the company as a whole? Or should the Website be both service- and sales-oriented, and adapt the dominant function according to the product characteristic? With increasing competition in the Internet era, the winner will be the one who takes full advantage of Internet technology to generate a successful multi-channel operation.

The Internet has also revolutionised many aspects of consumer daily life (Fetto 1999; Huang 2001; Lohse *et al.* 2000; Pincott and Branthwaite 2000). Lim (2003) asserted that B2C e-commerce is important because it profoundly affects individuals' purchasing behaviours and their socialisation pattern. More and more consumers are buying across channels with increasing frequency in the Internet era. Juniper research (http://www.jup.com, January, 2003) predicted that by 2007, the Internet will

influence 30% of all consumer purchases in the traditional market worldwide. However, past research on the consumer aspects of Internet shopping is scarce (Balabanis and Vassileiou 1999; Jarvenpaa and Todd 1997). A growing need is recognised to better understand Internet users/buyers (Eastlick and Lotz 1999; Korgaonkar and Wolin 1999; Miller 1995; Murray 2002; Schultz and Bailey 2000; Srinivasan *et al.* 2002), and investigate how well existing consumer theory can be applied to the B2C e-commerce market (Cowles and Kiecker 2000; Goldsmith 2002; Holland and Baker 2001; Phau and Poon 2000).

From the consumers' perspective, finding the best price is no longer their only or most important objective when buying on the Internet (Boston Consulting Group 2002, www.bcg.com, 2002; Juniper Research, 2003). They want to be able to use the Internet together with traditional channels to find information for selecting goods and services, to conduct transactions, and to obtain after-sales support. Moreover, with increasing proficiency using the Internet, the expectation of obtaining a better Internet service is also rising. Internet buyers are seeking to form a relationship with Internet businesses, which, in turn, must provide a simple, secure Internet shopping experience, including superior quality, merchandise durability, and excellent order-to-delivery times (BCG, 2002). With existing perceptions and loyalties to well-known companies in the traditional market, consumers search the brands' Websites on the Internet in order to obtain the consistent service they expect from them (e.g. DelVecchio 2000). However, when consumers search a well-known brand name on the Internet, are they really intending to buy at the brand's Website or are they searching the brands' Website to collect information so as to buy in the traditional market? If the former, then consumers regard the Website as the main buying choice instead of a buying option, and the multi-channel business should invest more in the brand's Website,

building it as a fully functioning sales channel to meet the growing consumer demand. However, if the latter, the multi-channel business should re-consider the role of the brand's Website in the whole company, and strategically use it as a powerful marketing tool rather than a major B2C sales frontier. After all, as Davies *et al.* (1999) highlights, the services are the dominant form of economic activity today. In response to these questions, an examination of how consumers transform their brand loyalty in the traditional market to the Website loyalty in the Internet market is essential.

Given these questions, the study's rationale is fivefold. **Firstly**, although the amount of Internet-related research is growing rapidly, many of the students are purely descriptive and not based on the consumer theory. They focus on describing what consumers are doing without first asking why they are doing it. In the absence of a theoretical background, these studies' (e.g. Fram and Grady, 1997) contribution to the consumer behaviour theory is limited. Consequently, this study aims to investigate consumer Internet buying behaviour in order to determine how well existing consumer loyalty theory can be applied to the B2C Internet market and indicate where new theories and models need to be developed.

Secondly, the importance of consumer brand loyalty is acknowledged and with great interest researchers have extended it to the Internet market (e.g. Gommans *et al.* 2001; Harris and Goode 2004; Holland and Baker 2001; Srinivasan *et al.* 2002). Although loyal Internet consumers are found to be rare but highly profitable (Scheraga 2000), researchers contend that little is known about the nature and drivers of Website loyalty (Gans 2002; Harris and Goode 2004; Reichheld 2001; Shim *et al.* 2001) nor has been done on the consumer side, investigating why consumers become and remain loyal to brands (Schultz and Bailey 2000). Particularly, at the time of writing this thesis, no

study is known to have examined how consumers apply their brand loyalty in the traditional market to the brand's Website in the Internet market using a valid and reliable approach. Thus, this study is designed to explore consumers' brand loyalty/Website loyalty transformation from the consumers' perspective, examining how they use well-known brand names when buying via the Internet and whether a real commitment is developed to the brand's Website.

Thirdly, Zinkhan and Watson (1998) indicated that "as consumers adopt new technologies, their behaviour changes". Given the revolutionary technological changes the Internet has brought about (Taylor 2000), managers face a high level of uncertainty about consumers' needs and most desired products/services, and the best configuration of activities/technologies to deliver what consumers want. Thus, it is particularly important for managers to be able to determine how the Internet technology influences consumer brand choice because this will ultimately impact on brand loyalty and, in turn, profitability (Aaker 1991; Danaher *et al.* 2003; Kapferer 1998). Porter (1996) indicated that the enduringly successful companies will be those who begin as early as possible to define their activities to achieve a unique competitive position. Thus, it is important for a multi-channel business to review the role of the company's Website in the context of business operations. In this way, a higher operational effectiveness can be achieved by the strategic position of the Website. At the time of writing this thesis, no study is known to have explored how a well-known manufacturer having sound retail channels in the traditional market should position its Website. Should the Website be sales-oriented or service-oriented or comprise both functions? By examining consumers' attitudinal/behavioural Website loyalty link, this study seeks to reveal whether or not consumers' positive attitudes towards the brand's Website will lead to a higher buying frequency at the brand's

Website. This finding will help managers decide the best position for the brand's Website.

Fourthly, Grandcolas *et al.* (2003) indicate a general lack of knowledge/experience in the design of the Internet survey and highlight the crucial importance of determining how the Internet affects the design, administration and interpretation of research. Supportively, Craig and Douglas (2001) contend that for international marketing researchers in the 21 century, it is essential to broaden their capabilities in mastering and incorporating the Internet as a data collection method in research design, implementation and interpretation. However, few Internet surveys to-date have employed an entire known population or samples randomly drawn from the population (Cook *et al.* 2000). Thus, problems of sample representativeness in terms of self-selection error, sampling error and non-response error are regarded as the major issues when applying the Internet survey (Bradley 1999; Couper 2000; Iliva *et al.* 2002; Cook *et al.* 2000; McDevitt and Small 2002; Pincott and Branthwaite 2000; Schillwaert *et al.* 1998; Simsek and Veiga 2000). Ultimately, the generalisability of these past studies is affected. To fill this gap, this study aims to administer a scientific and rigorous Internet survey design consisting of a target population, randomly selected samples within the complete sample frame, sampling error control and non-response error examination.

Fifthly, past studies on B2C e-commerce have mainly focused on the USA or European consumers and little research has investigated Asian consumers' characteristics and Internet buying attitudes (Sui and Cheng 2001). As indicated previously, Taiwan's Internet penetration rate (51%) is among the top five in Asia. Moreover, its Internet development and environment is superior than to that of

important European countries such as Spain and Belgium (see Chapter 2, Section 2.3.1 for details). Given the high population density (592 people/km^2), the coverage of retail stores in Taiwan is very high. This purchase convenience suggests that Taiwan consumers may be more likely to use the brand's Websites to collect/compare product information before buying in the stores than placing an order at the brand's Website. To verify this phenomenon, this study is designed to develop and investigate the brand loyalty/Website loyalty transformation model of Taiwan consumers.

In short, this study will examine and advance consumer loyalty theory in a new Internet context, investigating to what extent this new medium has thoroughly changed consumer buying behaviours, whether new theories/models need to be developed, and if the nature of consumer behaviour still holds although the new technology may have changed certain aspects of this. Having provided the research rationale, the next section discusses the study's theoretical background (for more details see Chapters 3 and 4) to indicate the literature gaps which form the study's research aims in Section 1.3 of this chapter.

1.2 Theoretical Background

Gommans *et al.* (2001) argued that a company which uses the same well-known brand name in the traditional and Internet markets (e.g. Dixons – Dixons.co.uk) will be able to leverage existing consumers in the traditional market to buy at the brand's Website. They further stated that Internet consumers seem to perceive the brand's Website as a brand extension of the multi-channel business. Perceiving the well-known brand as a

quality promise (DelVecchio 2000), consumers' belief in the company's ability to deliver its service effectively and reliably is reinforced whether buying in the store or via the Internet (Doney and Cannon 1997). Thus, researchers (Balabanis and Reynolds 2001; Supphellen and Nysveen 2001) indicate that consumers' positive attitude towards a brand positively influences their attitude towards the brand's Website. However, at the time of writing this thesis, no study is known to have examined how consumers' "loyalty in the traditional market" influences their "Website loyalty". Thus, **in this study, the brand loyalty/Website loyalty link will be examined.**

Moreover, debates as to whether consumer attitudinal loyalty leads to behavioural loyalty have long been in the literature. The more recent one is between Baldinger and Rubinson (1997) who suggest a positive link between attitudinal/behavioural loyalties in contrast to Ehrenberg (1997) who disputes such a link. Given no study is known to have investigated this issue in the Internet buying context, **in this study, consumers' attitudinal/behavioural Website loyalty link will be examined.**

Mulhern (1997) indicated B2C e-commerce is a recent evolution in the retailing sector, shifting the non-store purchase format towards the electronic means. From this standpoint, buying via the Internet is similar to buying through a printed catalogue because both involve the mail delivery of purchases (Spiller and Lohse, 1997) and both are based on visual product information (e.g. pictures and descriptions) thus consumers cannot touch or smell the items (Lohse and Spiller, 1998; Kolesar and Galbraith, 2000). The literature shows consumers perceive a higher risk towards this non-store purchase than buying in the store due to the inability to inspect products, and the lack of personal contact (Jasper and Ouellete, 1994). Consequently, brand

loyalty and brand image are found to be used most frequently to reduce such risks (Roselius 1971). Similarly, Internet consumers also rely on the well-known brand to reduce potential time, monetary, social and psychological losses when buying on the Internet (DelVecchio 2000). Ward and Lee (2000) reported 85.8% respondents in their survey required (68.4%) or preferred (17.4%) a well-known brand's Website when they bought on the Internet. Moreover, Van den Poel and Leunis (1999) found that a well-known brand was a better risk reliever than price reduction when consumers consider buying on the Internet. Consequently, **in this study, consumers brand loyalty in the traditional market is hypothesised to reduce consumers' perceived risk when buying at the Q Website.**

Notably, Internet buyers have a double-identity. According to Koufaris (2002), Internet buyers perform a traditional consumer's full function, and simultaneously possess a computer user's characteristics while interacting with a Website. As such, the unique Internet market environment and double-identity have made Internet buyers perceive a more complex risk when buying via the Internet than in the traditional market. For example, transaction security and privacy invasion are inherent and highlighted in Internet buying (Bhatnagar *et al.* 2000; Bush and Gilbert 2002; Korgaonkar and Wolin 2002; Luo 2002; Miyazaki and Fernandez 2001; Sheehan and Hoy 2000). Rohm and Milne (1998) indicated that most Internet users – both those who have engaged in Internet buying and those who have not – worry about information privacy. Researchers (Anderson and Srinivasan 2003; Molesworth and Suortti 2002) believe that if consumers perceive a high level risk when buying at the Website, not only will the purchase frequency drop dramatically, but also a negative attitude will be generated towards the Internet business. Thus, Milne (2000) suggests that the risk issue may play a significant role in the development of B2C e-commerce.

In this study, consumer perceived risk when buying at the brand's Website is hypothesised to reduce consumers' Website loyalty. Moreover, considering the unique Internet market environment and consumers' double-identity, consumer perceived risk is also hypothesised to mediate their brand loyalty/Website loyalty transformation link.

Although the Internet market has the potential to become the most powerful non-store shopping channel in the 21st century (Ernst and Young 2000), it is still at a very early stage of development and very few studies have investigated Internet buyer behaviours at the time of writing this thesis. Debates regarding whether consumer loyalty is higher in the Internet market than in the traditional market are addressed. The first school (e.g. de Figueiredo 2000; Kuttner 1998; Lewis 1997; Schultz and Bailey 2000) contend that due to the dramatically decreased search cost/time and easy product/price comparison, consumer Website loyalty in the Internet market is decreasing and overall low. However, the second school (e.g. Johnson *et al.* 2004; Murray 2002; Murray and Häubl 2002; Zauberman 2003) propose the idea of "cognitive lock-in" or "stickiness", i.e. consumers will return to the same Websites they have experienced and are familiar with in order to save the time of getting to know new Websites. In this way, researchers of the second school contend that Internet buyers tend to be extremely loyal to a particular B2C Website and reluctant to search, even though switching between Websites has never been easier.

Foxall's (2003) series of work may shed some light on the above debate given that Internet buying is an innovation that can be adopted/rejected (Citrin *et al.* 2000; Eastlick and Lotz 1999; Goldsmith 2001; Molesworth and Suortti 2002). Foxall (2003) asserted that consumer cognitive constructs in terms of innovativeness and

involvement constructs influence consumers' innovative behaviours, thus, each consumer segment has its preferred styles of decision-making and problem-solving. Using these two constructs to segment consumers, Foxall and Bhate (1993) investigated consumers' innovative brand purchase and reported that *less-involved adaptors*, *more-involved adaptors*, and *innovators* differed significantly ($p < 0.05$) in the number of brands purchased. Notably, *more-involved adaptors* were found to be more loyal and accounted for the highest purchase frequency. Consequently, they asserted that consumers' cognitive constructs in terms of innovativeness and involvement, should be considered when analysing consumers' brand purchase behaviours.

Supportively, Oliver (1997) asserted that cognitive loyalty is the antecedent of affective loyalty and action loyalty. Moreover, Gommans *et al.* (2001) and Holland and Baker (2001) suggested the unique Internet market environment and double-identity (traditional buyer/computer user) lead to unique aspects of consumer Website loyalty. Thus, they suggested the psychological traits of Internet users/buyers may also differ from those of buyers in the traditional market. Schultz and Bailey (2000) also contended in the Internet era, a revisit of brand loyalty from the consumers' perspective is necessary. Therefore, **in this study, following the example of Foxall and Bhate (1993), consumers' cognitive constructs in terms of innovativeness and involvement underlying consumers' brand loyalty/Website loyalty transformation are investigated.**

Finally, the Domain Specific Innovativeness (DSI) scale proposed by Goldsmith and Hofacker (1991) had been claimed to be a valid and reliable uni-dimensional measurement (e.g. Flynn and Goldsmith 1993a, 1993b; Goldsmith 1998, 2001, 2002;

Goldsmith *et al.* 1995; Goldsmith and Flynn 1992). Nyeck *et al.* (1995) used the DSI scale in an international study (Canada, Israel, France) but the uni-dimensional structure they reported was not as good as what was claimed by Goldsmith and Hofacker (1991). In fact, a very different two-dimensional structure was revealed by Roehrich *et al.* (2001) when using the DSI scale to measure the new snack brand purchase. Similarly, with regard to the Purchase Decision Involvement (PDI) scale, though not specified, indications implied that the author, Mittal (1989) expected a uni-dimensional structure (Foxall and Pallister 1998). However, using the PDI scale in a financial product survey, Foxall and Pallister (1998) revealed a two-dimensional structure. These contradictory findings have aroused the researcher's interests to further examine these two scales measuring consumers' Internet behaviours in terms of validity, reliability and dimensionalities. Thus, **in this study, the DSI and PDI scales will be used to measure consumers' Internet buying innovativeness and Internet buying involvement, respectively.**

1.3 Research Aims

Derived from the literature gaps presented above, the research aims of this study are fourfold:

Aim1: To develop a transformation model between consumers' brand loyalty in the traditional market and Website loyalty in the Internet market.

Aim 2: To verify the impacts of consumers' cognitive constructs in terms of

innovativeness and involvement on their brand loyalty/Website loyalty transformation.

Aim 3: To assess the effectiveness of using the consumer involvement construct as an explanatory variable aiding interpretation of consumers' innovative behaviours by showing the misleading results derived from using the innovativeness construct only.

Aim 4: To investigate the usefulness and dimensionality of the Domain Specific Innovativeness (DSI) scale and Purchase Decision Involvement (DSI) scale in measuring consumers' Internet buying innovativeness and Internet buying involvement, respectively.

Based on the research rationale and aims, the study's research scope is defined as a multi-channel business and its Website in Taiwan's B2C e-commerce market.

1.4 Research Philosophy

Different philosophical assumptions underwrite different approaches to social science. Burrell and Morgan (1994) indicated that all social scientists approach their subject via explicit or implicit assumptions about the nature of the social world and the way in which it may be investigated. Hussey and Hussey (1997) used the term "paradigm" in a philosophical assumption context to refer to the progress of scientific practice

concerned with the world and the nature of knowledge, and in a methodological context, to determine how the research should be conducted.

A positivism paradigm is founded on the belief that the study of human behaviours should be conducted in the same way as studies conducted in the natural science (Hussey and Hussey 1997). Positivists seek to explain and predict what happens in the social world by searching for regularities and causal relationships between its constituent elements (Burrell and Morgan 1994). Thus, the role of research is to test theories and to provide materials for the development of laws (Guba 1990). Lee (1991) further describes positivism as an approach based on "inferential statistics, hypothesis testing, mathematical analysis, experimental and quasi-experimental design".

Generally, the three basic assumptions underlying positivism are (Burrell and Morgan 1994; Guba 1990; Hussey and Hussey 1997):

- Ontological: there is one reality which it is assumed exists ("Realism").
- Epistemological: the researcher is independent from that being researched.
- Methodological: a deductive process explores causes and effects.

Altogether, these three assumptions delineate the positivist's perspective: the world is real and external to the researcher. Positivists are interested in the interrelationship of the objects they are studying and each of these objects is operationalisable and measurable to generate laws. Research problems should be investigated precisely, objectively, and rigorously thus the generated laws can provide the basis of explanation, permit the anticipation of phenomena, and predict their occurrence and

therefore allow them to be controlled (Hussey and Hussey 1997).

This perspective is very similar to another school which uses the term "science" instead of "positivism". Foxall (1995) indicated the aim of science is a "search for causal laws, regularities, in behaviour that can be generalised". Schwartz and Lacey (1982) suggested that "science involves a form of investigation in which the legitimacy of generalisations and theories is evaluated against their relations to empirical data, or observed facts". Zuriff (1985) argued that science is reliable since its results are independent of who the observer is and are shown to be replicable across situations. Silverman (1993) viewed scientific research as "rigorous, critical and objective". Thus, once causal laws have been established, they can be invoked to explain individual phenomena and specific observations can be made intelligible by being placed in appropriate categories which the law-like generalisations have revealed (Schwartz 1989). Notably, researchers of the "science" school highlight findings' generalisability over the "positivist" school.

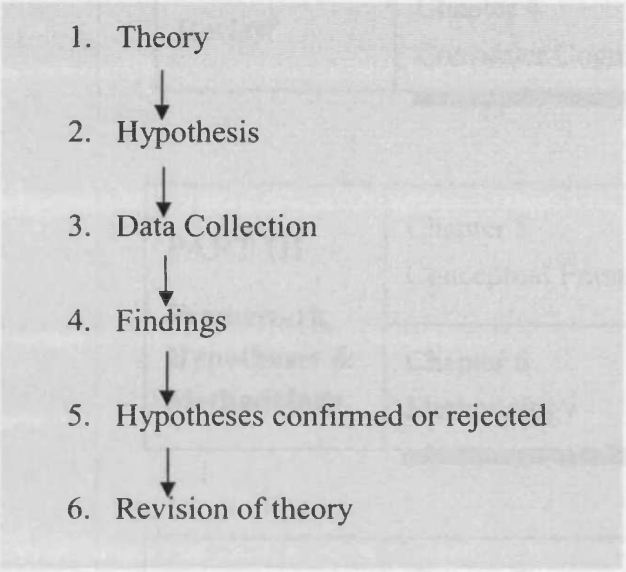
In this study, approaches of both schools were adopted. The philosophical and methodological foundation of this study is positivism. Further, the research has an exploratory nature aiming to investigate how the consumer loyalty theory holds in the new Internet buying context and to examine consumers' brand loyalty/Website loyalty transformation via positive methodological procedures of "hypothesis testing, experimental design, mathematical analysis, and inferential statistics" in order to provide insights for the development of laws. Notably, Silverman's (1993) scientific rules of being "rigorous, critical and objective" will be followed in the research design using a quantitative and objective approach (see Chapters 6 for details). Thus, it is felt

that the study's findings will have generalisability to the survey population (see Chapter 6, Section 6.5.3).

1.5 Thesis Structure

Following the positivism paradigm, a deductive process is adopted in this study:

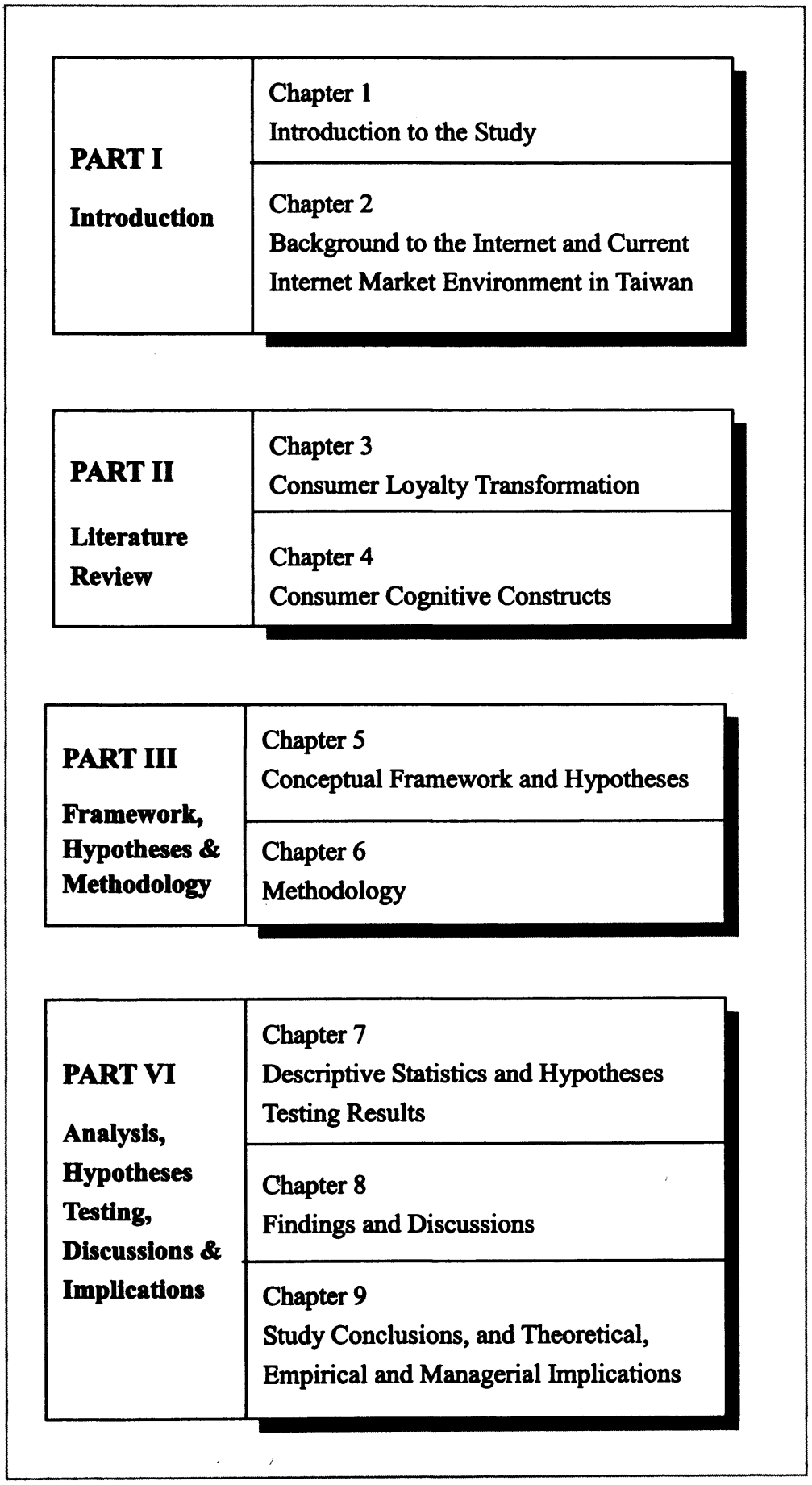
Figure 1.1 Deductive Process



Source: Bryman (2001) "Social Research Method", Oxford: Oxford University Press

This thesis is developed in nine chapters which can be categorised into four parts: introduction, literature review, research framework, hypothesis and methodology, and analysis, hypothesis testing, discussion and implications. Figure 1.2 presents the thesis structure and the contents of each chapter which are detailed below.

Figure 1.2 Thesis Structure



Source: this research

Chapter 1 Introduction

This first chapter presents the research rationale and theoretical background. It outlines the research aims and discusses the research paradigm. It details the structure of the thesis and then provides definitions of terms.

Chapter 2 Background to the Internet and Current Internet Market Environment in Taiwan

This chapter presents the development of the Internet starting from 1968 and its applications to the commercial and research domains. Moreover, the current Internet environment of Taiwan is discussed in terms of the country as a whole, government, business, school and B2C e-commerce market. Notably, the worldwide ranking of Taiwan's Internet development by international associations is indicated to signify the value of surveying Taiwan's B2C e-commerce market. Internet users' profiles in terms of socio-demographic characteristics, Internet use and buying behaviours, are also presented.

Chapter 3 Consumer Loyalty Transformation

Given the research aim of investigating consumers' brand loyalty/Website loyalty transformation, the literature on consumer brand loyalty in terms of theory development, conceptual definition, operational definition and measurements is extensively reviewed. Noticeably, the literature review shows consumer perceived risk is highly relevant to consumer brand loyalty, thus, the theoretical backgrounds of consumer perceived risk are also extensively discussed. The connections found

between consumer loyalty and perceived risk are used to establish the consumer loyalty transformation model tested in this study.

Chapter 4 Consumer Cognitive Constructs

Following Foxall and Bhate's (1993) example, the study aims to investigate how consumers' cognitive constructs in terms of innovativeness and involvement impact on their brand loyalty/Website loyalty transformation. Thus, in this chapter, the literature on consumer innovativeness and involvement in terms of theory development, conceptual definition, operational definition and measurements, is discussed, respectively. Particularly, how consumers at high/low innovativeness and involvement level differ in their buying behaviours is presented so as to develop the study's conceptual framework.

Chapter 5 Conceptual Framework and Research Hypotheses

Based on the literature backgrounds reviewed in Chapters 3 and 4, the conceptual framework of this study is established. The operational definition of each variable in the framework is indicated in order to establish the study's research hypotheses.

Chapter 6 Methodology

TA literature review and secondary data sources are presented in this chapter. Moreover, the "scientific and rigorous" survey design in terms of population/sample, survey implementation, questionnaire, data analysis designs, and goodness fit of the data is also detailed. The validity and reliability test results indicate the study's

findings can be interpreted with a high degree of confidence. Moreover, it is felt that the findings' generalisability is sound because of the rigorous methodological approach employed in this study.

Chapter 7 Descriptive Statistics and Hypotheses Testing Results

This chapter addresses the data analysis in terms of the descriptive statistics and the hypotheses testing. Descriptive statistics include the response rate/speed and non-response error of the main survey, the sample's socio-demographic profiles and their Internet use/buying behaviours, and the data distribution of 28 main question responses.

Preliminary processes in terms of factor analysis and consumer segmentation via innovativeness and involvement are conducted before the hypotheses testing. Based on the results of preliminary processes, the hypotheses are tested according to three themes: differences between consumer segments, the loyalty transformation model, and attitudinal/behavioural Q Website loyalty link using different techniques. At the end of this chapter, profiles of the four consumer segments in terms of socio-demographic characteristics and Internet use/buying behaviours are developed.

Chapter 8 Findings and Discussions

Intensive discussions are undertaken in this chapter to highlight the research findings. Five themes derived from the research aims are discussed: "innovativeness and involvement via consumer segmentation and targeting"; "innovativeness and involvement via consumer behaviours"; "Q brand loyalty/attitudinal Q Website

loyalty transformation"; "attitudinal/behavioural Q Website loyalty link"; and "dimensionalities of the DSI and PDI scales". Within each theme, results of this study are compared with past empirical findings to advance the theoretical knowledge.

Chapter 9 Study Conclusions, and Theoretical, Empirical and Managerial Implications

This chapter addresses the study's conclusions and theoretical implications in the first part, from which the study's contribution and recommendations for future studies are drawn. The second part considers empirical implications of the Internet survey design. The third part presents managerial implications from two perspectives: behavioural Web site loyalty and attitudinal Website loyalty. Moreover, Internet marketing strategies in terms of interactive activities and loyalty schemes are suggested for each of the four consumer segments according to their different underlying cognitive constructs.

Notably, in this thesis, the key issues from the literature are highlighted in bold to show their contributions to this study.

1.6 Glossary of Terms

A glossary of terms used in this study is presented below:

1. E-commerce: the business conducted via the Internet, i.e. the buying and selling of

information, products, and services via the Internet (Rosenbloom 2002). Yelkur and Neveda-DaCosta (2001) further indicated four types of e-commerce, namely, business-to-business (B2B), consumer-to-consumer (C2C), consumer-to-business (C2B), and business-to-consumer (B2C) transactions.

2. E-tailing: retailing to consumers directly in the Internet market.

3. Website loyalty: consumers' loyalty to a brand's Website in the Internet market.

4. Website stickiness: the time length any visitor stays at the Website (Santos 2003) and repeat visits to the Website (Bucklin and Sismeiro 2003).

5. Multi-channel manufacturer: Websites operated by manufacturers, such as Dell, Nike and Sony. This kind of Website may be information-based only or comprise a B2C sales function.

6. The multi-channel retailer: Websites operated by famous traditional retailers, such as Wal-Mart (www.walmart.com) in the USA and Dixons (www.dixons.co.uk) in the United Kingdom. Also called the brick-and–click retailer (Turban *et al.* 2002).

7. Multi-channel business is comprised of the multi-channel manufacturer and multi-channel retailer.

8. Pure Internet business: has no physical stores in the traditional market and sells to consumers only via the Internet, such as Amazon.com. Also called the pure-play e-tailer (Turban *et al.* 2002).

9. 3C product: comprised of the products of the computer, communication and consumable industry.

Chapter 2 Background to the Internet and Current Internet Market Environment in Taiwan

2.1 Introduction

2.2 Background to the Internet

2.2.1 The Internet as a Retailing Medium

2.2.2 The Internet as a Survey Medium

2.3 Internet Development and the Current Situation in Taiwan

2.3.1 The Internet Environment and Online Population in Taiwan

2.3.2 The B2C E-commerce Market in Taiwan

2.4 Profile of Internet Users in Taiwan

2.5 Summary

2.1 Introduction

This chapter has two main parts: Section 2.2 introduces the development of the Internet and its applications to the commercial and research domains. As indicated in Chapter 1, very few studies on Internet buyer behaviour have been conducted in Asia, therefore, to fill the gap in the literature, Taiwan is selected as the research scope. Thus, Sections 2.3 and 2.4 describe the current Internet environment in Taiwan and Internet users in Taiwan, respectively.

Notably, most data presented as regards Taiwan are sourced from the Focus on Internet News and Data (FIND) Website (www.find.org.tw), which is an authoritative and professional Website aiming to provide abundant information on Information Communication Technology (ICT) trends in terms of important global news and statistics within the context of development and usage in Taiwan. The FIND Website is organised and operated by the e-Commerce Resources Centre, Institute for the Information Industry, which is sponsored by the Department of Industrial Technology of the Ministry of Economic Affairs. Its survey results and analyses are referenced and discussed most frequently in Taiwan and by international associations. Thus, the body of this chapter presents data and analysis from the FIND Website to describe Taiwan's current Internet environment. Additional information from other survey organisations will also be used to provide a comprehensive picture of Taiwan's Internet market.

2.2 Background to the Internet

The study aims to investigate consumer loyalty theories in the Internet market (see Chapter 1). Thus, in this section, Internet development and its commercial and research applications are discussed in sequence.

The Internet, originally known as the ARPAnet, was initiated in 1968 by the US Department of Defence Research Projects Agency, and started as an experimental network connecting different university computer centres throughout the country. Initial access was limited to the military, defence contractors and universities carrying out defence research. Until the late 1970s, networks serving the university community were developed. In the 1980s, the ARPAnet was broken into two distinct networks called the Milnet and NSFnet. The Milnet was used primarily for government purposes, while the NSFnet, funded by the National Science Foundation (NSF), was a not-for-profit facility. This international non-profit network mainly linked research and government facilities, but also increasingly tied in corporate research and development sites.

In the late 1980s the availability of relatively cheap PC-based communications technology in addition to the associated software became more abundant. Internet Service Providers (ISPs) started to appear in the mid 1990s, and offer Internet connections to the general population. Hence, home users, smaller organisations and companies became able to access the commercialised Internet which they previously had not been able to afford. As a result, public awareness and interest in the Internet

continuously grew until a double-digit monthly growth rate was reported worldwide in terms of the number of users and Websites on the Internet (Sterne, 1995).

The USA Department of Commerce (1998) confirmed this rapid and massive penetration by pointing to the fact that within 4 years of the commercialised Internet's introduction, 50 million people were using the Web worldwide; while it had taken radio almost 30 years to achieve this level of saturation, and television almost 13 years. It is predicted that one billion of the Earth's population will be Web savvy by 2005 (Sheehan and Hoy 1999).

As a result of its huge volume of users worldwide, it is not surprising that the Internet has received considerable attention in various domains. Being an extremely efficient medium for accessing, organising and communicating information (Peterson *et al.* 1997), the growing literature focusing on the Internet in the marketing domain highlights its commercial potential for companies (Hart *et al.* 2000) and its survey potential for researchers (Dibb *et al.* 2001). These two topics are discussed sequentially in the following sections.

2.2.1 The Internet as a Retailing Medium

Internet buying has become the fastest-growing use of the Internet (Forsythe and Shi 2003). Thus, more and more researchers (e.g. Hart *et al.* 2000; Mustaffa and

Beaumont 2004; Reichheld & Schefter 2000; Sultan and Rohm 2004) have focused on the Internet's commercial potential for companies. The Internet offers companies inexpensive, and sophisticated tools for advertising, taking and placing orders, promoting their brand image/products, offering instant/personalised consumer services, and communicating with their worldwide consumers 24 hours a day. Having such strong marketing power, it is not surprising that Internet buying has become one of the most rapidly growing forms of consumer purchase, generating sales growth rate much higher than the remaining traditional channels (Forrester Research 2000; Levy & Weitz, 2001).

Rosenbloom (2002) defined electronic commerce (e-commerce) as business conducted via the Internet, i.e. the buying and selling of information, products, and services via the Internet. Yelkur and Neveda-DaCosta (2001) further indicated four types of e-commerce, namely, business-to-business (B2B), consumer-to-consumer (C2C), consumer-to-business (C2B), and business-to-consumer (B2C) transactions. Though B2B e-commerce currently accounts for 80% of all e-commerce business, **the B2C sector, this study's scope, is expected to grow astronomically in the next decade** (Yelkur and Neveda-DaCosta 2001). Juniper research (http://www.jup.com, January, 2003) predicts the USA's B2C e-commerce sector will grow by 21% between 2002 and 2007, and more than 5% of US retail sales will be transacted on the Internet by 2007. Juniper research has suggested a similar model of B2C e-commerce growth in Europe and the Asia Pacific region.

Researchers (e.g. Alba *et al.* 1997; Huang 2001) concur that the Internet has changed

the way companies do business and consumers purchase. In the following, B2C e-commerce's impacts on the relationship between the company/consumer and how to enhance the Website/consumer relationship are discussed:

I. The Impacts of B2C e-commerce on Companies:

The ease of collecting and comparing product information via the Internet has led to more and more consumers searching and buying across channels with increasing frequency (Juniper Research 2003). Consequently, not only the way consumer purchases have changed (e.g. Huang 2001), but also the way companies do business has also changed (e.g. Alba *et al.* 1997). In the first wave of the Internet revolution, an avalanche of Websites was established and companies rushed their way into the B2C e-commerce Internet market. Since then, a decade has passed and not many companies have survived or been successful. Those remaining of early entry companies have, however, started to make profits recently and now have the largest Internet market share (Chaffey *et al.* 2000) through established goodwill and brand image (Juniper Research 2003; BCG 2002). To compete with the existing successful ones, late entry companies continuously increase investments in improving and enhancing their B2C Websites.

Turban *et al.* (2002) summarised three types of Internet business selling directly to consumers from their Websites: manufacturers (e.g. Dell in the USA), traditional retailers (e.g. Wal-Mart in the USA), and pure-play e-tailers (e.g. Amazon.com). The

first two types have emerged as multi-channel businesses while the latter are pure Internet businesses:

- **Multi-channel business:**

1. Multi-channel manufacturer: Websites operated by manufactures, such as Dell, Nike, Sony and **Q Website in this study**. This kind of Website can offer company/product information only or a B2C direct-selling function.
2. Multi-channel retailer: Websites operated by famous traditional retailers, such as Wal-Mart (www.walmart.com) in the USA and Dixons (www.dixons.co.uk) in the United Kingdom. The major function of this kind of Website is B2C direct-selling, positioned as an Internet selling channel of the retailer. Also called the brick-and–click retailer (Turban *et al.* 2002).

- **Pure Internet business:**

  Has no physical stores in the traditional market and sells to consumers only via the Internet, such as Amazon.com. Also called the pure-play e-tailer (Turban *et al.* 2002).

The rapid growth of B2C e-commerce reflects the compelling advantages it offers over traditional stores in high streets, including greater flexibility and convenience of buying and browsing, enhanced market outreach, lower cost structures, faster transactions, broader product lines, and customisation (Srinivasan *et al.* 2002). Recognising the Internet's potential in the retailing sector, researchers (Balabanis and Vassileiou 1999; Evans 1996; Hamill and Gregory 1997; Hoffman *et al.* 1995; Quelch

and Klein 1996) have argued that the Internet will reduce traditional distribution channels' importance. However, Chaffey (2004) contends that the impact of the Internet will vary greatly according to the existing product, market, channel structure and business model of each organisation.

Given the durable goods market is surveyed in this study, whether a multi-channel business should position its brand's Website as sales-oriented or service-oriented will be investigated (see Chapter 9, Section 9.4: Managerial Implications).

Managers of multi-channel businesses have concurred that even if the Website is service-based, the whole company will still, in general, benefit from the Website. **Firstly**, Internet marketing and advertising which are cost effective provide maximum delivery to targeted customers (Roxas *et al.* 2000). **Secondly**, the brand's Website can easily offer consumer services without any time or geographic limits (Srinivasan *et al.* 2002). Twenty-four hours a day, consumers at any corner of the world can access the brand's Website, browsing product information, placing an order, and leaving their requests if they need further services. Core consumers' satisfaction is thus highly improved because the annoyances of connecting to a busy consumer service line or waiting a long time before being served are avoided. Piercy (2000) emphasised that "longer term satisfaction of consumers is the only reason for the existence of an organisation and the only way it can survive". Thus, even if satisfied consumers do not buy at the brand's Website, they are still likely to buy the brand's product in traditional stores. Eventually, these satisfied consumers contribute to the company's total sales revenues. **Thirdly**, the Internet is an effective medium to develop one-to-one service with low costs (Zinkhan 2002), from which a higher consumer

loyalty relationship, both to the company and Website, can be established (Reichheld and Schefter 2000). Particularly, the rapid development of multi-media software enables companies to communicate with their consumers through attractive approaches, such as music, 3D animation, and even short movies at the brand's Website (Santos 2003). Through use of these features, consumers have a more pleasant and attractive interactive experience at the brand's Website. **Fourthly**, the cost of Internet surveys is low (Dibb *et al.* 2001; Schillewaert *et al.* 1998). More importantly, companies can get to know what consumers really want and will buy through Internet surveys regarding new product development (Ozer 2003), marketing programmes, consumer services, etc. Given that all respondents are the company's target consumers, managers will be able to tailor successful products and marketing activities according to survey results.

However, Internet businesses also face their own set of challenges. First, the dynamic environment and quickly changing technologies of the Internet market have made competitive advantages created by any Website at best, temporary, as rivals can quickly copy strategies if they are purely technical-oriented in the Internet market (Porter 2001). Second, given the enormous business potential, the number of B2C Websites has increased at an unprecedented speed (Liang and Huang 1998). Notably, the vast amount of competing Internet businesses is only a mouse click away! Today, the search engines enable consumers to compare and contrast competing products and services with minimal personal time and effort (Srinivasan *et al.* 2002). In fact, this unique feature of B2C e-commerce has made the Internet market a nearly perfect market because information is instantaneous and buyers can compare the offerings of sellers worldwide (Kuttner 1998). In light of this, researchers (Molesworth and Suortti

2002; Raman 1997; Schultz and Bailey 2000) have suggested that the Internet has shifted marketplace power from marketers and channels to end-consumers, and the result is fierce price competition, operational loss, and vanishing brand loyalty (Kuttner 1998; Porter 2001). Harris and Goode (2004) thus argue that generating loyal consumers on the Internet is both more difficult and more important in the traditional market.

II. The Impacts of B2C e-commerce on Consumers:

Internet buyers not only perform all the functions of a traditional consumer while interacting with a Website, but also simultaneously exhibit all the characteristics of a computer user (Koufaris 2002). Supportively, some consumers are found to prefer using the technology-based self-service over the traditional service because they find it easy to use, or it helps them avoid interaction with employees (Dabholkar 1996; Meuter *et al.* 2000). According to Koufaris (2002), the key difference between the traditional and Internet consumer is that the Internet consumer is generally more powerful, demanding, and utilitarian in his/her buying expeditions. Thus, Koufaris (2002) suggests the psychological traits of Internet users/buyers may differ from those of buyers in the traditional market, as a result of the double-identity (traditional buyer/computer user). Similarly, researchers (Gommans *et al.* 2001; Holland and Baker 2001) have suggested the unique Internet market environment and double-identity of the Internet buyer lead to unique aspects of consumer Website loyalty. Thus, Schultz and Bailey (2000) contend it is time to revisit the brand/consumer loyalty from the consumers' perspective in the Internet era.

III. Website/Consumer Relationship:

The Internet is more like a micro market than a mass market because of its ability to target niche markets directly (Elofson and Robinson1998; Guo and Sun 2004) and offer each market a specific marketing mix of products/services (Palumbo and Herbig 1998). Chaffey *et al.* (1999) indicated that a Website should provide something "to do", not merely to read. Similar to Vassos' (1996) "soft lock-in", Chaffey *et al.* (2000) asserted that the active involvement of Internet users, who participate in a dialogue and create a strong bonding experience, will generate a loyalty effect via their satisfying Website experience. Varki and Wong (2003) also indicated that more-involved consumers express greater interest in engaging in relationships with service providers, i.e. Websites. Further, Yi and Jeon (2003) addressed the importance of consumer involvement in moderating the effects of loyalty programmes on consumer loyalty. Thus, Website managers should first focus on the market segment with a high degree of Internet marketing involvement (Wu 2002). Accordingly, better consumer retention programmes could be built to enhance the consumer experience and deepen the communications impacts (Chaffey 2004). In such a way, the company would benefit from the maximised consumer lifetime revenue (Kalakota and Robinson 2001).

At the time of writing this thesis, Website managers in practice design consumer retention programmes in two ways: they provide Website interactive activities and loyalty schemes.

i. Interactive Activity

Website "stickiness" is the time length any visitor stays at the Website (Santos 2003) and repeats visits to the Website (Bucklin and Sismeiro 2003). Similar to Zauberman's (2003) "lock-in", both terms describe the behaviours of consumer who are unwilling to switch to other Websites. Thus, loyalty to a single Website is developed (Zauberman 2003) and more likely these consumers will buy at the Website (Lohse *et al.* 2000). Santos (2003) asserted that consumers consider companies, which offer interactive functions at their Website as having good Internet service quality. Consequently, apart from basic information, e.g. company profile, product information, consumer personal account, and a bulletin board for frequently asked questions, the interactive activities the Website offers are crucial to consumers' Website stickiness.

In practice, frequently used interactive activities are:

1. Second-hand shop:

An Internet second-hand shop subordinate to the brand's Website helps members sell their old models of the same brand to other members and motivates them to buy new models from the Website.

2. Chat room/Community:

The chat room enables members/visitors to help each other with their technical

problems, product information and even buying decision. Every member is able to enter the chat room to read other members' discussion, and post their own questions or opinions if they so wish. Each product line can have one chat room or one chat room can cover all topics. The community is similar to a members' personal chat room. A member can choose any topic s(he) wants for the group, e.g. making friends, product comparisons, problem solving etc., and this member is responsible for authorising other members' participation in the community.

3. Photo Album/Gallery

Mature technology in computer hardware, e.g. digital camera and scanner has made sharing and displaying pictures on the Internet easy and popular, allowing each member to store and display his/her own pictures in a personal Internet photo album or all members to exhibit their favourite pictures in a photo gallery for all members to share.

4. Image Workshop

The image workshop offers consumers the free software to edit their pictures with special effects, e.g. light and shade, background contrasts, colour saturation and image size etc.

In short, these free interactive services reinforce Website/consumer relationships through stimulating consumers' interests in using the company's Website via buying/selling at the second-hand Internet shop, participating in a community to enjoy

chat/learn product knowledge/share experiences, displaying pictures in the album/gallery, and using the workshop to edit their pictures. Most importantly, through members' contribution, i.e. promoting the brand's product information, offering solutions to problems in the community, and inviting friends/relatives to visit their personal album/public gallery, the Website will develop a positive brand image as a result of consumers' interaction and involvement. In this way, not only will members' commitment to the Website increase, but potential consumers will be won.

ii. Loyalty Scheme

The goal of a loyalty scheme is to establish a higher level of consumer retention in profitable segments by providing more satisfaction and value to certain consumers (Bolton *et al.* 2000). Similarly, Dowling and Uncle (1997) asserted that consumers' loyalty could be reinforced through loyalty schemes. Applying these assertions to the Internet market context, loyalty schemes motivate consumers to visit the Website regularly and buy repeatedly. Moreover, these consumers stick to the Website to maximise the value of their money. In this way, consumers' commitment to the Website increases and ultimately, the Website/consumer relationship will be strengthened. Compared to traditional channels, the Internet has the feature of offering consumers from different segments a unique mix of product/service at a lower cost. Some Website managers use basic/premium loyalty schemes to offer different services to general/valuable consumers, respectively, according to their accumulated yearly or quarterly purchase amount/frequency. Thus, the economy efficiency of marketing cost is achieved.

2.2.2 The Internet as a Survey Medium

Internet research is the hottest, fastest growing and most revolutionary development in market research (Lockett and Blackman 2004; Taylor 2000). To academic and commercial researchers, the Internet is appealing not only because its user base provides an interesting topic for study but also because it is considered a valuable instrument for data collection which offers faster response speed and lower cost (e.g. Ilieva *et al.* 2002; Lockett and Blackman 2004). Both Comley (2002) and Grandcolas *et al.* (2003) stated that the Internet survey would "take off" in 2003 and its rapid growth has increased its importance for survey research. Similarly, Pincott and Branthwaite (2000) suggested the Internet survey has created new breeds of methodology and techniques designed to assess the marketing influence of the Internet. Thus, in the marketing field, an increased interest is shown in applying Internet data collection techniques (Cook *et al.* 2000; Ilieva *et al.* 2002).

The following review focuses on four streams in the Internet survey literature: comparison between traditional/Internet survey methods, incentives' impacts on the Internet survey, ethical issues and advantages/disadvantages of the Internet survey.

I. Comparison between traditional/Internet survey methods

There is a small but growing body of literature (see Appendix 16 for a comprehensive discussion) comparing e-mail with mail data collection in terms of effectiveness (quality of data) and efficiency (cost, response rate and response speed). However,

existing studies have mainly focused on comparing response rates to traditional survey methods or combining existing evidences into a meta analysis of Internet survey response rates (e.g. Cook *et al.* 2000; Ilieva *et al.* 2002; Shermis and Lombard 1999). McMellon and Schiffman (2001) indicated that there is no accepted range of response rate in e-mail surveys from past studies. Similarly, Couper *et al.* (1999) contended that direct comparisons between these studies (see Appendix 16) are difficult due to the various experimental modes and different dimensions, consequently, the effects of the Internet survey are not clearly shown (Cobanoglu and Cobanoglu 2003).

II. Incentives' Impacts on the Internet survey

The research scope of Internet surveys has been criticised on account of its confinement to the assessment of response rates only (Deutskens *et al.* 2004; Simsek and Veiga 2001). Thus, more recent researchers have started to investigate incentives' impacts on the response rate, speed, quality, cost, survey outcome and even sample composition in Internet surveys (Cobanoglu and Cobanoglu 2003; Deutskens *et al.* 2004; Göritz 2004). For example, Deutskens *et al.* (2004) found vouchers a more effective incentive in long questionnaires while prize draws are more efficient in short surveys. Cobanoglu and Cobanoglu (2003) reported that the combination of an instant incentive (a luggage tag) and a lucky draw for a bigger value prize (a personal digital assistant) yielded the highest response rate in their survey. Notably, Cobanoglu and Cobanoglu (2003) presented five major issues that should be considered when planning, designing and conducting an Internet survey: incentives should be

distributed to respondents promptly, respondents should have an equal chance of winning the prize, conditions of incentives should be presented openly, and incentives specification and value should not affect responses. Finally, Göritz (2004) asserted that incentives would not influence the response quality and survey outcomes of Internet surveys but would increase the response rate and response speed.

Thus, in this study, incentives, including an instant loyalty-point and a lottery draw for vouchers, were used (see Chapter 6, Section 6.3.3: Internet Survey Design).

III. Ethical Issues of Internet Surveys

Internet Research Guidelines by ESOMAR (Witt and Poynter 1998) acknowledge ethical issues should be considered carefully when designing an Internet survey because they can have great impact on the research quality. Similarly, Cobanoglu and Unsal (1998) indicated that the need for ethics increases with the increasing use of Internet technology. However, at the time of writing this thesis, few studies were known to have discussed the ethical issues of Internet surveys. Existing studies (Ilieva *et al.* 2002; Jones 1994; Nancarrow *et al.* 2001; Witt and Poynter 1998) have focused on informed consent, privacy, confidentiality and anonymity.

Informed consent can be addressed on two levels: the consent to receive the e-mail survey (Witt and Poynter 1998) and voluntary consent to join the survey with full disclosure of survey details (Jones 1994). The former highlights the netiquette of

respondents' prior approval to receive e-mails to avoid "spamming" the sample. As Faria and Dickinson (1992) have pointed out, the more junk e-mail increases on the Internet, the more responses from individuals are likely become impolite. Similarly, Grandcolas *et al.* (2003) indicated that the "over-surveying effect" reported for telephone research with consequent reduction in response rate has already been seen in Internet research. The voluntary consent highlights respondents' participating intention should be fully respected. Especially, respondents are entitled to be well-informed about the survey details, including the survey purpose and data usage before they decide to join an Internet survey or not. This can be done in the e-mail invitation or on the top of the Web-based questionnaire. To minimising the problem of informed consent, Schillewaert *et al.* (1998) suggested the use a recognisable membership would help address this problem.

Some researchers (Jones 1994; Nancarrow *et al.* 2001) have also addressed the importance of privacy in the Internet survey. Studies (Witt and Poynter 1998; Nancarrow *et al.* 2001) indicate using a cookie to verify respondents' identity and browser records have been perceived as an invasion of privacy. As regards confidentiality and anonymity, Saunders *et al.* (2003) pointed to the importance of stating how the collected data will be used. Ilieva *et al.* (2002) suggested the guarantee of anonymity would affect positively both the response rate and data quality.

In this study, because the Q Website had obtained members' consent to receive a survey e-mail when they registered, and possessed a valid member e-mail database, it was selected as the survey target (see Chapter 6, Section

6.3.1 for details). Thus, informed consent was not a threat to this study. Moreover, protection of respondents' privacy, confidentiality and anonymity were highlighted and guaranteed both in the e-mail invitation and at the top of the Web-based questionnaire (see Chapter 6, Section 6.3.3) to facilitate the response rate and quality.

IV. Advantages/disadvantages of the Internet survey

In general, researchers concur that the Internet survey has the advantages of a fast response speed, lower cost, improved accuracy in encoding data, flexible to fit the necessary conditions of particular researches, and ease of obtaining international samples (Cobanoglu and Cobanoglu 2003; Dibb *et al.* 2001; Gradcolas *et al.* 2003; Lockett and Blackman 2004; Schillewaert *et al.* 1998; Taylor 2000). Ilivea *et al.* (2002) suggest some of these advantages are expected to increase with the growing use of the Internet, which should positively affect the response time and data quality of Internet surveys. Ultimately, the sample representation of Internet respondents will also be improved with an increase in the number of Internet and e-mail users (Ilivea *et al.* 2002).

Many different forms of Internet communication have been used to conduct an Internet survey, e.g. e-mail, newsgroup, chat room, and the Web-based questionnaire etc. The various forms enable researchers to execute their empirical surveys using a single or mixed approach according to their research design (qualitative or quantitative) and other considerations (e.g. time and cost limitations). In past studies,

e-mail and Web-based questionnaire have received much attention (see Appendix 17 for a comprehensive discussion). For example, Comley (2000) regarded the Web-based questionnaire as the "the most positive contribution to Website research in the brief history of Internet Research". Of note, Ilivea *et al.* (2002) contended that contacting consumers through personalised e-mails and attached Website URL combine the advantages of e-mail and Web-based surveys and optimise the use of Internet data collection. **Thus, in this study, an e-mail invitation and a Web-based questionnaire will be combined to collect survey data (see Chapter 6, Section 6.3.3).**

However, the Internet survey also has its problems. The growing literature examining the efficacy of Internet marketing survey focuses on survey error in terms of target population, sample frame and sampling error (Bradley 1999; Cook *et al.* 2000; Iliva *et al.* 2002; McDevitt and Small 2002; Pincott and Branthwaite 2000) and non-response error (Couper 2000; Schillwaert *et al.* 1998; Simsek and Veiga 2001). Similarly, Grandcolas *et al.* (2003) indicated four major sources of survey error that reduce research accuracy and validity, namely coverage, sampling, non-response and measurement.

In fact, the self-select nature of some Web-based surveys has resulted in survey errors in terms of unknown population/sample frame and sampling errors (e.g. Cook *et al.* 2000; McDevitt and Small 2002). Kehoe and Pitkow (1996) argue that convenience samples who participate in the survey as a result of being attracted by banner ads/hyperlinks, represent neither a specific nor all segments of the Internet population. Moreover, being an open system, Web-based surveys suffer from multiple responses

from a single individual, and responses from individuals outside the population of interest. Both issues will lead to a biased result (Schillewaert *et al.* 1998). Thus, the generalisability of survey findings is affected (Pitkow and Recker 1994; Schillewaert *et al.* 1998; Zikmund 1991). Further, because of the lack of a sample frame, researchers (e.g. Cook *et al.* 2000; Kehoe and Pitkow 1996) argue that no information can be gathered about response rates, in turn, the estimation of non-response error is difficult (Rosen *et al.* 1999). Thus, Sheehan and Hoy (1999) highlight the importance of considering the finding's generalisability, multiple and/or inappropriate responses, and comparability issues when designing a Web-based survey.

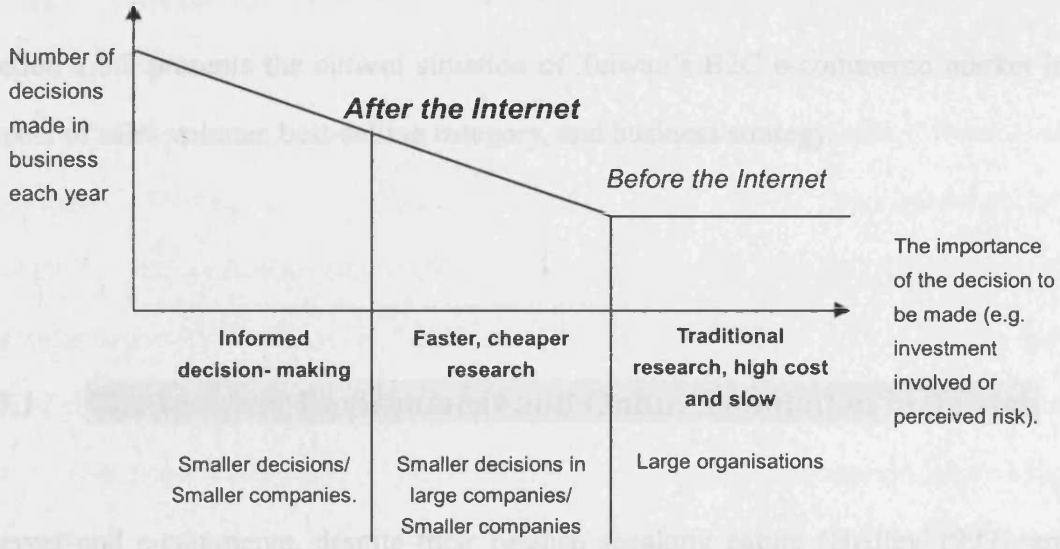
In this study, a well-defined target population (Q Website's individual buyers) will be used and a complete sample frame will be supported by the Q Website (see Chapter 6, Section 6.3.2). Moreover, the 3,600 samples used in the main survey will be randomly selected from within the sample frame and sampling error will be controlled within ±0.03 (see Chapter 6, Section 6.3.2). Further, the unique hyperlink in each e-mail invitation will be highly controlled respondents' SINGLE access to the Web-based questionnaire. Consequently, multiple responses from a single individual and respondents outside the population will be avoided (see Chapter 6, Section 6.3.3). Having a complete sample frame, the response rate was able to be calculated and non-response error was examined. Building on this scientific and rigorous survey design, the generalisability of this study can be confidently assumed (see Chapter 6, Section 6.6.3).

Developments in the area of Internet access hardware and software have multiplied

the ways in which one can reach users (Simsek and Veiga 2001). Some researchers also reveal how on-line group support system can aid client assessment and analysis, personnel training, and even collective learning within an organisation (Gear *et al.* 2003; Read and Gear 1993; Read *et al.* 1998; Read *et al.* 2004). Not surprisingly, these factors have generated a growing interest among researchers regarding the feasibility of using the Internet as a means of data collection and conducting organisational/company surveys (Kiesler and Sproull 1986; Schaefer and Dillman 1998; Schmidt 1997; Sproull 1986; Stanton 1998). For example, McDevitt and Small (2002) indicated that the proprietary research studies of "tiny sub-samples" of market populations are extremely attractive to small businesses and specialty clients, especially those clients that do most of their business on the Internet. These proprietary research applications are precisely the ones that are reportedly so attractive to small Internet businesses (Ahlhauser 1999), which are reported to be continuously planning and budgeting aggressively for further Internet researches (James 2000). Moreover, on-line systems are also found to support client assessment and analysis

Nancarrow *et al.* (2000) proposed a research decision model (see Figure 2.1) demonstrating the Internet's influences on the research decisions of organisations or companies. The authors assert that before the Internet survey's introduction, only larger organisations with important decisions could afford the necessary market research because of its time/money costs. However, with the Internet survey's arrival, even smaller organisations or smaller decisions within larger organisations can use this cheaper and faster medium to achieve their survey.

Figure 2.1 The Research Decision Model After the Internet



Source: Nancarrow et al. (2001) "A new research medium, new research populations and seven deadly sins for Internet researchers" Qualitative Market Research Vol. 4, Iss. 3, pp 136

Kuhnert and McCauley (1996) stated "... the organisational survey, which in the past was primarily a paper and pencil exercise, is now and perhaps forever changed by advancing technology". Undeniably, the Internet survey and its great potential have provided new horizons for future marketing research.

2.3 Internet Development and the Current Situation of Taiwan

This section has two parts. Section 2.3.1 presents Taiwan's Internet development on four levels: the nation as a whole, government, company, and education. Particularly, the worldwide ranking of Taiwan's Internet development by international associations is indicated. Based on these achievements, Taiwan's online population and Internet

penetration rate are revealed.

Section 2.3.2 presents the current situation of Taiwan's B2C e-commerce market in respect of sales volume, best-selling category, and business strategy.

2.3.1 The Internet Environment and Online Population in Taiwan

Internet and e-commerce, despite their English speaking nature (Hedley 1999), are diffusing more rapidly in Taiwan than in many European and English speaking countries. A 2002 e-readiness ranking of the 60 main economies of the world by the Economist Intelligence Unit (EIU) placed Taiwan in the group of "e-commerce contenders" (ranked 16), highlighting the fact that Taiwan's e-readiness was ahead of important European countries (e.g. Belgium, Italy, Spain and Portugal), English speaking countries (e.g. New Zealand), and Asian countries (e.g. Korea and Japan). In 2003, although Taiwan's ranking dropped from 16 to 20, the total e-readiness score of Taiwan actually increased from 7.22 to 7.26.

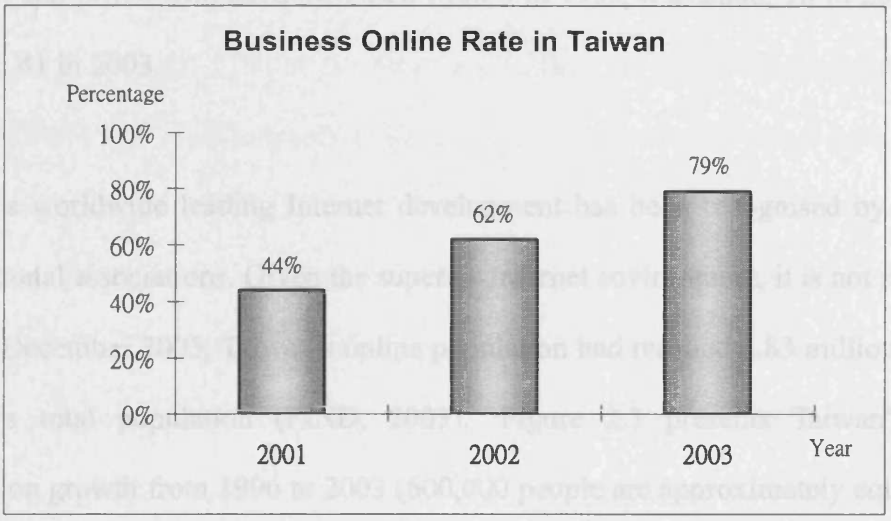
These achievements were derived from the continuous investment Taiwan's government had made in establishing and upgrading the national information infrastructure for many years. Foreseeing the potential and wide application of the Internet and wireless telecommunications technology, the Research Development and Evaluation Commission (RDEC) of the Cabinet started to push forward the backbone of the network in Taiwan in 1997.

In fact, the superior Internet environment of Taiwan has also been recognised by different international associations. The World Economic Forum (WEF, http://www.weforum.org/) in the "Global Information Technology Report 2002-2003" ranked Taiwan as number 9 in the world and number 2 in Asia regarding "Networked Readiness". International Telecommunication Union (ITU, http://www.itu.int) released the Digital Access Index (DAI), its first global index ranking Information and Communication Technology (ICT) access in November 2003, in which Taiwan was ranked as number 9 in the world and number 3 in Asia. Moreover, in this DAI report, Taiwan was also ranked 4 and 5 in the world regarding broadband Internet penetration and fixed telephone penetration, respectively. Similarly, Point Topic (http://www.point-topic.com), a UK-based company providing focused information on broadband communications services, ranked Taiwan as 7 and 4 in the world regarding broadband lines and broadband penetration, respectively.

Taiwan's efforts to build an Internet society can be looked at from three perspectives: the government, company and education. Regarding the government, on July 2003, 75% of government agencies had broadband access, and 82% of them had their own Websites. The penetration rate of e-mails among government staff was 88% and that of browsers was 82%. These achievements are recognised by international associations. Notably, the World Economic Forum (WEF) ranked Taiwan 2 and 4 in the world regarding "government e-readiness" and "government usage", respectively in its "Global Information Technology Report 2002-2003". As regards companies in Taiwan, a tremendous increase in Internet subscription and broadband connection was found in 2003. The FIND reported companies' Internet penetration was 79%, with 90% of these using a broadband connection. Figure 2.2 illustrates the Internet penetration of companies in Taiwan in 2001 (44%), 2002 (62%) and 2003 (79%),

respectively. This figure shows the continuous growth between 2001 - 2002 (18%) and 2002 - 2003 (17%).

Figure 2.2 Business Online Rate in Taiwan



Source: FIND, www.find.org.tw

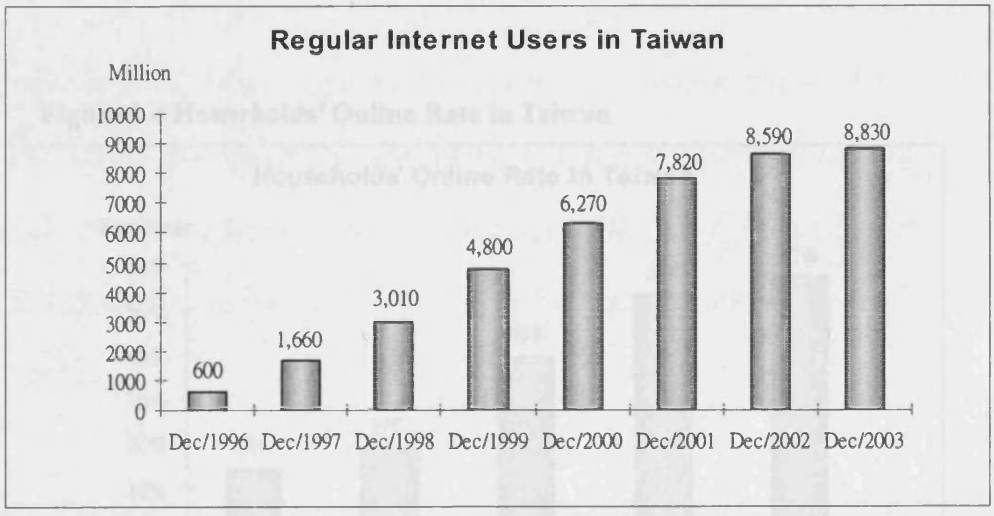
Turning to education, recognising citizens' Information Technology (IT) literacy and national Internet learning environment are important contributing factors to a nation's competitiveness in the world, the Taiwan Ministry of Education (MOE) has been devoting considerable effort to the construction of the academic network and the promotion of IT usage in schools for years. By June 1999, all elementary and junior high schools in Taiwan were equipped with computer rooms connecting with the broadband. The MOE aims to apply the Internet in everyday teaching in schools and the programme has shown satisfactory results at the International Schools CyberFair.

CyberFair, hosted by the Global SchoolNet Foundation, started in 1996, and has been described as the largest educational event of its kind ever held on the Internet. In its

2003 competition, 260 schools worldwide representing 300,000 students from 45 countries participated. On 16 May 2003, Taiwan was ranked number 1 globally in the total number of prizes won: 5 platinums, 11 golds, 15 silvers and 10 honourable mentions, in total 41 prizes. This result far exceeded the second winner, the United States, with 14 prizes. Notably, Taiwan's students started to join the yearly CyberFair in 1999, and prizes won have increased from 3 in 1999, 8 in 2000, 18 in 2001, 21 in 2002, to 41 in 2003.

Taiwan's worldwide leading Internet development has been recognised by different international associations. Given the superior Internet environment, it is not surprising that by December 2003, Taiwan's online population had reached 8.83 million, 39% of Taiwan's total population (FIND, 2003). Figure 2.3 presents Taiwan's online population growth from 1996 to 2003 (600,000 people are approximately equal to 3% of Taiwan's total population).

Figure 2.3 Regular Internet Users in Taiwan

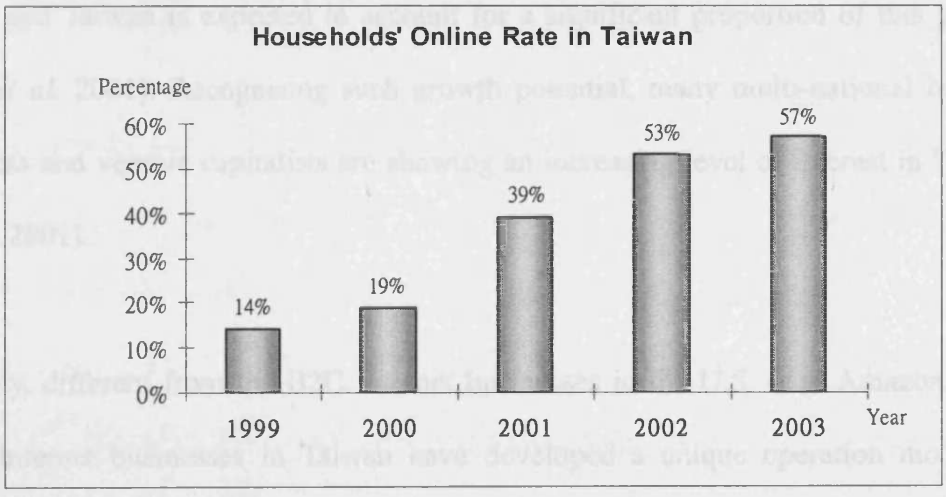


*Regular Internet users here are individuals with valid & active ISP accounts to access the Internet

Source: FIND, www.find.org.tw

However, marketers argue that FIND's statistics of Taiwan's online population are too conservative to reflect the actual situation. Thus, this study also includes data from another well-known association in Taiwan: the Network Information Centre (TWNIC, http://www.twnic.net.tw). The TWNIC is a neutral and non-profit organisation aiming to provide information on domain name registration and IP address allocation in Taiwan. In September 2003, the TWNIC indicated Taiwan's online population was over 11.75 million (57.23% of the total population). Its latest survey conducted in February 2004 indicated Taiwan's online population had reached a new peak of 12.64 million, equalling 61.01% of the total population. Although this percentage is much higher than FIND's 39% in December 2003, due to a more conservative definition used by FIND (i.e. regular Internet users are individuals with valid & active ISP accounts to access the Internet), both results indicate the fact that Internet penetration in Taiwan is high. Supportively, FIND (2003) revealed up to 57% of Taiwan's households had access to the Internet and 73% used a broadband connection. Figure 2.4 below presents online households' rate from 1999 (14%) to 2003 (57%) in Taiwan.

Figure 2.4 Households' Online Rate in Taiwan



Source: FIND, www.find.org.tw

Moreover, the latest FIND survey (December 2003) indicated Taiwan's broadband subscribers had grown to 2.9 million at the end of 2003, a 32.0% broadband penetration rate, which was higher than that reported previously by ITU and Point Topic (see page 47). The finding showed nearly one-third of Taiwan's Internet users had moved on to a new stage of Internet access by subscribing to a stable, high-speed broadband Internet connection, reflecting the advance of Taiwan's Internet environment. Figure 2.5 presents the growth of broadband subscribers in Taiwan from 1999 to 2003.

As a result of the superior Internet environment, high online population and high Internet penetration in Taiwan, a dynamic B2C e-commerce market has developed and will be discussed in the next section.

2.3.2 The B2C E-commerce Market in Taiwan

Asia's share in worldwide e-commerce is estimated to rise from 5% in 2000 to 10% in 2004, and Taiwan is expected to account for a significant proportion of this growth (Lee *et al.* 2001). Recognising such growth potential, many multi-national Internet business and venture capitalists are showing an increasing level of interest in Taiwan (Chan 2001).

Notably, different from the B2C Internet businesses in the U.S. (e.g. Amazon.com), B2C Internet businesses in Taiwan have developed a unique operation model by

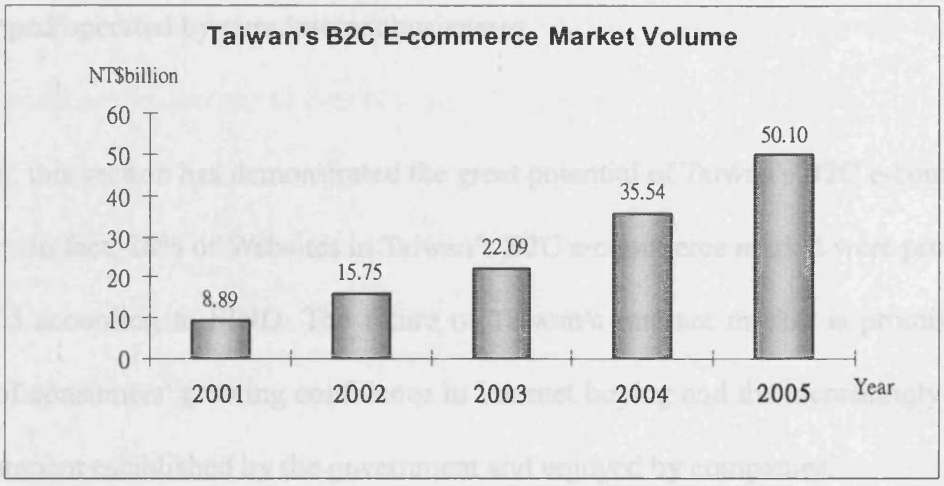
taking advantage of the high coverage of convenience stores to cope with consumers' Internet buying concerns, such as credit card fraud, transaction security, and safe delivery. A 2002 survey reported more than 5,000 convenience stores all over the island of Taiwan, generating a 1: 3,357 ratio (store/population). In large cities, e.g. Taipei (the capital city), every 100 metres there is a convenience store, and sometimes even two! Thus, B2C Internet businesses contract with different convenience store chains, e.g. 7-Eleven (the largest in Taiwan), OK, Hilife, Family, etc., in order to offer Internet buyers different delivery options: pay and collect their orders at their selected convenience stores. In fact, this business model has proved to be very successful, accelerating the acceptance of B2C e-commerce in Taiwan.

Moreover, the vibrant PC industries, the popularity of computers and the superior Internet environment has made Internet buying acceptable to the public in Taiwan. The widespread Internet networks on campuses have also stimulated the strong buying power of students. The young generation enjoys surfing and comparing prices on the Internet before making a purchase. In the following, the current situation of Taiwan's B2C e-commerce market is described at three levels: sales volume, best-selling category, and B2C Internet business type.

Firstly, according to a FIND survey commissioned by the Industrial Development Bureau (IDB) under the Ministry of Economic Affairs, the sales volume of Taiwan's B2C e-commerce market reached £441.8 million (NT$22.09 billion, using the exchange rate of £1 : NT$50) in 2003, representing a 40% growth from £315 million (NT$15.75 billion) in 2002. In view of the considerable growth over the past year, it is predicted that the sales volume will grow 60% to £710.8 million (NT$35.54 billion)

in 2004 and reach £1 billion (NT$50.10 billion) in 2005 (see Figure 2.6). In addition, B2C e-commerce accounted for 0.68% of the retailing revenue in 2003 in Taiwan.

Figure 2.6 Taiwan's B2C E-commerce Market Volume



Source: FIND, www.find.org.tw

Secondly, according to FIND, in 2003, travel products/services were the most popular Internet products, driving nearly half (48%) of the entire B2C market sales in Taiwan, followed by 3C (Computer, Communication and Consumable) products (14%), ticketing services (6%), cosmetics (6%), books and magazines (5%), and other products (less than 3%). Noticeably, **throughout FIND's annual survey from 2000 to 2003, the 3C product was the leading and second best-selling category in Taiwan's B2C e-commerce market. Consequently, the 3C product was selected as the target domain surveyed in this study (see Chapter 6, Section 6.3.1).**

Thirdly, as regards business strategy, recognising the unbeatable trend of consumers'

Internet buying, traditional businesses have joined the Internet market to increase their distribution channel, to publicise their products on the Internet, and to reach Internet consumers. FIND (2003) indicated 67% Websites in Taiwan's B2C e-commerce market were developed/operated by multi-channel businesses, and 33% were developed/operated by pure Internet businesses.

In sum, this section has demonstrated the great potential of Taiwan's B2C e-commerce market. In fact, 28% of Websites in Taiwan's B2C e-commerce market were profitable in 2003 according to FIND. The future of Taiwan's Internet market is promising in view of consumers' growing confidence in Internet buying and the increasingly sound environment established by the government and enjoyed by companies.

2.4 Profile of Internet Users in Taiwan

This section presents the characteristics of Internet users in Taiwan in terms of their socio-demographic characteristics, and Internet use/buying behaviours.

According to FIND's (2003) survey commissioned by the Industrial Development Bureau (IDB) under the Ministry of Economic Affairs, slightly more males (55%) than females (49%) used the Internet in Taiwan. As regards age, "15-20" (96%) and "20-24" (94%) showed a higher percentage of Internet use than other ages. Notably, a decrease in Internet use was found when age increased: "40–44" (51%), "45–54"

(46%) and "above 55" (18%), respectively. Moreover, the higher the educational level, the higher the percentage of Internet use: "college or university graduated" (90%) and "post-graduate school or above" (94%) were the two highest categories. Further, North Taiwan (55%), which includes Taipei (the capital city) and Hsinchu Industrial Technology Campus (where vibrant semi-conductor and PC industries are located), had the highest percentage of Internet users in Taiwan.

Turning to Internet use and buying behaviours, the top four Internet uses were "information browse" (88%), "e-mails" (77%), "newspaper reading" (55%), and "files upload/download" (51%), respectively. In addition, more than 22% of respondents had bought on the Internet within one month prior to the survey, slightly higher than 20% in the 2002 survey. Five main products bought on the Internet were "books/magazines" (6.7%), "3C products" (4.3%), "fashions and clothes" (4.0%), "software" (3.0%), and "beauty/health products" (2.7%), respectively. On average, respondents had spent £70 (NT$3,562) on the Internet within six months of the survey. Notably, respondents most worried about "merchandise quality" (34%), "Internet fraud" (16%), and "payment security" (10%) when buying on the Internet.

An earlier 2002 survey conducted by the TWNIC and Netvalue (http://www.netvalue.com) demonstrated a similar profile of Taiwan Internet users. In this report, a higher percentage of males (56.8%) used the Internet than females (50.3%) and there were far more single users (76.1%) than married ones (37.8%). Regarding age, "15-24" (34.4%) accounted for the highest percentage of Internet users, followed by "35–49" (28.6%), "25–34" (28.1%), then "50–64" (8.4%), and,

finally "above 65 years old" (0.5%). Looking at educational level, 96.9% of those who were "post-graduate school or above" used the Internet, which was the highest percentage compared to other educational levels: "college or university" (84.5%), "senior-high school" (53.3%), and "junior-high school" (23.1%). Turning to monthly income, those who earned between "£2,000-£3.999" (81.5%) comprised the highest percentage of Internet users, followed by "above £4,000" (68.6%), and then "£1,200-£1,999" (64.7%). As regards occupation, students (90.8%) made up the highest percentage of Internet users, followed by professionals (81%), and then officers/assistants (76.7%). Regarding residential area, North Taiwan (55.3%) had the highest percentage of Internet users, followed by Mid Taiwan (45.8%), South Taiwan (45.3%), and, finally, East Taiwan (41.4%).

Looking at Internet use, up to 21.9% had used the Internet more than 5 years, and 20.1% between "2-3 years". Moreover, nearly half (44.9%) accessed the Internet every day, followed by "every 2–3 days" (18.0%), and then "once per week" (10.6%). Further, 10.6% spent on the Internet "above 30 hours weekly", followed by "10–15 hours weekly" (9.9%), "1-2 hours weekly" (9.4%), and "3–5 hours weekly" (9.2%). Respondents used the Internet to "information browse" (46.1%), "e-mails" (17.3%) and "chat/make friends" (17.0%).

Both surveys suggested that the majority of Taiwan Internet users were young males, university and above educated, and resided in North Taiwan.

2.5 Summary

This chapter has described the Internet development and the current Internet market in Taiwan.

The quick growth of the worldwide Internet population and wide applications has made the Internet the most attractive innovation in the past decade. In the marketing domain, the commercial and research potentials of the Internet have been discussed. The Internet offers companies an inexpensive but sophisticated tool for advertising, sales, consumer services, and promoting the company's image and products to worldwide consumers 24 hours a day. Thus, the B2C e-commerce market, the study's scope, has received increasing attention. The Internet also offers researchers a flexible/easy-to-administer data collection tool with sound response rate, quick response speed, and low cost features. Major issues regarding Internet survey design in terms of incentives (e.g. Deutskens *et al.* 2004), ethical issues (e.g. Witt and Poynter), sample representativeness and non-response error examination will all be considered and incorporated in the survey design of this study (see Chapter 6). As such, these issues are not a threat to the response quality and survey findings.

This chapter also introduced current Internet development and the market environment of Taiwan. In fact, various international associations have ranked Taiwan's Internet development in the global top list. For example, in 2002 with regard

to "e-readiness" ranking by the Economist Intelligence Unit (EIU), Taiwan was ranked 16 among 60 main economies worldwide and 3 in Asia. Indeed, this report indicated Taiwan's e-readiness was ahead of important European countries (e.g. Belgium, Italy, Spain and Portugal) and Asian countries (e.g. Korea and Japan). This fact has made Taiwan's B2C e-commerce market a valuable survey target worthy of investigation. Thus, it is selected as this study's research scope.

Notably, 67% of Websites are developed and operated by multi-channel businesses in Taiwan's B2C e-commerce market, indicating these companies are trying to leverage their loyal consumers in the traditional market to the brand's Website in the Internet market, and view this as a competitive advantage in the B2C e-commerce market. **This large percentage has made the study's aim (see Chapter 1) of exploring consumers' brand loyalty/Website loyalty transformation more important as multi-channel businesses need to learn how to best position their Websites to benefit the company as a whole across different channels.**

Moreover, given the 3C product category was the second best-selling product category in Taiwan's B2C e-commerce market from 2000 to 2003, this industry and buyer behaviours at 3C Websites are representative of Taiwan's B2C e-commerce market. Consequently, the Q Website, operated by a well-known and leading brand, Q company in Taiwan's 3C industry, is selected as the study's survey target (see Chapter 6, Section 6.3.1).

The next chapter discusses the literature focusing on consumer brand loyalty/Website loyalty transformation.

Chapter 3 Consumer Loyalty Transformation

3.1 Introduction

3.2 Consumer Loyalty Theory

3.2.1 Conceptual Definitions of Consumer Brand Loyalty

3.2.2 Operationalising and Measuring Consumer Brand Loyalty

3.2.3 Consumer Loyalty and Other Attributes

3.3 Consumer Perceived Risk Theory

3.3.1 Conceptual and Operational Definitions of Consumer Perceived Risk

3.3.2 Measuring Consumer Perceived Risk

3.3.3 Perceived Risk and Consumer Behaviours

3.4 Summary

3.1 Introduction

Consumer loyalty has long been regarded as the core of brand equity (Aaker 1991), a basis for a price premium (Aaker 1996), and an essence of the business/consumer relationship (Reichheld 1996). However, the technological innovation of the Internet has created a brand new B2C e-commerce market, which is so new that at the time of writing this thesis, few studies were known to have investigated consumer loyalty in the Internet market (Balabanis and Vassileiou 1999; Jarvenpaa and Todd 1997). Aiming to investigate consumers' brand loyalty/Website loyalty transformation (see Chapter 1, Section 1.3), in this chapter, theories of consumer loyalty and perceived risk are reviewed sequentially in order to develop the brand loyalty/Website loyalty transformation model shown in the study's conceptual framework (see Figure 5.1 in Chapter 5).

3.2 Consumer Loyalty Theory

Much has been written about the importance of brand loyalty as a key determinant of brand equity (Baldinger and Rubinson 1996). Brand equity is the incremental utility or value added to a product by its brand name, such as Coca-Cola, Kodak, Levis and Nike (Park and Srinivasan 1994; Yoo *et al.* 2000). Brand equity which creates value for the firm and the consumer (Aaker 1991) also provides sustainable competitive advantages to the firm from the management perspective (Bharadwaj *et al.* 1993). Thus, East (1997) indicates brand equity can been viewed as an asset of the firm.

Among the four dimensions of brand equity proposed by Aaker (1991), brand loyalty is regarded as the core dimension. He wrote,

> "*The brand loyalty of the consumer base is often the core of a brand's equity. If consumers are indifferent to the brand and, in fact, buy with respect to features, price... there is likely little equity*".

More specifically, Aaker (1996) stated,

> "*A loyal consumer base represents a barrier to entry, a basis for a price premium, time to respond to competitor innovations, and a bulwark against deleterious price competition*".

Similarly, Wernerfelt (1991) asserted,

> "*Brand loyalty is a fundamental concept in strategic marketing. It is generally recognised as an asset*".

In the marketing literature, the very first mention of brand loyalty is attributed to Copeland (1923), although he did not specifically use the term *loyalty* but *brand insistence* to describe the attitudinal continuum stretching from recognition, through degrees of preference, to insistence. Copeland (1923) was the first to suggest that a preconceived idea of a particular brand might have a special effect on buyer behaviour (Jacoby and Chestnut 1978). However, little attention was paid to Copeland's theory until the early 1950s. In the following, the development of consumer loyalty theory from the late 1940s to the early twenty-first century is

detailed.

In the late 1940s and early 1950s, the basic theory of consumer loyalty was developed by the Chicago Tribune, which investigated a consumer diary panel and its consumer household purchase records. Findings were subsequently reported in *Advertising Age* between 1952 and 1953 and the *Harvard Business Review* in 1956. Interacting with the prevalent market segmentation theory at that time, the study focused primarily, from the behavioural perspective, on how consumers purchased in the marketplace.

In the early 1960s, the application of stochastic models was dominant, with the basic assumption that brand loyalty can be observed only from the sequence-of-purchase data from consumer panels. Typical works of that time were those of Lipstein (1959), who investigated the probability of repurchase/average staying time with a brand, and Frank (1962) who studied the repeat purchase probability/return purchase probability. However, by the mid 1960s, the focus of brand loyalty researches had shifted to economics information, i.e. consumers' cost and ability to search for brand choice information. Farley's (1964) "*Brand-Loyalty and the Economics of Information*" is a good example of that period. Before Day (1969), brand loyalty had been measured almost exclusively as a behavioural construct. Day (1969) criticised the sole use of solely behaviour-based loyalty measures arguing that they make no distinction between true loyalty and spurious loyalty. Accordingly, he suggested a two-dimensional conceptualisation of loyalty by adding an attitudinal dimension to the behavioural approach. In the following decade, Day's (1969) proposal generated much interest in the loyalty research.

In the 1970s, more attention was paid to the cognitive process of consumer behaviour, and attitudinal measures became quite popular (Mellens *et al.* 1996). For example, Jacoby (1971a, 1971b) emphasised the distinction between loyal behaviours and loyal attitudes. He (1971a) defined brand loyalty as "the overt act of selective repeat purchasing based on evaluative psychological decision processes, while brand loyal attitudes are the underlying predispositions to behaviour in such a selective fashion." Based on this construct, Jacoby and Kyner (1973) investigated brand loyalty versus repeat purchasing behaviour and suggested that psychological factors (e.g. commitment) can help to explain why loyalty occurs. Notably, Jacoby and Chestnut's (1978) book: "*Brand Loyalty: Measurement and Management*" has become a milestone in loyalty research, discussing how consumers relate, decide, and purchase brands and exhibit consumer loyalty.

In the 1980s, the availability of supermarket scanner data made access to observable consumer purchase behaviours easy. Consequently, two main research foci were generated. To analyse consumers' choice/behaviour, some authors (e.g. Guadagni and Little 1983) used simple models while others (e.g. Bass and Leone 1986; Moriarty 1985; Tellis 1988) began to develop sophisticated approaches using statistical techniques, such as regression, CHAID and CART, to analyse observable consumer behaviours. The latter school was the pioneer of "relationship marketing" which more fully emerged in the following decade.

In the 1990s, some authors (e.g. Jones and Sasser 1995) followed the trend of the mid 1960s, focusing on the economic value of consumer loyalty. Others (e.g. Sivadas *et al.* 1998) tried to enhance their understanding of consumer needs/wants as a basis for building long-term relationships to accomplish the goal of delivering a greater value

to consumers. This philosophical shift has been defined as "relationship marketing" (Blattberg and Deighton 1991; Reichheld and Sasser 1990; Sheth and Parvatiyar 1995; Webster 1992). Again, the need for effective management of consumer brand loyalty became paramount (Fournier and Yao 1997; Pearson 1996; Reichheld 1996). More recent studies have encouraged a move from the metaphor of 'loyalty' to the broader notion of the 'relationships' that encompass it (e.g. Fournier 1997; Pearson 1996; Reichheld 1996; Wulf 2001). In line with this trend, Reichheld's book "*The Loyalty Effect*" (1996) has set the business direction for much of the loyalty management in the late 1990s and early 2000s.

At the same time, Internet technology has revolutionised the traditional marketplace (Schultz and Kitchen, 2000). According to Kuttner (1998), "the Internet is a nearly perfect market because information is instantaneous and buyers can compare the offerings of sellers worldwide". Thus, for the first time, the control power has passed from the traditional producers or channels to the end-consumers (Schultz and Walters 1997), and Kuttner (1998) contends that the result will be fierce price competition and vanishing brand loyalty.

In fact, Schultz and Bailey (2000) argue that consumers often become de facto brand loyalists simply because their choices are limited or are continuously being diminished. Therefore, the impact of the Internet and e-commerce has made the loyalty problem more complex, given the Internet provides a plethora of new suppliers, new brands and new offerings without time or geographical limits (Schultz and Bailey 2000). The reduction in information asymmetries between sellers and buyers has generated a growing interest in understanding consumer loyalty in the

Internet environment (Abbott *et al.* 2000; Gommans *et al.* 2001; Griffin 2002; Holland and Baker 2001; Srinivasan *et al.* 2002). In fact, Harris and Goode (2004) asserted that consumer loyalty is even more important in the Internet market than it is in the traditional market.

Thus, in this study, how consumers transform their existing brand loyalty in the traditional market to loyalty to the brand's Website in the Internet market is investigated. From the company's perspective, this study's findings are important because they can help managers to best position their Website. In such a way, the company's existing competitive advantage in the traditional market (loyal consumers) is leveraged in the new B2C Internet market.

3.2.1 Conceptual Definitions of Consumer Brand Loyalty

Brand loyalty occurs when consumers make a conscious evaluation that a brand or service satisfies their needs to a greater extent than another and buy the same brand repeatedly for that reason (Day, 1969; Jacoby and Kyner, 1973). However, despite its long history and largely researched nature, there is no general consensus either on the definition or measurement of brand loyalty (Baldinger and Rubinson 1997; Dubois and Laurent 1999; Gounaris and Stathakopoulos 2004; Prakash 1993), and this lack of agreement has produced confusion (Jacoby and Chestnut 1978; Rundle-Thiele and Bennett 2001). The terms "repeat purchase", "brand commitment", and "brand loyalty" have all been used interchangeably in the literature, thus empirical findings

become dependent upon particular and often imprecise reference points (Knox 2001). Muncy and Hunt (1984) argued that confusion regarding the exact domain of a construct under study can result in a whole stream of research becoming impotent.

Nevertheless, the conceptual definition of brand loyalty proposed by Jacoby (1971a) has long been regarded as a common thread in the confusion and been utilised by most researchers in past decades **(in this study, this conceptual definition is also adopted)**. He states:

> *... Brand Loyalty is*
> *(1) the biased (i.e. non-random)*
> *(2) behavioural response (i.e. purchase)*
> *(3) expressed over time*
> *(4) by some decision-making unit*
> *(5) with respect to one or more alternative brands out of a set of such brands*
> (6) *and is a function of psychological (decision-making, evaluative) processes.*

This definition combines behavioural and attitudinal loyalty. Jacoby and Chestnut (1978) further argued that this composite definition has influenced conceptual definitions subsequently proposed by others, e.g. Engel (1973) defined brand loyalty as "the preferential, attitudinal and behavioural response towards one or more brands in a product category expressed over a period of time by a consumer". They further indicated that a positive feeling towards the brand is a necessary part of loyalty. If, however, this feeling does not exist, the continued support for a brand is "inertia" (Engel *et al.* 1995). Jacoby and Chestnut's (1978) composite approach has also

influenced more recent studies: e.g. Assael (1992) defined brand loyalty as "a favourable attitude towards a brand resulting in consistent purchase of the brand over time", and Keller (1993) suggested that loyalty is present when favourable attitudes for a brand are manifested in repeat buying behaviour. Moreover, Oliver (1997) proposed a comprehensive framework indicating the four distinct and sequential phases of the loyalty construct: cognitive loyalty, affective loyalty, conative loyalty, and action loyalty.

Similarly, Dick and Basu (1994) also viewed consumer loyalty as "the strength of the relationship between an individual's relative attitude and their repeat patronage". Based on Day's (1969) work, Dick and Basu (1994) proposed an attitude-behaviour typology of loyalty which divides consumers into four segments: loyalty, latent loyalty, spurious loyalty and no loyalty trying to use "repeat purchase" attitudes towards an entity (e.g. brand/service/store/vendor) to explain repeat patronage (see Table 3.1). According to Dick and Basu (1994), the repeated purchase of the same brand is "spurious loyalty" if the brand is not liked more than other brands in the same category. Supportively, Dekimpe and Steenkamp (1997) held the same view.

Figure 3.1 Relative Attitude-Behaviour Relationship

		Repeat Patronage	
		High	Low
Relative Attitude	High	Loyalty	Latent Loyalty
	Low	Spurious Loyalty	No Loyalty

Source: Dick, A. and Basu, K. (1994) "Consumer Loyalty: Towards an Integrated Conceptual Framework" Journal of the Academy of Marketing Science, V.22 No.2 pp. 99-113

In contrast, Tucker (1964) took a robustly behaviourist position and perceived brand loyalty exclusively in terms of behaviours (past purchases of the brand). He regarded brand loyalty as "simply biased choice behaviour with respect to branded merchandise". In line with this approach, Ehrenberg and his associates published a series of works using the "Double Jeopardy" theory to explain consumers' brand loyalty (Ehrenberg *et al.* 1990; Ehrenberg *et al.* 1997; Ehrenberg and Goodhardt 2002). Findings indicated that bigger brands are high in both behavioural brand loyalty and favourable attitude responses. More recently, Griffin (2002) also argued in her book "*Consumer Loyalty*" that the concept of consumer loyalty is geared more to behaviour than to attitude. She further contended that a loyal consumer will exhibit non-random purchase behaviour expressed over time by some decision-making unit. Danaher *et al.* (2003) also supported Ehrenberg *et al.*'s (1990) finding, arguing that high share (and therefore better-known) brands have greater-than-expected loyalty when bought on the Internet compared with a traditional environment, and conversely for small share brands. Researchers who support this approach seem to find little merit in measuring brand attitudes (Baldinger and Rubinson 1997).

In sum, Assael (1992) proposed two routes to consumer loyalty. The first is derived through brand attitudes and the second is through past behavioural attitude towards the brand in terms of repeat purchase of the brand. In the marketing literature, the first school contends that attitudinal loyalty is the antecedent of behaviour loyalty (Baldinger and Rubinson 1996, 1997; Beatty and Kahle 1988; Gounaris and Stathakopoulos 2004; Grossbart *et al.* 1987; Jarvis and Mayo 1986; Kenhove *et al.*

2003; Mellens *et al.* 1996; Odekerken-Schröder *et al.* 2003; Odin *et al.* 2001). However, researchers of the second school, though admitting that attitudinal and behavioural brand performance measures are correlated (e.g. Bird and Ehrenberg 1970;), argue there has been no evidence to suggest that attitude change can lead to different future behaviour (Ehrenberg 1997; Riley *et al.* 1997; Uncles *et al.* 1994).

Indeed, debates as to whether consumer attitudes towards the purchase lead to actual purchase behaviours have long existed in the literature (Bagozzi and Yi 1989; Bemmaor 1995; Ewing 2000; Foxall 1984; Juster 1966; Warshaw and Davis 1985). A more recent one in the context of consumer loyalty has been that between Baldinger and Rubinson (1997) and Ehrenberg (1997). Baldinger and Rubinson (1997) believe attitudes can be usefully measured and incorporated into a predictive model of behaviours whilst Ehrenberg (1997) argues that attitudes seem to follow behaviour. In other words, the former implies that consumers' attitudinal loyalty leads to their behavioural loyalty, whereas the latter contends it is behavioural loyalty that leads to attitudinal loyalty. This diversity of opinion extends to the operationalisation and measurement of consumer loyalty presented in the next section.

In this study, whether attitudinal loyalty can lead to behavioural loyalty is investigated in an Internet buying context in order to offer more insights and fill the research gap as no study was known to have investigated this issue at the time of writing this thesis (see Chapter 5, Section 5.4 for more details).

3.2.2 Operationalising and Measuring Consumer Brand Loyalty

The problem of loyalty research, as Rundle-Thiele and Bennett (2001) point out, lies with the method of operationalising brand loyalty. Consequently, there is no ideal, cure-all and universal loyalty measurement but a number of measures which are context-specific and only appropriate in given situations (Mullen *et al.* 1996; Bennett and Rundle-Thiele 2002). Thus, **in this study, according to the research aims, some items from previous studies are adapted and some are designed by the researcher in order to measure consumers' loyalty in the traditional market and attitudinal Website loyalty (see Table 6.1 in Chapter 6, Section 6.4.1).**

As aforementioned, early researchers tended to measure consumer loyalty by the purchase consistency, sequence, proportion or probability of one brand. However, the behavioural approach to loyalty measurement has been criticised for its lack of explanatory power to distinguish true loyalty from spurious loyalty. Day (1969) and Jacoby and Chestnut (1978) argued that consumers' loyalty to a product/service should include both behavioural and attitudinal components. From this perspective, researchers (Beatty *et al.* 1988; Jacoby and Kyner 1973) contended that loyal consumers must hold a strong positive attitude towards the brand, and such "commitment" can be used to distinguish loyal behaviour from mere repeat purchase.

As such, Jacoby and Chestnut's (1978) summarised three approaches to define and measure brand loyalty: behavioural, attitudinal and a combination of both.

1. Behavioural Approach

Brand loyalty is the consistent repurchase of the same brand over time (Jacoby and Chestnut 1978). According to this assumption, the empirical data is restricted to observations regarding the decision outcome and cognitive process whilst the construct which underlies and creates these outcomes is ignored. Thus, brand loyalty is nothing more than a repeat purchase behaviour. Researchers of this school measure the loyalty degree by, for example, proportion of purchase (Cunningham 1956, 1961; Yim and Kannan 1999), sequence of purchase (Brown 1952, Massey *et al.* 1968), composite of purchase frequency and proportion of purchase (Wulf *et al.* 2001), probability of purchase (Dyson *et al.* 1996; Lipstein 1959; Frank 1962), repeat purchase of the same brand (Odin *et al.* 2001), purchase choice upon different occasions (Gedenk and Neslin 1999; Guadagni and Little 1983; Krishnamurthi and Papatla 2003), and consistency of purchase (DuWors and Haines 1990).

2. Attitudinal Approach

Brand loyalty is the property of a psychological commitment (i.e. the belief, feeling and intention) that results in the consistent repurchase of the same brand over time (Jacoby and Chestnut 1978). According to this assumption, elements involved in the purely cognitive decision process are measured but the behavioural outcome is ignored. Researchers thus define brand commitment as "an emotional or psychological attachment to a brand within a product class" (Lastovicka and Gardner 1978), and the commitment is viewed as a close antecedent of behavioural loyalty (Baldinger and Rubinson 1996, 1997; Beatty *et al.* 1988). Similarly, Bennett and

Rundle-Thiele (2002) suggest that attitudinal loyalty can be measured by brand-specific approaches, i.e. purchase intention/brand commitment.

Notably, at the time when Jacoby and Chestnut (1978) wrote their book: "*Brand Loyalty: Measurement and Management*", less than 25% of studies in their review mentioned attitudinal loyalty or commitment. However, recently an increasing number of studies (e.g. Ahluwalia *et al.* 2001; Dick and Basu 1994; Fournier 1998) have focused on commitment, and brand loyalty has arguably become increasingly similar to the conceptualisation of brand commitment given the field of consumer behaviour has matured (Morgan and Hunt 1994). Supportively, Jacoby and Chestnut (1978) also suggested that commitment provides an essential basis for distinguishing loyalty from other forms of repeat purchase behaviour. Studies of attitudinal approach focus on brand preference (e.g. Guest 1942), brand name loyalty (Monroe and Guiltinan 1975), re-purchase intention (e.g. Anderson and Sullivan 1993; Fornell 1992; Sirohi *et al.* 1998), price tolerance or sensitivity (Fornell 1992; Krishnamurthi and Papatla 2003; Olson and Jacoby 1971; Pessemier 1959), personality trait and specific brand preference (Bennett and Rundle-Thiele 2002), and commitment (Beatty *et al.* 1988; Bloemer *et al.* 1998; Delgado-Ballester and Munuera-Alemán 2001; Martin and Goodell 1991; Morgan and Hunt 1994; Pritchard *et al.* 1999; Traylor 1981).

3. Composite Approach

Brand loyalty is the aggregation of both behavioural and attitudinal properties (Day 1969). Jacoby and Chestnut (1978) indicated that the behavioural approach stresses

the importance of using actual purchase behaviours to detect brand loyalty, but neglects underlying cognitive processes, whereas the attitudinal approach highlights the importance of cognitive processes, but ignores actual behaviours. Thus, many in the marketing field have seen loyalty as a composite blend of brand attitude and behaviour, measuring the loyalty degree to which one favours and buys a brand repeatedly (e.g. Day 1969; Newman and Werbel 1973; Pritchard and Howard 1997; Srinivasan *et al.* 2002). Researchers of this school (e.g. Jacoby and Chestnut 1978; Rundle-Thiele and Bennett 2001; Dick and Basu 1994; Mullen *et al.* 1996) contend that composites of attitude and behaviour capture the reality of the loyalty construct more adequately. Studies using the composite approach have investigated the loyalty construct (Day 1969; Lutz and Winn 1974), information search (Newman and Werbel 1973), store loyalty (Steenkamp and Dekimpe 1997), trust and value (Chaudhuri and Holbrook 2001; Deepak *et al.* 2002), satisfaction (Bloemer and Kasper 1995; Ganesh *et al.* 2000; Kasper 1988; Harris and Goode 2004), loyalty and inertia (Huang and Yu 1999), and consumer attitude and behaviour (Baldinger and Rubinson 1996, 1997; Bristow and Sebastian 2001; Dick and Basu 1994; Fournier and Yao 1997; Jacoby and Chestnut 1978).

Notably, Mellens *et al.* (1996) proposed a loyalty typology by cross tabulating the brand/individual orientation and attitudinal/behavioural approach (see Table 3.1 below). Mellens *et al.* (1996) argued that both brand-related characteristics (e.g. product quality of a specific brand) and individual-related characteristics (e.g. degree of risk aversion) can induce differences in consumer loyalty. Thus, they suggested that each category of loyalty measures different elements of consumer loyalty and no method is suitable for every intended purpose. They therefore concluded that the method chosen must correspond to the purpose of the loyalty study.

Table 3.1 Matrix of Loyalty Measures

	Attitudinal Approach	Behavioural Approach
Brand-oriented	A1:Stated purchase intentions/ preference measures A2: Commitment measure	C1: Measures based on aggregated data; C1a: Measures based on aggregated switching matrices. C1b: Measures based on market shares; C2: Measures based on individual-level data
Individual-oriented	B1: Measures on product category level; B2: General measures	D1: Proportion of purchase measures D2: Sequence of purchase measure

Source: Mellens, M., Dekimpe, G. and Steenkamp J. (1996) "A Review of Brand-Loyalty Measures in Marketing" Tijdschrift voor Economie en Management, V41, pp. 507-533

Similarly, Rundle-Thiele and Bennett (2001) indicate that the type of market, namely, consumable/durable goods, not only drives the choice of loyalty measures, but also leads to the use of different antecedent variables (e.g. commitment, purchase intention, perceived risk, inertia, habit, satisfaction and involvement) and appropriate loyalty measures (e.g. purchase frequency, share of category, and main buyer proportion) to capture consumer loyalty in each market. Thus, this explains the lack of a single best approach to define and measure consumer loyalty across all markets. Consequently, Rundle-Thiele and Bennett (2001) suggest that where the market is stable/there is high switching, low involvement and risk (e.g. in consumable markets), behavioural measures are appropriate for predicting future loyalty levels. In contrast, where the market is not stable or where there is high involvement and risk, (e.g. in the services and durable goods markets), attitudinal measures may be better predictors of future

behavioural loyalty and market share.

Given the Internet market is relatively unstable (too new to be risk free) and this study's survey product is a printer (durable good), the attitudinal loyalty approach is used to measure Q brand loyalty in the traditional market and attitudinal Q Website loyalty (see Table 5.1 in Chapter 5 for details).

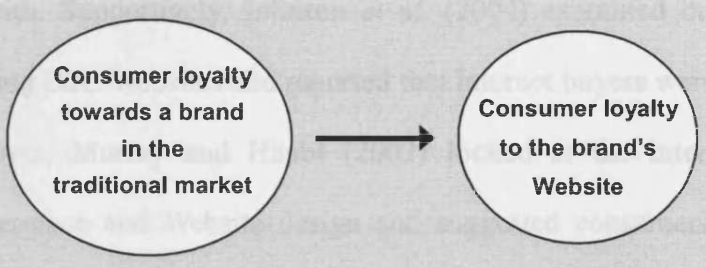
3.2.3 Loyalty and other Consumer Attributes

Ernst and Young (2000) indicated that Internet buying has the potential to become the most powerful non-store shopping channel in the 21st century. Thus, there is a growing interest in better understanding Internet users/buyers (e.g. Danaher *et al.* 2003; Eastlick and Lotz 1999; Murray 2002; Schultz and Bailey 2000). Gommans *et al.* (2001) contended that a company using the same well-known brand name in the traditional market and its Website (e.g. Dixons – Dixons.co.uk) will be able to leverage existing consumers from the traditional market to buy at the brand's Website. Supportively, ThorbjØrnsen and Supphellen (2004) asserted that brand loyalty is a major determinant for Website use and affectively loyal consumers sense a relationship to their favoured brands, in turn, they are motivated to visit Websites for such brands more frequently than non-loyal consumers. Similarly, both Balabanis and Reynolds (2001) and Supphellen and Nysveen (2001) report that consumers' positive attitude towards a brand positively influences their attitude towards the brand's Website. Thus, Ernst and Young (1996) asserted the increased perceived risk of transaction via the Internet heightens the effect of the product brand name and

reported 69% of those surveyed viewed brand names as significant in their Internet buying decisions. Thus, DelVecchio (2000) and Gommans *et al.* (2001) both contended that consumers will extend their satisfactory past experiences with the brand in the traditional market to the brand's Website.

From the reviewed studies, a causal relationship between consumers' existing brand loyalty in the traditional market and their Website loyalty can be developed (see Figure 3.2 below).

Figure 3.2 Causal Link between Consumers' Brand Loyalty/Website Loyalty



Source: this research

However, at the time of writing this thesis, no study is known to have examined how consumers' "loyalty in the traditional market" influences their "Website loyalty". Thus, **in this study, consumers' brand loyalty/Website loyalty link will be investigated (see Chapter 5 for more details).**

Moreover, because the Internet market is still at a very early stage of development, and very few studies have investigated Internet buyers' behaviours, researchers have

debated whether consumer loyalty is higher in the Internet market than in the traditional market. Some researchers argue that the dramatic decrease in search cost/time and the ease with which product/price comparison can be undertaken lead to a substantial reduction in consumer loyalty (de Figueiredo 2000; Lewis 1997). Both Kuttner (1998) and Schultz and Bailey (2000) assert that the instantaneous information and large numbers of product/price choices result in overall low consumer Website loyalty in the Internet market.

In contrast, Murray (2002) presents a totally different argument by introducing the idea of "cognitive lock-in" or "stickiness" used by other authors (e.g. Porter 2001), and contending Internet buyers will return to the Websites they have experienced and are familiar with. Supportively, Johnson *et al.* (2004) examined buyers' searching across competing B2C Websites and reported that Internet buyers were not inclined to search. Moreover, Murray and Häubl (2002) looked at the interaction between consumer experience and Website design and suggested consumers could become loyal, or locked-in, to a particular electronic interface as a result of the user skills they develop through experience with that interface. Further, Zauberman (2003) reported that participants who were locked-in to a particular B2C Website expressed greater satisfaction with their chosen Internet business and the entire buying experience, hence, the switching was reduced. Zauberman (2003) thus suggested that Internet consumers prefer not to switch because they do not want to expend additional efforts in becoming familiar with a new B2C Website's design and various functions. Altogether, these findings imply Internet consumers are susceptible to becoming locked-in/loyal to a particular B2C Website, even though switching between retailers has never been easier. Murray (2002) therefore concludes that Internet buyers tend to be extremely loyal and reluctant to search.

Foxall and Bhate's (1993) work may shed some light on the above arguments. Given Internet buying is regarded as an innovation to be adopted or rejected (Citrin *et al.* 2000; Eastlick and Lotz 1999; Goldsmith 2001; Molesworth and Suortti 2002), Foxall and Bhate (1993) assert that consumers' innovative brand purchase differs across consumer segments according to their cognitive constructs in terms of innovativeness and involvement constructs. Their empirical results indicated that *less-involved adaptors*, *more-involved adaptors*, and *innovators* differed significantly ($p < 0.05$) in the number of brands purchased. Notably, they found *more-involved adaptors* were more loyal and accounted for the highest purchase frequency. Foxall and Bhate (1993) thus suggest that both cognitive constructs, i.e. innovativeness and involvement, should be taken into consideration when analysing consumer buying behaviours. Similarly, Gounaris and Stathakopoulos (2004) asserted that consumers' characteristics of risk aversion and variety seeking are both related to how consumers handle risks, and are two significant characteristics of *adaptors* and *innovators*, respectively. Given consumers' loyalty has been described as a means of handling risk with the decision to purchase a specific brand (O'Shaughnessy 1992), Gounaris and Stathakopoulos (2004) indicated that these two characteristics impact on consumers' loyalty towards a brand. **Consequently, theory development of consumer innovativeness and involvement will be reviewed in Chapter 4, Sections 4.2 and 4.3, respectively.**

Moreover, Bennett and Rundle-Thele (2001) contend that the antecedent variables used to capture consumer loyalty, such as perceived risk and involvement, should be very different according to the market characteristics. Indeed, perceived risk and involvement have been shown to play key roles in loyalty researches (Bristow and

Sebastian 2001; Dholakia 1997; Datta 2003; Jarvis and Mayo 1986; Lastovicka and Gardner 1977; Morgan and Hunt 1994; Odekerken-Schröder *et al.* 2003; Odin *et al.* 2001; Park 1996; Peter and Tarpey 1975; Pritchare *et al.* 1999; Robertson 1976; Traylor 1983). Marketers have been interested in the relationships between brand loyalty and perceived risk/involvement for many years and have examined these problems at some length (see Table 3.3 below).

For example, Knox *et al.* (1993) reported product involvement and brand risk as two significant antecedents of brand commitment in the context of grocery brands choice. Similarly, Knox and Walker (2001, 2003) found consumer loyalty interacted with product involvement and perceived risk and proposed four segments of consumers accordingly:

- **Loyals**: high product involvement and medium risk.
- **Habituals**: low product involvement and low risk.
- **Variety seekers**: medium product involvement and medium risk.
- **Switchers**: low product involvement and low risk.

Knox and Walker (2001) argued that each consumer segment has different levels of product involvement and perceived risk according to the levels of brand commitment and brand support. As such, in the next section, the theory of consumer perceived risk will be presented in order to investigate the relationship between loyalty/risk and explore the possible role that consumer perceived risk may play in consumers' brand loyalty/Website loyalty transformation.

Table 3.2 Loyalty Studies that Highlight Risk and Involvement Constructs

Author	Other Constructs	Sample	Product	Loyalty Approach
Peter & Tarpey, 1975	Brand preference & Risk	Students*	Cars	Attitudinal
Peter and Ryan, 1976	Brand preference & Risk	Students*	Cars	Attitudinal
Jarvis & Mayo, 1986	Risk	Business travellers*	Hotel	Composite
Emmelhainz, 1991	Risk	2,810 grocery store buyers	5 consumer goods	Behavioural
Morgan and Hunt, 1994	Uncertainty (Risk)	NTDRA members*	Manufacturer /dealer relationship	Attitudinal
Hellier, 1995	Risk	Students	insurance	Attitudinal
Heilman *et al.* 2000	Brand preference & Risk	French households panel data*	Diaper & towel	Behavioural
Odin *et al.*, 2001	Risk	Students*	jeans	Behavioural
Park, 1996	Risk & Involvement	Programme members*	Fitness programme	Composite
Dholakia, 1997	Risk & Importance (Involvement)	E-mail users*	Four products	Attitudinal
Amine, 1998	Risk & Involvement	N/A	N/A	Composite
Iwasaki *et al.*, 1998	Risk & Involvement	Interviewed 4 individuals	Running & golf	Composite
Keaveney and Parthasarathy, 2001	Risk & Involvement	ISP consumers*	ISP service	Behavioural
Ganesh *et al.*, 2000	Risk & Involvement	Residents*	Bank services	Composite
Beautty and Kahle, 1988	Involvement	201 students	Soft drink	Composite
Beatty *et al.*1988	Involvement	Students*	Soft drink	Composite
Martin & Goodell, 1989	Involvement	N/A	N/A	Attitudinal
Kim *et al.*, 1997	Involvement	Club members*	Bird watching	Attitudinal
Pritchare *et al.*, 1999	Involvement	681 consumers (convenience sample)	Airlines & hotels	Attitudinal
Delgado-Ballester and Munuera-alemán, 2000	Involvement	173 mothers with children 0-4 years old	Disposable nappies	Attitudinal
Bristow and Sebastian, 2001	Involvement	Baseball fans*	Chicago Cubs	Composite
Homburg and Giering, 2001	Involvement	3,000 German car consumers (random)	Cars	Composite
Volle, 2001	Involvement	Supermarket scanner data*	Supermarkets	Behavioural
Wulf *et al.*, 2001	Involvement	Food & apparel retailers*	N/A	Behavioural
Odekerken-Schröder *et al.* 2003	Involvement	Shopping Mall visitors*	Shopping	Composite

* Sample size was not reported in the paper.

Source: a review of literature for this research

3.3 Consumer Perceived Risk Theory

Daily, consumers are faced with making decisions complicated by uncertainty and the possibility of negative outcomes (Miley 2001). This uncertainty and possible negative outcomes are most often identified as consumer perceived risk (Mowen 1995) which was first introduced to the marketing field by Bauer in 1960. The theory of perceived risk is acknowledged as a contributory factor in consumer decision-making and helps to understand consumer behaviour (Roselius 1971).

The review begins by introducing the two major conceptualisations of consumer perceived risk: the first school proposes the perceived risk as a function comprising two dimensions, i.e. the probability of loss occurring and the importance of loss (Bettman 1973; Cunningham 1967; Dowling 1986; Peter and Ryan 1976; Roselius 1971). The second school views perceived risk as a multi-dimensional occurrence consisting of some or all of the following types of risk: financial, performance, physical, psychological, social, time and overall risk (Cox 1967; Cox and Rich 1964; Festervand *et al.* 1986; Jacoby and Kaplan 1972; Miely 2001; Mowen and Minor 1998; Zikmund and Scott 1973).

The conceptualisation diversity has meant the construct of perceived risk faces similar difficulties as the construct of brand loyalty: the arbitrary measurements utilised in the past and empirical results are not useful for comparisons between researchers (Stem *et al.* 1977). In this section, Dowling's (1986) proposition of three levels of the perceived risk measurement: high level of abstraction measures, intermediate level measures, and low level measures, is discussed.

Moreover, past studies indicate that consumers usually seek to avoid taking too many risks when making a purchase decision (Mitchell and Kiral 1999). Thus, in this section, consumers' perceived risk and their behaviours will be discussed from four perspectives: the personality, product category, purchase method, and risk handling strategy.

At the end of the review, the mediating role of consumer perceived risk in consumers' brand loyalty/Website loyalty transformation will be delineated.

3.3.1 Conceptual Definition of Perceived Risk

Bauer (1960) first brought the theory of perceived risk to the attention of consumer researchers in the marketing field. In his early seminal work, Bauer (1960) stated:

> "*consumer behaviour involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximately certainty, and some of which, at least, are likely to be unpleasant*".

This conceptualisation views perceived risk as a two-dimensional structure comprising uncertainty and adverse consequences. The uncertainty dimension has been highlighted in many subsequent studies (e.g. Arndt 1972; Schiffman 1972; Gronhaug 1972; Shimp and Bearden 1982). However, Bauer (1960) did not define the

dimension of adverse consequences explicitly. Thus, researchers have subsequently tried to define adverse consequences: Cox and Rich (1964) interpreted adverse consequences as "the amount at stake in a buying situation determined by... the costs... involved in attempting to achieve a particular set of buying goals", whilst Taylor (1974) defined it as the "importance of loss".

This two-dimensional structure of perceived risk is also supported by other researchers. For example, Kogan and Wallach (1964) suggested that the concept of risk may have: "... two, somewhat different facets: a "chance" aspect where the focus is on probability, and a "danger" aspect where the emphasis is on severity of negative consequences." Cunningham (1967) conceptualised perceived risk in terms of two similar components, namely, the amount that would be lost if the consequences of an act are not favourable, and the individual's subjective feeling of certainty that the consequences will be unfavourable. Moreover, Bettman (1973) stated that perceived risk is composed of "inherent risk" and "handled risk": the former operates at the product category level while the latter involves the risk generated by a particular brand within the product class. Further, Dowling (1986) defined perceived risk as "a consumer's perception of the overall negativity of a course of action based upon an assessment of the possible negative outcomes and the likelihood that these outcomes will occur".

Generally speaking, these authors represent a school of thought defining perceived risk as a two dimensional construct: probability of loss/uncertainty vs. consequence/importance. However, little consensus has been reached regarding the precise nature of perceived risk (Bettman 1973; Hampton 1977; Horton 1979). Thus,

Vann (1984) indicated that the confusion surrounding perceived risk study can be reduced by recognising several perceived risk dimensions rather than just one. Similarly, Stem *et al.* (1977) proposed the concept of perceived risk as a combination of risk types/components. The second school defining perceived risk as a combination of multiple types of risk is thus found in the literature.

The first two types of consumer perceived risk that impact on consumers' purchase of a product/brand have been identified by Cox (1967): financial and social-psychological risks. Later, Roselius (1971) proposed four types of perceived risk: time loss, hazard loss, ego loss, and money loss. Jacoby and Kaplan (1972) and Kaplan *et al.* (1974) contended that overall perceived risk includes six different types of risk: performance, physical, financial, psychological, social and time. Moreover, Mitchell and Greatorex (1989) proposed four different types of risk: functional, social, financial, and physical. Further, Mowen and Minor (1998) highlighted seven major types of risk from the literature: financial, performance, physical, psychological, social, time and opportunity loss. Similarly, Miley (2001) also pointed to seven major types of risks but replaced opportunity loss with overall risk. Stem *et al.* (1977) asserted that each of these risk types appears to be extensions of Cox's (1967) "adverse consequence" component. However, as Vann's (1984) indicated, these additions appear to provide a more complete model of "consumer perceived risk" for further investigation.

Miley (2001) summarised seven major types of consumer perceived risk from past studies and synthesised each risk as below:

1. **Financial risk**: the possibility that the outcome of an action can harm the consumer financially through the loss of money or other resources.
2. **Performance risk**: the possibility that a product or service will not perform as expected.
3. **Physical risk**: the possibility that a product or service might cause physical harm to the buyer or user.
4. **Psychological risk**: the possibility that one's self-esteem may be lowered.
5. **Social risk**: the possibility that the purchase of a product or service may not meet the standards of important others, resulting in social embarrassment.
6. **Time risk**: the possibility that time spent making the purchase decision may be wasted if the result is not as expected.
7. **Overall risk**: the combination of the various types of risk experienced by the shopper according to the purchase situation encountered.

Notably, due to the unique Internet environment, more and more studies highlight the importance of "security risk" and "privacy risk" when buying via the Internet (Bhatnagar *et al.* 2000; Korgaonkar and Wolin 2002; Limayem and Khalifa 2000; Luo 2002; Milne and Culnan 2004; Miyazaki and Fernandez 2001; Olivero and Lunt 2004; Raab and Bennett 1998; Sheehan and Hoy 2000). Udo (2001) asserted that consumers' security and privacy risks are the major barriers to B2C e-commerce. According to Raab and Bennett (1998), each of these two risk can be synthesised as:

8. **Security risk**: the lack of security in engaging in an Internet buying process.
9. **Privacy risk**: the risk of the individual's personal information use. For

> example, consumers will lose their privacy if hackers steal their personal information which may then fall into the hands of third parties simply because Internet businesses sell or exchange the data (Lim 2003).

Similarly, a recent study (Lim 2003) also addressed nine types of consumers' perceived risk when buying via the Internet but "security risk" is replaced by "source risk" which is the possibility that individuals suffer because the businesses from which they buy products are not trustworthy. Moreover, Liebermann and Stashevsky (2002) proposed that "technological risk", which is the fear of technologically complicated innovations, can be added to the perceived risk when buying via the Internet.

In sum, perceived risk is a multi-dimensional construct (Lim 2003) and Verhage *et al.* (1990) asserted there are two schools of perceived risk conceptualisation: the first school employs a two-dimensional model (e.g. Cunningham 1967; Dowling 1986; Roselius 1971) whilst the second school emphasises the multi-dimensional structure (e.g. Cox 1967; Festervand *et al.* 1986; Jacoby and Kaplan 1972; Miely 2001; Mowen and Minor 1998).

In this study, the multi-dimensional structure of perceived risk is adopted. More specifically, according to the research aims and unique B2C e-commerce environment, seven types of risk, namely, financial, performance, social, time, overall, security and privacy risks will be used to measure "consumer perceived risk when buying at the Q Website" (see Table 5.1 in Chapter 5 for more details).

3.3.2 Measuring Perceived Risk

The conceptualisation diversity of consumer perceived risk extends to its measurement. Similar to the consumer loyalty construct, the arbitrary measurements of perceived risk utilised in past empirical results are not helpful for comparisons between researchers (Stem *et al.* 1977). Even so, efforts have been made to comprehensively review the measurements of perceived risk (Dowling 1986; Mitchell 1999; Stem *et al.* 1977).

According to Dowling (1986), the measurement of perceived risk can be categorised into three levels: high level of abstraction measures, intermediate level measures, and low level measures.

1. High level of abstraction measures

Risk tolerance has generally been measured by presenting subjects with a set of risky events that describe life and death, gambling, or product choice situations. Each subject rates the riskiness of each event. Probably the best known of the psychological risk tolerance scales is that developed by Kogan and Wallach (1964). Barach's (1969) "risk style" construct is another high level concept.

2. Intermediate level measures

Instruments developed by Woodside (1972) and Reingen (1974), which measure risk-taking framed in terms of purchase tasks, are considered to be intermediated

level measures. Dowling (1986) further suggests that probably the most influential measure of this type is that proposed by Bettman (1973), who partitioned risk into two related constructs: inherent risk and handled risk. Bettman's measure of inherent risk has since been supported by other consumer researchers, e.g. Lutz and Reilly (1973), Locander and Hermann (1979).

3. Low level measures

The majority of measures of perceived risk are positioned at a low level of abstraction according to Dowling (1986). Several models have been used to measure overall perceived risk:

Perceived Risk = Uncertainty x Adverse Consequences

Overall Perceived Risk = $\sum_{i=1}^{n}$ Uncertainty$_i$ x adverse consequences$_i$

Overall Perceived Risk = $\sum_{i=1}^{n}$ Probability of Loss$_i$

Overall Perceived Risk = $\sum_{i=1}^{n}$ Probability of Loss x Importance of Loss$_i$

When n = the number of types of loss i

According to Dowling (1986), those models which point to a linear relationship between the components and perceived risk have formal parallels with subjective expected validity models in psychology and the attitude models extensively used in marketing and psychology.

In a recent review of the measurement of perceived risk, Mitchell (1999) began with the simplest model, which has only two components (e.g. Bettman 1973;

Cunningham 1967), progressed to the more complicated risk models which incorporate multiple components (e.g. Dowling and Staelin 1994), and ended with multi-attribute models (e.g. Mitchell and Greatorex 1993; Pras and Summer 1978; Zikmund and Scott 1974). Mitchell (1999) contended that more studies on the measurement of consumer perceived risk are essential as current models require further refinement and development before they can pass the "test of explanation".

Given there is no universal and frequently adopted scale, in this study, seven items are adapted from past studies to measure the consumer perceived risk (see Table 6.1 in Chapter 6).

3.3.3 Perceived Risk and Consumer Behaviour

Perceived risk is powerful at explaining consumer's behaviour because "consumers are more often motivated to avoid mistakes than to maximise utility in purchasing" (Mitchell 1999). Thus, extensive studies have investigated consumers' perceived risk when buying products/services, and choosing among alternative brands, stores and purchase methods (Festervand *et al.* 1986; Hawes and Lumpkin 1986; Lumpkin *et al.* 1985; Verhage *et al.* 1990; Yavas 1987).

In the 1960s, Cox (1967) asserted that it was the kind/amount of risk existing in consumers' perception which influenced behaviour in a decision-making situation, not necessarily the actual risk that might be present. Consequently, those factors which influence the amount of risk consumers perceive in various situations become

salient while measuring consumers' risk perception. According to Bettman (1973), the amount of risk perceived by consumers, which is important in the buying decision, is likely to be greater when:

- there is little experience with brands of a product category
- the product is new
- the consumer has little self-confidence in evaluating brands
- there are variations in quality between brands
- the price is high
- the purchase is important to the consumer
- there is little information about the product category

Moreover, Mowen and Minor (1998) highlighted a number of factors which could influence consumers' risk perception regarding a purchase: consumer personality, characteristics of the product/service, situational factors, and the probability of potential negative outcomes resulting from a purchase/activity. Further, Mowen (1978) indicated that consumers are generally risk averse in their actions. Consumers normally compare their understanding of the amount of risk present in a purchase situation to their personal standard of how much risk is acceptable (Popielarz 1967). If the perceived risk is greater than the acceptable risk, the consumer is motivated to reduce the risk in some way or forgo the purchase (Mowen and Minor 1998). As such, seeking methods to make buying decisions with increased confidence has become a vital need of consumers.

In the following, how consumers' perceived risk differs in terms of the personality, product category, and purchase method is discussed. Also, consumers' risk reduction

strategy is presented.

I. Consumer Personality

Field (1986) suggested that consumer perceived risk is "the psychological sensation of risk that is experienced by individuals when making a decision in a less-than-certain state". That is to say, personality factors can influence the extent to which a particular person will react to the risk in a given situation. Thus, Assael (1998) indicated there are two types of consumers: risk avoiders and risk takers. Similarly, Schiffman and Kanuh (1991) divided consumers into high-risk and low-risk perceivers. According to these authors, **risk avoiders** (high-risk perceivers) are:

- more likely to buy the lowest-priced brands, the same brands, or the most popular brands (Assael 1998);
- be more cautious in their purchase decision (Schiffman and Kanuh 1991);
- more likely to limit their purchase to retailers with whom they are familiar to avoid a poor decision (Schiffman and Kanuh 1991).

In contrast, **risk takers** (low-risk perceivers) are:

- more likely to buy and try new products during the innovative stages before they are well established (Assael 1998);
- tend to be upper-income and socially mobile consumers (Robertson 1969);
- take more chances in purchase situations, thus increasing the consequences of making a poor decision (Schiffman and Kanuh 1991);

- tend to choose between a broader range of alternatives/selections when buying products and services (Schiffman and Kanuh 1991);
- have higher self-confidence, higher self-esteem, higher authoritativeness and progressiveness, lower anxiety, and lower familiarity with the purchase/product problem (Robertson 1969; Schiffman and Kanuh 1991).

II. Product Category

The characteristics of the product/service can also influence perceived risk. In general, high-involvement products are perceived to have a greater degree of risk attached to them (Mowen1987). Thus, products/services whose use could result in highly negative outcomes are generally seen as riskier, often leading to their avoidance by consumers (Mowen and Minor 1998). Supportively, Cox and Rich (1964) indicated that low perceived risk items are standardised reorders or where brand, size, colour and fit do not matter, whereas high perceived risk items are those where style, fit, or personal needs are significant.

Turley *et al.* (1993) also asserted that consumers' perceived risk varies across product category: in their study, when evaluating services, almost half of the risk consumers perceived was associated with how well a service would be performed, i.e. the quality risk, whereas the financial risk was of secondary significance. However, none of the respondents reported feeling any time risk or psychological risk in their last service purchase. Based upon the data, Turley *et al.* (1993) concluded that the service decision making was distinctly different from the purchase process of tangible products.

III. Purchase Method: Non-Store vs. In-Store

Consumers' perceived risk also varies across different buying channels, e.g. buy in a store vs. buy via the telephone vs. buy via the Internet (Cox and Rich 1964; Spence *et al.* 1970; Korgaonkar 1982; Festervand *et al.* 1986; Hawes and Lumpkin 1986; Miley 2001; Van den Poel and Leunis 1996).

For many years, the term "non-store shopping" or "in-home shopping" has been used to include those purchases that are not made in stores (Gehrt *et al.* 1996). Researchers (e.g. Loudon and Della Bitta 1993; Palmer 2000) pointed to consumers' benefits via non-store shopping: convenient, product assortment and uniqueness, a geographically larger shopping area, and often a better price. Reynolds (1974) argued that when buying at home, catalogue shoppers experience an information trade-off which is not present when buying at a store. This information trade-off results from the inability to touch, handle, try on/out, compare the product characteristics (e.g. price, quality and colour) in person and lack of personal contact (Cox and Rich 1964; Gillett 1976; Jasper and Ouellete, 1994). Consequently, perceived risk is heightened and many consumers are reluctant to shop at home despite its recognised advantages (Gillett 1976).

Early in the 1960s, Cox and Rich (1964) interviewed consumers regarding the perceived risk associated with telephone-purchases. Findings indicated that low-risk perceivers purchased more than high-risk perceivers. Thus, Cox and Rich (1964) contended that the perceived risk level associated with the telephone-purchase was the most powerful factor distinguishing telephone shoppers from non-phone shoppers.

Similarly, Spence *et al.* (1970) reported consumers perceived a greater risk in a mail-purchase than in a store-purchase. Moreover, Festervand *et al.* (1986) compared the overall amount and types of perceived risk that consumers encountered between mail and store purchases. Findings indicated that consumers perceived higher financial, performance time and overall risks for mail-purchase than store-purchase. In more recent research, Burgess (1996) examined American television buyers and the amount of perceived risk they associated with the television-purchase. Findings indicated low-risk perceivers had significant higher purchase frequency/amount than low-risk perceivers in television-purchase during the previous year. The consistent finding in past studies evidences that consumers perceive a higher risk buying at home than in a retail store.

B2C e-commerce, however, is a recent evolution in retailing sector, shifting the non-store formats towards the electronic means (Mulhern 1997). From this perspective, buying via the Internet is similar to buying through a paper catalogue. First, both involve mail delivery of the purchases (Spiller and Lohse 1997). Second, both are based on visual product information, such as pictures and quality descriptions. Third, in both cases customers cannot touch or smell the items (Lohse and Spiller 1998; Kolesar and Galbraith 2000). Fourth, both offer consumers the advantages of convenience, time saving, uniqueness of merchandise, and competitive price (Miley 2001). However, due to the unique feature of the Internet environment and the Internet buyer's double-identity (a buyer and a computer user, see Chapter 2, Section 2.2.1), the risks perceived by Internet buyers are also more complex than in the traditional market. Researchers (e.g. Fram and Grady 1997; Jarvenpaa *et al.* 2000; Leibermann and Stashevsky 2002; Lim 2003) indicated that perceived risk is an

important factor for Internet buying. Moreover, as aforementioned, risks of transaction security and privacy invasion are inherent and highlighted in Internet buying (e.g. Bhatnagar *et al.* 2000; Bush *et al.* 2002; Miyazaki and Fernandez 2001; Olivero and Lunt 2004). Thus, researchers (Milne 2000; Miyazaki and Fernandez 2001) have asserted that the risk issue plays a significant role in the development of B2C e-commerce. **Thus, in this study, how consumers' perceived risk will impact on their brand loyalty/Website loyalty transformation is investigated (see Figure 5.1 in chapter 5).**

IV. Risk Handling and Reduction Strategy

Bauer (1960) asserted,

> "*consumers characteristically develop decision strategies and ways of reducing risk that enable them to act with relative confidence and ease in situations where their information is adequate and the consequences of their actions are in some meaningful sense incalculable*".

Moreover, he indicated that "by developing strategies and methods of reducing risk, the consumer might act with relative ease and confidence in purchase situations in which decision information is inadequate and the relative consequences are meaningful to the individual".

In a comprehensive study regarding consumers' risk reduction, Roselius (1971) used

"risk relievers" to indicate the methods consumers used to deal with various kinds of loss. Roselius (1971) postulated that "buyers have a set of many risk-relieving devices and actions ranging from the most preferred to the least preferred which they call upon as needed". He subsequently proposed eleven methods of risk reduction as below:

1. **Endorsements**: buy the brand whose advertising has endorsements or testimonials from a celebrity/expert on the product.
2. **Brand loyalty**: buy the brand that has been used before and the user has been satisfied with in the past.
3. **Major brand image**: buy a major, well-known brand of the product, and rely on the reputation of the brand.
4. **Private testing**: buy whichever brand has been tested and approved by a private testing company.
5. **Store image**: buy the brand that is carried by a store which is thought to be dependable, and rely on the reputation of the store.
6. **Free sample**: use a free sample of the product on a trial basis before buying.
7. **Money-back guarantee**: buy whichever brand offers a money-back guarantee with the product.
8. **Government testing**: buy the brand that has been tested and approved by an official branch of the government.
9. **Shopping**: shop around and compare product features on several brands in several stores.
10. **Expensive model**: buy the most expensive and elaborate model of the product.

11. **Word of mouth**: ask friends or family for advice on the product.

Notably, Roselius (1971) reported **brand loyalty** and **major brand image** were ranked first and second risk relievers, respectively. In fact, Bauer (1960) was the first to suggest brand loyalty is a form of risk reduction. Moreover, both Cox (1967) and Sheth and Venkatesan (1968) stated that risk reduction resulting from experiences with a brand is an important method of coping with uncertainty in purchase situations. More recent studies, such as Kim and Lennon (2000), also indicate that brand loyalty is the most common risk reliever adopted by in-home buyers. Similarly, Gounaris and Stathakopoulos (2004) found that personality of risk aversion is strongly related to premium loyalty. As regards Internet buying, Ernst and Young (1996) reported that 69% of those surveyed indicated that brand names played a significant role in their Internet buying decision. Supportively, Ward and Lee (2000) suggested that consumers use well-known brands as information sources to ensure satisfactory Internet buying outcomes. Thus, a negative casual link between consumer loyalty/perceived risk is demonstrated.

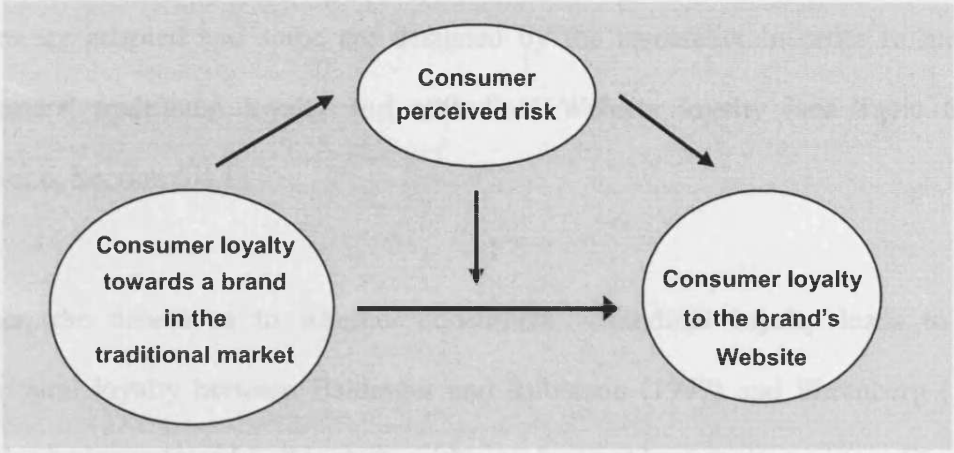
However, a recent study by Knox *et al.* (1993) found brand risk to be a significant antecedent of brand commitment (i.e. attitudinal loyalty), which implies a positive causal link between brand risk and consumer loyalty. In contrast, Gommans *et al.* (2001) reported security and privacy risks were critical to consumer loyalty to a Website and a negative causal link was indicated between consumer perceived risk and consumer Website loyalty.

Moreover, Anderson and Srinivasan (2003) asserted that consumers' trust is important

to an Internet business as it directly influences their perceived risk level associated with Internet buying. In fact, in a recent empirical study, Miyazaki and Fernandez (2001) reported that consumers' perceived risk is negatively related to their Internet buying frequency. Similarly, Molesworth and Suortti (2002) linked Internet buying behaviour (an adoption of an innovation) and consumer trust through the perceived risks (feelings of uncertainty), showing the perceived risk mediated the relationship between consumers' attitude (trust) and their behavioural Website loyalty (actual Internet buying). Stewart (1999) also proposed perceived risk to be a mediating factor on the relationship between consumers' trust and their willingness to purchase products at the Website. Still, Harris and Goode (2004) contended that Internet consumers distrusted not only the Internet businesses themselves (e.g. Fukuyama 1995; Urban *et al.* 2000) and their payment system (e.g. Baker 1999; Hoffman *et al.* 1999a), but also the very nature of the Internet and Internet buying (e.g. Hoffman *et al.* 1999b; Schoder and Yin 2000).

According to these studies, the relationship between consumer loyalty and perceived risk is no longer a simple and single direction arrow but a more complex phenomenon that can mediate the consumers' brand loyalty/Website loyalty link proposed previously in Figure 3.2. Thus, in this study, the consumer loyalty/risk relationship is further investigated in the unique Internet market context to provide more insights and fill the research gap. Figure 3.3 below presents the possible mediating role of consumer perceived risk and how it can impact on the consumers' brand loyalty/Website loyalty link.

Figure 3.3 Consumer Brand Loyalty/Website Loyalty Transformation Structure and the Mediating Role of Consumer Perceived Risk



Source: this research

3.4 Summary

This chapter has reviewed the theory development of consumer loyalty and perceived risk in terms of conceptualisation, operationalisation, and measurements.

Researchers (Mullen *et al.* 1996; Rundle-Thiele and Bennett 2001) contend that the problem of loyalty research lies with the method of operationalising brand loyalty which leads to a no ideal, cure-all and universal loyalty measurement. Moreover, the research purpose (Mellen *et al.* 1996) and market type (Bennett and Rundle-Thele 2001) are asserted to drive the choice of consumer loyalty measures used. Given the Internet market is relatively unstable (too new to be risk free) and this study's survey product is a printer (durable good), the attitudinal loyalty approach is more suitable to measure Q brand loyalty in the traditional market and attitudinal Q Website loyalty

according to Bennett and Rundle-Thele (2002). More specifically, because there is no universal and context free loyalty scales, in this study, some items from previous studies are adapted and some are designed by the researcher in order to measure consumers' traditional loyalty and attitudinal Website loyalty (see Table 6.1 in Chapter 6, Section 6.4.1).

Further, the debate as to whether consumers' attitudinal loyalty leads to their behavioural loyalty between Baldinger and Rubinson (1997) and Ehrenberg (1997) will also be investigated in this study within an Internet buying context (see Chapter 5, Section 5.4: Research Hypotheses).

Turning to the consumer perceived risk, the multiple types of risk approach (e.g. Cox 1967; Festervand *et al.* 1986; Jacoby and Kaplan 1972; Miely 2001; Mowen and Minor 1998) will be adopted in this study. According to the research aims and unique B2C e-commerce environment, seven types of risk: financial, performance, social, time, overall, security and privacy risks will be used to measure "consumers' perceived risk when buying at the Q Website" in this study (see Table 5.1 in Chapter 5 for more details).

The sophisticated relationship between loyalty/risk shown in past studies has been referred to in this chapter. Although most studies indicate a negative causal link between consumer loyalty/perceived risk (e.g. Cox 1967; Ernst and Young 1996; Kim and Lennon 2000; Roselius 1971), some researchers have proposed a reverse direction causal link, indicating consumer perceived risk could have a positive or negative impact on consumer loyalty (Knox *et al.* 1999; Gommans *et al.* (2001). Still others (Anderson and Srinivasan 2003; Molesworth and Suortti 2002) assert that

perceived risk plays a mediating role in the context of Internet buying.

Consequently, to further investigate this loyalty/risk relationship and explore how consumer perceived risk may mediate the consumers' brand loyalty/Website loyalty transformation, a structure comprising consumers' brand loyalty/Website loyalty link and mediating effects of perceived risk was developed (see Figure 3.3), upon which the conceptual framework of this study will be established (see Figure 5.1 in Chapter 5).

The next chapter presents the theoretical background of consumer cognitive constructs, including innovativeness and involvement.

Chapter 4 Consumer Cognitive Constructs

4.1 Introduction

4.2 Consumer Innovativeness Theory

4.2.1 Conceptual Definition of Consumer Innovativeness

4.2.2 Consumer Innovativeness Measurement

4.2.3 Profiling Innovators

4.3 Consumer Involvement Theory

4.3.1 Conceptual Definitions of Consumer Involvement

4.3.2 Consumer Involvement Operationalisation

4.3.3 Consumer Involvement Measurements

4.3.4 Consumer Involvement and Buyer Behaviour

4.4 Summary

4.1 Introduction

The importance of using psychological factors to help explain why loyalty occurs has been emphasised by researchers (e.g. Evans 1959; Jacoby and Kyner 1973; Iwasaki and Havitz 1998, 2004). Moreover, researchers (e.g. Assael 1998; Cohen 1968; Schiffman and Kanuh 1991; Westfall 1962) also suggested that personality factors influence the extent to which a particular person will react to the risk in a given situation. In fact, Foxall and Bhate (1993) have revealed that consumer cognitive constructs, including innovativeness and involvement, impact on consumers' innovative brand purchase.

Thus, in this chapter, the literature focusing on consumer innovativeness and involvement theories will be reviewed sequentially in terms of theory development, conceptual definition, operationalisation, and measurements. Therefore, the impacts these two constructs have on consumer behaviours will be demonstrated. Moreover, at the end of the chapter, the interactions between constructs of consumer involvement, loyalty and perceived risk will be discussed. Consequently, the advantage of using consumer involvement in this study as an explanatory variable investigating consumers' brand loyalty/Website loyalty transformation model will be revealed.

4.2 Consumer Innovativeness Theory

Consumer innovativeness is relevant for marketing theory and practice as companies rely increasingly on the success of new product introductions for future growth and

profitability. Purchase innovators form a good base for spreading the word about a product before mass consumers formulate any position towards a brand. Consumer theorists argue that "innovativeness" leads to unique patterns in consumption behaviour (e.g. Foxall 1984; Midgley 1977; Midgley and Dowling 1978). Thus, to better tailor the product development and marketing mix to meet consumers' requirements, marketers have used the innovativeness construct to identify and target consumers' receptiveness to new products (Noble *et al.* 2002).

This review begins by introducing the theory development of innovativeness, from Rogers' time-of-adoption theory in rural psychology to theory foci in the marketing field. Arguing that innovators should not be identified only by their new product adoption behaviour, several researchers have proposed different approaches. Midgley and Dowling (1978) defined innovativeness in a hierarchical-like structure, suggesting that specific to broad, actualised innovativeness (buying behaviour) has three different levels: specific innovativeness for a single product, specific innovativeness for a product category, and innate innovativeness. Hirschman (1980) defined innovativeness as a general tendency towards newness in life, i.e. inherent novelty seeking. Foxall (1986, 1994, 2003) viewed innovativeness as a cognitive style, whereas Goldsmith and Hofacker (1991) proposed a Domain Specific Innovativeness (DSI) Scale to measure consumer innovativeness in a specific category.

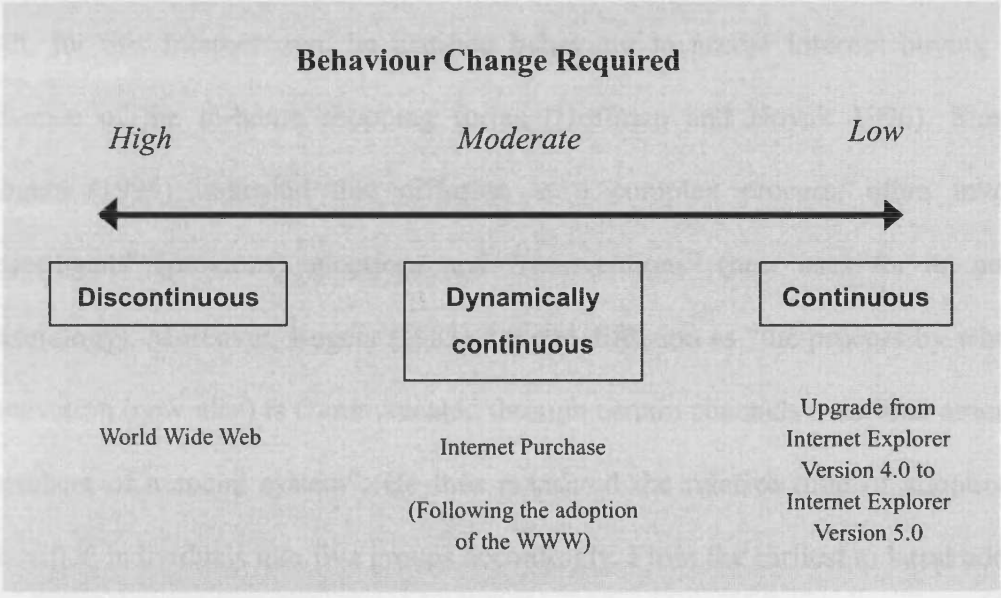
The variety of conceptual approaches continues to the measurement of the consumer innovativeness construct. Goldsmith and Foxall (2003) proposed three measuring approaches: behavioural, global trait, and domain specific. These will be discussed in turn.

Finally, innovators' socio-demographic characteristics and behavioural tendencies are profiled in order to help marketers and companies identify and segment their consumers.

4.2.1 Conceptual Definition of Consumer Innovativeness

Consumer innovativeness theory was first introduced to the marketing field in the context of the diffusion process by rural social researchers in the mid 1960s (Arndt 1967; King 1963; Robertson 1967; Silk 1966). Robertson (1971) proposed an innovation continuum (see Figure 4.1), where innovations can be classified according to their effect on existing consumption patterns, namely, discontinuous, dynamically continuous, and continuous.

Figure 4.1 Innovation Continuum



Source: Adapted from Robertson (1971) cited in Molesworth and Suortti (2002)

According to Robertson (1971), a continuous innovation causes little disruption in behavioural patterns, thus this modified product is similar to existing products/services. A good example is software upgrades, where the main functions remain the same with little advances to learn. At the other extreme, a discontinuous innovation is a new product that requires the establishment of new behavioural patterns. Consequently, a greater level of consumer involvement is created through this learning requirement. A discontinuous innovation is described as "so new that we have never known anything like it before" (Hoyer and MacInnis 1997) and rare (Cox and Spickett-Jones 2000). The World Wide Web is a good example, as it has a significant effect on individuals' behaviour and requires them to learn a new set of skills.

A dynamically continuous innovation causes some disruption in behavioural patterns, but does not alter them substantially. Thus, it may involve the creation of a new product or the modification of an existing one. Assuming that a consumer has previously adopted the WWW to search for information and receive/send e-mails, it will, for this Internet user, be justified behaviour to accept Internet buying as an advance of the in-home shopping forms (Hoffman and Novak 1996). Similarly, Rogers (1995) indicated that diffusion is a complex process, often involving "contingent" (previous) adoptions and "re-inventions" (new uses for an adopted technology). Moreover, Rogers (1983) defined diffusion as "the process by which an innovation (new idea) is communicated through certain channels over time among the members of a social system". He thus measured the relative time of adoption and classified individuals into five groups accordingly. From the earliest to latest adoption

(according to standard deviations from the mean), these groups are (Rogers 1983):

- Innovators (the first 2.5% to adopt);
- Early adopters (the next 13.5% of adopters);
- Early majority (34%);
- Late majority (34%)
- Laggards (the last 16% to adopt).

However, researchers (Hurt *et al.* 1977; Midgley and Dowling 1978) have criticised this time-of-adoption approach for both theoretical and methodological reasons. First, it is a temporal concept that equates time-of-adoption with the "innovativeness" construct, but bears no isomorphic relationship with the latent construct it is supposed to operationalise. Second, findings cannot be compared across studies or generalised. Hence, marketing researchers have proposed different theoretical concepts and measurements. Mudd (1990) indicated four major schools: Midgley and Dowling (1978), Hirschman (1980), Foxall and Haskins (1986), and Goldsmith (1984).

I. Midgely-Dowling's Proposition

Midgley and Dowling (1978) define innate innovativeness as "the degree to which an individual makes innovation decisions independently from the communicated experience of others". They perceive it as a central trait, which is possessed more or less by individuals. Midgley and Dowling (1978) emphasise the importance of

recognising the generality/abstraction by which innovativeness is conceptualised and measured. Thus, they propose three levels of actualised innovativeness: specific innovativeness for a single product, specific innovativeness for a product category, and innate innovativeness. Mudd (1990) synthesised each level as below:

- **Specific innovativeness for a single product** interacts with situational variables (e.g. need and purchase power) in order to determine the adoption of a single product. Given only one product is involved in the single-product adoption, it is not possible to disentangle innovativeness effects at this level from the effects of situational variables.

- **Specific innovativeness for a category of products** interacts with situational variables and the adoption of a number of products from a designated product class (e.g. home furnishings and clothing). Mudd (1990) called this process "communicated experience". Effects regarding this level of innovativeness can be established by means of the multiple observations necessary to define the level using the cross-sectional method in which respondents identify a list of products they have already adopted at the time of sampling.

- **Innate innovativeness** operates interactively with situational factors, communicated experience and interest in product categories, to determine the adoption of multiple products across several categories. This level of innovativeness can be measured using cross-sectional adoption data or by

psychometric means.

Based on this three-level structure, Midgley and Dowling (1978) criticised the time-of adoption measure and proposed an alternative "cross-sectional" approach, which they believed could capture an individual's deeper and more abstract innovativeness construct, i.e. some basic expressions of an individual's personality across several domains. Thus, Midgley and Dowling's (1978) contribution is twofold: first, they made a clear distinction between innate innovativeness (a trait) and actualised innovativeness (a buying behaviour). Second, they distinguished between three levels of actualised innovativeness.

II. Hirschman's Proposition

Hirschman (1980) explained actualised innovativeness by indicating two cognitive antecedents: inherent and actualised novelty-seeking.

- **Inherent novelty-seeking** is a preference for and desire to seek new/different information. In the consumer behaviour domain, this becomes inherent innovativeness (equivalent to Midgley and Dowling's (1978) innate innovativeness), the capacity and willingness to acquire new information by means of new product adoption.

- **Actualised novelty-seeking** is the overt search for new information as a

prelude to the acquisition of an innovation. In Hirschman's model, it is actualised novelty-seeking that translates inherent novelty-seeking into actualised innovativeness.

Moreover, Hirschman (1980) made a subtle distinction between components of actualised innovative behaviours: vicarious innovativeness (learning about new products not yet acquired), adoptive innovativeness (purchase of new products), and use of innovativeness (solving novel consumption problems by adaptive use of an existing product). Which form of actualised innovativeness will be lead to inherent novelty-seeking depends on situational and personal factors (e.g. the consumer's need for new products in order to perform more effectively).

Mudd (1990) indicated the Hirschman's model is important to consumer behaviour theory because its refinement of the innovativeness construct in terms of novelty seeking is substantially different from Midgley and Dowling's (1978) formation.

III. Foxall' s Proposition

Foxall and Haskins (1986) understood the consumer innovativeness construct as a cognitive style. They defined consumer innovativeness as "an individual's way of processing information, or his/her preferred approach to decision making and problem solving as distinct from his cognitive level, ability or complexity". Foxall (1995, 2003) undertook a series of studies of early adopters using the Kirton Adaption – Innovation Inventory (see the next Section 4.2.2) to measure consumer innovativeness. Foxall

and Haskins (1986) indicated the KAI was clearly related to Midgely and Dowling's model measuring innate innovativeness. Moreover, Foxall (1988) contended the KAI was also related to Hirschman's model because the KAI-based adaptor-innovator typology is an expression of a higher-order factor determined by a set of lower-order factors, one of which is Hirschman's inherent novelty seeking. However, Mudd (1990) argued that the KAI's connection to Hirschman's study is less consistent and clear than it is to Midgeley and Dowling's study. Even so, Mudd (1990) contended that Foxall and Haskins (1986) had added a third major conceptualisation to the innovativeness construct by viewing consumer innovativeness as a cognitive style and using the KAI to measure and explain consumer innovative behaviour. Pallister (1995) also viewed Foxall and Haskins' (1986, 1987) work as an important addition to innovativeness conceptualisation, particularly in terms of explaining innovativeness as an independent variable with adoption behaviour as a dependent variable.

Notably, findings of Foxall's (1994) series work indicated that *adapters* accounted for the highest frequency of buying new food products/brands. To conduct a further investigation, Foxall and Bhate (1993) used **consumer involvement** (measured by the APII scale of Zaichkowsky (1994), see Section 4.3.3) as an explanatory factor to examine consumers' innovative purchase of health food. Findings showed adaptors who had become committed to the cause of healthy eating sought out assiduously much more relevant food items than innovators or other less involved adaptors in this product field. Thus, *adaptors* who were more involved with the product category bought most new products/brands, followed by *innovators* (whether more/less involved), and finally *less-involved adaptors* (Foxall 1994, 2003). Similar results have been found for consumers' adoption of new financial products, use of credit cards, use

of innovativeness with respect to computer software and organisational computer utilisation (Foxall and Bhate 1999). This consistent finding demonstrates the interaction between the two consumer cognitive constructs (involvement and innovativeness) and its impact on consumer purchase/use behaviour of innovations.

Consequently, Foxall and Bhate (1993) devised Table 4.1 to show how less-involved adaptors, innovators and more-involved adaptors differ from cognitive adoption behaviours in terms of problem recognition, search, evaluation and decision.

Table 4.1 Consumer Behaviours in the Adoption Process

Stage in the adoption process	Less-involved adaptors	Innovators	More-involved adaptors
Problem recognition	Reactive	Proactive	Active
Search	Restricted to known brand set	Superficial for any given item but wide ranging within product class and across classes	Assiduous exploration within accepted product category
Evaluation	Cautious and slow, based on tried and tested criteria	Short, personal and subjective, impulsive	Meticulous but confident
Decision	Conservative choice within acceptable range of brands/ products: continuous innovations preferred	Radical, discontinuously – new products attractive. Frequent trial, assessment and discontinuance	Prudent but goal-oriented even if this entails dynamically continuous innovations
Post-purchase evaluation	Detailed evaluation, tendency towards brand loyalty	Little brand loyalty, constant search for novel experience	Loyal if satisfied but tendency for exploration *within* product class

Source: Foxall, G. and Bhate, S. (1993) "Cognitive styles and personal involvement of market initiators for 'healthy' food brands: Implications for adoption theory. Journal of Economic Psychology, V14, No. 1, pp. 33-56

Following Foxall's example, Pallister (1995) and Roehrich *et al.* (2001) also used both consumer innovativeness and involvement to investigate consumer innovative behaviours in financial service and snack products categories, accordingly. Similarly, **in this study, Foxall and Bhate's (1993) cognitive-style segmentation in terms of innovativeness and involvement will be adopted to investigate consumers' brand loyalty/Website loyalty transformation (a comprehensive comparison between this study and Foxall and Bhate's (1993) study will be found in Table 8.3 in Chapter 8).**

IV. Goldsmith's Proposition

Goldsmith and Hofacker (1991) established the Domain Specific Innovativeness Scale (DSI) to measure consumer innovativeness in a specific product field (see Section 4.22 for more DSI details). According to Midgley and Dowling (1978), product specific innovativeness is distinguished from the more abstract concept of "innate innovativeness" and reflects the tendency to learn about/adopt innovations (new products) within a specific domain of interest. Gatignon and Robertson (1985) indicated that "the overriding conclusion is that innovators must be identified and characterised on a product category basis and there is not a generalised innovator across product category or interest domains". Supportively, Buss (1989) argued that "narrowly defined traits have the advantage of being relatively better predictors of a particular behaviour, just as tennis performance is better predicted by tennis ability than by general athletic ability". In fact, a more recent study (Im *et al.* 2003) has

revealed that innate innovativeness has a weak ability to predict consumers' new product adoption behaviour. Thus, Goldsmith and Hofacker (1991) suggested that the DSI scale would demonstrate a better ability to explain innovative purchase/use behaviours than the scale which measured the more abstract trait (innate innovativeness).

Confirmatively, Goldsmith *et al.* (1995) measured 465 adult consumers' global innovativeness (using six items from Hurt *et al.*'s (1977) innovativeness scale) and domain specific innovativeness (using the DSI scale) in clothing and consumer electronics domains. Findings indicated that although global (innate) innovativeness and domain specific innovativeness were positively correlated, the correlation between domain specific innovativeness and actualised purchase behaviour was higher than that between global (innate) innovativeness and actualised purchase behaviour. Notably, when controlled for domain specific innovativeness, the correlation between global (innate) innovativeness and actualised purchase behaviour did not differ from zero. Thus, the hypothesis that the domain specific innovativeness construct can better predict consumers' purchase behaviour within a product category was confirmed.

Similarly, Citrin *et al.* (2000) examined the impacts of open-processing innovativeness (equivalent to innate innovativeness, measured by Joseph and Vyas' (1984) scale) and domain-specific innovativeness (measured by the DSI scale) on Internet buying behaviours. Findings indicated that domain-specific innovativeness had a stronger effect than open-processing innovativeness (innate innovativeness) on consumers' adoption of Internet buying. This result confirmed the aforementioned

findings of Goldsmith *et al.* (1995).

Moreover, Roehrich *et al.* (2001) investigated the relationship between innate innovativeness (measured by Roehrich's (1995) scale) and domain specific innovativeness (measured by the DSI scale). Findings indicated that domain specific innovativeness was the consequence of innate innovativeness, and the latter was a general tendency towards new product buying, whereas the former was the same tendency but limited to only one product category.

In brief, the above three studies confirm Midgley and Dowling's (1978) three level model actualising innovativeness: the level of innovativeness trait is most narrow in a single product, less narrow in product category and, finally, more broad in innate innovativeness. Moreover, Goldsmith (1987) tended to agree with Foxall and Haskins' (1986, 1987) assertion that innovativeness is linked to the cognitive style. Goldsmith (1987) stated:

> *"Adoption-Innovation theory describes a cognitive style or preference for certain patterns of behaviour and the KAI is a self report summary measure of these patterns. Moreover, these patterns of behaviour deserve to be called cognitive styles. They are trait-like concepts resembling traits in that they refer to consistencies in behaviour, but they are different from personality traits per se because they are more specific in the behavioural domain to which they refer and are in fact traceable to broader traits and result from the combination or confluence of more than one underlying trait, representing thereby unique combinations of traits whose interactions produce particular styles of behaviour in particular situations".*

Mudd (1990) viewed this statement as confirming congruence between Goldsmith's and Foxall's conceptualisations.

Pallister (1995) argued that the four major strands of innovativeness research discussed above show that Midgley and Dowling (1978) and Hirschman (1980) took a wide social view of innovativeness, whilst Foxall and Haskins (1986, 1987) and Goldsmith (1984, 1985, 1987) took a relatively narrow empirical view of innovativeness with a focus on cognitive styles. However, both Foxall and Goldsmith and their associates introduced a series of studies of a revolutionary nature in the 1990s: the former used the personal involvement construct to explain consumers' innovative behaviours (Foxall 1994, 2003) whereas the latter established the Domain Specific Innovativeness Scale and used it repeatedly to measure consumer innovativeness in one specific category (e.g. Goldsmith 2000, 2001, 2002).

4.2.2 Consumer Innovativeness Measurement

Regarding the innovativeness measurement, the above review pointed out that the main problem lies in the general vs. specific construct utilised. The literatures show only a weak correlation between a specific behaviour and innate innovativeness whilst a strong correlation is found between a specific behaviour and domain-specific innovativeness (Citrim *et al.* 2000; Goldsmith *et al.* 1995). Supportively, Moskowitz (1982) stated:

> *"It is possible that a broadly defined construct subsuming many referents (e.g. dependency) will have a lower average inter-correlation among its referents than a narrow construct (e.g. seeking help). However, the broad construct will have the advantage of predicting diverse behaviours at modest levels of accuracy, whereas the narrow construct will predict with high accuracy within a limited range and very poorly outside that range."*

Goldsmith *et al.* (1995) argued that much of the consumer personality research has ignored the generality/specificity issue. When this oversight is corrected, they contended, the relationships between personality/consumption can be substantiated and modelled more accurately. Goldsmith *et al.* (1995) investigated other areas of behavioural research and confirmed that the predictive/explanatory power of constructs improves as measures are taken at increasingly specific levels of generality.

In a recent review, Goldsmith and Foxall (2003) proposed three types of innovativeness measurements: behavioural, global trait and domain specific innovativeness.

I. Behavioural Perspective

Using the behavioural approach, consumer innovativeness is identified by an adoption/non-adoption of an innovation and the time of adoption (Goldsmith and Foxall 2003). That is, consumers are classified as innovators/non-innovators

depending on whether they buy a new product or not, or how quickly they purchase a new product after it has come on the market. Goldsmith and Foxall (2003) argued that this approach measures nothing but the behaviour, thus the construct measured by the behavioural approach may be an important dependent variable in a larger study of new product adoption but is not suitable for a study that measures the latent innovativeness construct.

II. Global Trait Perspective

Goldsmith and Foxall (2003) contended that global trait innovativeness is best measured by means of a self-report scale which is rigorously validated and standardised. They further indicated four scales of this type in the literature: Jackson 's Personality Inventory, Kirton's (1989) Kirton Adaption-Innovation Inventory (KAI), Costa and McCrae's (1992) NEO Personality Inventory, and Hurt *et al*'s (1977) Innovativeness Inventory. Among these four scales, the KAI has important implications for the measurement and conceptualisation of innovativeness (Goldsmith and Foxall 2003).

Kirton (1976) proposed the Adaption-Innovation Theory which assumes individuals in general bring different incommensurable viewpoints and solutions to their problems. That is, from the point of view of personality measurement, high adaptors and high innovators look very different people. He thus developed the Kirton Adaption-Innovation Inventory (KAI) to measure this innovativeness construct. The

KAI is a pencil-and-paper self-report scale consisting of 32 items organised into three subscales. High scores identify innovators and low scores identify adaptors, but no especial value is accorded to either tendency, as both cognitive styles are important (Goldsmith and Foxall 2003).

III. Domain Specific Perspective

Because consumer innovativeness is largely domain-specific (Goldsmith and Foxall 2003) and global trait innovativeness has been proved to be only weakly associated with specific consumer behaviours (Foxall and Goldsmith 1988; Goldsmith *et al.* 1995), Foxall *et al.* (1998) thus conceptualised consumer innovativeness as "the tendency to buy new products soon after they appear in the marketplace". Similarly, Goldsmith and Hofacker (1991) defined domain-specific innovativeness as a "tendency to learn about and adopt innovations (new products) within a specific domain of interest" and proposed the Domain Specific Innovativeness Scale (DSI). Goldsmith and Hofacker (1991) proposed domain-specific innovativeness as an intermediary between innate innovativeness and innovative behaviour, and studies (Citrim *et al.* 2000; Goldsmith *et al.* 1995) have confirmed this.

Blake *et al.* (2003) asserted that Internet buying is a function of consumers' domain specific "Internet buying innovativeness", not only in regard to product buying but also to visiting Websites for product information. In fact, both Blake *et al.* (2003) and Goldsmith (2001) used the DSI scale to measure consumers' Internet buying or use

innovativeness.

The DSI scale comprises six items and is claimed to be uni-dimensional, highly reliable and have high predictive validity (Flynn and Goldsmith 1993a, 1993b; Goldsmith 2000, 2001, 2002; Goldsmith and d'Hauteville 1998; Goldsmith *et al.* 1995; Goldsmith and Flynn 1992). However, correlations found between the domain specific scale and an opinion leadership scale (r = 0.78 and 0.80, respectively) have questioned its discriminating validity (Roehrich 2004). Nyeck *et al.* (1995) used the DSI scale in an international study (Canada, Israel, France) and findings tended to confirm those of Goldsmith and Hofacker (1991), although the predictive validity was lower and the factorial structure of lesser quality. An in-depth comparison between studies using the DSI scales can be found in Table 8.4 (see Chapter 8).

Notably, Roehrich *et al.* (2001) reported a quite different factorial structure from what Goldsmith claimed. Instead of one unique dimension, Roehrich *et al.* (2001) found two dimensions (the first dimension comprised positively worded items whereas those of the second were negatively worded). These two dimensions were implied to be hedonist and social innovativeness. Although they were negatively correlated (r = -.427, $p < 0.01$), both dimensions had good internal consistency: 0.73 for the positive dimension and 0.80 for the negative one, respectively.

In summary, findings of Nyeck *et al.* (1995) and Roehrich *et al.* (2001) vary from and challenge those found in Goldsmith's series work. Hence, more studies are needed to clarify the usefulness of the DSI scale in terms of validity and reliability when

measuring consumers' innovativeness across different categories.

Consequently, **in this study, the DSI scale will be adopted (see Table 6.1 in Chapter 6) to measure consumers' Internet buying innovativeness in order to fill the research gap and offer more insights in terms of the dimensionality (see Appendix 6), validity and reliability (see Chapter 6, Sections 6.6.1 and 6.6.2) of the DSI scale.**

4.2.3 Profiling Innovators

Robertson *et al.* (1984) indicated that socio-demographic characteristics have impacts on consumer innovative behaviours. According to Robertson *et al.* (1984), innovators are likely to be:

- higher income earners
- more highly educated
- younger
- more socially mobile
- have more favourable attitudes towards risk
- exhibit greater social participation
- have a higher opinion leadership

Gatignon and Robertson (1985) pointed out that innovators are:

- heavy users within the product category (supported by Goldsmith and Flynn (1992) and Rogers (1995)).
- with significant experience in similar product categories.

Moreover, Foxall (1994) described innovators as:

- having more abstract thinking, leading them to ask more questions, search widely for information, and investigate more relationships.
- likely to try discontinuously new products, accept the risk of buying an unsatisfactory item.
- use more environmental stimuli, taking in more of the data that impinge on them, and using them more actively to find a solution.
- likely to be broad categorisers, risking errors and costs to take advantage of potential positive chances.

Still, other studies have added more clues about innovators. They:

- see continuous (improved) products as more alike than adaptors, and are likely to be less brand loyal (Foxall and Goldsmith 1988).
- are more involved in the product field and engaged in extended problem solving prior to purchase (Howard 1977).

In fact, in a more recent study, Gournaris and Stathakopoulos (2004) have indicated

that consumers' risk aversion (i.e. *adaptors*' significant characteristic) and variety seeking (i.e. *innovators'* significant characteristic) will impact on their loyalty towards a specific brand. Similarly, Homburg and Giering (2001) have demonstrated that variety seeking is one of the key consumer characteristics which moderate the relationship between perceived quality and satisfaction with loyalty to a specific brand.

As such, the ability to identify innovators helps marketers effectively target new consumers of the product (Foxall 1984; Midgley 1977) and helps managers to promote the brand effectively (Gournaris and Stathakopoulos 2004). Consumer innovators, though, tend to be the smallest among the five segments (see Section 4.2.2). Rogers (1995) indicated they are important information sources and have considerable influence on the consumer majority (two-thirds of the new product market). Moreover, consumer innovators are vital gatekeepers for new products (Gatignon and Robertson 1985), providing valuable feedback to marketers regarding product features/benefits, from which the company is able to deliver greater value to consumers (Ohmae 1990) and match products to local tastes/preferences (Zaichkowsky and Sood 1989). As a result, the innovators' characteristics mentioned above are helpful to marketers in a variety of ways.

In this study, the socio-demographic characteristics and Internet use/buying behaviours of the four consumer segments will be summarised to help marketers target the different consumers (see Chapter 8, Sections 8.3.1 and 8.3.3).

4.3 Consumer Involvement Theory

For nearly forty years, the concept of consumer involvement has been extensively studied and has played an important role in the development of consumer behaviour theories (e.g. Bloch 1981, 1982; Kassarjian 1981; Quester and Smart 1998; Warrington and Shim 2000). Muncy (1990) reviewed the development of Involvement theory and proposed three stages: definition, measurement and theory building. According to his classification, though there may have been some overlap in time, each stage during the last forty years is approximately as below:

1. Definition: from the mid 1960s to the mid 1980s,
2. Measurement: from the mid 1980s to the early 1990s,
3. Theory building: from the early 1990s to-date.

In the first "definition" stage, Krugman (1965) was the first to introduce the concept of involvement into the consumer research field by investigating consumers' low-involvement learning in respect of television advertising. After this, various researchers extended its use to explain how consumers are related to advertising, product, purchase, and brand (e.g. Bloch *et al.* 1986; Celsi and Olson 1988; Kassarjian 1981; Mantel and Kardes 1999; Mowen 1987, 1998). Consequently, a vast amount of divergent research theorising over the involvement construct created a lack of conceptual boundaries (O'Cass 2000). Rothschild (1984) foresaw this saturation point and proposed a ten-year moratorium on definitions of involvement, suggesting that researchers should transfer their focus to empirical examinations.

In the second "measurement" stage, responding to Rothschild's call, considerable

progress and rapid growth were made towards operational definitions and measurements, resulting in the overarching status of involvement in consumer research at that time. Several important scales that were subsequently adopted/adapted were developed during this stage: e.g. Laurent and Kapferer's (1985) Consumer Involvement Profile (CIP); Zaichkowsky's (1985) Personal Involvement Inventory (PII) and (1994) Advertising Personal Involvement Inventory (PIIA); Slama and Tashchian's (1985) Purchase Involvement Scale (PI); and Mitall's (1989) Purchase-decision Involvement Scale (PDI).

In the third "theory building" stage, researchers have examined and validated existing scales across different product categories (e.g. Aldlaigan and Buttle 2001; Foxall and Pallister 1998; Jain and Srinivasan 1990; McQuarrie and Munson 1987, 1992; Mittal 1995) or extended explorations to new research issues in order to explore relationships between consumer behaviours and involvement levels, e.g. adoption of new products (Foxall and Bhate 1993), gambling and enduring involvement (Jang *et al.* 2000), leisure involvement (Havitz and Dimanche 1997, 1999; Iwasaki and Havitz 2004), and technology involvement (Latour *et al.* 2002). In addition, when B2C e-commerce rocked the traditional marketplace in the late 1990s, the concept of involvement was extensively used to explain consumer behaviours in this new Internet market, e.g. online computer games (Henfridsson and Holmstrom 2002) and how involvement impacts on attitudes towards the retailer's Website (Balabanis and Reynolds 2001).

Bearing the theory development in mind, the following sections sequentially discuss the conceptual definition, operational definition, and measurement of consumer involvement.

4.3.1 Conceptual Definitions of Consumer Involvement

The concept of involvement was pioneered by the Sherifs and their associates (Sherif and Cantril 1947; Sherif and Hovland 1961; Sherif *et al.* 1965) in social psychology. Sherif and Cantril (1947) defined involvement as "the general level of interest in the object or the centrality of the object to the person's ego-structure". Within the social psychology field, though different authors have different opinions, the concept of "ego-involvement" remains the basis of the theory, indicating involvement exists when any social object is related to the domain of the ego.

Using the involvement construct from social psychology, Krugman (1965) conceptualised communication involvement as "the consumer's involvement level with a marketing stimulus or advertisement". Since then, conceptual theorisation in consumer behaviour research has been undertaken (Howard and Sheth 1969; Lastovicka and Gardner 1979; Kassarjian 1981). However, researchers (Cohen 1983; Antil 1984; Costley 1988) have argued that the term "involvement" has been used diversely with only minimal agreement on how the construct should be defined, leading to a research problem (Mittal and Lee 1989; Muehling *et al.* 1993; O'Cass 2000; Poiesz and de Bont 1995). Nevertheless, over past decades, definitions of involvement can be found to have merged (see Table 4.2 below):

Table 4.2 Conceptual Definitions of Consumer Involvement

Definition	Authors
Involvement is an internal state variable that indicates the amount of arousal, interest, or drive evoked by a particular stimulus or situation.	Mitchell (1979), Bloch (1982)
Involvement is a reflection of the extent of personal relevance of the decision to the individual in terms of his/her basic values, goals, and self-concept	Engel & Blackwell (1982), Greenwald & Leavitt (1984), Zaichkowsky (1985), Celsi & Olson (1988)
Involvement is a motivational state of mind of a person with regard to an object or activity. It reveals itself as the level of interest in that object or activity	Mittal (1983)
Involvement is an internal state affecting decision processing, triggered by a number of situations, including personal relevance, or psycho-social, functional or financial risk	Laurent & Kapferer (1989)
Involvement is an elaborate procedure of extended problem solving	Engel, Blackwell & Miniard (1995)
Involvement is a relationship between individual characteristics, such as personal goals and experience of the consequences of buying and consuming, and the stimuli presented by communication, product, or situation	Foxall (1990)

Source: a review of the literature for this research

Definitions presented in Table 4.2 evidence that involvement is not a simple, homogeneous and universally applicable phenomenon mediating between consumers and their decision making (McWilliam 1993). However, common threads can be identified as personal relevance (motivations), activation of the motivational state, and arousal or triggering of the motivational state (Pallister 1995).

In this study, the conceptualisation of involvement as "a reflection of the

extent of personal relevance of the decision to the individual in terms of his/her basic values, goals, and self-concept" (Engel and Blackwell 1982; Greenwald and Leavitt 1984; Zaichkowsky 1985; Celsi and Olson 1988) is adopted.

4.3.2 Consumer Involvement Operationalisation

Given the complex nature of involvement conceptualisation indicated above, it is not surprising that attempts to define involvement as a single, simple, all-purpose relationship for empirical research is criticised. Rather, several types, or sets of relationships have evolved in involvement research over the decades of its development. The operationalisation of involvement has a wide variety of terms, such as ego involvement, high/low involvement, brand decision involvement, cognitive/affective involvement, instrument/response involvement, and so on and so forth (Mitchell 1979; Bloch and Richins 1983; Greenwald and Leavitt 1984; Mittal 1988; Mittal and Lee 1989; Slama and Tashchian 1985; Zaichkowsky 1985). The most utilised ones are enduring/situational involvement (Houston and Rothschild 1978) and product/purchase-decision involvement (Mittal 1989). These terms are synthesised below:

- **Enduring involvement** is an ongoing personal concern with an issue regarding product, purchase and brand exhibited by an individual (Houston and Rothschild 1978). It is a persistent relationship that endures on account of

considerable prior experience in dealing with an issue, although it may be modified over time due to the product knowledge or changing values of the individual. Houston and Rothschild (1978) indicate that enduring involvement is a stable characteristic and does not change very much over time.

- **Situational involvement** is a temporary relationship between consumers' arousing interests and the product/situation, and will diminish when the interests are satisfied or as time elapses (Houston and Rothschild 1978). The authors indicate that situational involvement can be influenced by product attributes (e.g. price, design and quality) in addition to environmental factors (e.g. the promotion, purchase for company use, or looking for a present).

- **Product Involvement** is the interest a consumer finds in a product class and such interest stems from the consumer's perception that the product class meets important values/goals (Mittal and Lee 1989). Product involvement has been shown to be positively related to shopping efforts (Slama and Tashchian 1983), increase the salience of store attributes related to value seeking (Ohanian and Tashchian 1992), and response to direct marketing appeals (Williams 1988).

- **Purchase-decision Involvement** is the extent of interest/concern that a consumer brings to bear on a purchase decision task (Mittal 1989). Thus, it is the outcome of a person's interaction with a product and the purchase situation (Beatty *et al.* 1988), and can best be understood as the cost, effort, or investment in a purchase (Mittal and Lee 1989; Zaichkowsky 1985).

> Purchase-decision involvement has been shown to be positively related to shopping efforts to obtain the best value (Lockshin *et al.* 1997; Slama and Tashchian 1985), response to direct marketing appeals (Lockshin *et al.* 1997; Williams 1988), and store attributes (Ohanian and Tashchian 1992).

Notably, the first school (enduring vs. situational) highlights the person that is involved (ego-involvement) while the second school (product vs. purchase-decision) argues the object is the product/purchase. Furthermore, the first school indicates enduring and situational involvements are distinct concepts. The object of enduring involvement is more likely to be the individual's self (i.e. self concept or ego) whilst in situational involvement, involvement does not exist in the individual independent of an object (Mitchell 1979). Traylor and Joseph (1984) and Quester and Lim (2003) contend that "only consumers can be involved". Similarly, both McWilliam (1993) and Pallister (1995) agree that "*it is the individual rather than the product that is involved*" and assert that enduring involvement reflects a between - individual within issue perspective, whilst situational involvement assumes a between - issues within - individual perspective.

As regards the second school (product vs. purchase-decision), Mittal and Lee (1989) contend that product involvement and purchase-decision involvement can occur as separate entities or causal relationships under certain conditions. They use supermarket products as examples, arguing that this product class seldom elicits a consumer's interest unless a concern with nutrition/artificial additives is highlighted. Thus, purchase-decision involvement can occur without much product involvement.

However, if the product class itself arouses the interest of the consumer, then product involvement can be a precursor to purchase-decision involvement (Mittal 1989).

Mittal and Lee (1989) indicate similarities between the two schools: enduring involvement is similar to product involvement and situational involvement is similar to purchase-decision involvement or brand decision involvement. They further state they prefer to use product/purchase-decision involvement as it offers situational variation in product involvement (e.g. general consumers require normal print quality whereas professional designers require high print quality) and purchase involvement (e.g. purchase a printer for company use or for personal use). Similarly, Richins and Bloch (1986) illustrate "situational involvement" by explaining that for a given purchase, consumers may have low involvement with the product category but high involvement with the brand (purchase). For example, on a long term basis few will be highly involved with a printer (and over time may forget which brand it was they bought, even though they use it everyday), but when it comes to purchasing another printer, which brand to purchase may again become very important. Thus, the purchase/brand involvement derives from the complexity of the purchase decision and consequence of making a bad purchase (i.e. overall risk of a mis-purchase).

In this study, purchase-decision involvement will be used to operationalise consumers' involvement towards buying a printer via the Internet. The situational variation noted by Mittal and Lee (1989) will help this study to further investigate consumer involvement at three levels: the Internet buying method, product category (the printer), and brand choice (buying at the brand's Website).

4.3.3 Consumer Involvement Measurements

A wide variety of involvement measurements (see Table 4.3 below) have been derived from the variety of involvement operationalisation mentioned above.

According to Table 4.3, three major differentiations regarding involvement scales can be found:

1. **Uni- vs. multi-dimensional**. Zaichkowsky's (1985) PII scale is a good example of the uni-dimensional measurement whereas Laurent and Kapferer's (1985) CIP scale is a multi-dimensional measurement.

2. **Semantic vs. Likert scale.** Nearly half of the scales reviewed in Table 4.3 use semantic scales: e.g. Jain and Srinivasan's (1990) NIP scale whilst the other half use the Likert scale, varying from 5 to 7 points: e.g. Slama and Tashchian's (1985) PI scale.

3. **Object specific vs. context free.** The fashion involvement scale (Tigert *et al.* 1976) is a good example of the object specific whereas Mittal's (1989) PDI scale is context free.

Table 4.3 Summary of Involvement Scales Regarding Consumer Buying Decision

Authors	Focus & Dimensions	Product / Sample	Scale
Tigert *et al.* (1976)	Fashion involvement / 5 dimensions: 1. Innovativeness and time of purchase 2. Interpersonal communication 3. Interest 4. Knowledge ability 5. Awareness, and reaction to changing fashion trends	Tested 11 fashion products of 3 classes / Probability sample of 1,000 husband & wife pairs in Census Metropolitan Toronto, Canada	5-item, 5 point response scale
Bloch (1981)	Product involvement / 6 measures: 1. Enjoyment 2. Readiness to talk to others about cars 3. Interest in car racing activities 4. Self-expression through one's car 5. Attachment to one's car 6. Interest in cars	Car / 381 students	17-item, 6 point Likert scale
Slama and Tashchian (1985)	Consumer Purchase Involvement	N/A / 365 residences from census survey	33-item, 6 point Likert scale Purchasing Involvement Scale (PI)
Laurent and Kapferer (1985)	General construct of Involvement / 5 dimension: 1. Product importance 2. Risk importance 3. Risk probability 4. Pleasure 5. Sign value	14 products / 207 housewives	19-item, 5 point Likert scale Consumer Involvement Profile (CIP)
Zaichkowsky (1985)	General construct of Involvement	1. Watches, athletic shoes / 197 students; 2. Camera, red wine, cereals / 8 clerical; 3.Coffee, laundry, TVs / 29 staff members	20-item, 7 point semantic scale Purchase Involvement Scale (PII)
McQuarrie and Munson (1987)	General construct of Involvement / 4 dimensions: 1. Perceived importance 2. Pleasure 3. Sign value 4. Risk	12 objects / 80 undergraduates and 50 MBA students	14-item, 7 point semantic scale (RPII)
Mittal and Lee (1988)	Product and brand-choice involvement/ 4 dimensions: 1. Perceived importance 2. Sign value 3. Hedonic value 4. Perceived risk	Beer / 78 students who were beer drinkers	24-item, 7 point Likert scale
Higie and Feick (1989)	Enduring involvement / 2 dimensions: 1. Hedonic 2. Self-expression	Personal computers, golf and needlework / 1st: 255 students 2nd:120 MBA students	12-item, 7 point semantic scale adopted fm PII & RPII
Mittal and Lee (1989)	Product involvement: 1. Product sign 2. Product hedonic 3. Product utility Brand-decision involvement: 1. Brand sign 2. Brand hedonic 3.Brand risk	1. VCR / 136 (86 current student users, 50 convenience sample) 2. Jeans / 144 current student users	24-item, 7 point Likert Scale
Mittal (1989)	Purchase-decision involvement	Study 1: Beer, camera and jeans / 256 convenience sample Study 2: 15 products / 138 students	5-item, 7 point Likert scale Purchase Decision Involvement (PDI)
Jain and Srinivasan (1990)	General construct of Involvement / 5 dimensions: 1. Relevance/importance 2. Interest/pleasure 3. Risk Importance 4. Sign/symbolic 5. Risk probability	10 products / 375 students	49-items, semantic scale New Involvement Profile (NIP)
Zaichkowsky (1994)	Advertising Involvement	Print, Radio and TV Ad / 79 students (37/42 into two groups)	10-item, 7 point semantic scale PIIA
O'Cass (2000)	Consumer Involvement / 4 forms: 1. Product involvement 2. Advertising involvement 3. Purchase-decision involvement 4. Consumption involvement	Fashion clothes / 450 randomly selected students	42-item, 6 point Likert scale

Source: a review of the literature for this research

Both McWilliam (1993) and Pallister (1995) indicated the CIP, PIIA and PDI scales have been broadly adopted/adapted, particularly the first two scales. Each scale is discussed below:

I. Consumer Involvement Profile (CIP)

Laurent and Kapferer (1985) viewed involvement as a multi-dimensional construct and argued that a consumer's involvement cannot be expressed in a single score, because the type of involvement is as important as its level. Therefore, they developed the Consumer Involvement Profile (CIP), a 19-item scale to measure five dimensions of involvement:

1. **Importance**: product perceived importance.
2. **Risk importance**: perceived importance of negative consequences of a mis-purchase.
3. **Risk probability**: subjective probability of a mis-purchase.
4. **Pleasure**: hedonic value of the product class.
5. **Sign value**: perceived sign value of the product class (Laurent and Kapferer 1985).

However, the five dimensions were collapsed into four factors during the empirical analysis, with "importance" and "risk importance" loaded on the same dimension. Findings indicated that individual products were ranked differently on these four dimensions. In subsequent works, the CIP scale was revised twice (Laurent and Kapferer 1985, 1989). In both revisions, the authors reverted back to five dimensions

but replaced "Importance" with "Interest" and shortened the 19-item scale to 16 items.

The CIP has been further analysed by various authors, including Buttle (2001), Celuch and Evans (1989), Gabbott and Hogg (1999), Jain and Srinivasan (1990), Mittal (1989a, 1995), Mittal and Lee (1988), and Rodgers and Schneider (1993, 1996). Consequently, some concerns have been raised. Firstly, Mittal and Lee (1988) argued that since the CIP was originally developed in French but actual scale content was not published, its usage potential in the U.S has been limited. Secondly, Mittal (1989) contended that the CIP measures the four antecedents rather than involvement itself. Thirdly, Jain and Srinivasan (1990) and Rodgers and Schneider (1993) found the two dimensions, "Interest" and "Pleasure", merged into one single factor in their studies using American consumers, respectively.

II. Personal Involvement Inventory (PII, PIIA)

Zaichkowsky (1985) perceived involvement as a uni-dimensional construct and defined involvement as "a *person's perceived relevance of the object based on inherent needs, values, and interest*". She proposed that involvement has three major antecedents: personal, physical, and situational factors. Accordingly, she developed the Personal Involvement Inventory (PII), comprising 20 context-free semantic style questions which can be summed to produce a single score to represent the degree of personal involvement. Zaichkowsky (1985) asserted that the PII scale is applicable over a full range of products, purchase decisions and advertisements. Given Cronbach alpha scores up to 0.97 are not unusual, Foxall and Pallister (1998) confirmed the high

reliability and validity of the PII scale.

The PII scale has been widely analysed by other researchers (e.g. Celsi and Olson, 1988; Celuch and Evans, 1989; McQuarrie and Munson, 1987), thus several criticisms have been raised. First, Park and McClung (1986) doubted the validity and robustness of the PII scale to accurately reflect involvement in advertising and argued the scale was too long for repeated testing. Second, both Vaughan (1986) and McQuarrie and Munson (1987) found the scale incapable of embracing the various types of involvement conceptualised by some researchers. Third, Mittal (1989) argued that some items in the PII scale are attitudinal (e.g. not beneficial – beneficial, desirable - undesirable) and hedonic (e.g. interesting – uninteresting, mundane - fascinating). Still others have no bearing on purchase-decision involvement (e.g. needed - not needed, essential – unessential), which results in high scores in essential products. Consequently, for an unessential product (e.g. a luxury good), the PII scores will be low. Thus, Mittal (1989) argued the PII scale does not measure the construct (i.e. purchase-decision involvement) which the author claims the scale can measure accurately.

In response to these criticisms, Zaichkowsky (1994) revised the Personal Involvement Inventory, shortening the 20 items to 10 items by omitting those criticised as attitudinal measurements in the first version. Because Zaichkowsky (1994) used this shorted scale to examine advertising involvement, Bearden and Netemeyer (1998) called it the PII scale for advertising (APII). Foxall and Pallister (1998) reported that the PIIA scale has apparently overcome the criticisms of detractors, and due to researchers' satisfaction with its reliability and validity, it has been used in a large number of studies (Aldlalgan and Buttle 2001; Foxall and Bhate, 1993; Goldsmith *et*

al. 1991; Latour *et al.* 2002; Martin 1998; McQuarrie and Munson 1992; Warrington and Shim 2000; Wu 2001; Zaichkowsky 1995).

III. Purchase Decision Involvement Scale (PDI)

Mittal (1989) defined purchase-decision involvement as "the extent of interest and concern that a consumer brings to bear on a purchase decision task". He pointed to the absence of a scale for purchase-decision involvement, arguing that the CIP and PII scales are inappropriate as measures of purchase-decision involvement. Thus, he developed the Purchase Decision Involvement (PDI) scale to fill the gap.

Mittal (1989) further addressed three concepts of purchase-decision involvement below:

1. Purchase-decision involvement is similar to Houston and Rothschild's (1978) situational involvement but offers the advantage of situational variations in the process (i.e. emergency purchase vs. regular purchase of the same product).

2. Having the purchase decision task as its goal, does not imply purchase-decision involvement can only be assessed and measured at the time of purchase. However, Mittal (1989) contends that like other purchase related mindsets (e.g. the brand attitude and purchase intention), purchase-decision involvement should be measured as close as possible to the time of purchase.

3. What the concept emphasises and the proposed scale measures, is the mind-set

rather than the response behaviour manifested in the decision making process. For example, a consumer's routine purchase of cigarettes will not score low on the PDI scale if the consumer is not indifferent to which brand among those available is purchased.

Mittal (1989) reduced the PDI scale from 5 items to 4 items during the scale's examination. Thus, the final scale comprises the degree of caring, perceived brand differences, importance of right brand selections, and concern with the outcome. Goldsmith and Emmert (1991) suggested that the PDI scale has the advantages of short length, convenience and validity. Also, the authors pointed out that the PDI scale has a focused scope as it concentrates on purchase-level involvement only, which is defined as an arousal capacity triggered by situational factors. Thus, **in this study, the PDI scale is adopted to measure consumer Internet buying involvement (see Table 6.1 in Chapter 6).**

Foxall and Pallister (1998) used the PDI scale comprising seven items to examine financial services. This version of the PDI scale was first proposed and tested in study 2 of Mittal's (1989) "Measuring Purchase Decision Involvement". It contained the four previously mentioned items plus three additional items measuring product importance, namely, "product is important to me", "product does not matter", and "product is an important part of life". Using this seven-item PDI scale in their survey, Foxall and Pallister (1998) reported this scale was not explicitly uni-dimensional, although there were some indications that Mittal (1989) had expected a unitary structure. Based on their findings, Foxall and Pallister (1998) suggested there might be two dimensions in this scale: the dominant factor is rational and the secondary one is emotional.

Thus, **in this study, the dimensionality of the PDI scale will also be examined by the factor analysis technique (see Appendix 6). Moreover, an extensive comparison between studies using the PDI scale will be found in Table 8.5 in Chapter 8.**

4.3.4 Consumer Involvement and Buyer Behaviour

Over the years, involvement has been shown to influence a number of behavioural outcomes in the domain of purchase and consumption: behavioural intention (Swinyard 1993), frequency of product usage/purchase (Beatty and Smith 1987; Brisoux and Céron 1990; Foxall and Bhate 1993; Laurent and Kapferer 1985; Zaichklowsky 1985), brand commitment (Beatty *et al.* 1988; Jacoby and Chestnut 1978; Lastovicka and Gardner 1978; Mittal and Lee 1989; Mittal 1989; Robertson 1976), brand loyalty (Kim *et al.* 1997; Martin and Goodell 1991; Pritchard *et al.* 1999), post purchase satisfaction (Richins and Bloch 1991), adoption of new products (Foxall and Bhate 1993; Tigert *et al.* 1976), risk perception (Venkatraman 1989), consumption experience (Mano and Oliver 1993), and search behaviour and information processing (Bloch *et al.* 1986; Celsi and Olson 1988; Mantel and Kardes 1999).

Consumers' involvement level in the product, advertisement and purchase action has been regarded as one of the central determinants of consumer behaviour (Broderick *et al.* 1999; Laaksonen 1994). Quester and Smart (1998) further asserted that the involvement concept is felt with varying degrees by consumers and, more generally,

whenever a range of consumption situations exists. The literatures suggest that high involvement is likely to coincide with the following conditions:

- Products which are "lifestyle products" (Lastovicka and Gardner 1979);
- Self-expression or self-concept enhancement products (Bloch 1982; Bloch and Richins 1983);
- Special interest products reflecting an enthusiasm or hobby, or related to role or occupation (Lastovicka and Gardner 1979; Bloch 1982; Bloch and Richins 1983);
- Products and brands which provide "pleasure" or hedonism (Laurent and Kapferer 1985; Kapferer and Laurent 1986; Zaichkowsky 1989; McQuarrie and Munson 1987);
- A high degree of brand differentiation, and when the differentiating attributes are considered to be important (Ray 1975; Roberston 1976; De Bruicker 1979; Kapferer and Laurent 1986; Zaichkowsky 1985);
- When the product being purchased is deemed to be risky (amount at stake, consequences of a mis-purchase or likelihood of a mis-purchase) and induces involvement. There is an assumption that differentiation will also actually create an element of risk (Kapferer and Laurent 1986, Robertson 1976); and
- When the product is a durable good involving higher price and less purchase frequency (Bloch *et al.* 1986; Brisoux and Chéron 1990; Lichtenstein *et al.* 1988).

In this study, buying a printer (a durable good) via the Internet (too new to be

perceived as risk free) consequently requires a higher involvement level as findings from this study presented in Table 7.5 in Chapter 7 will confirm.

Moreover, when making decisions, more-involved individuals will:

- Use more criteria (Mitchell 1981);
- Expect to have greater prior product knowledge (Lichtenstein *et al.* 1988);
- Accept fewer alternatives (Petty and Cacioppo 1981);
- Want to know the strengths and weaknesses of possible alternatives in more detail (Maheswaran and Meyers-Levy 1990);
- Be less price conscious (Bloch *et al.* 1986; Lichtenstein *et al.* 1988);
- Purchase/use the product more frequently (Brisoux and Chéron 1990; Foxall and Bhate 1993);
- Form attitudes that are more resistant to change (Petty *et al.* 1983);
- Deem to seek and utilise more information about brands and products in addition to processing relevant information in detail (Beatty and Smith 1987; Bloch *et al.* 1986; Lastovicka and Gardner 1979; Mitchell 1981; Mittal 1989; Zaichkowsky 1985);
- **Be more loyal** or likely to make a commitment to a particular brand (Beatty *et al.* 1988; Brisoux and Chéron 1990; Kim *et al.* 1997; King and Ring 1980; Martin and Goodell 1991; Pritchard *et al.* 1999; Robertson 1976; Traylor 1981);
- **Have a greater ability to handle risk** and be less uncertain about the outcomes of a purchase (Venkatraman 1989); and
- **Use non-traditional modes of shopping** (Venkatraman 1989).

These results indicate that involvement is highly relevant to the constructs of brand loyalty, perceived risk and even the innovative purchase method. However, as regards whether consumer loyalty should be measured via a behavioural, an attitudinal, or a compositely behavioural/attitudinal approach (see Chapter 3, Section 3.2.3), an answer to this question may be found in Robertson *et al.*'s (1984) study. Robertson *et al.* (1984) contended that brand preferences should be viewed in conjunction with the construct of involvement. In line with this, they suggested that for low involvement products (e.g. consumable goods), brand loyalty may be a predominantly behavioural phenomenon, whereas for higher involvement products (e.g. durable goods), brand loyalty may assume a greater attitudinal dimension. Consequently, Robertson *et al.* (1984) argued that brand loyalty is mediated by the consumer's level of involvement. Supportively, many researchers have indicated that high involvement is a precondition to some types of loyalty (Assael 1984; Beatty *et al.* 1988; Coulter *et al.* 2003; Crosby and Taylor 1983; Kapferer and Laurent 1986; Mittal and Lee 1989; Park *et al.* 1987; Quester and Lim 2003). Thus, a positive correlation between consumer involvement/loyalty is demonstrated.

Notwithstanding, a complex relationship between involvement/risk has been reported in the literature. Risk is often viewed as an antecedent of involvement (Bloch 1981; Chaffee and McLeod 1973), particularly when the price is high and the consumer risks losing money. Bloch (1981) suggests that situational involvement arises when the stakes associated with a purchase outcome (i.e. the perceived risk) are high. On the other hand, perceived risk has also been identified as one dimension of the involvement construct (Dimanche *et al.* 1991; Havitz *et al.* 1994; Kapferer and

Laurent 1986; Mittal and Lee 1989). Rothschild (1979) advocates the use of perceived risk as an implicit measure of product involvement. Moreover, Laurent and Kapferer (1986) conceptualised involvement as having four components , namely risk importance, risk probability, pleasure, and sign value, of which risk importance and risk probability are related to risk. Similarly, Mittal and Lee (1989) contend that brand risk is one sub-dimension of brand-choice involvement. However, perceived risk has also been envisioned as a consequence of product involvement (Dholakia 2001). Venkatraman (1989) argued that since enduring involvement is a long-term product concern while perceived risk is limited to the purchase and situation, enduring involvement precedes risk. In short, the involvement/risk relationship presented in past studies is diverse. Thus, further investigation is essential to clarify the involvement /risk relationship, particularly in the new Internet buying context.

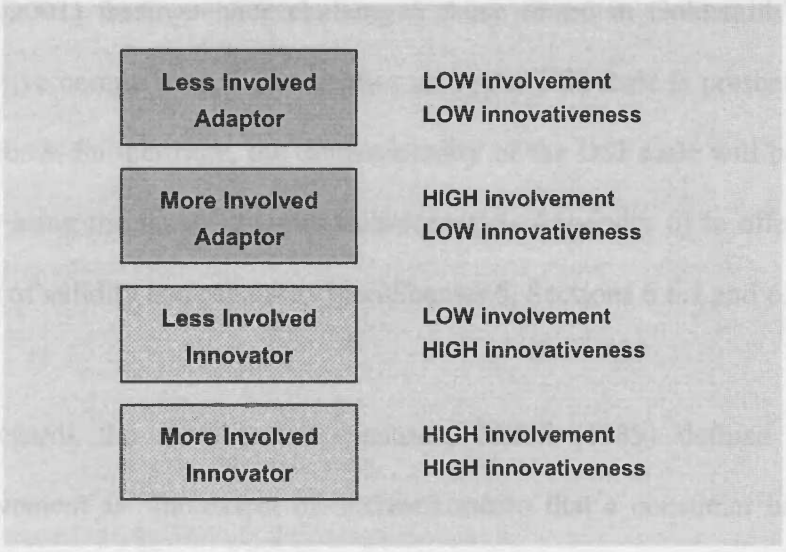
As presented previously in terms of the four d ifferent consumer segments (see Sections 4.2.1 and 4.2.3), Foxall (2003) asserted that their different underlying cognitive styles lead to their own preferred decision-making and problem-solving processes. Similarly, Gournaris and Stathakopoulos (2004) and Homburg and Giering (2001) indicated that characteristics related to consumers' innovativeness (i.e. risk aversion and variety seeking) impact on their loyalty towards a specific brand. Thus, to investigate consumers' transformation model of brand loyalty/Website loyalty, the advantage of using consumer involvement as an explanatory variable in this study is demonstrated by the sophisticated interactions shown between consumer involvement, loyalty and perceived risk in the literature.

Consequently, following Foxall and Bhate's (1993) example, 2 (high vs. low)

innovativeness groups and 2 (high vs. low) involvement groups will be cross tabulated in this study (see Chapter 7, Section 7.3.2 for more details). In turn, four consumer segments: *less-involved adaptors, more-involved adaptors, less-involved innovators and more-involved innovators* will be formed (see Figure 4.2 below). Notably, though these consumer segment terminologies (e.g. *less-involved adaptors*) are adopted from Foxall and Bhate's (1993) study, the measurement used in this study is the DSI scale which differs from the KAI used in their study (see Chapter 7, Section 7.3.2 for more details).

In this study, the four segments' differences in respect of brand loyalty/Website loyalty transformation will be examined (see Chapter 5, Section 5.4). Accordingly, the impacts that consumers' cognitive constructs in terms of innovativeness and involvement have on their behaviours will be revealed.

Figure 4.2 Formation of the Four Consumer Segments



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4.4 Summary

This chapter has reviewed the theory development of consumer innovativeness and involvement in terms of conceptualisation, operationalisation, and measurements. Unlike constructs of consumer loyalty and perceived risk, both innovativeness and involvement constructs have universal scales with cited validity and reliability.

Goldsmith and Foxall (2003) contended that consumer innovativeness is largely domain-specific. Moreover, various studies has proved the strong correlation between domain-specific innovativeness/behaviours but a weak correlation between innate innovativeness/behaviours (Citrin *et al.* 2000; Foxall and Goldsmith 1988; Goldsmith *et al.* 1995). Thus, in this study, Goldsmith and Hofacker's (1991) Domain Specific Innovativeness Scale is used to measure consumers' Internet buying innovativeness, which is defined as a "tendency to learn about and adopt Internet buying within a specific domain of interest". Further, because Nyeck *et al.*'s (1995) and Roehrich *et al.*'s (2001) findings have challenged those found in Goldsmith's series work, an extensive comparison of past studies using the DSI scale is presented in Table 8.4 in Chapter 8. Furthermore, the dimensionality of the DSI scale will be examined in this study using the factor analysis technique (see Appendix 6) to offer more insights in terms of validity and reliability (see Chapter 6, Sections 6.6.1 and 6.6.2).

As regards the involvement construct, Mittal (1989) defined purchase-decision involvement as "the extent of interest/concern that a consumer brings to bear on a purchase decision task". Because Mittal and Lee (1989) asserted that purchase-decision involvement has the advantage of offering situational variation in

product involvement. This construct is adopted in this study since it will assist investigation of consumer involvement at three levels: the Internet buying method, product category (the printer), and brand choice (buying at the brand's Website). Consistently, Mittal's (1989) Purchase Decision Involvement (PDI) Scale is also adapted in the survey (see Table 6.1 in Chapter 6) to measure consumers' Internet buying involvement. Moreover, the dimensionality of the PDI scale is further examined (see Appendix 6) and a comprehensive comparison between studies using the PDI scale is presented in Table 8.5 (see Chapter 8).

Towards the end of the present chapter, the well explored relationships between constructs of consumer involvement, loyalty and perceived risk have been discussed. The advantage of using consumer involvement as an explanatory variable investigating the consumers' brand loyalty/Website loyalty transformation model has been revealed. Therefore, Foxall and Bhate's (1993) example of dividing consumers into four segments: *less-involved adaptors, more-involved adaptors, less-involved innovators and more-involved innovators* is adopted in this study to reveal how consumers' behaviours vary according to their cognitive constructs.

The next chapter presents the study's conceptual framework, operational definitions, and research hypotheses.

Chapter 5 Conceptual Framework and Research Hypotheses

5.1 Introduction

5.2 Conceptual Framework

5.3 Operational Definitions

5.4 Research Hypotheses

5.5 Summary

5.1 Introduction

This chapter has three parts: conceptual framework, operational definitions and research hypotheses.

Section 5.2 presents the development of the research conceptual framework. After delineating the relationships between each variable in the framework, Section 5.3 summarises the conceptual definition of each variable surveyed (see Table 5.1). Section 5.4 discusses the theoretical foundation of each hypothesis and, accordingly, the research hypotheses of this study are established.

5.2 Conceptual Framework

Theoretical backgrounds used to develop a consumers' brand loyalty/Website loyalty transformation model (see Figure 3.3 in Chapter 3) comprising consumers' brand loyalty/Website loyalty link and mediating effects of consumer perceived risk were reviewed in Chapter 3. The importance of considering consumers' psychological and personality traits when explaining the loyalty phenomenon (e.g. Iwasaki and Havitz 1998; Jacoby and Kyner 1973; Robertson *et al.* 1984) and perceived risk occurrence (e.g. Assael 1998; Schiffman and Kanuh 1991) has long been emphasised in the literature. Moreover, Oliver (1997) asserted that cognitive loyalty is the antecedent of

action loyalty. Further, both Gommans *et al.* (2001) and Holland and Baker (2001) stated that psychological traits of Internet buyers may differ from those of buyers in the traditional market due to double-identity (i.e. a buyer and a computer user) and the unique Internet market environment (Koufaris 2002). Thus, Foxall and Bhate's (1993) cognitive model with personal involvement (see Figure 4.2 in Chapter 4) is adopted in this study. This is the first time this segmentation is known to have been used in an Internet buying context to investigate the impacts consumers' cognitive constructs have on their brand loyalty/Website loyalty transformation, hence the findings will be important to the literature.

Notably, Q Website is selected as the survey target (see Chapter 6, Section 6.3.1 for more details). Q company is a well-known multi-channel business in Taiwan's 3C market. The company owns the famous Q brand name in the traditional market and the Q Website in the Internet market. Thus, buyers at the Q Website (see Chapter 6, Section 6.3.2) are suitable for examining their "Q brand loyalty in the traditional market", "perceived risk when buying at the Q Website", and "attitudinal Q Website loyalty" designed in this study.

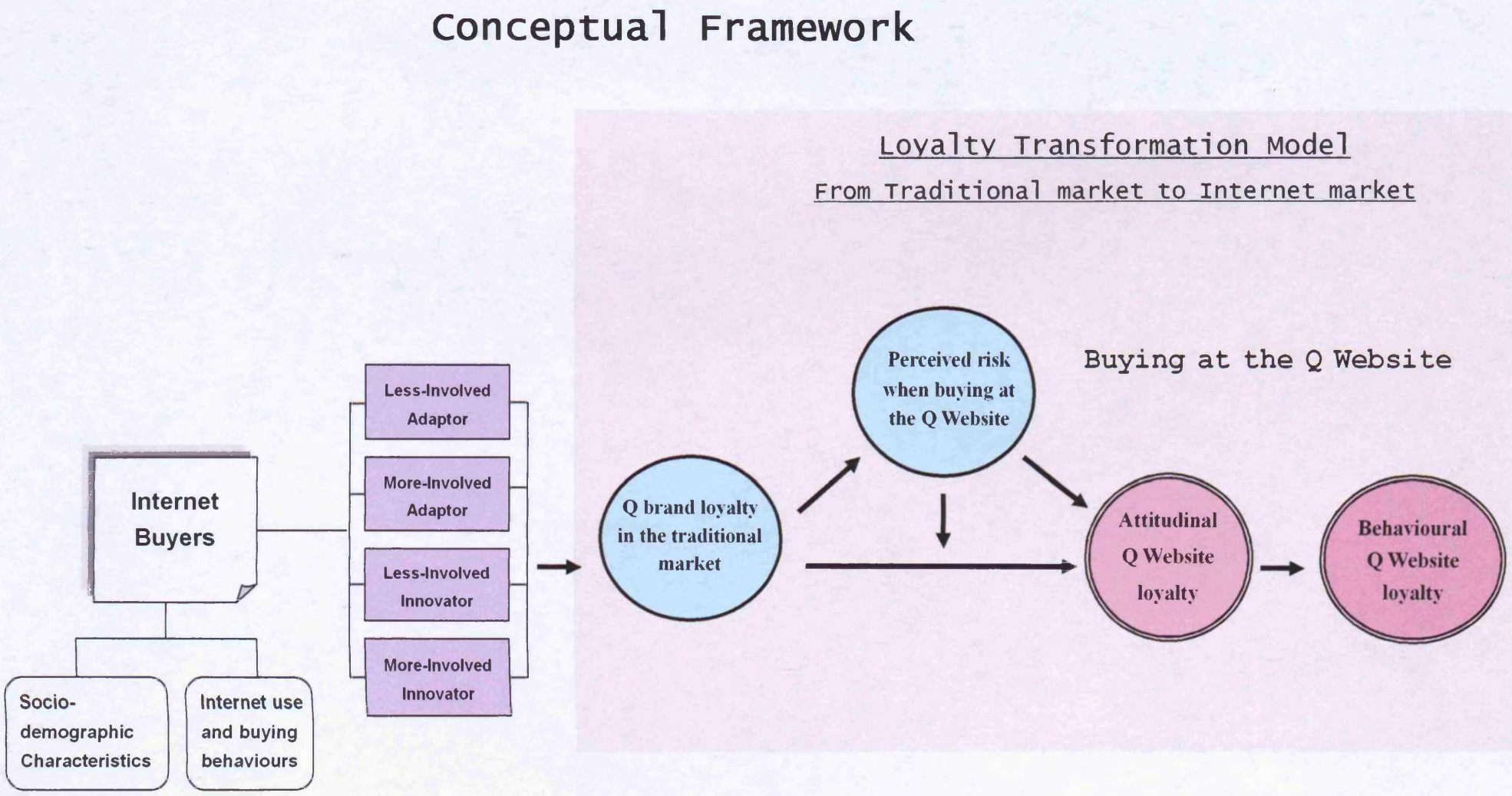
Consequently, building on the research aims (see Chapter 1), Figures 3.3 and 4.2 are merged to establish the study's conceptual framework as Figure 5.1 below. Differences between the four consumer segments, i.e. *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators* and *more-involved innovators* regarding each variable in the loyalty transformation model, i.e. Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, attitudinal Q Website

loyalty and behavioural Q Website loyalty, will be examined (see Chapter 8, Section 8.2.1 for further discussions). The four consumer segments' differences in the loyalty transformation model as a whole will also be examined (see Chapter 8, Sections 8.4.2 and 8.5). Further, researchers (e.g. Reynolds 1974; Robertson 1969; Robertson *et al.* 1984; Schiffman and Kanuh 1991) have asserted consumers' socio-demographic characteristics and purchase behaviours will help to identify valuable consumer segments. Thus, in Figure 5.1, these consumer characteristics are also included and will be analysed in terms of the four segments to help marketers target their core consumers (see Chapter 8, Sections 8.3.1 and 8.3.3). However, in order not to distract from one of the major research aims in this study, i.e. an investigation of consumers' loyalty transformation from the traditional market to the Internet markets, no hypotheses will be established on these consumer characteristics (see Chapter 6, Section 6.5). Altogether, the discriminating ability of Foxall and Bhate's (1993) cognitive model with personal involvement will be demonstrated so as to reveal the impacts consumers' cognitive constructs in terms of innovativeness and involvement have on their brand loyalty/Website loyalty transformation.

Figure 5.1 below presents the study's conceptual framework.

Building on this framework, operational definitions and research hypotheses are presented in Sections 5.3 and 5.4, respectively.

Figure 5.1 The Study's Conceptual Framework



Source: this research

5.3 Operational Definitions

On the basis of the literature reviewed in Chapters 3 and 4, the operational definitions of the variables in the conceptual framework (Table 5.1) are given below:

Table 5.1 Operational Definitions

Variable	Operational definition	Origin
Internet buying Innovativeness	Tendency and interest to learn about and adopt Internet buying in the Internet environment	Goldsmith and Hofacker (1991)
Internet buying Involvement	The extent of interest and concern that a consumer brings to bear on an Internet buying decision for a printer	Mittal (1989)
Q brand loyalty in the traditional market	Brand loyalty is the property of psychological commitment to the Q brand (i.e. the beliefs, feelings and intentions) and the re-purchase intention towards the Q brand printer in the traditional market.	Adapted from Jacoby and Chestnut (1978)
Perceived Risk when buying at the Q Website	Financial risk: refers to the possibility that the outcome of an action can harm the consumer financially through the loss of money or other resources.	Miley (2001)
	Performance risk: refers to the possibility that a product or service will not perform as expected.	
	Social risk: refers to the possibility that the purchase of a product or service may not meet the standards of important others, resulting in social embarrassment.	
	Time risk: refers to the possibility that time spent making the purchase decision may be wasted if the result is not as expected.	
	Overall risk: refers to the combination of the various types of risk experienced by the shopper according to the purchase situation encountered.	
	Security risk: the security of engaging in an Internet buying process.	Raab and Bennett (1998)
	Privacy risk: refers to the risk of the individual's personal information use	
Attitudinal Q Website loyalty	Attitudinal Q Website loyalty is the property of psychological commitment (i.e. the beliefs, feelings and intentions) to the Q Website.	Adapted from Jacoby and Chestnut (1978)
Behavioural Q Website loyalty	Behavioural Q Website loyalty is the consistent and actual purchase frequencies at the Q Website over time.	Adapted from Jacoby and Chestnut (1978)

Source: this research

Notably, the operational definitions of Q brand loyalty in the traditional market and Q Website loyalty are slightly different. As indicated in the research aim (see Chapter 1, Section 1.3), the study aims to examine whether attitudinal loyalty leads to behavioural loyalty in an Internet buying context. Thus, Q Website loyalty is divided into two specific variables: attitudinal Q Website loyalty and behavioural Q Website loyalty. Taking advantage of the complete consumers' purchase records offered by the Q Website database, behavioural Q Website loyalty as indicated by each respondent's actual purchase frequency at the Q Website, is more reliable than self-reported by respondents. However, the actual purchase frequency of Q brand products in the traditional market is not assessable, thus, Q brand loyalty in the traditional market is measured by the attitudinal approach, including Q brand loyalty/commitment and buying intention towards the Q brand product (see Table 6.1 in Chapter 6).

5.4 Research Hypotheses

Building on research aims presented in Chapter 1 and the conceptual framework (see Figure 5.1), the theoretical foundation presented in Chapters 2, 3 and 4 is briefly summarised below to establish the research hypotheses. The research hypotheses in this study can be divided into three parts:

1. **The differences between the four consumer segments** (Hypotheses 1.1 to 1.3).
2. **Comparison of the explanatory ability between two segment methods,**

namely, using one construct (i.e. innovativeness or involvement only) and cross-tabulating two constructs (i.e. both innovativeness and involvement) (Hypotheses 2.1 to 2.2).

3. **Verification of the consumers' brand loyalty/Website loyalty transformation model** (Hypotheses 3.1 to 3.5).

As presented in Figure 4.2 (see Chapter 4), following Foxall and Bhate's (1993) example, 2 (high vs. low) innovativeness groups and 2 (high vs. low) involvement groups are cross tabulated to form the four consumer segments: *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators* and *more-involved innovators* (see Chapter 7, Section 7.3.2 for more details).

Robertson *et al.* (1984) suggested consumer loyalty is mediated by the consumer's level of involvement. Supportively, many researchers have asserted that high involvement is a precondition to consumer loyalty (Assael 1998; Beatty *et al.* 1988; Coulter *et al.* 2003; Crosby and Taylor 1983; Kapferer and Laurent 1986; Mittal and Lee 1989; Park *et al.* 1987; Quester and Lim 2003). Researchers have also indicated that more-involved consumers are likely to make a commitment to a particular brand (Brisoux and Chéron 1990; Kim *et al.* 1997; King and Ring 1980; Kim and Scott 1997; Martin and Goodell 1991; Pritchard *et al.* 1999; Robertson 1976; Traylor 1981). Thus, among the four segments, more-involved segments should have higher Q brand loyalty than less-involved segments. Compared to adaptors, innovators are likely to be less brand loyal (Foxall and Goldsmith 1988) but more involved in the product field (Howard 1977). Foxall and Bhate (1993) have proposed that different consumer segments have differing underlying cognitive styles and the interaction between

innovativeness and involvement constructs has led to their different decision-making and problem-solving processes (see Table 4.1 in Chapter 4). Similar findings found in Foxall's (2003) series work have confirmed this proposition. Thus, in this study, it is hypothesised that:

Hypothesis 1.1: The mean score of Q brand loyalty in the traditional market will be significantly different across the four consumer segments.

As regards the level of consumer perceived risk, Venkatraman (1989) stated that more-involved consumers have a greater ability to handle risks and are less uncertain about the outcomes of a purchase. Similarly, in this study, because consumer loyalty has long been regarded as the most useful risk reliever (Bauer 1960; Cox 1967; Kim and Lennon 2000; Roselius 1971; Sheth and Venkatesan 1968; Ward and Lee 2000), it is hypothesised that more-involved consumers will better handle the perceived risk and be less uncertain when buying at the Q Website via the higher level of Q brand loyalty in the traditional market than less-involved consumers. Moreover, researchers have reported that innovators have more favourable attitudes towards risk (Robertson *et al.* 1984) and accept the risk of buying and risk errors (Foxall 1994) than adaptors. Thus, considering the interaction effects between consumer innovativeness and involvement, it is hypothesised that:

Hypothesis 1.2: The mean score of perceived risk when buying at the Q Website will be significantly different across the four consumer segments.

Given researchers generally agree that consumers' Website loyalty can be seen as an extension of their brand loyalty in the traditional market (Balabanis and Reynolds 2001; DelVecchio 2000; Gommans *et al.* 2001; Supphellen and Nysveen 2001), similar to H1.1 relating to "Q brand loyalty in the traditional market", it is hypothesised that:

Hypothesis 1.3: The mean score of attitudinal Q Website loyalty will be significantly different across the four consumer segments.

Foxall (1994, 2003) undertook a series of studies of early adapters. In his early works (Foxall and Haskins 1986, 1987), a two-group segmentation (i.e. adaptors vs. innovators) was used. Findings indicated that *adapters* accounted for the highest frequency of buying new food products/brands. To further investigate this finding, Foxall and Bhate (1993) included the consumer involvement construct, proposing a greater explanatory ability from using **both consumer innovativeness and involvement constructs** to clarify consumer adoption behaviour of innovations. Consistent with Foxall and Bhate's (1993) expectation, *more*-involved adaptors were found to be responsible for the highest purchase frequency. Similar results were also found in Foxall's (2003) following works investigating consumers' adoption of new financial products, use of credit cards, use of innovativeness with respect to computer software, and organisational computer utilisation. Thus, the superior explanatory ability of the four-group segmentation was confirmed.

However, this segment method has never been examined in an Internet buying context.

Thus, to clarify the superior explanatory ability of the four-group segmentation over the two-group segmentation when exploring consumers' Internet buying behaviours, this study examines the level of consumers' Q Website loyalty in terms of adaptors/innovators and less-involved/more-involved groups, respectively. The results of hypotheses H2.1 and H2.2 (the two-group segmentation) will be compared with the results of H1.3 (the four-group segmentation) in order to reveal whether the latter has a superior explanatory ability over the former. Consequently, hypotheses are developed as below:

Hypothesis 2.1: The mean score of attitudinal Q Website loyalty will be significantly different between innovators and adaptors.

Hypothesis 2.2: The mean score of attitudinal Q Website loyalty will be significantly different between the more-involved and less-involved consumer groups.

Researchers in general contend that consumers' positive brand attitude in the traditional market can be extended/transformed to the brand's Website in the Internet market (e.g. Balabanis and Reynolds 2001; Supphellen and Nysveen 2001). Gommans *et al.* (2001) thus asserted that a company using the same brand name in the traditional/Internet market (e.g. Dixons – Dixons.co.uk) can leverage its traditional consumers to its Website. Similarly, because the brand's Website is perceived as an extension of the brand (DelVecchio 2000), consumers view the well-known brand's Website as a quality promise in the Internet market (Ernst and Young 1996) and therefore the brand name becomes important in their Internet buying decisions (Ernst

and Young 1996; Ward and Lee 2000). Thus, in this study, it is hypothesised that:

Hypothesis 3.1: Q brand loyalty in the traditional market is positively related to attitudinal Q Website loyalty on the Internet.

Researchers contend that brand loyalty is the most useful and mostly adopted risk reliever (e.g. Bauer 1960; Dillard 1992; Jasper and Ouellette 1994; Roselius 1971). Both Cox (1967) and Sheth and Venkatesan (1968) have asserted that risk reduction resulting from experiences with a brand is an important method of coping with uncertainty in purchase situations. Recent studies, such as Kim and Lennon (2000) and Ward and Lee (2000), have reported that brand loyalty is the most common risk reliever adopted by in-home/Internet buyers. Moreover, up to 69% and 85.8% of those surveyed by Ernst and Young (1996) and Ward and Lee (2000), respectively, indicated that brand names played a significant role in their Internet buying decision. Furthermore, Van den Poel and Leunis (1999) reported that a well-known brand is a better risk reliever than price reduction when consumers consider buying via the Internet. Thus, in this study, it is hypothesised that:

Hypothesis 3.2: Q brand loyalty in the traditional market is negatively related to the perceived risk when buying at the Q Website.

Because the Internet market is still at a very early stage of development (de Figueiredo 2000; Lewis 1997), not many studies were known when writing this thesis to have investigated the impacts that consumers' perceived risk has on Website loyalty. As an exploratory study on consumers' Internet behaviours, this study aims to explore

the role of consumer perceived risk in Internet buying behaviour according to the conceptual framework (see Figure 5.1).

Consumers' trust has been highlighted as a major issue in future B2C e-commerce development (e.g. Aljifri *et al.* 2003; Chen and Tan 2004; Kolsaker and Payne 2002; McKnigh *et al.* 2002). In some studies (Anderson and Srinivasan 2003; Molesworth and Suortti 2002), consumers' perceived risk has been regarded as an important variable mediating consumers' trust of the Website or purchase frequencies. These authors assert that if consumers perceive a high level risk when buying at the Website, not only will Internet purchases drop dramatically, but a negative attitude will also be generated towards the Internet business. Moreover, Rohm and Milne (1998) found that most Internet users – both those who engaged in Internet buying and those who did not – worried about information privacy. Consequently, both Milne (2000) and Miyazaki and Fernandez (2001) asserted that the risk issue plays a significant role in consumers' Website buying decision. Thus, in this study, it is hypothesised that:

Hypothesis 3.3: The perceived risk when buying at the Q Website is negatively related to the attitudinal Q Website loyalty.

Although most studies have indicated a negative causal link between consumer loyalty/perceived risk (e.g. Cox 1967; Ernst and Young 1996; Kim and Lennon 2000; Roselius 1971), some researchers have proposed a reverse direction causal link, suggesting consumer perceived risk can have a positive or negative impact on consumer loyalty (Knox *et al.* 1993; Gommans *et al.* 2001). Still others, e.g. Anderson

and Srinivasan (2003) and Molesworth and Suortti (2002), have contended that in the Internet market, consumer perceived risk mediates the relationship between consumers' attitude (trust) and their behavioural Website loyalty (actual Internet buying). Given the unique Internet environment and consumers' double-identity (Koufaris 2002), consumers may perceive a more complex risk buying via the Internet compared with buying in the traditional market. For example, transaction security and privacy invasion are inherent and highlighted in Internet buying (e.g. Bhatnagar *et al.* 2000; Luo 2002; Sheehan and Hoy 2000). Thus, in this study, it is hypothesised that:

Hypothesis 3.4: The perceived risk when buying at the Q Website moderates the Q brand loyalty/attitudinal Q Website loyalty link.

Debates over whether attitudinal loyalty leads to behaviour loyalty (actual purchase) have long existed in the literature (see Chapter 3, Section 3.2.1). While the first school of thought contends that attitudinal loyalty is the antecedent of behaviour loyalty (Baldinger and Rubinson 1996, 1997; Beatty and Kahle 1988; Grossbart *et al.* 1987; Jarvis and Mayo 1986; Kenhove *et al.* 2003; Mellens *et al.* 1996; Odekerken-Schröder *et al.* 2003; Odin *et al.* 2001), the second school, though admitting that attitudinal and behavioural brand performance measures are correlated (e.g. Bird and Ehrenberg 1970; Brown 1952; Barnard and Ehrenberg 1997), argues there is no evidence to suggest that attitude change can lead to different future behaviour (Ehrenberg 1997).

However, no study was known at the time of writing this thesis to have verified this attitudinal/behavioural loyalty link in an Internet buying context. According to

dual-process models of persuasion (Chaiken *et al.* 1989; Petty and Cacioppo 1986), heightened cognitive processing of message information leads to a strengthening of the link between the attitudes induced by the message and subsequent behaviour (Petty *et al.* 1983). Thus, given consumer involvement is a highlighted precondition to consumer loyalty (e.g. Beatty *et al.* 1988; Brisoux and Chéron 1990; Kim *et al.* 1997; Martin and Goodell 1991; Pritchard *et al.* 1999), it is thus hypothesised that:

Hypothesis 3.5: only the two more-involved segments will demonstrate a positive casual link between the attitudinal Q Website loyalty and behavioural Q Website loyalty.

5.5 Summary

This chapter has presented the conceptual framework and operational definitions of each variable in the framework. Moreover, the research hypotheses of this study have been established according to the research aims presented in Chapter 1 and extensive literature reviewed in Chapters 3 and 4.

Following the "scientific and rigorous" research rules (see Chapter 1, Section 1.4: Research Philosophy), the next chapter presents the research methodology, including literature sources and survey design in terms of sample design, questionnaire design, data analysis design, and goodness fit of the data.

Chapter 6 Methodology

6.1 Introduction

6.2 Literature and Secondary Data Sources

6.3 Survey Design
- 6.3.1 Survey Target Selection
- 6.3.2 Sample Design
- 6.3.3 Internet Survey Design

6.4 Questionnaire Design
- 6.4.1 Measuring Scales
- 6.4.2 Questionnaire Presentation

6.5 Data Analysis Design

6.6 Goodness Fit of the Data
- 6.6.1 Validity
- 6.6.2 Reliability
- 6.6.3 Generalisability

6.7 Summary

6.1 Introduction

This chapter presents the study's methodology in three parts: literature review, survey design, and data analysis. Firstly, Section 6.2 presents the literature and secondary data sources. Sections 6.3 and 6.4 present the survey design, sample design and questionnaire design. Finally, Sections 6.5 and 6.6 present the data analysis design and goodness fit of the data.

According to the research aims (see Chapter 1), this study is designed to examine consumers' brand loyalty/Website loyalty transformation, and how best the company can position its Website and facilitate the Internet marketing strategy. To achieve this goal, a well-known multi-channel business in Taiwan was chosen as the survey target and sponsor. To protect the company's privacy, the well-known brand name will remain anonymous and will be referred to as **the Q brand**. Consequently, the company is named **the Q Company,** and the company's Website is named **the Q Website**.

Discussion of the survey design includes the survey target selection (the Q Website), sample design (the sampling frame, method and size), and Internet survey process (data collection medium, Internet survey procedures, response quality control and fieldwork organisation). The description of the questionnaire design focuses on measuring scales and questionnaire presentation. Data analysis design includes discussion of analytical techniques undertaken in this study and how they are used to test the research hypotheses, namely, factor analysis, Chi-square test, *t* test, Analysis

of Variance (ANOVA), post hoc procedures, correlation and partial correlation, and simple/multiple regression. Finally, the goodness fit of the data is discussed, which includes measurement validity and reliability, research limitations and survey findings' generalisability. Following these discussions, a summary of the chapter's contents is presented.

6.2 Literature and Secondary Data Sources

In this study, the literature was studied in order to establish a robust theoretical background, and to derive the research hypotheses. A comprehensive overview of the relevant concepts and theories was undertaken through University libraries examining existing documents, books, and different electronic databases, in particular:

- **ABI Inform/Proquest**
- **EBSCO Business Source Premier**
- **Ingenta**
- **Emerald Library**
- **JSTOR**

Apart from key words searching, authors and their works in the study's research domain were identified in order to deepen the study's theoretical foundation. Further, UK and Taiwan senior researchers in related fields were consulted for both theoretical and methodological advice. This stage of the methodology contributed significantly to the study's conceptual framework and its development, vital for this study (see

Chapters 3 and 4 for details).

Moreover, most secondary data regarding Taiwan's online population, Internet penetration rate and Internet environment development (see Chapter 2, Section 2.2.2) were obtained from the Focus on Internet News and Data (FIND) Website (www.find.org.tw), which is an authoritative professional Website sponsored by the Ministry of Economic Affairs aiming to provide important technology development information relating to Taiwan. Moreover, data from the Network Information Centre (TWNIC, http://www.twnic.net.tw), and Netvalue (http://www.netvalue.com) were also used. The former is a neutral and non-profit organisation aiming to provide information on domain name registration/IP address allocation in Taiwan, whilst the latter is an International survey company. At the time of the survey it was one of the three major Internet survey companies in Taiwan. Consequently, data from these three organisations comprehensively described Internet development in Taiwan.

6.3 Survey Design Selection

The study is designed to collect primary data from Internet buyers, thus, an Internet survey will be conducted. Dillon *et al.* (1990) described a survey as a method of gathering information from a number of individuals (the respondents, who collectively form a sample) in order to learn something about a larger target population from which the sample is drawn. Therefore, this section focuses on key issues associated with conducting the survey effectively and achieving the research

aims: survey target selection, sample design, and the Internet survey design.

6.3.1 Survey Target

As previously stated, this study aims to investigate consumers' brand loyalty/Website loyalty transformation in order to offer managers insights on how to position the company's Website and design the operating/marketing strategies. Reasons for selecting the Q Website are fourfold: the Q Company is a well-known multi-channel business; it has a complete Internet buyer database; it is a leading manufacturer in the B2C e-commerce industry in Taiwan; and ethical issues associated with Internet surveys wre resolved prior to conducting the research. Each is discussed below.

1. **A well-known multi-channel business**:

The Q company is a leading manufacturer in Taiwan in the 3C (Computer, Communication and Consumable) traditional market. The Q company possesses a well-known brand name (the Q brand) and its main product is the Q brand printer. In 2001, the Q Website's launch upgraded the Q company into a multi-channel business, selling its product to consumers both in the traditional and Internet market. Given the research aim is to investigate consumer loyalty transformation from the traditional market to the Internet market, the Q company/Q Website is an excellent survey target for this study because the Q brand is well-known and has a large number of loyal clients in the traditional market.

2. **A complete Internet Buyer Database**:

The Q Website has a comprehensive Internet buyer database, including socio-demographic data, contact e-mail addresses, and actual purchase records of each member. This offers the survey a valid population and complete sampling frame to avoid problems of sample representativeness and non-response error (see Chapter 2, Section 2.2.2). At the same time, it also offers a well-grounded population to generalise the research findings.

3. **A Leading Manufacturer in the B2C E-commerce Industry in Taiwan**:

According to the FIND (see Chapter 2, Section 2.3) annual survey and reports, the 3C industry was the leading industry in Taiwan's B2C e-commerce market, generating the second highest sales volumes throughout 2000 to 2003. The Q company belongs to the 3C industry because its main product is **a printer (the target product in this study)**. Hence, Internet buyer behaviours at the Q Website may be viewed as a miniature of those at other B2C Websites in the 3C e-commerce market, and from them, an overall picture of Internet buyer behaviours in the Taiwan B2C e-commerce market may be delineated. Thus, buyer behaviours at the Q Website are important, representative and worthy of investigation.

4. **Ethical Issues Associated with Internet Surveys**:

Using the Q Website buyer database avoided the critical Internet survey ethical issue of "informed consent" (see Chapter 2, Section 2.2.2). Every member in the database

had signed an agreement to receive a regular newsletter and occasional e-mails from the Q Website when registering. Thus, this serious issue was not a threat to this study. Moreover, respondents' privacy, confidentiality and anonymity were also assured by the Q Website (see later Section 6.2.3: response rate improvements).

Providing these advantages, the Q Website was chosen as the survey sponsor and target of this study.

6.3.2 Sample Design

Churchill and Iacobucci (2002) indicated that when designing the sample, the sampling frame, sampling method, and sample size should be specified. Each of these issues is discussed below:

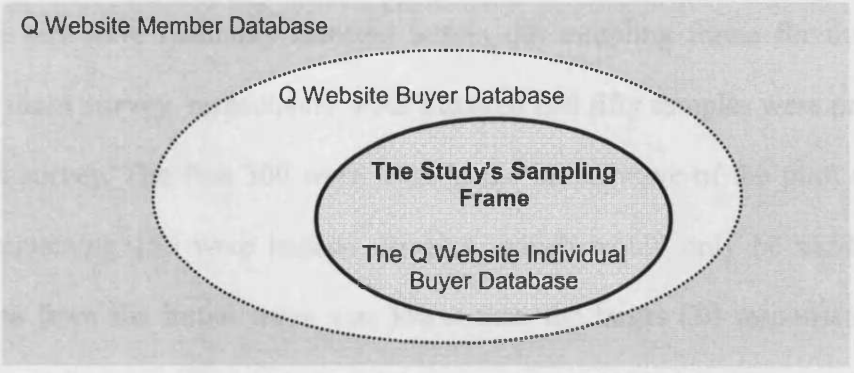
I. Sampling Frame/Survey Population

As indicated in the previous section, the Q Website buyer database provided the complete sampling frame. To secure the research quality, company buyers (i.e. those who purchased for business use instead of personal use) with a large number of purchase frequencies and volumes were removed from the sampling frame, since this study focused on exploring the Internet buying behaviour of individual buyers. This was easily done by observing those requesting a tax number when buying.

Notably, at the time of the survey, the Q Website had been launched for nearly two years. Given that the printer is a durable good which consumers do not buy frequently, the purchase cycle and consumer buying behaviours for this particular product need a long observation period in order to obtain a precise evaluation. Consequently, all buyers who had bought at the Q Website at least once during these two years were included in the sampling frame.

Thus, the survey population/sampling frame of this study comprised individual buyers who had bought at the Q Website at least once between September/2000 and September/2002 (see Figure 6.1).

Figure 6.1 The Study's Sampling Frame



Source: this research

II. Sampling Method

The key characteristic of the simple random sampling method is that all units in the sampling frame have an equal opportunity of being drawn. Sekaran (2000) suggested

the simple random sampling method was the most suitable when there was a need to generalise research findings to the whole population. Thus, The simple random sampling method was adopted in this study.

In the survey, the sample selection process was undertaken by a Q Website representative under the researcher's instructions. Using a computer aided system, samples of this study were randomly selected within the sampling frame. To maintain confidentiality of the company's data, the researcher was not allowed to conduct the sampling in person.

III. Sampling Size

Two simple sets were randomly selected within the sampling frame for the **pilot survey** and **main survey**, respectively. Four hundred and fifty samples were prepared for the pilot survey. The first 300 were used in the initial wave of the pilot survey, while the remaining 150 were backup samples, which would only be used if the response rate from the initial wave was lower than the target (30 responses). **The back-up sample approach was designed because the Q Website manager did not want consumers bothered by follow-up e-mails (see Section 6.2.3: response rate improvements). The same approach was also undertaken in the main survey.**

The response rate in the initial wave of the pilot survey was approximately 33% (102 valid responses). Therefore, the 150 backup unused samples were put back into the sampling frame for use in the next sampling round for the main survey.

Statistical theories (Anderson *et al.* 2002; Lin *et al.* 2000) point out that when parameters are unclear or cannot be directly estimated, an effective sample size can be determined using the *p*-value (see Equation 6.1 blow).

Equation 6.1 Sample Size Determination

$$n = \frac{Z^2_{(1-\alpha)} p(1-p)}{e^2} \qquad \text{where Z=1.96, and } \alpha = 0.05$$

According to Equation 6.1, the sample size of the main survey was calculated. Controlling sampling error (e) to ± 0.03, the effective sample size was 1,067 ($p < 0.05$). As a result, based on a 33% response rate of the pilot survey, the sample size of the main survey was established as 3,600.

Therefore, 5,100 samples were randomly selected within the sampling frame with the first 3,600 used in the first wave of the main survey and the remaining 1,500 held as backup samples, which would only be used if the response target of 1,067 was greatly missed.

Notably, at the end of the main survey, 1,044 responses (29% response rate) were collected. A ± 0.03 sampling error ($p < 0.05$) was computed by Equation 6.1, confirming the response size was sufficient to maintain the effectiveness of the survey design.

6.3.3 Internet Survey Design

The Internet, comprising e-mail invitation and Web-based questionnaire, was used to collect primary data in this study. This section presents reasons for selecting the Internet as a data collection medium, Internet survey procedures, survey quality controls (response rate improvements and survey Website control), and fieldwork organisation are discussed, in turn, below.

I. Selecting the Internet as a Data Collection Medium

In this study, the Internet was employed as the data collection medium for three reasons: the accessibility of the target population, advantages of the Internet survey, and negligible negative impact of ethical issues on this study. Each is discussed below:

1. **Accessibility of the target population**:

As aforementioned, the study's target population was the Q Website's individual buyers. Given that potential respondents were all Internet users with valid e-mail addresses, e-mail became the best way to invite the sample to join the survey.

2. **Advantages of the Internet survey**:

Under the limited time and budget constraints, the Internet survey offered this study

an economical but efficient survey method. Ilieva *et al.* (2002) suggested a combination of e-mail invitation and Web-based questionnaire survey offers a low cost, quick response speed and good response rate, access to a well-defined population, sophisticated questionnaire layout, ease of reply, and faultless data transformation into statistical software. Moreover, the valid e-mail address of each sample obtained from the Q Website database could increase the response rate.

3. **Negligible negative impact of ethical issues on this study**:

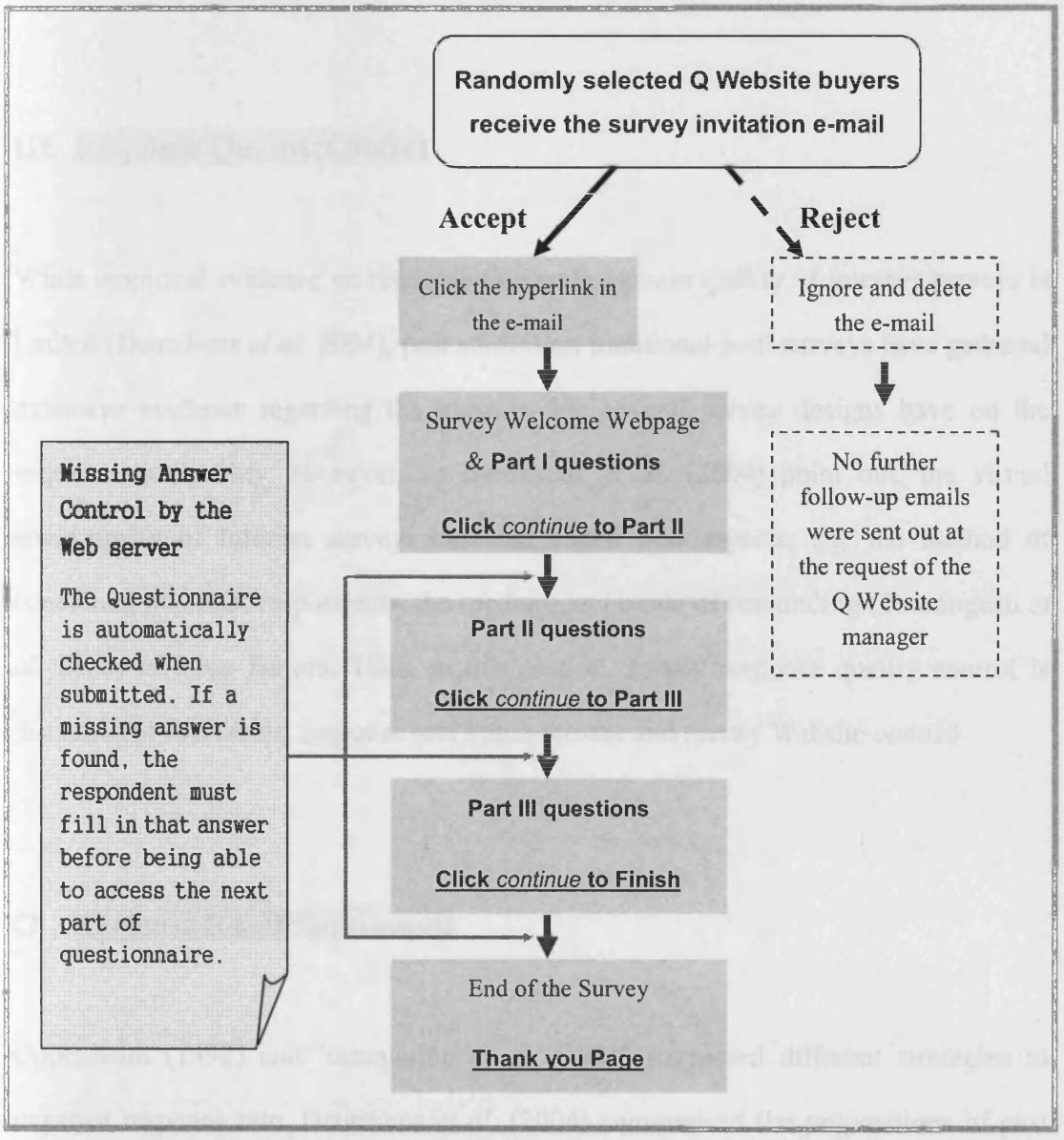
Major ethical issues associated with the Internet survey reviewed in Chapter 2, Section 2.2.2, namely, informed consent, privacy, confidentiality and anonymity were not a threat to this study. First, as indicated previously in Section 6.2.1, each Q Website member had agreed to receive e-mails from the Q Website, which solved the problem of informed consent. Second, according to Schillewaert *et al.* (1998), the Q Website's sponsorship assured potential respondents the protection of privacy, confidentiality and anonymity, and encouraged them to participate in the survey. Notably, no follow-up e-mail was sent to the sample out of respect for their right not to be unduly disturbed (related discussions can be found in Section 6.3.2 "sample size" and the later section of "response rate improvements").

For the reasons given above, the Internet survey method, combining e-mail invitation and Web-based questionnaire, was considered an appropriate data collection medium for this study.

II. The Internet Survey Procedures

Figure 6.2 below shows survey procedures from the respondents' perspective. After receiving the e-mail invitation, the sample could decide to accept or reject the survey. Once they decided to accept the survey, a hyperlink in the e-mail brought them directly to the welcome page of the Web-based questionnaire.

Figure 6.2 The Internet Survey Procedures



Source: this research

The whole survey consisted of three Webpages. Respondents had to answer every question on each page before they were able to continue to the next questionnaire part/page. The Q Website server automatically checked for any missing data when submitted. If any missing answer was found, a window would jump out requesting respondents to provide the missing data before moving on to the next part/page. Checks were made at each submitted Webpage, until respondents finished all three parts/pages of the survey.

III. Response Quality Control

While empirical evidence on response rate and response quality of Internet surveys is limited (Deutskens *et al.* 2004), past studies on traditional mail surveys have gathered extensive evidence regarding the impacts that several survey designs have on the response rate/quality. However, as Deutskens *et al.* (2004) point out, the virtual environment of Internet surveys has also added new aspects, e.g. the method of contacting potential respondents, the medium and mode of responding (Tourangeau *et al.* 2000) to these factors. Thus, in this section, survey response quality control is discussed at two levels: response rate improvement and survey Website control.

❒ Response Rate Improvement

Oppenheim (1992) and Yammarino *et al.* (1991) suggested different strategies to improve response rate. Deutskens *et al.* (2004) summarised the propositions of past

researchers (Church 1993; Dillman 2000; Fox *et al.* 1988; Heberlein and Baumgartner 1978; Kaunuk and Berenson 1975; Yammarino *et al.* 1991; Yu and Cooper 1983) and indicated that to increase the response rate/quality of an Internet survey, the most important factors to consider are follow-ups, incentives, questionnaire length and the questionnaire presentation. In this study, a more comprehensive approach comprising six strategies, i.e. a personalised e-mail invitation, design of the Web-based questionnaire, Webpage length, sponsorship announcement, incentives, and assurance of confidentiality and anonymity, was employed. Each strategy is discussed below:

1. **Personalised e-mail invitation**:

To instil confidence in the diligence of the survey and show respect for each respondent, every sample's personal name appeared at the top of his/her e-mail invitation.

2. **Design of the Web-based questionnaire**:

The rule of thumb when designing a Web-based questionnaire is it must be appealing but simple, and not distract from the questionnaire content which could create bias (Cobanoglu and Cobanoglu 2003). Therefore, given the multiple platforms of the computer operating system/Internet browser that different respondents might use (Batagelj and Vehovar 1998; Couper *et al.* 2001; Ilieva *et al.* 2002; Miller 2001; Tedesco *et al.* 1999), the Webpages were carefully designed to ensure that every respondent saw the same, clear layout. Moreover, an adequate bandwidth for accessing the questionnaire Webpage was arranged in order to offer respondents a stable and convenient survey environment.

3. **Webpage Length**:

Yammarino *et al.* (1991) indicated that questionnaire length critically influences the survey response rate and the response rate significantly decreases when a survey has more than four pages. Deutskens *et al.* (2004) also indicated that in an Internet survey, the longer the questionnaire length, the lower the response rate is likely to be. Thus, given that answering a questionnaire using the screen/mouse is less convenient and comfortable than the traditional paper/pen, in this study, the questionnaire length was carefully considered when selecting the measuring scales (see Section 6.4.1: Measuring Scales). As a result, this study's Web-based questionnaire length was controlled as three Webpages (see Section 6.4.2: Questionnaire Presentation).

4. **Sponsorship announcement**:

Deutskens *et al.* (2004) asserted that response quality will be enhanced if the product/brand image is emphasised in the survey. Supportively, Dillman (1978) indicated that a sponsorship declaration will increase the trust and credibility of a survey and Foxall *et al.* (1988) contended that this is the most influential response inducing strategy. Thus, the Q Website logo was conspicuously used both in the e-mail invitation and questionnaire Webpages to emphasise the survey's legitimacy and Q Website's sponsorship. Moreover, the e-mail invitation adopted the format of the Q Website's weekly newsletter in the hope of enhancing potential respondents' willingness to participate in the survey as a result of the familiar presentation.

5. **Incentives:**

Researchers (Cobanoglu and Cobanoglu 2003; Deutskens *et al.* 2004) recommended using incentives to achieve a higher response rate in Internet surveys. Moreover, according to Göritz (2004), incentives will influence the response quality and survey outcomes in an Internet survey. Thus, following Cobanoglu and Cobanoglu's (2003) example (see Chapter 2, Section 2.2.2), incentives were offered in two stages in this study. **First**, each respondent would receive 5,000 loyalty-points immediately after submitting a completed questionnaire at the Q Website. Loyalty-points could be used to obtain certain gifts or buy selected products at a special price at the Q Website. **Second**, after the whole survey ended, each respondent was eligible to enter a prize lottery with 41 prizes made up of 30 £10 (NT$ 500) vouchers, 10 £20 (NT$ 1,000) vouchers, and one £100 (NT$ 5,000) voucher. Each winner could only win one prize. Notably, the five major ethical issues regarding the use of incentives (see Chapter 2, Section 2.2.2) suggested by Cobanoglu and Cobanoglu (2003) were incorporated in the design of the survey incentives in this study.

6. **Confidentiality and anonymity protection:**

The sample was informed that the Internet survey was Q Website's internal investigation aiming to offer better services. Confidentiality and anonymity were assured on behalf of the Q Website in the e-mail invitation and at the survey Welcome Webpage. In fact, as aforementioned in the sampling method, the researcher was not allowed to access the Q Website database to conduct the sampling process in person. As such, the sample's confidentiality and anonymity were completely secured.

Notably, a commonly used method, "reminders", was not used in this study. To respect consumers' privacy and right not to be unduly disturbed, the Q Website manager indicated no follow-up e-mail was to be sent if the sample chose to ignore the e-mail invitation and refused to join the survey. Thus, backup samples were prepared to prevent a low response rate (see Section 6.2.2: sample size).

❒ Survey Website Control

Survey Website control included questionnaire completion and a SINGLE access command to the Web-based questionnaire, both of which were related to the survey quality. Questionnaire completion was secured by the Q Website server which automatically checked for each page's missing answers when submitted (see Figure 6.2). As regards the SINGLE access command, Witt and Poynter (1998) had suggested that including those who had already gained access to a questionnaire could generate sample bias. To prevent such bias, a special arrangement was initiated. As shown in Figure 6.2, the hyperlink included in the e-mail invitation brought the respondent directly to the survey Website. Each hyperlink in the e-mail was unique. More than a simple hyperlink, it included the respondent's Q Website member ID thus the Q Website server was able to control each respondent's SINGLE access to the Web-based questionnaire.

Notably, the Web-based questionnaire was assisted by Data Mining techniques which automatically captured the respondent's answer to each question and stored it. After

the survey was ended, the collected data was transformed into an Excel file for analysis. This process ensured survey data accuracy by avoiding any possible manual key-in mistake.

IV. Fieldwork Organisation

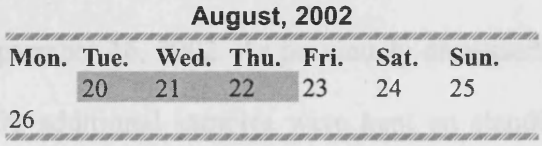
In this study, a pilot survey was undertaken before the main survey. The reason was threefold: first, the pilot survey's response rate aided calculation of the main survey's sample size (see Section 6.2.2: Sample Size). Second, the pilot survey results were used to improve the proposed measuring scales in terms of validity and reliability (see Section 6.4.2: Questionnaire Presentation). Third, the Internet survey procedures were tested to discover and resolve any unexpected problems, leading to better administration of the main survey.

The pilot and main survey time schedules are presented below:

❒ Pilot survey:

The pilot survey was initially planned for 7 days, from August 20 to August 26, 2002 (calendar dates are shown in Figure 6.3). An e-mail invitation asking for the sample's participation was e-mailed to 300 randomly selected samples (see Section 6.2.2: sample size) from the Q Website on August 20, 2002.

Figure 6.3 Pilot Survey Time Schedule



Dates listed are the initial planned survey period

indicates actual survey period

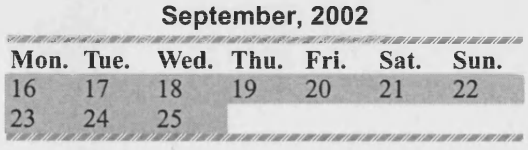
Source: this research

By August 22, 2002, the third day of the pilot survey, 102 valid responses (a 33% response rate) had been received. Given the response target was reached, the pilot survey ended earlier than initially planned to save costs. According to pilot survey results, the questionnaire content was revised (see Section 6.4.2: Questionnaire Presentation). Thus, the main survey questionnaire was finalised at this stage.

❒ **Main survey**:

The main survey time schedule was 10 days, from September 16, 2002 to September 25, 2002 (calendar dates are shown in Figure 6.4).

Figure 6.4 Main Survey Time Schedule



indicates actual survey period

Source: this research

An e-mail invitation asking for the sample's participation in the main survey was

e-mailed to 3,600 randomly selected samples (see Section 6.2.2: Sample Size) from the Q Website on September 16, 2002. As previously discussed in "sample size" and "ethical issues", 1,500 additional samples were kept on standby. By September 25 2002, 1,044 responses (a 29.0% response rate) had been received and the main survey was ended.

For quick reference, the following statistics related to the main survey were calculated:

1. **A sampling error of 0.03 was calculated (see Section 6.2.2: Sample Size).**
2. **A sample representativeness test can be found in Appendix 4 and related discussions presented in Section 6.6.2: Generalisability.**
3. **The non-response error was calculated (see Chapter 7, Section 7.2).**
4. **An analysis of response size for each survey day in the main survey was undertaken (see Table 7.1 in Chapter 7, Section 7.2.1).**

6.4 Questionnaire Design

According to the research aims (see Chapter 1), a highly structured, self-administered questionnaire was selected for use in this study to collect primary data from Q

Website buyers. The reasons (Dillman 1978; Rossi *et al.* 1983) were four-fold: to ensure a standardised response, to avoid ambiguous responses, to facilitate the time taken to complete the questionnaire, and to provide respondents with a simple survey instrument in an Internet environment.

Given the particular Internet environment in which respondents were answering the questionnaire and the length constraints for the Web-based questionnaire (see Section 6.2.3: Webpage length), a 5-point Likert scale ranging from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) to 5 (strongly agree) was employed in the study's Web-based questionnaire because of its ease of application and simple layout. Elmore and Beggs (1975) contended that a 5-point scale is just as good as any, and an increase from 5 to 7 or to 9 points on a rating scale does not improve the reliability of ratings.

With these factors in mind, the following sections describe the questionnaire design at two levels: the measuring scales for each variable in the conceptual framework, and questionnaire presentation.

6.4.1 Measuring Scales

The conceptual framework (see Figure 5.1 in Chapter 5, Section 5.2) indicated five variables were measured in this study, namely, Internet buying innovativeness, Internet buying involvement, Q brand loyalty in the traditional market, risk perceived when buying at the Q Website, and attitudinal Q Website loyalty. **Notably,**

behavioural Q Website loyalty (i.e. actual buying frequency) was obtained directly from respondents' actual purchase records in the Q Website database, which was more reliable than respondents' self-reported buying frequencies, thus generating a more robust survey finding. The operational definition of each variable listed above is found in Table 5.1 (see Chapter 5).

Of these five variables, only Internet buying innovativeness and involvement had existing universal scales (see Chapter 4, Sections 4.2.2 and 4.3.3 for details). More specifically, in this study, Internet buying innovativeness was measured by Goldsmith and Hofacker's (1991) Domain Specific Innovativeness (DSI) scale, a six-item Likert type scale whose validity and reliability has been confirmed (e.g. Flynn and Goldsmith 1993a, 1993b; Goldsmith and Flynn 1992). Internet buying involvement was measured by Mittal's (1989) Purchase Decision Involvement (PDI) scale, a four-item Likert type scale, which has been found to be valid and reliable (Goldsmith and Emmert 1991).

As regards the remaining three variables, i.e. Q brand loyalty, perceived risk and attitudinal Q Website loyalty, these have been arbitrarily measured in the past thus previous empirical results are not helpful for comparisons between researchers (see Chapter 3 for details). Hence, according to the research aims of this study, these three variables were measured by questions adapted from past studies (see Table 6.1) or designed by the researcher. Notably, the measuring scales of Q brand loyalty in the traditional market and attitudinal Q Website loyalty were slightly different due to operational definitions (see Table 5.1 in Chapter 5, Section 5.3). Table 6.1 below summarises the questionnaire contents in terms of research variables and measuring scales (including the source and type), in total 43 questions.

Table 6.1 Questionnaire Content Descriptions

Variable and Dimension	Scale and the Source	Scale Type
Internet Use & Buying Behaviours	7 items from this research	Nominal
Internet buying Innovativeness		
Internet buying specific innovativeness	6 items adapted from the DSI Scale developed by Goldsmith and Hofacker (1991)	5-point Likert; strongly disagree (1) to strongly agree (5)
Internet buying Involvement		
Internet Purchase Decision Involvement	4 items adapted from the PDI Scale developed by Mittal (1989)	5-point Likert; strongly disagree (1) to strongly agree (5)
Q brand loyalty in the traditional market		
Brand Loyalty	2 items from Chaudhuri *et al.* (2001)	5-point Likert; strongly disagree (1) to strongly agree (5)
Brand Commitment	2 items adapted from Odin *et al.* (2001)	
Action Loyalty	3 items adapted from Mittal & Lee (1989)	
Perceived risk when buying at the Q Website		
Performance risk Financial risk Social risk Security risk Time risk Privacy risk Overall risk	5 items adapted from Miley (2001); 2 items from this study	5-point Likert; strongly disagree (1) to strongly agree (5)
Attitudinal Q Website loyalty		
Website Loyalty	2 items from Chaudhuri *et al.* (2001)	5-point Likert; strongly disagree (1) to strongly agree (5)
Website Commitment	2 items from Odin *et al.* (2001), 1 item from this study	
Socio- Demographic characteristics	7 items, including gender, marital status, age, education, job, monthly income, and residence area.	Nominal
Totally 43 items		*Source: this research*

6.4.2 Questionnaire Presentation

Grandcolas *et al.* (2003) indicated that traditional questionnaire design recommendations are still applicable to Internet surveys. Thus, in this section, major issues regarding questionnaire presentation, i.e. question sequence, wording, translation and revision after the pilot survey are presented in sequence.

Regarding question sequence, the funnel approach (Oppenheim 1992) was employed in this study to divide survey questions into three sections. Ranging from broad to specific questions: PART I focused on Internet use and buying behaviours (7 items), PART II examined Internet buying innovativeness, Internet buying involvement, and Q brand loyalty in the traditional market (17 items), and PART III investigated perceived risk when buying at the Q Website (7 items), and attitudinal Q Website loyalty (5 items), and socio-demographic questions (7 items).

A copy of the questionnaire in English was administered to three doctoral students, one faculty and one senior research staff member, in Cardiff Business School for piloting. They answered the questionnaire using the traditional pen and paper. Specific and open-ended questions were also asked in respect of questionnaire content and layout. Their constructive comments and feedback were incorporated into the final English version of the questionnaire (see Appendix 1).

The final version English version of the questionnaire was subsequently translated

into Chinese by a group of experienced native speakers comprising both academic and business researchers: two managers from Taiwan Real Survey Ltd., three research assistants from the Election Study Centre of National Cheng-Chi University in Taiwan, and the researcher. The Chinese questionnaire was developed into three Webpages (see Section 6.2.3: response rate improvements) and put on the Q Website for the pilot survey conducted between August 20 to 22, 2002, to further improve the Chinese questionnaire in terms of question content, validity, and reliability.

The Cronbach alpha coefficient is the method used most frequently to assess the internal consistency reliability of a scale (Bollen 1989). Thus, Cronbach alpha coefficient reliability tests were undertaken with the five main scales in the study, namely, Internet buying innovation and involvement, Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty. Table 6.2 presents the results.

Table 6.2 Cronbach Alpha Coefficients for the Five Main Scales in the Pilot Survey

Measuring Scale	Cronbach coefficient α
Internet buying Innovation (6 items)	0.77
Internet buying Involvement (4 items)	0.66
Q brand loyalty in the traditional market (7 items)	0.78
Perceived risk when buying at the Q Website (7 items)	0.74
Attitudinal Q Website loyalty (5 items)	0.81

Source: this research

Table 6.2 shows the Cronbach alpha coefficients in the pilot survey varied between

0.66 (Involvement) and 0.81 (attitudinal Q Website loyalty), indicating overall acceptable questionnaire reliability according to Sekaran's (2000) suggestion: a Cronbach alpha coefficient of 0.60 or more is generally accepted. Given the Internet buying involvement scale's Cronbach alpha coefficient (0.66) was much lower than that for remaining scales, this scale's wording was revised to facilitate respondents' understanding of it (see Table 6.5 in Section 6.6.2 for an improved Cronbach alpha coefficient in the main survey). As regards the remaining four scales, namely, Internet buying innovation (0.77), Q brand loyalty in the traditional market (0.78), perceived risk when buying at the Q Website (0.74), and attitudinal Q Website loyalty (0.81), their Cronbach alpha coefficients indicated adequate internal consistency reliability within each scale. As a result, no further revision was undertaken.

After the test and revision, the Chinese questionnaire was finalised and used in the main survey (see Appendix 2 for the Chinese questionnaire).

6.5 Data Analysis Design

McNamara (1972) asserted that the distinction between ordinal and interval data is not particularly crucial in selecting an analysis method. Blalock (1979) argued that Likert scales are scored as though one were assuming a legitimate interval data. Supportively, Labovitz (1970, 1975) recommended that researchers should simply assign integers to ordered categories and then proceed to utilise the wide variety of parametric statistical

procedures that are based on interval data assumptions. Abelson and Turkey (1970) contended that the proper assignment of numeric values to categories of ordered scale will allow it to be treated as though it (the scale) were measured at the interval scale-level. Labovitz (1970) thus suggested that interval statistics can be applied to any ordinal-level data. Consequently, **in this study, all the data collected from Likert type scales were regarded as interval data in order to apply more sophisticated techniques.** The "SPSS for Windows", a commonly used analysis software package was also employed in this study.

Churchill and Iacobucci (2002) stated that the purpose of analysis is to obtain meanings from the collected data. In this study, research hypotheses established in Chapter 5 were grouped according to themes. The investigative analysis techniques for each theme are detailed below:

- Differences between the four consumer segments (H1.1, H1.2 and H1.3) were tested by ANOVA tests and post hoc Scheffé procedures.

- The differences between the two consumer groups (H2.1 and H2.2) were tested by the *t* test technique.

- Consumer loyalty transformation, H3.1, H3.2, and H3.3, was tested by correlation and multiple regression techniques.

- The mediating effect the perceived risk had on the Q brand loyalty/Q Website

loyalty link (H3.4) was tested by the partial correlation technique.

- The attitudinal/behavioural Q Website loyalty link (H3.5) was tested by correlation and simple regression techniques.

Notably, the Chi-square test was also used in the study to test socio-demographic characteristics and Internet behaviour differences between the four consumer segments. These were not tested in the research hypotheses (see Chapter 5) in order not to distract the research focus from exploring how consumers' cognitive constructs in terms of innovativeness and involvement impact on their brand loyalty/Website loyalty transformation. Each method of analysis is discussed below.

1. Factor analysis:

The general purpose of factor analysis is to find a way to condense the information contained in a number of original variables into a smaller set of new, composite dimensions or factors with a minimum loss of information – that is, to search for and define the fundamental constructs or dimensions assumed to underlie the original variables (Gorsuch 1983; Rummel 1970). More specifically, factor analysis techniques can satisfy either of two objectives: (1) identifying structure through data summarisation or (2) data reduction (Hair *et al.* 1998). Notably, to ensure the data matrix has sufficient correlations to justify the application of factor analysis, Hair *et al.* (1998) indicated the sample size adequacy, the Bartlett test, and Kaiser-Meyer-Olkin Measure of sampling adequacy should be examined (see Appendix 5 for test results).

In this study, reasons for applying the factor analysis technique were two-fold. First, factor analysis results in relation to the five main scales, i.e. Internet buying innovativeness, Internet buying involvement, Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty, would be used for supporting survey validity and reliability (see Sections 6.6.1 and 6.6.2). Second, results pertaining to three scales, namely, Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty would be further used to conduct additional statistical analyses (e.g. correlation and regression) for hypotheses testing in Chapter 7, Sections 7.4, 7.5, and 7.6.

Notably, the principal components method with Varimax rotation was used in this study. Moreover, in this study, only factors with an eigenvalue > 1 and items with factor loadings > ± 0.50 were retained for further analyses (Hair *et al.* 1998). Factor analysis findings can found in Appendix 6 and related discussions are presented in Chapter 7, Section 7.3.1.

2. Chi-square test:

The Chi-square test is the most widely used measure of association for nominal data (Dillon *et al.*1990). It can determine whether categories of an independent variable are different across two or more samples (McDaniel and Gates 1995)

In this study, the Chi-square test was used to test the sample's representativeness, verifying sample and population differences in respect of four socio-demographic characteristics, i.e. gender, age, education and residence area (see Appendix 4.) Moreover, the Chi-square test was undertaken to test the four consumer segments' and *more-involved adaptors/less-involved innovators*' socio-demographic characteristics and Internet use and buying behaviours, respectively. Findings can be found in Tables 7.21 and 7.22 in Chapter 7, Section 7.7.3.

3. *t* test:

The *t* test assesses the statistical significance of the difference between two independent sample means (Hair *et al.* 1998), thus it is an appropriate statistical tool when testing the mean differences between ONLY two samples.

In this study, the *t* test was undertaken to test the attitudinal Q Website loyalty between adaptors/innovators (H2.1) and less/more involved groups (H2.2), respectively. Findings can be found in Chapter 7, Section 7.4.2.

4. Analysis of Variance (ANOVA):

Analysis of variance (ANOVA) is an appropriate statistical tool when testing the mean differences between more than two independent samples (McDaniel and Gates 1995). Hair *et al.* (1998) further indicated ANOVA avoids the Type I error inflation derived from multiple *t* tests and determines groups' mean differences solely derived from the

sampling error.

In this study, ANOVA was employed to test the four consumer segments' differences in terms of their brand loyalty in the traditional market (H1.1), perceived risk when buying at the Q Website (H1.2), and attitudinal Q Website loyalty (H1.3). Findings can be found in Chapter 7, Section 7.4.1. ANOVA was also used to test differences between the four consumer segments' actual Q Website buying frequency (see Appendix 14).

5. Post hoc procedures:

Although the ANOVA test can indicate whether groups' means are all equal/unequal, it does not pinpoint where the significant differences lie if there are more than two groups (Hair *et al.* 1998). Therefore, to achieve the study's interest in specific groups' mean differences, further investigation was conducted using post hoc procedures. Hair *et al.* (1998) indicated the Scheffé test is the most conservative with respect to Type I error, followed by Tukey's honestly significant difference (HSD) method, and Tukey's extension of the Fisher least significant difference (LSD) method.

In this study, the Scheffé method was applied in testing the four consumer segments' differences in terms of their brand loyalty in the traditional market (H1.1), perceived risk when buying at the Q Website (H1.2), and attitudinal Q Website loylaty (H1.3). The results can be found in Appendix 8. In addition, when examining the four consumer segments' Q Website buying frequency differences, because the Scheffé test

result was not significant ($p < 0.05$), Tukey's HSD and LSD methods were used (see Appendix 15 for results).

6. Correlation and partial Correlation:

Pedhazur (1997) stated that the correlation model accesses the nature (i.e. positive or negative) and degree of relation between any two variables. The correlation coefficient can range from -1 to +1, with +1 indicating a perfect positive relationship, 0 indicating no relationship, and -1 indicating a perfect negative or reverse relationship (Hair *et al.* 1998). According to Cohen's (1988) guidelines, the Pearson's correlation coefficient (r) can be interpreted as: *small* ($0.10 < | r | < 0.29$), *medium* ($0.30 < | r | < 0.49$); and *large* ($0.50 < | r | < 1.00$), indicating different levels of relationship strength between any two variables. In this study, the correlation technique was used to test the relationship between Q brand loyalty/attitudinal Q Website loyalty (H3.1), Q brand loyalty/perceived risk (H3.2), and perceived risk/ attitudinal Q Website loyalty (H3.3). Findings can be found in Chapter 7, Section 7.5.1.

As regards partial correlation, it assesses the strength of the relationship between a dependent variable and a single independent variable when the effects of other independent variables in the model are held constant (Hair *et al.* 1998). In this study, the partial correlation coefficient was computed by first calculating the Pearson's r for Q brand loyalty/attitudinal Q Website loyalty. Second, holding the effects of the perceived risk when buying at the Q Website constant, a second Pearson's r for Q

brand loyalty/attitudinal Q Website loyalty was calculated. Third, by comparing the first and second Pearson's *r*, the mediating effect perceived risk had on the Q brand loyalty/attitudinal Q Website loyalty link (H3.4) would be revealed. Findings can be found in Chapter 7, Section 7.5.2.

7. Simple and Multiple Regression:

Regression analysis uses one or more independent variables whose values are known to predict the single dependent variable. Hair *et al.* (1998) indicated each independent variable is weighted by the regression analysis procedure to ensure maximal prediction from the set of independent variables. The weights denote the relative contribution of the independent variables to the overall prediction and facilitate interpretation as to the influence of each variable when predicting the dependent variable (Hair *et al.* 1998). Notably, simple regression is a regression model with only ONE independent variable while multiple regression is a regression model with more than one independent variable.

Pedhazur (1997) maintained regression models offer more insights than the correlation coefficient because the latter makes no distinction between an independent and a dependent variable. As such, in this study, the multiple regression technique was used to test the relationship between Q brand loyalty/attitudinal Q Website loyalty (H3.1), and perceived risk/ attitudinal Q Website loyalty (H3.3). Similarly, simple regression was undertaken to test the relationship between attitudinal/behavioural Q Website loyalty (H3.5). Findings can be found in Chapter 7, Sections 7.5.1 and 7.6,

respectively.

Table 6.3 summarises the analysis methods applied to each hypothesis of this study.

Table 6.3 Analysis Methods Applied to the Study Hypotheses

	Research Hypothesis	Analysis method
1.1	The mean score of Q brand loyalty in the traditional market will be significantly different across the four consumer segments.	ANOVA test and post hoc Scheffé test
1.2	The mean score of perceived risk when buying at the Q Website will be significantly different across the four consumer segments.	ANOVA test and post hoc Scheffé test
1.3	The mean score of attitudinal Q Website loyalty will be significantly different across the four consumer segments.	ANOVA test and post hoc Scheffé test
2.1	The mean score of attitudinal Q Website loyalty will be significantly different between innovators and adaptors.	*t* test
2.2	The mean score of attitudinal Q Website loyalty will be significantly different between the more-involved and less-involved consumer groups.	*t* test
3.1	Q brand loyalty in the traditional market is positively related to attitudinal Q Website loyalty on the Internet.	Correlation and Multiple regression
4.1	Q brand loyalty in the traditional market is negatively related to the perceived risk when buying at the Q Website.	Correlation
4.2	The perceived risk when buying at the Q Website is negatively related to the attitudinal Q Website loyalty.	Correlation and Multiple regression
4.3	The perceived risk when buying at the Q Website mediates the Q brand loyalty/attitudinal Q Website loyalty link.	Partial Correlation
4.4	Only the two more-involved segments will demonstrate their attitudinal Q Website loyalty leading to their behavioural Q Website loyalty.	Correlation and Simple Regression

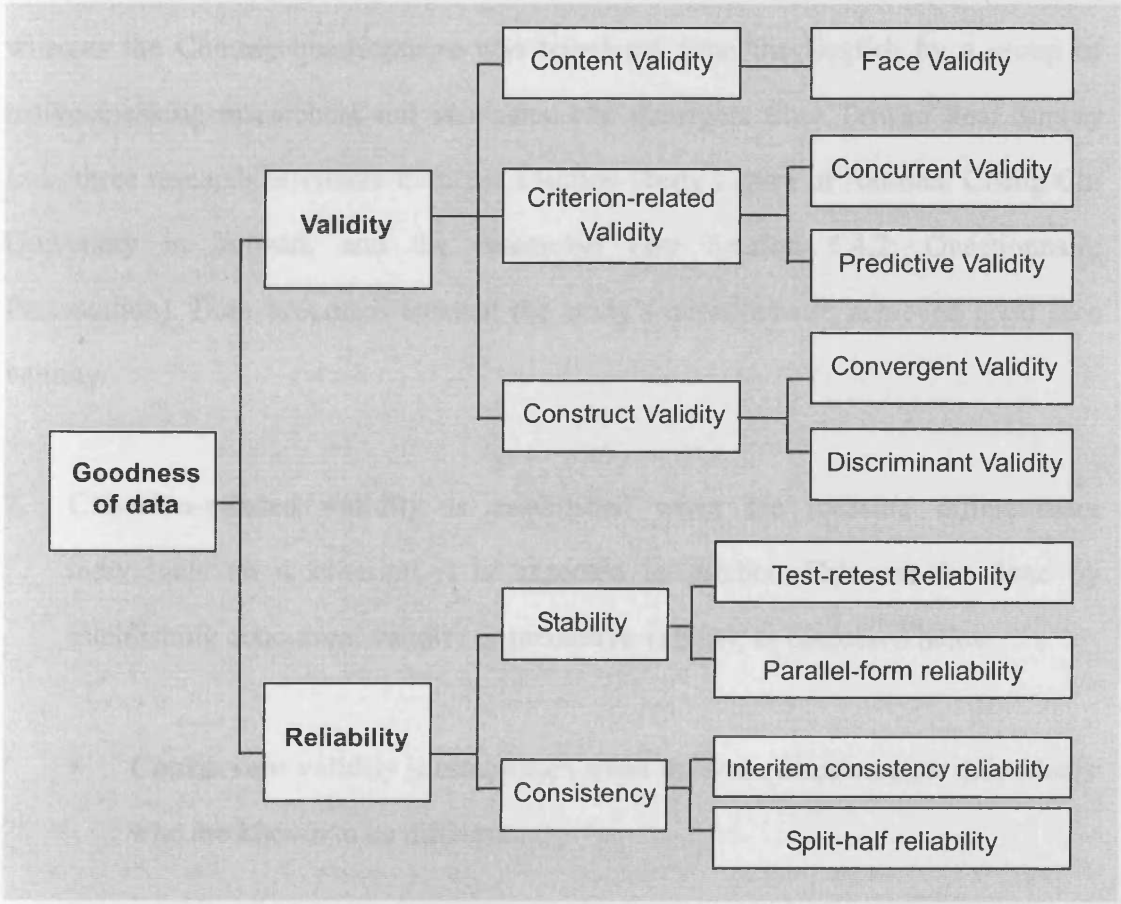
Source: this research

6.4 Goodness Fit of the Data

The goodness fit of the data is crucial to any research because it reflects the quality of the collected data and the inferences that can be drawn from the study findings. In this section, the goodness fit of this study's data is assessed at three levels, namely, the validity and reliability of measurements, and the generalisability of findings. As such, the research limitations of this study are also revealed.

This section is divided into three parts. The first two parts assess the goodness of measures through the validity and reliability (see Figure 6.3 below). Each part starts by introducing different forms of validity/reliability, followed by their examination in this study. The final part of the section discusses generalisability.

Figure 6.3 Testing goodness of Measures: Forms of Validity and Reliability



Source: adapted from Sekaran (2000), "Research Methods for Business", USA, John Wiley and Sons, Inc.

6.5.1 Validity

Validity addresses the issue of whether what we try to measure is actually measured. It can be examined from a number of different perspectives. According to Sekaran (2000), validity includes content, criterion-related, and construct validity (see Figure 6.4 above), each of which is discussed below:

1. **Content Validity** ensures that the measure includes an adequate and representative set of items that tap the concept. For example, **face validity** which is considered a basic and very minimum index of content validity, addresses a measurement seeming to measure what it is supposed to measure.

In this study, the English version of the questionnaire was piloted by three doctoral students, one faculty and one senior research staff from Cardiff Business School, whereas the Chinese questionnaire was translated from the English by a group of native-speaking researchers and assistants: two managers from Taiwan Real Survey Ltd., three research assistants from the Election Study Centre of National Cheng-Chi University in Taiwan, and the researcher (see Section 6.4.2: Questionnaire Presentation). Both processes ensured the study's questionnaire achieved good face validity.

2. **Criterion-related validity** is established when the measure differentiates individuals on a criterion it is expected to predict. This can be done by establishing concurrent validity or predictive validity, as discussed below:

    - **Concurrent validity** is established when the scale discriminates individuals who are known to be different.

- **Predictive validity** indicates the ability of the measuring instrument to differentiate among individuals as to a future criterion.

In this study, H2.1 and H2.2 were tested, and also supported because adaptor/innovator groups and less-involved/more-involved groups were found to have a significantly ($p < 0.05$) different attitudinal Q Website loyalty (see Chapter 7, Section 7.3.2 for details). Given adaptor/innovator groups were formed according to their DSI score and less-involved/more-involved groups were formed according to their PDI score (see Section 4.2.2), a good level of criterion-related validity in terms of concurrent validity was revealed as both the DSI and PDI scales demonstrated excellent discriminating ability to differentiate consumer behaviours. Moreover, H1.1, H1.2 and H1.3 were tested and supported because the four consumer segments significantly ($p < 0.05$) differed in their Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty (see Chapter 7, Section 7.3.1 for details). Further, these four consumer segments were also evidenced to differ significantly ($p < 0.05$) in certain socio-demographic characteristics and Internet use and buying behaviours (see Table 7.18 in Chapter 7, Section 7.6.3). As such, again, good concurrent validity was demonstrated in this study since the four consumer segments were formed by cross tabulating their DSI and PDI scores (see Chapter 7, Section 7.3.2)

3. **Construct validity** testifies to how well the results obtained from the use of the measure fit the theories around which the test is designed. This is assessed through convergent and discriminant validity, discussed in the following:

- **Convergent validity** is established when the scores obtained by two

different instruments measuring the same concept are highly correlated.

- **Discriminant validity** is established when, based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so.

In this study, convergent validity was not examined as all the five main scales in this study measured different constructs (see Table 6.1 in Section 6.4.1). As regards discriminant validity, Table 6.4 below presents the correlations between the six-item DSI scale and four-item PDI scale. Although some correlation coefficients are significant at a 0.05 or 0.01 level, all correlation coefficients are below 0.20, which is too weak to indicate a correlation between any item on the DSI scale and any item on the PDI scale. As such, good discriminant validity is revealed for this study given the DSI scale (Internet buying innovativeness) measured a different construct from the PDI scale (Internet buying involvement).

Table 6.4 Discriminant Validity Test between the DSI and PDI scales

	DSI 1	DSI 2	DSI 3	DSI 4	DSI 5	DSI 6
PDI 1	0.17(**)	-0.03	0.04	0.19(**)	-0.20(**)	-0.05
PDI 2	0.22(**)	0.08(**)	0.17(**)	0.20(**)	-0.10(**)	0.05
PDI 3	0.20(**)	0.02	0.10(**)	0.21(**)	-0.05	0.03
PDI 4	0.17(**)	0.08(*)	0.15(**)	0.13(**)	-0.07(*)	0.05

* Significant at $p < 0.05$. *Source: this research*

** Significant at $p < 0.01$.

From the discussion and tests above, it is believed the measuring scales in this study are valid.

6.5.2 Reliability

Reliability of a measure indicates the extent to which the measure is without bias (error free) and hence offers consistent measurement across time and across the various items in the instrument (Sekaran 2000). As Figure 6.3 above shows, according to Sekaran (2000), the reliability of measurements should be assessed from their stability and consistency, as presented below:

1. The **Stability** of a measure is its ability to maintain stability over time, despite uncontrollable test conditions or the state of respondents themselves, and is indicative of its stability and low vulnerability to changes in the situation.

    - **Test-retest reliability** is established by obtaining a repetition of the same measure on a second occasion.

    - **Parallel-form reliability** is established when responses on two comparable sets of measures tapping the same construct are highly correlated.

In this study, due to time constraints and sponsorship from the Q Website, the research design was not allowed to include test-retest reliability. As regards parallel-form reliability, as indicated in the previous section, all five main scales in this study measured different constructs (see Table 6.1 in Section 6.4.1), thus it was not examined.

2. **Internal consistency** of measures is indicated in the homogeneity of the items in the measure that taps the construct.

- **Interitem consistency reliability** is established when respondents' answers to all the items in a measure are consistent. The most popular test of interitem consistency reliability is Cronbach coefficient alpha (Cronbach, 1946).

- **Split-half reliability** reflects the correlations between two halves of an instrument.

Sekaran (2000) indicated that split-half reliability can be higher than Cronbach alpha only in the circumstance of there being more than one underlying response dimension tapped by the measure. Hence, in almost all cases, Cronbach alpha can be considered a perfectly adequate index of the internal consistency reliability.

In this study, the internal consistency reliability was established at three levels: first, item-to-total correlation was used to assess the consistency within the scale. Second, McDaniel and Gates (1995) state that an item's lack of correlation with other items in the scale is evidence that the item does not belong in the scale and should be omitted. Thus, the if-item-deleted correlation coefficient was computed. Third, Cronbach alpha correlation coefficient was used to assess the consistency of response to the total scale. This technique computed the mean reliability coefficient estimates for all possible ways of splitting a set of items in half. Table 6.5 below presents the three correlation coefficients of the main survey.

Table 6.5 Item-to-total, If-item-deleted and Cronbach alpha Correlation Coefficients of the Main Survey

Cronbach alpha Coefficient														
Internet buying Innovativeness			**Internet buying Involvement**			**Q Brand Loyalty in the traditional market**			**Perceived Risk when buying at the Q Website**			**Attitudinal Q Website loyalty**		
Alpha = 0.73			Alpha = 0.71			Alpha = 0.75			Alpha = 0.70			Alpha = 0.74		
Item-to-total Correlation Coefficient														
	Item to total	If item deleted		Item to total	If item deleted		Item to total	If item deleted		Item to total	If item deleted		Item to total	If item deleted
DSI 1	0.33	0.73	PDI1	0.50	0.64	Loyalty 1	0.48	0.72	Risk 1	0.51	0.64	Web loyalty 1	0.55	0.68
DSI 2	0.48	0.69	PDI 2	0.57	0.61	Loyalty 2	0.55	0.70	Risk 2	0.30	0.69	Web loyalty 2	0.60	0.67
DSI 3	0.63	0.64	PDI 3	0.44	0.69	Loyalty 3	0.32	0.75	**Risk 3***	**0.21***	**0.72***	Web loyalty 3	0.40	0.73
DSI 4	0.40	0.71	PDI 4	0.50	0.65	Loyalty 4	0.48	0.71	Risk 4	0.55	0.63	Web loyalty 4	0.54	0.69
DSI 5	0.34	0.73				Loyalty 5	0.47	0.72	Risk 5	0.42	0.66	Web loyalty 5	0.47	0.72
DSI 6	0.61	0.65				Loyalty 6	0.43	0.73	Risk 6	0.54	0.63			
						Loyalty 7	0.57	0.70	Risk 7	0.38	0.67			

*Item was deleted to increase the Cronbach alpha correlation coefficient of the scale.

Source: by this research

1. Item-to-total correlation coefficient

Table 6.5 shows the attitudinal Q Website loyalty scale reports a higher item-to-total correlation coefficient (r = 0.40 ~ 0.60) than the remaining scales: personal innovativeness (r = 0.33 ~ 0.63), personal involvement (r = 0.44 ~ 0.57), Q brand loyalty in the traditional market (r = 0.32 ~ 0.51) and perceived risk when buying at the Q Website (r =0.21 ~ 0.55). Reasons for the relatively low but acceptable item-to-total correlation in each scale could be due to the operational definition/measuring scales and factor analysis results. First, in this study, attitudinal Q Website loyalty was operationalised to be uni-dimensional (see Table 5.1 in Chapter 5), whereas Q band loyalty in the traditional market and perceived risk when buying at the Q Website were operationalised compositely. Consequently, Table 6.1 (see Section 6.4.1) shows attitudinal Q Website loyalty was measured by 5 questions assessing ONLY consumers' attitudinal loyalty (2 loyalty and 3 commitment items), whereas Q brand loyalty in the traditional market had one more buying loyalty dimension measured by 3 items adapted from Mittal and Lee (1989). Similarly, the perceived risk when buying at the Q Website was measured by seven different items because of its composite operational definition. Consequently, it was not surprising to find the attitudinal Q Website loyalty scale generated a higher item-to-total correlation than the other two scales.

Second, factor analysis results (see Appendix 6) indicated that except for the attitudinal Q Website loyalty scale, which extracted a single factor, all the remaining four scales extracted two factors. Bryman and Cramer (2002) indicated that if factor analysis confirms a measure comprises a number of dimensions, the overall scale will probably exhibit a low level of internal reliability. Thus, attitudinal Q Website loyalty

with a single factor structure reported a relatively higher item-to-total correlation coefficient than the remaining four scales with a two-factor structure (for further discussion see Chapter 7, Section 7.3.1 and Chapter 8, Section 8.6).

2. If-item-deleted correlation coefficient

Four out of five scales in Table 6.5, i.e. innovativeness, involvement, Q brand loyalty, and attitudinal Q Website loyalty, show acceptable if-item-deleted correlation coefficient results. Within these scales, each item contributes positively to the scale's Cronbach alpha correlation coefficient, respectively. However, in the perceived risk scale, Risk 3 (social risk: "If I purchase at the Q Website, I believe I will be held in higher esteem by my associates at work as well as my friends", see Appendix 1) was found to have a low item-to-total coefficient of 0.21 and to contribute negatively to the scale's Cronbach alpha correlation coefficient. In fact, Table 6.5 shows that the scale's Cronbach alpha correlation coefficient increases from 0.70 to 0.72 if Risk 3 is deleted. Consequently, this item was deleted and, in turn, **in the preliminary factor analysis (see Chapter 7, Section 7.3.1), only six out of seven items of the perceived risk scale were used.**

Investigating why social risk decreased the internal consistency of the perceived risk scale, the reason was not hard to find. According to the TWNIC's (see Chapter 2, Section 2.3.1) survey in February 2004, over two-thirds (61.01%) of Taiwan's population accessed the Internet. Although FIND reported a more conservative online penetration of 39% at December 2003 (see also Chapter 2, Section 2.3.1), both findings suggest that in Taiwan, accessing the Internet is no longer a novelty and has become part of people's everyday lives. Consequently, consumers' concern that

friends and work associates will hold them in higher esteem if they make an Internet buying decision is no longer valid. Thus, this item reduced the scale's internal consistency in terms of the Cronbach alpha correlation coefficient. A comparison between the Cronbach alpha correlation coefficient for the pilot and main survey can be found in Appendix 3.

3. Cronbach alpha correlation coefficient

Table 6.5 reveals Cronbach alpha correlation coefficients for the main survey are between 0.70 and 0.75. Previous researchers (e.g. Hair *et al.* 1998; Robinson *et al.* 1991) have viewed a Cronbach alpha correlation coefficient over 0.70 as acceptable, while Robinson *et al.* (1991) argued that a Cronbach alpha correlation coefficient of 0.60 or above is also acceptable for exploratory research. **Given the present study is exploratory research investigating Internet buyer behaviours (see Chapter 1), Cronbach alpha correlation coefficients between 0.70 and 0.75 demonstrate acceptable internal consistency reliability of measurements.**

From the discussion and tests above, it is believed the measuring scales in this study are reliable.

6.5.3 Generalisability

Generalisability theory is based in part on the concept of sampling. However, the primary focus is on sampling "measurement conditions" from universes of possible

measurement conditions (Jain *et al.* 1982). This statement interprets generalisability at two levels: first, generalising the sample findings to the whole population and, second, generalising a study results to a universe of generalisations (De Vaus 2001; Malhotra 1999). In this study, generalisability to the survey population was established by a series of procedures: the simple random sampling method, sampling error control, non-response error test and sample representativeness test. Generalisability to the 3C multi-channel business in Taiwan's B2C e-commerce market was established through proven rigorous scientific design (see Chapter 1, Section 1.4: Research Philosophy). Each topic is discussed below:

❒ Generalisability to the Survey Population

Generalisability to the survey population in this study was established at four levels: the simple random sampling method, sampling error, non-response rate, and sample representativeness. Section 6.2.2 indicated samples used in the pilot and main survey were randomly selected from the well-defined sampling frame. Sekaran (2000) contended that the simple random sampling method is the best for studies aiming to generalise findings to the population. Second, the sampling error of the study's main survey was controlled within ± 0.03 (see Section 6.2.2). Third, given a 29% response rate to the main survey, the non-response error was tested (see Appendix 7) and the findings indicated it was not a threat to this study. Four, a sample representativeness test was undertaken using the Chi-square test to examine differences between the survey sample and survey population in respect of four socio-demographic characteristics: gender, age, education and residence area. Results (see Appendix 4) revealed the survey sample and population differed significantly ($p < 0.05$) in terms of

their gender, age, educational level and residence area. Given these characteristics were considered to influence consumers' buying behaviour, the after-stratified weight process was employed to avoid possible bias in generalising the sample's findings to the population. Tables 7.3 and 7.4 in Chapter 7 present the un-weighted/weighted sample structure in terms of socio-demographic characteristics and Internet use and buying behaviours.

In this study, several research limitations occurred in the survey design. Different approaches were used to define and measure the constructs of Q brand loyalty/Q Website loyalty (see Chapter 5, Section 5.3: Operational Definitions). In the implementation of the survey, no follow-up e-mail was allowed (see Section, 6.2.3: Response Quality Control). Further, there was the sample frame error in the pilot study, i.e. the sample frame should have included those who had bought at the Q Website in past two years whereas the sample frame in the pilot study included only those who had bought in the past three months (see Appendix 3). Moreover, Mittal (1989) contended that purchase-decision involvement should be measured as close as possible to the time of purchase (see Chapter 4, Section 4.3.3). But because the survey product (a printer) was a durable good which required a longer observation period to investigate consumer buying behaviours, this study's sample frame comprised those who had placed a purchase at the Q Website during the past two years at the time of the survey (see Section 6.2.2: Sample Frame). Notably, the acceptable Cronbach alpha value (0.71 the Purchase Decision Involvement scale and 0.70 ~ 0.75 for the remaining four scales) presented in Table 6.5 above, indicates these three issues were not threats to the validity and reliability of the study's findings. Ultimately, the study's generalisability was not affected.

Consequently, based on the rigorous scientific research design and statistical examination, it can be confidently asserted that sample results can be generalised to the survey population, i.e. Q Website individual buyers.

It may be worth to mentioning that, the response from the Q Website manager was not very encouraging when the author communicated the research findings and possible managerial implications to him. The manager, although admitting this study's findings described the current situation and problems of the Q Website, showed no apparent interest in how these findings could be implemented in practice to help the Q Website in designing its Internet marketing strategy. Possibly, it was because the reluctances to reveal company weaknesses or share internal marketing strategies with the author. Consequently, it was difficult to ascertain whether consumer targeting via their cognitive constructs of innovativeness and involvement would be integrated into the company's Internet marketing strategies. In addition, the consequences and the effectiveness of using this segmentation method at the Q Website thus remained unknown.

❒ Universal Generalisability

Generalisability is the scope of applicability of research findings in one organisational/product/market setting to other settings (Pallister 1995; Sekaran 2000). Jain *et al.* (1982) pointed to the main benefit of generalisability theory as its explicit recognition that there are many universes to which a researcher may wish to generalise, e.g. from a sample of items to the universe of items, from a sample of times of measurement to the universe of times of measurement, from a sample of

places of measurement to the universe of places of measurement, from a sample of observers to the universe of observers, etc. However, it is commonly accepted that measures cannot be taken over all conditions in a universe.

In this study, following the hallmarks of scientific research (see Chapter 1), the survey process was designed: target population (Q Website/Q company, the leading and well-known 3C multi-channel business in Taiwan), sample selection (see Section 6.3), data collection (see Section 6.4.1), data analysis (see Section 6.5) and measurements' validity and reliability (see Sections 6.6.1 and 6.6.2). Using rigorous and objective scientific methods, the study's findings were considered generalisable to multi-channel businesses whose products have similar characteristics, e.g. digital camera, scanner, LCD monitor and MP3 player in Taiwan's B2C e-commerce market. Moreover, given the 3C business is the leading industry in Taiwan's B2C e-commerce market and generated the second highest sales during 2000 to 2004 (see Chapter 2, Section 2.3.2), this study's findings may also be applicable to multi-channel businesses in general in Taiwan's B2C e-commerce market. However, future studies are required to test the study's findings in other product markets, e.g. ticketing services and consumable good to see if they are universal truths.

6.6 Summary

This chapter has established the study methodology.

To achieve the research aims indicated in Chapter 1, i.e. investigating consumers' brand loyalty/Website loyalty transformation, and how a multi-channel business can

decide the positioning of its brand's Website in order to design effective Internet marketing strategies, the Q Website operated by a well-known 3C multi-channel business in Taiwan's market was selected as the survey target. Having a large number of loyal consumers in the traditional market, this survey target would facilitate investigation of how consumers transfer their Q brand loyalty in the traditional market to the Q Website in the Internet market. Given the survey population was defined as individual buyers who had bought at the Q Website between September/2000 to September/2002, the Q Website's comprehensive Internet buyer database provided a complete sampling frame from which the sample could be randomly selected for the pilot and main surveys.

An Internet survey, comprising an e-mail invitation and Web-based questionnaire, was selected as the data collection medium in this study due to its advantages, e.g. it could reach samples directly, low cost/response time, and assurance of the privacy, confidentiality and anonymity of respondents. Three hundred and 3,600 randomly selected samples were used in the pilot (August 20 ~ 22, 2002) and main surveys (September 16 ~ 25, 2002), respectively. The response rate to the pilot survey (33%) was used to estimate the main survey's sample size controlling for sampling error within ± 0.03. Measurement of the internal consistency test of the pilot survey (Cronbach alpha was between 0.66 to 0.81) was used to revise the final questionnaire for the main survey, which elicited 1,044 valid responses, a 29% response rate.

A self-administered and highly-structured questionnaire was designed to collect primary data from Q Website buyers. The piloted English version of the questionnaire included 9 Internet use and buying behaviour questions; five major scales: the Domain Specific Innovativeness scale (adapted from Goldsmith and Hofacker's 1991), Purchase Decision Involvement scale (adapted from Mittal's 1989), Q brand loyalty in

the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty; and 7 socio-demographic questions. After the pilot study, the English questionnaire was translated into Chinese by a group of experienced native speakers to assist the Internet pilot and main surveys sponsored by the Q Website in Taiwan.

Before analysing the collected data, factor analysis was applied to each of the five major scales to extract factors, which would subsequently be used to test the different research hypotheses. Briefly, the ANOVA test and post hoc Sheffé procedure were used to test differences between the four consumer segments (H1.1, H1.2 and H1.3); a *t* test was used to test two consumer groups' differences (H2.1 and H2.2); correlation and multiple regression were used to test consumer loyalty transformation (H3.1, H4.1, and H4.2); partial correlation was used to test the mediating effect perceived risk had on the Q brand loyalty/Q Website loyalty link (H4.3); and finally, correlation and simple regression were used to test the attitudinal/behavioural Q Website loyalty link (H4.4). The Chi-square test was also used in this study to test sample representativeness and consumer segments' differences in respect of socio-demographic characteristics and Internet use and buying behaviours.

Finally, the goodness fit of the data was ascertained from three perspectives, i.e. the validity and reliability of the measurements, and generalisability of the study findings. The validity and reliability tests assured the surveyed instrument measured what it was supposed to measure and the consistency of what had been measured, as well as the quality of the collected data. Numerous validity examinations and the Cronbach alpha correlation coefficient (0.70 ~ 0.75) indicated this study's measurements had an acceptable validity and reliability. Moreover, the generalisability of the study's findings was established at two levels: generalisability to the survey population and to 3C multi-channel businesses in Taiwan's B2C market. Regarding the former, the

statistical design and techniques, including the simple random sampling method, controlled sampling error ($e \leq \pm 0.03$), acceptable non-response error, and the sample representativeness test followed by the after-stratified weight process, together established a statistically robust generalisability to the survey population: Q Website individual buyers. As regards the latter, it was believed that the scientific and rigorous survey design, including the survey target selection (Q Website, a well-known, leading 3C multi-channel business in Taiwan's e-commerce market), well defined population, complete sampling frame, sample selection, data collection, data analysis and validity and reliability test of measurement would facilitate generalisability of this study's findings to 3C multi-channel businesses in Taiwan's B2C e-commerce market.

The following chapter will present the descriptive statistics of the collected data, preliminary procedures of hypotheses testing, and hypotheses testing results.

Chapter 7 Descriptive Statistics and Hypotheses Testing Results

7.1 Introduction

7.2 Descriptive Statistics

7.2.1 The Response Rate and Non-response Error Test

7.2.2 Respondents' Socio-Demographic Profile

7.2.3 Internet Use/buying Behaviours

7.2.4 Main Questions' Means and Standard Deviations

7.3 Preliminary Analysis of Hypotheses Testing

7.3.1 Factor Analysis

7.3.2 Consumer Segmentation

7.4 Hypotheses Testing: Differences between Consumer Segments

7.4.1 Testing H1.1, H1.2 and H1.3 by ANOVA

7.4.2 Testing H2.1 and H2.2 by *t* test

7.5 Hypotheses Testing: Brand Loyalty/Website Loyalty Transformation Model

7.5.1 Testing H3.1, H3.2, and H3.3 by Correlation and Multiple Regression

7.5.2 Testing H3.4 by Partial Correlation

7.6 Hypothesis Testing: Attitudinal/Behavioural Q Website Loyalty Link (testing H3.5 by Correlation and Simple Regression)

7.7 Profiling the Four Consumer Segments

7.7.1 Socio-demographic Characteristics

7.7.2 Internet Use, Buying and Q Website Behaviours

7.7.3 Chi-square Tests on Consumer Characteristics

7.8 Summary

7.1 Introduction

This chapter details the analysis of the 1,044 collected data. The chapter comprises two parts, the first part presents the descriptive statistics and the second part provides results of the hypotheses testing.

Section 7.2 presents the descriptive statistics, including the response rate/non-response error, respondents' socio-demographic profile and Internet use/buying behaviours, and means/standard deviations derived from 28 questions used to measure the five major scales.

Hypotheses testing covers two sections. Section 7.3 discusses the preliminary process of factor analysis and consumer segmentation. Factor analysis was applied to the five main scales and the extracted factors subsequently used in other statistical techniques, e.g. ANOVA, correlation, and regression, in order to test the research hypotheses. Consumer segmentation split respondents into groups according to their DSI and PDI scores. These consumer segments were used in the subsequent hypotheses testing of consumer differences.

Based on the preliminary process, Sections 7.3, 7.4 and 7.5 test hypotheses of the "differences between consumer segments", "brand loyalty/Website loyalty transformation model", and "attitudinal/behavioural Q Website loyalty link", respectively. Section 7.7 presents the four consumer segments' socio-demographic characteristics and Internet use/buying behaviours.

7.2 Descriptive Statistics

In this section, descriptive statistics derived from the collected data are presented. In Section 7.2.1, the response rate and non-response error are computed and discussed. Section 7.2.2 presents respondents' socio-demographic characteristics profile. Section 7.2.3 discusses respondents' Internet use/buying behaviours. Finally, the means and standard deviations derived from 28 questions within the study's five major scales are presented in Section 7.2.4.

7.2.1 The Response Rate and Non-response Error Test

The main survey started on September 16, 2003 (Monday), and ended on September 25, 2003 (Thursday), in total 10 days (see Chapter 6, Section 6.3.3). 1,044 responses were collected from the total 3,600 randomly selected samples from the Q Website's individual buyer database, generating a 29% response rate.

Notably, in the main survey, 65.4% of total responses had been received at the end of the first survey day, and approximately 90.9% received within four days after the survey started. This demonstrated the Internet survey's feature of transmitting/receiving data instantly at virtually no transportation cost. Once respondents had submitted the questionnaire at the Q Website, their answers were simultaneously received by the Q Website server. Table 7.1 below shows the response distribution during the 10-day main survey period.

Table 7.1 Response Size on each Main Survey Day

Survey Day	1	2	3	4	5	6	7	8	9	10	Total
Response size	683	156	69	41	26	22	16	14	9	8	1,044
Percentage	65.4	14.9	6.6	3.9	2.5	2.1	1.5	1.3	0.9	0.8	100
Cumulative %	65.4	80.4	87.0	90.9	93.4	95.5	97.0	98.4	99.2	100	100%

Source: this study

The extrapolation method (Armstrong and Overton 1977) was used in this study to estimate the non-response error, which is the error that results from a systematic difference between those who do and do not respond to a study's measurement (McDaniel and Gates 1995). Armstrong and Overton's (1977) assumption is that those who respond later in a survey are more like non-respondents. Hence, questionnaire responses between early and late respondents were compared using the *t* test to examine if there was a significant ($p < 0.05$) difference. If a non-significant ($p < 0.05$) difference was found (i.e. early/late or non-reply respondents did not differ in their questionnaire responses), the non-response error was not a threat to the study.

In this study, the cut-off point between early and late respondents was 18 September 2002, the third day of the survey. Accordingly, 903 early respondents and 141 late respondents were found. Early respondents included those who replied on September 18. Table 7.2 summarises the *t test* result between early/late respondents on the study's five major variables (for details see Appendix 7: Non-response Error Test).

Table 7.2 *t test* Result of Non-response Error on the Five Major Variables

Variables	Significant	Not Significant
Internet buying innovativeness	0	6 items
Internet buying involvement	0	4 items
Q Brand loyalty in the traditional market	1 item (Loyalty 2)	7 items
Perceived risk when buying at the Q Website	0	7 items
Attitudinal Q Website loyalty	1 item (Web-loyalty 3)	5 items
Total	**2**	**28**

Source: this research

Twenty-six out of 28 questions revealed no significant ($p < 0.05$) differences between early and late respondents. The two exceptions were one item (Loyalty 2) on the Q brand loyalty in the traditional market scale and one item (Web-loyalty 3) on the attitudinal Q Website loyalty scale. **The results thus suggested non-response error was acceptable in this study.**

7.2.2 Respondents' Socio-Demographic Profile

This section presents respondents' socio-demographic characteristics, including gender, age, marital status, educational level, average monthly income, and residence area. As indicated in Chapter 6, Section 6.6.3, the after-stratified weight process was undertaken in order to generalise the study findings to the survey population. Accordingly, the sample's socio-demographic structure conveyed an overall picture of the survey population after the weight process. Table 7.3 presents the sample structure before and after the weight process.

Table 7.3 Sample's Socio-demographic Characteristics

Socio-Demographic Characteristics	Dimensions	Before Weight		After Weight	
		Frequency	Per cent	Frequency	Per cent
Gender	Male	756	72.4	676	64.7
	Female	288	27.6	368	35.3
	Total	*1,044*	*100%*	*1,044*	*100%*
Marital status	Single	570	54.6	616	59.0
	Married	474	45.4	428	41.0
	Total	*1,044*	*100%*	*1192*	*100%*
Age	Under 25	212	20.3	289	27.7
	26-30	276	26.4	257	24.6
	31-35	257	24.6	219	20.9
	Above 36	296	28.4	276	26.5
	No response	3	0.3	3	0.3
	Total	*1,044*	*100%*	*1,044*	*100%*
Education	Junior high school	8	0.8	22	2.1
	Senior high school	207	19.8	172	16.5
	College or university	695	66.6	726	69.5
	Post-graduate	134	12.8	124	11.9
	Total	*1,044*	*100%*	*1,044*	*100%*
Occupation	Managers & professionals	428	41.0	398	38.2
	General employees & assistants	271	26.0	271	26.0
	Students	136	13.0	179	17.1
	Others	141	13.5	130	12.4
	No response	68	6.5	66	6.3
	Total	*1,044*	*100%*	*1,044*	*100%*
Average monthly income	Under £499.9*	248	23.8	297	28.4
	£500 - £ 699.9*	190	18.2	194	18.6
	£700 - £899.9*	213	20.4	201	19.3
	£900 - £1,199.9*	180	17.2	160	15.3
	Above £1,200*	213	20.4	192	18.3
	Total	*1,044*	*100%*	*1,044*	*100%*
Residence Area	North Taiwan	565	54.1	616	59.0
	Mid Taiwan	229	21.9	221	21.2
	South Taiwan	225	21.6	182	17.4
	East Taiwan	25	2.4	25	2.4
	Total	*1,044*	*100%*	*1,044*	*100%*

* Exchange rate: £1=NT$50.

Source: this research

In this study (see Table 7.3), males (64.7%) significantly surpassed females (35.3%) in response size. Single respondents (59%) slightly outnumbered married respondents (41%). Regarding age, 73.2% of respondents were under 35 years old whilst only 26.5% were above 36 years old (there was a 0.3% non-response). Looking at educational level, 81.4% of respondents were college/university (69.5%) or post-graduate (11.9%) educated, whilst only 18.6 % were senior high school graduates.

As regards occupation, approximately two-fifths (38.2%) of respondents were middle- and high- class white collar workers, i.e. managers and professionals (e.g. engineers, lawyers, accountants, doctors, etc.). General employees and assistants comprised the second largest group, namely, 26.0% of total respondents. Students made up 17.1%, and the remaining 12.4% were engaged in other occupations (i.e. farming, forestry, fishery, animal husbandry, labourers, policemen, military personnel, housewives, retired and unemployed). There was a non-response percentage of 6.3%.

Approximately one-third (31.6%) of respondents had an average monthly income over £900 (NT$ 45,000), while slightly over one-quarter (28.4%) received a monthly income less than £500 (NT$ 25,000). As regards residence area, the majority and minority of respondents came from North Taiwan (59%) and East Taiwan (2.4%), respectively. This division also reflects actual Internet development in Taiwan. Taipei, the capital city of Taiwan, is located in the north of the island. Hsinchu Science-based

Industrial Park, the economic lifeline of Taiwan, is also located in the North. Given the effects of urbanisation and industrial development, North Taiwan's citizens have a greater familiarity with the new technology and North Taiwan's households/companies have a higher computerised level than elsewhere in the country.

In contrast, neither the government nor private companies have invested much in East Taiwan. Thus, it is the least prosperous and commercialised region, having the lowest Internet network construction and Internet penetration rate among the four residential areas. This situation explains the low response rate of respondents living in East Taiwan in this study (only 25 or 2.4% of the total), and the small number of consumers from East Taiwan in the Q Website database.

To sum up, the socio-demographic characteristics of respondents indicated the majority of the sample were single, male, less than 35 years old, college or university above educated, in middle to high ranking occupations, earnt above £ 700 monthly, and resided in North Taiwan.

7.2.3 Internet Use/buying Behaviour

In the survey questionnaire (see Appendix 1 and 2), nine questions elicited

respondents' Internet use/buying behaviours, i.e. Internet use behaviour (3 items), Internet buying behaviour (3 items), and behaviours at the Q Website (3 items). The collected data is summarised in Table 7.4 and discussed below.

Looking at Internet use behaviours, the sample majority (74.9%) reported an online age of over four years, indicating they were long-term Internet users. Further, the overwhelming majority (88.7%) accessed the Internet more than once daily, and approximately three-quarters (74.3%) used the Internet more than one hour daily. These findings indicate the sample comprised mainly long-term and heavy Internet users.

As regards Internet buying behaviours, nearly half (47.5%) of total respondents spent more than two hours browsing sales Websites per week (24.2%, 12.0% and 11.3% browsed "2 to 4 hours" , "4 to 8 hours" and "above 8 hours", respectively). The overwhelming majority (95.5%) had bought at Websites other than the Q Website in the past six months (32.5%, 30.4%, 22.9%, and 10.2% had bought "1 to 3 times", "4 to 6 times", "8 to 14 times", and "over 15 times", respectively). A very small percentage (4.5%) of respondents had bought only at the Q Website in the past 6 months. Just over two-thirds (60.3%) had spent more than £80 (NT$4,000) on the Internet apart from what they had spent at the Q Website in the past 6 months, whereas 16.4% had spent over £400 (NT$20,000). These findings indicate the sample majority comprised not only long-term and heavy Internet users, but also those highly interested in buying on the Internet.

Table 7.4 Sample's Structure of Internet Use and Buying Behaviours

Internet use/buying behaviours	Dimensions	Before Weight		After Weight	
		Frequency	Per cent	Frequency	Per cent
Online age	Under 3 years	134	12.8	133	12.8
	3-4 years	126	12.1	129	12.4
	Above 4 years	784	75.1	782	74.9
	Total	*1,044*	*100%*	*1,044*	*100%*
Online frequency	At least once a day	929	89.0	926	88.7%
	Once per two days or longer	115	11.0	118	11.3%
	Total	*1,044*	*100%*	*1,044*	*100%*
Online hours	Under 1 hour per day	270	25.9	269	25.7
	1-3 hours per day	252	24.1	255	24.5
	3-5 hours per day	261	25.0	263	25.2
	Above 5 hours	261	25.0	257	24.6
	Total	*1,044*	*100%*	*1,044*	*100%*
Sales website browsing hours	Under 1 hour	265	25.4	266	25.5
	1-2 hours	285	27.3	282	27.0
	2-4 hours	247	23.7	252	24.2
	4-8 hours	126	12.1	126	12.1
	Above 8 hours	121	11.6	118	11.3
	Total	*1,044*	*100%*	*1,044*	*100%*
Internet buying frequency	Never	96	9.2	101	9.6
	1-3 times	406	38.9	402	38.5
	4-6 times	277	26.5	274	26.3
	8-14 times	167	16.0	165	15.8
	Above 15 times	98	9.4	102	9.7
	Total	*1,044*	*100%*	*1,044*	*100%*
Total amount spent on the Internet	Under £39.9*	194	18.6	212	20.3
	£40 - £79.9*	198	19.0	203	19.4
	£80 - £159.9*	238	22.8	237	22.7
	£160 - £399.9*	230	22.05	221	21.1
	Above £400*	184	17.6	171	16.4
	Total	*1,044*	*100%*	*1,044*	*100%*
Visiting frequency at the Q Website	Once a day ~ twice a week	125	12.0	117	11.2
	Once a week ~ once a month	317	30.4	313	30.0
	Only when buying at the Q Website	195	18.7	202	19.4
	After receiving newsletter	398	38.1	403	38.5
	Others	9	0.9	9	0.8
	Total	*1,044*	*100%*	*1,044*	*100%*
Buying frequency at the Q Website	Once	442	42.3	435	41.7
	Twice	224	21.5	226	21.7
	3 times	125	12.0	123	11.8
	4 times	86	8.2	88	8.4
	5-37 times	167	16.0	172	16.4
	Total	*1,044*	*100%*	*1,044*	*100%*
Total amount spent at the Q Website	Under £19.9*	205	19.6	211	20.2
	£20 - £49.9*	236	22.6	240	23.0
	£50 - £99.9*	204	19.5	208	19.9
	£100 - £199.9*	174	16.75	163	15.6
	Above £200*	225	21.6	222	21.3
	Total	*1,044*	*100%*	*1,044*	*100%*

*Exchange rate: £1=NT$50.

Source: this research

Finally, regarding behaviours at the Q Website, nearly two-thirds (57.9%) visited the Q Website functionally (38.5% and 19.4% visited "after they had received newsletters from the Q Website", and "when they wanted to make a purchase", respectively). Others visited the Q Website on a regular weekly/monthly basis, i.e. "once daily – twice weekly" (11.2%) and "once weekly – once monthly" (30.1%). Slightly over two-fifths (41.2%) had bought at the Q Website only once since the Q Website was established two years ago (September, 2000). A further two-fifths (41.9%) had bought at the Q Website between 2 and 4 times in the last two years, while the remaining 16.4% had made purchases over 5 times. Notably, the highest buying frequency was 37 times in the past two years. Further, the sample majority (63.1%) had spent under £ 80 (NT$4,000) at the Q Website in the past two years. Only 21.3% had spent more than £ 160 (NT$8,000) at the Q Website in the past two years. These findings were likely derived from the product characteristic of the Q Website: a printer, which is a durable good having a low purchase frequency. Thus, few consumers visit the Q Website regularly and have a high accumulated purchase frequency at the Q Website

To sum up, the sample majority were long-term and heavy Internet users, interested in Internet buying. Moreover, they visited the Q Website functionally, had made purchases between 1-4 times and spent under £ 80 in the past 2 years.

7.2.4 Main Questions' Means and Standard Deviations

Twenty-eight questions of the 5 major scales used in the survey (see Appendix 6) are summarised in Table 7.5 below in terms of the mean, standard deviation, and

frequency distribution. Notably, Risk 3 was deleted after the Cronbach alpha test (see Chapter 6, Section 6.6.2). Each question employed a 5-point Likert scale.

Table 7.5 Means, Standard Deviations and Frequency Distribution of the 28 Main Questions

28 Main Questions	Mean	S.D.	Frequencies (%)		
			Disagree=(1+2)	Neutral=(3)	Agree=(4+5)
Internet buying innovativeness (the DSI scale)					
DSI 1	4.29	0.96	5.2%	13.3%	81.5%
DSI 2	3.13	1.12	29.3%	32.9%	37.8%
DSI 3	3.55	1.12	17.0%	28.8%	54.2%
DSI 4	3.84	0.96	6.6%	28.9%	64.4%
DSI 5	2.15	1.07	65.0%	23.6%	11.4%
DSI 6	3.03	1.12	29.7%	39.0%	31.3%
Internet buying involvement (the PDI scale)					
PDI 1	4.30	0.94	5.9%	9.5%	84.6%
PDI 2	4.50	0.79	2.6%	7.3%	90.1%
PDI 3	3.95	1.01	7.7%	21.6%	70.7%
PDI 4	4.54	0.79	2.5%	7.0%	90.5%
Q brand loyalty in the traditional market					
Loyalty 1	4.25	0.90	3.4%	16.0%	80.6%
Loyalty 2	4.07	0.98	5.2%	23.6%	71.2%
Loyalty 3	3.16	1.11	23.8%	40.5%	35.7%
Loyalty 4	3.48	0.98	12.2%	43.6%	44.2%
Loyalty 5	4.17	0.96	6.3%	16.1%	77.6%
Loyalty 6	3.15	1.26	33.5%	28.3%	38.2%
Loyalty 7	4.10	0.90	3.9%	20.6%	75.5%
Perceived risk when buying at the Q Website					
Risk 1	2.15	0.82	66.1%	30.7%	3.2%
Risk 2	2.94	0.97	30.4%	46.3%	23.3%
Risk 4	2.02	0.78	74.4%	23.1%	2.5%
Risk 5	2.12	0.83	71.3%	24.2%	4.5%
Risk 6	2.26	0.88	58.7%	35.5%	5.8%
Risk 7	2.93	0.94	29.8%	46.4%	23.8%
Attitudinal Q Website loyalty					
Web-loyalty 1	3.15	1.15	28.5%	33.6%	37.9%
Web-loyalty 2	3.46	0.90	10.3%	47.2%	42.5%
Web-loyalty 3	3.82	0.86	4.5%	27.9%	67.6%
Web-loyalty 4	3.88	0.90	3.4%	35.0%	61.6%
Web-loyalty 5	2.86	1.09	35.2%	41.4%	14.4%

Source: this research

Looking at the Internet buying innovativeness (see Table 7.5 above), all standard deviations are near 1 (from 0.96 to 1.12). Except for DSI 1, which has the highest mean of 4.29 and DSI 5 which has the lowest mean of 2.15, the means of the remaining 4 items are between 3.03 and 4.29. As regards DSI 1, "in general, I am among the first in my circle of friends to buy something over the Internet", just over four-fifths (81.5%) of respondents agreed or strongly agreed with this statement. Turning to DSI 5, "I will buy from a new Website even if I have not heard of it before", just over three-fifths (65.0%) disagreed or strongly disagreed with this statement, indicating respondents' tendency to buy at a Website with which they are familiar. This indicates that the sample majority had adopted Internet buying very early but were cautious about buying at an unknown Website.

As regards Internet buying involvement, Table 7.5 shows the means of these four items are skewed to the highest end of 5 (from 3.95 to 4.54) and the standard deviations are generally lower than 1 (from 0.79 to 1.01). In other words, all respondents generally had high involvement in buying the printer on the Internet. This is consistent with the literature (see Chapter 4, Section 4.3.4): buying a durable or perceived risk towards a purchase results in a higher involvement level.

Q brand loyalty in the traditional market was measured by 7 items. In Table 7.5, 3 items' means are between 3.15 and 3.48, whereas the remaining four are slightly over 4 (from 4.07 to 4.25). All standard deviations are approximately 1 (from 0.90 to 1.26). The four items' means that are greater than 4: Loyalty 1, "I will buy the Q brand next time I buy a printer"; Loyalty 2, "I am committed to the Q brand printer"; Loyalty 5,

"if Q brand printers were not available at the store, I would not buy whatever brand was available"; and Loyalty 7, "if Q brand printers were not available at the store, I would go to another shop to find the Q brand printer I wanted", indicated respondents generally had a high Q brand loyalty in the traditional market.

Perceived risk when buying at the Q Website was measured by 6 items. Notably, 1 item (Risk 4) was deleted after the reliability test, see Chapter 6, Section 6.6.2. Table 7.5 shows all means are between 2.02 and 2.94 and all standard deviations are less than one (from 0.78 to 0.97), indicating uniform agreement as to the level of perceived risk. Generally, respondents perceived a low risk when buying at the Q Website.

The last scale, attitudinal Q Website loyalty was measured by 5 items (see Table A-6.5 in Appendix 6). Except for Web-loyalty 5 (2.86), the means of the remaining items are between 3.15 and 3.88. All the standard deviations are not far from 1 (from 0.86 to 1.15). The mean of Web-loyalty 5, "if I cannot find the product brand I want at the Q Website, I will search for a similar product at the Q Website rather than buy at another Website" is lower than that of other items, which likely resulted from the respondent majority holding a disagree/neutral attitude to this statement.

7.3 Preliminary Analysis of Hypotheses Testing

Aiming to facilitate the hypotheses testing, the preliminary analysis comprised two processes: factor analysis and consumer segmentation. Section 7.3.1 presents the

results of factor analysis. Factors extracted from each scale were used in subsequent hypotheses testing with correlation/regression techniques. Section 7.3.2 presents the consumer segmentation: consumers were divided into groups according to their DSI and PDI scores. Each process is discussed below.

7.3.1 Factor Analysis

Tests of the sample size adequacy and the Bartlett test/Kaiser-Meyer-Olkin Measure of sampling adequacy (see Appendix 5) suggested the appropriateness of using factor analysis in this study. Thus, factor analysis was applied to the five scales using the principal components method with Varimax rotation. Factors with eigenvalue > 1 were reserved for future analyses. Detailed findings can be found in Tables A-6.1 to A-6.5 (see Appendix 6) and are summarised in Table 7.6 below to aid interpretation.

Table 7.6 Factors Extracted from Each Scale (derived from findings shown in Tables A-6.1 to A-6.5 in Appendix 6)

Scale Name	Factor Name	Eigenvalues	Rotation Sums of Squared Loadings	
			% of Variance	Total Variance Explained
Internet buying Innovativeness (DSI scale)	**enthusiastic trend-setter***	2.58	35.38	63.76%
	novelty seeker	1.25	28.38	
Internet buying Involvement (PDI scale)	**product oriented buyer***	2.16	42.27	79.80%
	brand oriented buyer	1.03	37.52	
Q brand loyalty in the traditional market	**Commitment***	2.87	30.29	56.42%
	re-purchase intention	1.08	26.13	
Perceived risk when buying at the Q Website	**Distrust***	2.55	35.42	61.73%
	personal loss	1.16	26.32	
Attitudinal Q Website loyalty	Attitudinal Q Website loyalty	2.52	50.30	50.29%

*the dominant factor of each scale is in bold. *Source: this research*

I. Internet buying Innovativeness (the DSI scale)

Two factors were extracted from this scale (see Table 7.6) and the content of each factor is discussed below:

1. Dominant factor: enthusiastic trend-setter

This factor accounted for the majority of total variances explained in the DSI scale (35.38% out of 63.76%). Four items are positively loaded on it (see Table A-6.1 in Appendix 6), namely, "interested to buy at a new Website" (0.71), "buy on the Internet often" (0.61), "will buy at an unknown new Website" (0.77), and "love to buy on the Internet before others do" (0.79). These statements together delineate an individual who is eager to be the first Internet buyer in his/her circle and has a high interest in buying at every new Website, even from ones s(he) has never heard of before. Thus, the respondent who has a high score on this factor is named the "enthusiastic trend-setter".

2. Secondary factor: novelty seeker

In contrast to the dominant factor, items loaded on the secondary factor delineate a novelty-seeking characteristic showing an interest in information related to Internet buying and a new Website (see Table A-6.1 in Appendix 6): "first to buy on the Internet" (0.83), "buy on the Internet more often" (0.53), and "first to know the new Website" (0.78). Thus, the respondent who has a high score on this factor is named the

"novelty seeker".

II. Internet buying Involvement (the PDI scale)

Two factors are extracted from this scale (see Table 7.6 above), and the content of each factor is discussed below:

1. Dominant factor: product-oriented buyer

This factor accounted for the majority of total variances explained in the PDI scale (42.27% out of 79.80%). Two items positively loaded on this factor (see Table A-6.2 in Appendix 6), namely, "purchase choice is important" (0.89), and "concern about the outcome of purchase choice" (0.70). These statements delineate a buyer who cares about product functions when making a buying choice. Thus, the respondent who has a high score on this factor is named a "product-oriented buyer".

2. Secondary factor: brand-oriented buyer

Two items loaded positively on the secondary factor focusing on brand choice (see Table A-6.2 in Appendix 6): "care a great deal about which brand I buy" (0.83), and "brands vary a lot" (0.86). These statements delineate a buyer who cares about brand importance when making a buying decision. Thus, the respondent who has a high score on this factor is named a "brand-oriented buyer".

III. Q Brand Loyalty in the traditional market

Two factors are extracted from this scale (see Table 7.6), and the content of each factor is discussed below:

1. Dominant factor: commitment

This factor accounted for the majority of total variances explained in the brand loyalty scale (30.92% out of 56.42%). Three items are loaded positively on it (see Table A-6.3 in Appendix 6), i.e. "commitment to the Q brand printer" (0.83), "support the Q brand against negative information" (0.84), and "go to another shop if the Q brand printer is not available" (0.70). All statements are related to consumers' attitudinal preferences towards Q brand printers in the traditional market. Thus, this factor is named "Q brand commitment in the traditional market", abbreviated to commitment in later discussions.

2. Secondary factor: re-purchase intention

In contrast to the dominant factor, items positively loaded on this factor are more related to future buying intentions (see Table A-6.3 in Appendix 6): "will buy again" (0.57), "will buy even if the price is higher" (0.72), and "if the Q brand printer is not available, will not buy any brand available/another favourite brand" (0.67/0.62). Thus, the secondary factor is named "Q brand re-purchase intention in the traditional market", abbreviated as re-purchase intention in later discussions.

IV. Perceived Risk when Buying at the Q Website

Notably, six out of the seven items on the perceived risk scale were used in factor analysis. Social risk (i.e. Risk 3) was deleted because of its negative impact on the Cronbach alpha coefficient for the entire scale (see Chapter 6, Section 6.6.2). Two factors are subsequently extracted from this scale (see Table 7.6), and the content of each factor is discussed below:

1. Dominant factor: distrust

This factor accounted for the majority of total variances explained in the perceived risk scale (35.41% out of 61.73%). Three items are loaded positively on this factor (see Table A-6.4 in Appendix 6): "not confident about obtaining satisfactory services and merchandise at the Q Website" (0.81), "cannot trust the Q brand name and buy at the Q Website" (0.85), and "doubt as to whether my personal information will be protected and respected by the Q Website" (0.76). All these statements are related to rational concerns about how well the well-known brand's Website will serve its consumers in terms of merchandise satisfaction and personal data protection. Thus, this factor is named "distrusting the Q brand on the Internet and buying at the Q Website", abbreviated as distrust in later discussions.

2. Secondary factor: personal loss

Three items are loaded positively on this factor (see Table A-6.4 in Appendix 6), namely, "transaction safety, e.g. credit card loss" (0.80), "time loss" (0.56), and "buying loss" (0.75). Because credit card fraud, time loss, and buying problems can

be summarised as personal buying loss, this factor is thus named "personal loss risk when buying at the Q Website", abbreviated as personal loss in later discussions.

V. Attitudinal Q Website loyalty

There was only factor extracted from this scale (see Table 7.6), thus it was evidenced to be uni-dimensional.

All five descriptions loaded positively on this factor (see Table A-6.5 in Appendix 6): "buy at the Q Website even if the price is higher" (0.74), "support for the Q Website against negative information" (0.79), "buy again at the Q Website" (0.61), "commitment to the Q Website" (0.76), and "insist on buying at the Q Website even if I have to change the original buying idea" (0.63). Thus, it is named "attitudinal Q Website loyalty" and formatted as attitudinal Q Website loyalty to signify it is an extracted factor.

❒ Dimensionalities of each Scale

After interpreting factors extracted from each scale, the factor analysis discussion moves forward to another level, the dimensionalities of each scale. Table 7.6 indicates that four out of the five scales have a two-dimensional structure. Only the attitudinal Q Website loyalty scale has a uni-dimensional structure. This finding supports the low but acceptable item-to-total correlation found in validity analysis (see Chapter 6, Section 6.5.2). Bryman and Cramer (2002) indicated that scales with a

uni-dimensional structure will exhibit a higher level of internal reliability compared with those with a two-dimensional structure.

Notably, both McDonald (1981) and Pallister (1995) suggested that if one dominant factor always accounts for most of the variance and all items are loaded positively on this factor, an internally consistent and uni-dimensional structure can be assumed. Based on these arguments, **in this study**, the DSI and PDI scales though both found to have a two-dimensional structure, were summated and cross tabulated to form the four consumer segments in the next section.

7.3.2 Consumer Segmentation

Following Foxall and Bhate's (1993) example of segmenting consumers, the two-stage segmentation is presented in this section. First, the Domain Specific Innovativeness (DSI) scale and the Purchase Decision Involvement (PDI) scale are summated to divide consumers into two sets of groups:

- 2 innovativeness groups: less-innovative vs. more-innovative groups and,
- 2 involvement groups: less-involved vs. more-involved groups.

Goldsmith (1998, 2000) stated that the DSI scale can be summated so that higher scores indicate the higher levels of innovativeness, i.e. "innovators" he used in

these studies. Consequently, in this study, those who reported a lower DSI score, i.e. the less-innovative group, are referred to as "adaptors" in order to verify Foxall and Bhate's (1993a) findings in the context of a more domain specific innovativeness level. Further, given the research focus of Goldsmith's series of studies (e.g. Goldsmith 1998, 2000, 2001; Goldsmith et al. 1995; Goldsmith and Flynn 1992) was the validity, reliability and dimensionality of the DSI scale, the segmentation method used in this study is adopted from Foxall and Bahte (1993).

In the second stage, the 2 innovativeness groups and 2 involvement groups are cross tabulated to form four segments as follows (also see Figure 4.2 in Chapter 4):

- *less-involved adaptors*,
- *more-involved adaptors*,
- *less-involved innovators*, and
- *more-involved innovators*.

Notably, although the terminology of the four consumer segments in this study is adopted from that in Foxall and Bhate's (1993) study, the latter work used the Kirton adaption-innovation inventory (KAI, Kirton 1976) and revised Personal Involvement inventory (RPII, Zaichkowsky 1994), which differed from the DSI and PDI scales used in this study. A comprehensive comparison between this study and that of Foxall and Bhate (1993) can be found in Table 8.3 in Chapter 8.

Details of the segmenting process are presented below.

I. First Stage of Consumer Segmentation

In order to make comparisons with Foxall and Bhate's (1993) study, the same process used in their work to segment two sets of groups i.e. adaptors vs. innovators and less-involved vs. more-involved groups, is adopted in this study. The segmenting process which applies to the DSI and PDI scales, respectively, is detailed below:

1. Sum up the scale;
2. Take the overall mean (see Table 7.7);
3. The low group is formed from those respondents with scores lower than the mean;
4. The high group is formed from those respondents with scores higher than the mean.

Table 7.7 Descriptive Data from Summating the DSI and PDI Scales

	Size	Range	Minimum	Maximum	Mean	Std. Deviation
Innovativeness (DSI) scale	1044	22	8	30	20.0	4.0
Involvement (PDI) scale	1044	16	4	20	17.4	2.4

Source: this research

Consequently, respondents with a DSI score between 8-20 formed the *adaptors group* whilst those with a DSI score between 21-30 formed the *innovators groups*. Similarly, the *less-involved group* comprised respondents with a PDI score between 4-17, whereas the *more-involved group* comprised respondents with a PDI score between 18-20. Table 7.8 below summarises the size and percentage of each consumer group.

Table 7.8 Size of the Adaptor/Innovator and Less-Involved/More-Lnvolved Groups

Two Consumer Segments	Size	Percentage
Adaptors	581	55.7%
Innovators	463	44.3%
Total	1044	100%

Less-involved group	468	44.8%
More-involved group	576	55.2%
Total	1044	100%

Source: this research

II. Second Stage of Consumer Segmentation

Continuing Foxall and Bhate's (1993) example, the two sets of groups formed in the first stage were cross tabulated to generate four consumer segments, namely, *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators*, and *more-involved innovators*. Table 7.9 summarises the size and percentage of each consumer segment.

Table 7.9 Size of the Four Consumer Segments

Four Consumer Segments	Size	Percentage
Less-involved adaptors	296	28.4%
More-involved adaptors	285	27.3%
Less-involved innovators	172	16.5%
More-involved innovators	291	27.9%
Total	1044	100%

Source: this research

In sum, the five factors: commitment, re-purchase intention, distrust, personal loss and attitudinal Q Website loyalty and the four consumer segments: *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators*, and *more-involved innovators* will be used to facilitate hypotheses testing in the following sections.

7.4 Hypotheses Testing: Differences between Consumer Segments

Five hypotheses: H1.1 to H1.3 and H2.1 to H2.2 were designed to test the differences between consumer segments (see Chapter 5, Section 5.4 for details). Using the consumer segments formed and five factors extracted in the preliminary analysis, Section 7.4.1 tests differences between the four consumer segments (H1.1, H1.2 and H1.3) by analysis of variance (ANOVA) and the post hoc Scheffé procedure. Section 7.4.2 tests attitudinal Q Website loyalty differences between *adaptors/innovators* (H2.1) and *more/less involved* groups (H2.2), respectively, using the *t* test.

7.4.1 Testing H1.1, H1.2 & H1.3 by ANOVA

In this section, the analysis of variance (ANOVA) technique is used to test the four consumer segments' mean differences in terms of the variables in the consumers' brand loyalty/Website loyalty transformation model: Q brand loyalty in the traditional market (H1.1), perceived risk when buying at the Q Website (H1.2), and attitudinal Q Website loyalty (H1.3). As indicated in Chapter 6, Section 6.5, the post hoc Scheffé

procedure is undertaken simultaneously to pinpoint differences between segments (see Figure A-8 in Appendix 8).

The testing results of H1.1, H1.2 and H1.3 are presented sequentially below, and will be comprehensively discussed in Chapter 8, Section 8.2.1.

Hypothesis 1.1: The mean score of Q brand loyalty in the traditional market will be significantly different across the four consumer segments.

Two factors, i.e. commitment and re-purchase intention were extracted from the scale of Q brand loyalty in the traditional market (see Table 7.6). Thus, to test this hypothesis, a one-way ANOVA test was used on these two Q brand loyalty factors to evaluate whether or not there were significant mean differences between the four consumer segments. Table 7.10 below displays the mean/standard deviation of each factor within the four segments and ANOVA test results.

Table 7.10 Outcomes of ANOVA Tests of Two Brand Loyalty Factors

	Commitment factor			Re-purchase intention factor			Size
	Mean	Std. Deviation	Min/Max	Mean	Std. Deviation	Min/Max	
Less-involved adaptors	-0.42	0.93	-4.15/1.97	-0.26	0.90	-3.67/2.4	296
More-involved adaptors	0.22	0.95	-3.13/1.97	0.04	1.01	-2.89/2.08	285
Less-involved innovators	-0.15	0.94	-4.15/1.97	-0.07	1.03	-3.67/2.40	172
More-involved innovators	0.30	0.99	-2.70/1.97	0.22	1.03	-2.81/2.20	291
Total	0.00	1.00	-4.15/1.97	-0.01	1.01	-3.67/2.40	1044
ANOVA Test	F value = 34.74		$p < 0.05$*	F value = 12.30		$p < 0.05$*	

* Significantly different at $p < 0.05$.

Source: this research

Table 7.10 indicates *more-involved innovators* have the highest mean score (0.30) for the commitment factor, followed by *more-involved adaptors* (0.22), then *less-involved innovators* (-0.09), and finally *less-involved adaptors* (-0.42). Similarly, regarding re-purchase intention, *more-involved innovators* also have the highest mean score (0.22), followed by *more-involved adaptors* (0.04), then *less-involved innovators* (-0.07), and finally, *less-involved adaptors* (-0.26).

Also, Table 7.10 indicates a significant ($p < 0.05$) difference across the four consumer segments for commitment ($F_{3, 1039} = 34.74$) and for re-purchase intention ($F_{3, 1039} = 12.30$).

Consequently, **Hypothesis 1.1 is supported**.

Hypothesis 1.2: The mean score of perceived risk when buying at the Q Website will be significantly different across the four consumer segments.

Two factors, i.e. distrust and personal loss, were extracted from the scale of perceived risk when buying at the Q Website (see Table 7.6). Thus, a one-way ANOVA test was used on these two risk factors to evaluate whether or not there were significant mean differences between the four consumer segments. Table 7.11 displays the mean and standard deviation of each factor within the four segments and ANOVA test results.

Table 7.11 Outcomes of ANOVA Tests of Two Risk Factors

	Distrust factor			Personal loss factor			Size
	Mean	Std. Deviation	Min/Max	Mean	Std. Deviation	Min/Max	
Less-involved adaptors	0.48	0.91	-1.96/4.13	0.14	0.84	-2.21/3.84	296
More-involved adaptors	-0.10	0.98	-2.16/2.53	0.08	1.02	-2.96/3.04	285
Less-involved innovators	0.03	0.94	-2.42/4.20	0.06	0.99	-3.15/3.84	172
More-involved innovators	-0.36	0.94	-2.42/3.08	-0.20	1.09	-2.65/3.84	291
Total	0.01	1.00	-2.42/4.20	0.01	1.00	-3.15/3.84	1044
ANOVA Test	F value =40.59		$p < 0.05$*	F value = 6.57		$p < 0.05$*	

* Significantly different at $p < 0.05$.

Source: this research

Regarding the distrust factor (see Table 7.11), *less-involved adaptors* have the highest mean score (0.48), followed by *less-involved innovators* (0.03), then *more-involved adaptors* (-0.10), and finally, *more-involved innovators* (-0.36). Similarly, as regards personal loss, *less-involved adaptors* also have the highest mean score (0.14), followed by *more-involved adaptors* (0.08), then *less-involved innovators* (0.06), and finally, *more-involved innovators* (-0.20).

Also, Table 7.11 indicates a significant ($p < 0.05$) difference exists across the four consumer segments for distrust ($F_{3, 1039} = 40.59$) and for personal loss ($F_{3, 1039} = 6.57$).

Consequently, **Hypothesis 1.2 is supported**.

Hypothesis 1.3: The mean score of attitudinal Q Website loyalty will be significantly different across the four consumer segments.

Only one factor was extracted from the scale of attitudinal Q Website loyalty (see Table 7.6). Thus, a one-way ANOVA test was used on the attitudinal Q Website loyalty to evaluate whether or not there was a significant mean difference between the four consumer segments. Table 7.12 displays the mean/standard deviation for each factor within the four consumer segments and ANOVA test results.

Table 7.12 Outcomes of the ANOVA Test of the Attitudinal Q Website Loyalty

	Attitudinal Q Website loyalty factor			Size
	Mean	Standard Deviation	Min/Max	
Less-involved adaptors	-0.30	0.82	-3.77/2.29	296
More-involved adaptors	0.14	1.03	-2.25/2.29	285
Less-involved innovators	-0.09	0.94	-2.40/2.29	172
More-involved innovators	0.22	1.10	-2.78/2.29	291
Total	0.00	1.00	-3.77/2.29	1044
ANOVA Test	F value =16.21		$p < 0.05$	

* Significantly different at $p < 0.05$.

Source: this research

Table 7.12 indicates *more-involved innovators* have the highest mean score (0.22) for attitudinal Q Website loyalty, followed by *more-involved adaptors* (0.14), then *less-involved innovators* (-0.09), and finally, *less-involved adaptors* (-0.30). Also, Table 7.12 shows the four consumer segments differ significantly ($p < 0.05$) in level of attitudinal Q Website loyalty ($F_{3, 1039} = 16.21$).

Consequently, **Hypothesis 1.3 is supported.**

7.4.2 Testing H2.1 and H2.2 by *t* test

Hypotheses 2.1 and 2.2 propose a significant mean difference between *adaptors/innovators* groups' and *more-involved/less-involved* groups' attitudinal Q Website loyalty, respectively. The testing results of H 2.1 and H 2.2 using the *t* test will be compared with the testing result derived from H 1.3 (see Chapter 8, Section 8.2.2). In this way, the greater effectiveness of using the four-group segmentation than the two-group segmentation to interpret consumers' behaviours will be revealed.

Hypothesis 2.1: The mean score of attitudinal Q Website loyalty will be significantly different between innovators and adaptors.

To test this hypothesis, attitudinal Q Website loyalty was used as the dependent variable and the innovativeness level was used as the grouping variable in the *t* test. The *t* test result in Table 7.13 indicates a significant ($p < 0.05$) mean difference between *adaptors*' and *innovators*' attitudinal Q Website loyalty.

Table 7.13 The *t* Test of Adaptors'/Innovators' Attitudinal Q Website Loyalty

Attitudinal Q Website loyalty	t-test for Equality of Means				
	t	df	*p* value	Mean Difference	Std. Error Difference
	-2.98	1042	0.00*	-0.19	0.06

*Significantly different at $p < 0.05$

Source: this research

Consequently, **Hypothesis 2.1 is supported**.

Hypothesis 2.2: The mean score of attitudinal Q Website loyalty will be significantly different between the more-involved and less-involved consumer groups.

Similarly, attitudinal Q Website loyalty was used as the dependent variable and the involvement level was used as the grouping variable in the *t* test. The *t* test result in Table 7.14 indicates a significant ($p < 0.05$) mean difference between the *less-involved group*'s and the *more-involved group*'s attitudinal Q Website loyalty.

Table 7.14 The *t* Test of Less-Involved/More-Involved Groups' Attitudinal Q Website Loyalty

Attitudinal Q Website loyalty	t-test for Equality of Means				
	t	df	*p* value	Mean Difference	Std. Error Difference
	-6.56	1042	0.008*	-0.40	0.06
*Significantly different at $p < 0.05$					

Source: this research

Consequently, **Hypothesis 2.2 is supported**.

7.5 Hypotheses Testing: Brand Loyalty/Website Loyalty Transformation Model

Four Hypotheses: H3.1 to H3.4 together delineated and examined consumers' brand loyalty/Website loyalty transformation model (see Chapter 5 for details). Thus, this

section comprises three parts.

In Section 7.5.1, H3.1, H3.2 and H3.3 are tested using the total sample (1,044) in the two-stage analysis (see Chapter 6, Section 6.5: Data Analysis Design). In Section 7.5.2, H 3.4 is tested using the total sample (1,044) with the partial correlation technique. In Section 7.5.3, four attitudinal Q Website loyalty regression models (see Table 7.15) are established in order to further explore the four consumer segments' difference in brand loyalty/Website loyalty transformation. Thus, samples within each of the four consumer segments are used, respectively, to establish the regression models (Equations 7.2 -7.5). Further discussions on these four regression models can be found in Chapter 8, Section 8.4.2.

7.5.1 Testing H3.1, H3.2, and H3.3 by Correlation and Multiple Regression

In this section, three links establishing the consumer brand loyalty/Website loyalty transformation model, i.e. Q brand loyalty/attitudinal Q Website loyalty link (H3.1), Q brand loyalty/perceived risk link (H3.2), and perceived risk/attitudinal Q Website loyalty link (H3.3), are tested.

Notably, the two-stage analysis is used: first, the Pearson's correlation technique is applied to the five factors (commitment, re-purchase intention, distrust, personal loss

and attitudinal Q Website loyalty). The results can be found in Appendix 9. Second, a multiple regression model for the total sample (1,044) is established using two brand loyalty/risk factors and attitudinal Q Website loyalty as the independent/dependent variables, respectively. This model is used to further verify the hypothesised relationships in H 3.1 and H3.3, respectively (see Appendix 8 for details).

Hypothesis 3.1: Q brand loyalty in the traditional market is positively related to attitudinal Q Website loyalty on the Internet.

Findings in Appendix 7 exhibit significant ($p < 0.01$) and positive correlations between attitudinal Q Website loyalty and two Q brand loyalty factors, i.e. commitment ($r = 0.59$) and re-purchase intention ($r = 0.21$), respectively. This indicates that the higher the level of consumers' commitment and re-purchase intention, the higher the level of consumers' attitudinal Q Website loyalty.

Moreover, deriving from the results in Appendix 8, a multiple regression model for the total sample (1,044) using two brand loyalty factors (commitment and re-purchase intention) and two risk factors (distrust and personal loss) as independent variables and attitudinal Q Website loyalty as the dependent variable is established as Equation 7.1 below.

Equation 7.1: Total Sample's Attitudinal Q Website Loyalty Regression Model

Attitudinal Q Website loyalty = 0.01 + 0.41 Commitment* + 0.11 Re-purchase intention* – 0.37 Distrust * – 0.14 Personal loss*

Adjusted R^2=0.50 *** Significant at $p < 0.05$**

Source: this research

Equation 7.1 confirms the significant ($p < 0.05$) and positive relationship between commitment (beta value = 0.41) and re-purchase intention (beta value = 0.11) and attitudinal Q Website loyalty, suggesting both factors make a unique and positive contribution to attitudinal Q Website loyalty.

In short, both Pearson's correlation coefficients and beta values in Equation 7.1 suggest positive and significant ($p < 0.05$) relationships between attitudinal Q Website loyalty and the two brand loyalty factors, i.e. commitment and re-purchase intention.

Consequently, **Hypothesis 3.1 is supported**.

Hypothesis 3.2: Q brand loyalty in the traditional market is negatively related to the perceived risk when buying at the Q Website.

Findings (see Appendix 9) indicate the dominant risk factor/distrust has significant ($p < 0.01$) and negative relationships with the two brand loyalty factors: commitment ($r = -0.47$) and re-purchase intention ($r = -0.16$). Regarding the secondary risk

factor/personal loss, only re-purchase intention (r = -0.28) is shown to be significantly ($p < 0.01$) and negatively correlated to it. The correlation between commitment (r = -0.04) and personal loss is not significant ($p > 0.05$).

In sum, among the four tested relationships (two Q brand loyalty factors cross tabulated with two perceived risk factors), three are evidenced to be significantly ($p < 0.01$) negative: distrust/commitment, distrust/re-purchase intention and personal loss/re-purchase intention. Only the negative relationship between the dominant brand loyalty factor/commitment and the secondary risk factor/personal loss is not statistically significant ($p > 0.05$).

Consequently, **H 3.2 is mainly supported. Three out of four tested relationships are supported, only the negative relationship between commitment and personal loss is unsupported.**

Hypothesis 3.3: The perceived risk when buying at the Q Website is negatively related to the attitudinal Q Website loyalty.

Findings (see Appendix 9) indicate significant ($p < 0.01$) and negative correlations between attitudinal Q Website loyalty and the two risk factors, i.e. distrust (r = -0.58) and personal loss (r = -0.19), suggesting the greater the level of consumers' distrust and personal loss, the lower the level of consumers' attitudinal Q Website loyalty.

Further investigation is undertaken utilising Equation 7.1 constructed previously

(re-listed below for easy reference).

Equation 7.1: Total Sample's Attitudinal Q Website Loyalty Regression Model

Attitudinal Q Website loyalty = 0.01 + 0.41 Commitment* + 0.11 Re-purchase intention*

– 0.37 Distrust * – 0.14 Personal loss*

Adjusted R^2=0.502 *** Significant at $p < 0.05$**

Source: this research

Equation 7.1 confirms the significant ($p < 0.05$) and negative relationships between distrust (beta value = -0.37) personal loss (beta value = -0.144) and attitudinal Q Website loyalty, suggesting both factors make a unique and negative contribution to attitudinal Q Website loyalty.

In short, both Pearson's correlation coefficients and beta values in Equation 7.1 suggest negative and significant ($p < 0.05$) relationships between attitudinal Q Website loyalty and the two risk factors, i.e. distrust and personal loss.

Consequently, **Hypothesis 3.3 is supported**.

❒ Q Website loyalty regression models of each consumer segment

In Section 7.4.1, testing results of H1.1 to H1.3 supported and revealed the four consumer segments differed significantly ($p < 0.05$) in five factors within the brand loyalty/Website loyalty transformation model. In this section, a further investigation is

undertaken to see how these four consumer segments differ in the brand loyalty/Website loyalty transformation model as a whole. Consequently, four Q Website loyalty regression models (using two brand loyalty factors/two risk factors as independent variables, and attitudinal Website loyalty as the dependent variable) are established for each of the four consumer segments, i.e. *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators* and *more-involved innovators*, respectively (see Equations 7.2 – 7.5 below). **Notably, unlike Equation 7.1 which used the total sample of 1,044 to establish the model, Equations 7.2 ~ 7.5 are established using the samples within each segment only**, e.g. the models of *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators,* and *less-involved innovators* are established using the 296, 285, 172 and 291 samples comprising these segments according to their DI and PDI scores, respectively (see Table 7.9). Table 7.15 presents the equation models, adjusted R^2, and sample size for each consumer segment.

Table 7.15: Attitudinal Q Website Loyalty Regression Model for the Four Consumer Segments

Equation	Segment/ *Sample size*	Q Website loyalty regression model	Adjusted R^2
7.2	**Less-involved adaptors/** ***296***	Attitudinal Q Website loyalty = 0.05 + 0.36 Commitment* + 0.08 Re-purchase intention – 0.34 Distrust * – 0.12 Personal loss*	0.42
7.3	**More-involved adaptors/** ***285***	Attitudinal Q Website loyalty = 0.01 + 0.43 Commitment* + 0.07 Re-purchase intention – 0.41 Distrust * – 0.14 Personal loss*	0.45
7.4	**Less-involved innovators/** ***172***	Attitudinal Q Website loyalty = 0.01 + 0.51 Commitment* + 0.17 Re-purchase intention* – 0.27 Distrust * – 0.07 Personal loss	0.45
7.5	**More-involved innovators/** ***291***	Attitudinal Q Website loyalty = -0.16 + 0.41 Commitment* + 0.17 Re-purchase intention* –0.49 Distrust * – 0.20 Personal loss*	0.60

* Significant at $p < 0.05$ *Source: this research*

In line with previous analysis that showed the four consumer segments differed significantly ($p < 0.05$) in factors within the brand loyalty/Website loyalty transformation model (see Section 7.4.1), Table 7.15 above indicates that the four consumer segments also differed in their brand loyalty/Website loyalty transformation model as a whole. For example, among *adaptors*, both *less-involved adaptors* (Equations 7.2) and *more-involved adaptors* (Equation 7.3), re-purchase intention is not a significant ($p > 0.05$) predictor of their attitudinal Q Website loyalty while the other three factors: commitment, distrust and personal loss all significantly ($p < 0.05$) contribute to their attitudinal Q Website loyalty. However, the *less-involved innovators*' model (Equation 7.4) shows personal loss is not a significant ($p > 0.05$) predictor of their attitudinal Q Website loyalty, whereas the other three factors, commitment, re-purchase intention and distrust, all significantly ($p < 0.05$) contribute to their attitudinal Q Website loyalty. Finally, the *more-involved innovators*' model (Equation 7.5) indicates that all four factors are significant ($p < 0.05$) predictors of their attitudinal Q Website loyalty and this result is the same as in the total sample's model (Equation 7.1). Further discussions can be found in Chapter 8, Section 8.4.2.

7.5.2 Testing H3.4 by Partial Correlation

H3.4 tests the mediating effect that perceived risk has on the Q brand loyalty/attitudinal Q Website loyalty link (see Chapter 5 for details). As indicated in the methodology chapter (see Chapter 6, Section 6.5), Pearson's correlation

coefficients were computed before and after controlling the perceived risk in order to demonstrate the mediating effect.

Hypothesis 3.4: The perceived risk when buying at the Q Website mediates the Q brand loyalty/attitudinal Q Website loyalty link.

Table 7.16 below shows Pearson's correlation coefficients for the two brand loyalty factors (commitment and re-purchase intention) and attitudinal Q Website loyalty before and after controlling the two risk factors (distrust and personal loss). First, looking at the dominant brand loyalty factor/commitment, before controlling for the two risk factors, Table 7.16 indicates a strong ($r = 0.59$) and significant ($p < 0.01$) correlation between commitment/attitudinal Q Website loyalty. After controlling the two risk factors, the significant ($p < 0.01$) correlation between commitment/attitudinal Q Website loyalty drops from 0.59 to 0.44, suggesting that controlling for the two risk factors has a considerable effect (r decreases by 0.15) on the strength of commitment/attitudinal Q Website loyalty link.

Table 7.16 Correlations of Brand Loyalty/Attitudinal Q Website Loyalty Link Before and After Controlling the Perceived Risk

Partial Correlation Coefficient Test		brand loyalty factors	
		Commitment	Re-purchase intention
Attitudinal Q Website loyalty	Before controlling the two risk factors	0.59**	0.21**
	After controlling the two risk factors	0.44**	0.08**
	Degree of Freedom	(1040)	(1040)

* significant at $p < 0.01$

Source: this research

Turning to the secondary factor/re-purchase intention, before controlling the two risk factors, Table 7.16 indicates a weak ($r = 0.21$) but significant ($p < 0.01$) correlation between re-purchase intention/attitudinal Q Website loyalty. However, after controlling the two risk factors, the correlation between re-purchase intention/ attitudinal Q Website loyalty drops to a significant ($p < 0.01$) but very weak level ($r = 0.08$), indicating controlling for the two risk factors has a considerable effect (r decreases by 0.13) on the strength of the re-purchase intention/attitudinal Q Website loyalty link. In other words, perceived risk factors are mediating the re-purchase intention/attitudinal Q Website loyalty link.

In sum, after controlling the two risk factors, Pearson's correlation coefficients for the two brand loyalty factors/attitudinal Q Website loyalty decreased: commitment dropped from 0.59 to 0.44 and re-purchase intention dropped from 0.21 to 0.08, indicating the two risk factors had a mediating effect on the Q brand loyalty/attitudinal Q Website loyalty link.

Consequently, **Hypothesis 3.4 is supported**.

7.6 Hypotheses Testing: Attitudinal/Behavioural Q Website loyalty link (testing H3.5 by Correlation and Simple Regression)

Hypothesis 3.5 focuses on more-involved consumers whose attitudinal Q Website loyalty is hypothesised to result in their behavioural Q Website loyalty, i.e. their actual

buying frequency at the Q Website (see Chapter 5, Section 5.3: Operational Definitions). **Notably, the actual buying frequency (i.e. behavioural Q Website loyalty) was derived from the Q Website database directly instead of self-reported by respondents. Thus, the data obtained was valid and reliable for testing the research hypothesis.** Again, the two-stage analysis (see Chapter 6, Section 6.5) was undertaken to test this hypothesis.

Hypothesis 3.5: only the two more-involved segments will demonstrate a positive casual link between the attitudinal Q Website loyalty and behavioural Q Website loyalty.

Table 7.17 presents the Pearson's correlation coefficients between attitudinal Q Website loyalty and behavioural Q Website loyalty (i.e. buying frequency at the Q Website) in respect of the four consumer segments.

Table 7.17 Correlations between Four Consumer Segments' Attitudinal/Behavioural Q Website Loyalty

Consumer Segments	Pearson's Correlation	Attitudinal Q Website loyalty
Less-involved adaptors	Behavioural Q Website loyalty	0.08
More-involved adaptors	Behavioural Q Website loyalty	0.06
More-involved adaptors	Behavioural Q Website loyalty	0.07
More-involved innovators	Behavioural Q Website loyalty	0.17**

** Significant at $p < 0.01$

Source: this research

Table 7.17 indicates that only one of the four segments, i.e. *more-involved innovators,* demonstrates a significant ($p < 0.01$) correlation between their attitudinal/behavioural Q Website loyalty. However, the correlation coefficient ($r = 0.17$) suggests a very weak relationship. As regards *more-involved adaptors*, the correlation between their attitudinal/behavioural Q Website loyalty is not statistically significant ($p < 0.05$).

To further test this hypothesis, simple regression analysis was undertaken on the two more-involved consumer groups, namely, *more-involved adaptors* and *more-involved innovators*, using attitudinal Q Website loyalty as the independent variable and actual buying frequency at the Q Website as the dependent variable. Results can be found in Appendix 11.

Consistent with correlation findings, the regression analysis (see Appendix 11) reveals a non-significant ($p < 0.05$) causal relationship between *more-involved adaptors'* attitudinal/behavioural Q Website loyalty, indicating *more-involved adaptors* are not likely to buy more when their attitudinal Q Website loyalty increases. In contrast, a significant ($p < 0.05$) and positive (beta value = 0.23) causal relationship was indicated between *more-involved innovators'* attitudinal/behavioural Q Website loyalty. According to the findings in Appendix 11, Equation 7.6 is established below.

Equation 7.6: More-Involved Innovators' Behavioural Q Website Loyalty Regression Model

Behavioural Q Website loyalty = 2.45 + 0.23 Attitudinal Q Website loyalty*

Adjusted R^2=0.03 *** Significant at $p < 0.05$**

Source: this research

Although the R^2 value is considerably low (0.03), which indicates attitudinal Q Website loyalty alone explains very little of the behavioural Q Website loyalty (the buying frequency at the Q Website), statistically, it is still a significant predictor contributing positively to behavioural Q Website loyalty. Thus, an increase in *more-involved innovators*' attitudinal Q Website loyalty may increase their buying frequency at the Q Website.

Consequently, **Hypothesis 3.5 is partially supported. Among *more-involved innovators*, this hypothesis is supported, but among *more-involved adaptors*, this hypothesis is not supported.**

❒ Summary of Hypotheses Testing

Ten research hypotheses have been tested in this section. The first five hypotheses (H1.1 to H1.3 and H2.1 to H2.2) examined differences between consumer segments regarding five factors in the consumers' brand loyalty/Website loyalty transformation model, whereas hypotheses (H3.1 to H3.5) examined relationships within the consumers' brand loyalty/Website loyalty transformation model. Table 7.18 summarises the testing results of hypotheses in this chapter.

Table 7.18 Summary of Hypotheses Testing

	Research Hypotheses	Test Result
1.1	The mean score of Q brand loyalty in the traditional market will be significantly different across the four consumer segments.	Supported
1.2	The mean score of perceived risk when buying at the Q Website will be significantly different across the four consumer segments.	Supported
1.3	The mean score of attitudinal Q Website loyalty will be significantly different across the four consumer segments.	Supported
2.1	The mean score of attitudinal Q Website loyalty will be significantly different between innovators and adaptors.	Supported
2.2	The mean score of attitudinal Q Website loyalty will be significantly different between the more-involved and less-involved consumer groups.	Supported
3.1	Q brand loyalty in the traditional market is positively related to attitudinal Q Website loyalty on the Internet.	Supported
3.2	Q brand loyalty in the traditional market is negatively related to the perceived risk when buying at the Q Website.	Supported
3.3	The perceived risk when buying at the Q Website is negatively related to the attitudinal Q Website loyalty.	Supported
3.4	The perceived risk when buying at the Q Website mediates the Q brand loyalty/attitudinal Q Website loyalty link.	Mainly Supported*
3.5	Only the two more-involved segments will demonstrate a positive casual link between the attitudinal Q Website loyalty and behavioural Q Website loyalty.	Partially Supported**

** Three out of four tested relationships were supported, only the negative relationship between commitment and personal loss was unsupported.*

*** More-involved innovators' behaviour supported the hypothesis but more-involved adaptors' behaviour did not.*

Source: this research

7.7 Profiling the Four Consumer Segments

Previous sections have tested the research hypotheses of this study. Findings indicated the four consumer segments in this study differed significantly ($p < 0.05$) in their buying attitudes and behaviours. In this section, the profile comprising socio-demographic characteristics and Internet use/buying behaviours of each consumer segment is established. Through these characteristics, marketers and researchers are likely to more effectively target each segment. Further discussion can be found in Chapter 8, Section 8.3.3.

This section has two parts. Sections 7.7.1 and 7.7.2 describe the socio-demographic characteristics and Internet use/buying behaviours of the four consumer segments, respectively.

Section 7.7.3 verifies whether differences existed between the four consumer segments in respect of socio-demographic characteristics and Internet use/buying behaviour using the Chi-square technique.

7.7.1 Consumers' Socio-demographic Characteristics

Consumers' socio-demographic characteristics in this study (see Section 7.2.2) included seven items: gender, marital status, education, age, occupation, average monthly income and residence area. The structure of the four consumer segments' socio-demographic characteristics is presented in Appendix 12.

Three of 7 socio-demographic characteristics, i.e. gender, marital status and educational level varied considerably between the four consumer segments (see Appendix 12). *Less-involved adaptors* and *more-involved innovators'* segments' male/female ratio was similar (65.1%/34.9% and 64.4%/35.6%, respectively). However, in the *less-involved innovators* segment, males were far more predominant than females (male/female: 79.7%/20.3%), whereas in the *more-involved adaptors'* segment, the gap between male and female was not that considerable (male/female: 55.6%/44.4%). These findings may derive from the product's characteristics in this study: a printer. A printer is a computer accessory, thus it is not surprising to find males dominated the *less-involved innovators'* segment, since this segment is more novelty seeking and risk taking when buying a printer via the Internet. In contrast, females accounted for a higher percentage in the *more-involved adaptors'* segment than other segments because females were interested solely in the purchase of the printer and its basic functions.

As regards marital status, more innovators, both *less-involved* (63.2%) and *more-involved* (64.2%), were single than adaptors (*less-involved adaptors*: 53.5% and *more-involved adaptors*: 56.5%). This is not surprising because single individuals generally have more personal free time to browse and buy via the Internet compared to married people. Turning to the educational level (see Appendix 12), innovators, both *less-involved innovators* and *more-involved innovators*, were similarly proportioned in each education level (17.2/19.2%, 69.9/67.3% and 12.9/13.5% in "senior high school or below", "college and university" and "post-graduate", respectively). In contrast, adaptors, i.e. *less-involved adaptors'* and *more-involved adaptors'* education level varied greatly. Data shows a higher percentage of *less-involved adaptors* (74.1%) were college/university educated than *more-involved*

adaptors (66.9%), while a higher percentage of the latter (22.6%) had a senior high school education than the former (14.9%).

Given the diversity trend observed above, a chi-square test was undertaken to statistically verify the four consumers' differences in socio-demographic characteristics (see Section 7.7.3).

7.7.2 Internet use, buying and Q Website behaviours

The Internet use/buying behaviours surveyed in this study (see Section 7.2.3) include three categories, namely, Internet use behaviours (3 items), Internet buying behaviours (3 items), and behaviours at the Q Website (3 items), in total 9 items. Sequentially, they are online age, online frequency, daily online hours, weekly sales Website browsing hours, Internet buying frequency/total Internet spending in the past six months, frequency visiting the Q Website, and buying frequency at the Q Website/total spending at the Q Website in the past two years. The four consumer segments' structure of Internet use/buying behaviours can be found in Appendix 13 and several trends observed are discussed below.

Compared with *adaptors*, ***innovators*** **have a senior online age**: 82.2% *less-involved innovators*' and 80.3% *more-involved innovators*' online age was over 4 years, while only 72.3% *less-involved adaptors*' and 67.5% *more-involved adaptors*' online age was over 4 years; **access the Internet more frequently**: 93.1% *less-involved innovators* and 92.3% *more- involved innovators* accessed the Internet at least once

per day while only 88.1% *less-involved adaptors* and 82.8% *more-involved adaptors* did so, and **stay on the Internet longer per day**: 53.8% *less-involved innovators* and 56.6% *more- involved innovators* spent more than 3 hours on the Internet daily while only 45.1% *less-involved adaptors* and 45.2% *more-involved adaptors* spent the same amount of time on the Internet daily.

Turning to Internet buying, compared to *adaptors*, ***innovators*** **spend more hours browsing Websites per week**: 49.3% *less-involved innovators* and 50.16% *more-involved innovators* spent more than 2 hours browsing Websites weekly while only 38.0% *less-involved adaptors* and 35.8% *more-involved adaptors* spent the same time browsing Websites weekly; **buy more frequently on the Internet**: 69.9% *less-involved innovators* and 69.6% *more- involved innovators* had bought on the Internet more than 4 times in the past six months while only 42.3% *less-involved adaptors* and 31.7% *more-involved adaptors* had bought as frequently; and **spend a larger amount of money on the Internet**: 71.7% *less-involved innovators* and 74.2% *more-involved innovators* had spent more than £80 (NT$4,000) on the Internet in the past six months while only 51.0% *less-involved adaptors* and 48.7% *more-involved adaptors* had spent the same amount on the Internet in the past six months

As regards behaviour at the Q Website (see Appendix 13), 20.2% *more-involved adaptors* had bought at the Q Website most frequently (5 to 37 times), followed by *more-involved innovators* (18.5%), *less-involved innovators* (13.9), and *less-involved adaptors* (12.1%), respectively.

Given these diverse trends, a further Chi-square test is undertaken in the next section to statistically verify the segments' differences in Internet use/buying behaviours.

7.7.3 Chi-square Tests on Consumer Characteristics

To further test the four consumer segments' differences in respect of the 16 socio-demographic characteristics and Internet use/buying behaviours, the Chi-square technique was used in two stages. First, it was used to test differences across the four segments. However, similar to the ANOVA technique (see Chapter 6, Section 6.5: Data Analysis Design), a Chi-square test can only indicate a significant difference existing across groups, it cannot pinpoint between which groups difference exists. As such, a further Chi-square test was undertaken on two specific segments, i.e. *more-involved adaptors* and *less-involved innovators*, given the considerable differences observed in Appendices 12 and 13.

I. Results of Chi-Square Tests on the Four Consumer Segments

Chi-square test results revealed 3 out of 7 socio-demographic characteristics and 7 out of 9 Internet use/buying behaviours (in total 10 items) differed significantly ($p < 0.05$) across the four consumer segments. The 3 socio-demographic characteristics were gender, marital status and education. The 7 Internet use/buying behaviour characteristics were online age, online frequency, online hours, sales Website browsing hours, Internet buying frequency, total Internet spending, and buying frequency at the Q Website. Chi-square test results are presented in Table 7.19.

Table 7.19 Chi-square Test Results of the Four Consumer Segments

Consumer Characteristic	Chi-square	Degree of freedom
Gender	27.27*	3
Marital status	9.82*	3
Education	18.84*	9
Occupation	13.01	12
Income	18.13	12
Age	17.37	12
Residence area	13.07	9
Online age	20.99*	6
Online frequency	17.22*	3
Online hours	30.43*	9
Sales Website browsing hours	82.19*	12
Internet buying frequency	161.02*	12
Total amount spent on the Internet	81.37*	12
Frequency visiting the Q Website	11.36	12
Buying frequency at the Q Website	22.76*	12
Total amount spent at the Q Website	14.33	12

* Significantly different at $p < 0.05$. *Source: this research*

II. Chi-square tests on more-involved adaptors and less-involved innovators

An additional Chi-square test was undertaken on *more-involved adaptors* and *less-involved innovators* in order to verify the considerable differences observed in Appendices 12 and 13. Chi-square test results are presented in Table 7.20.

Table 7.20 Chi-square Test Results of More-Involved Adaptors and Less-Involved Innovators

Consumer Characteristic	Chi-square	Degree of freedom
Gender	102.31*	1
Marital status	6.00*	1
Education	6.58*	2
Occupation	3.28	3
Income	14.48*	4
Age	21.25*	3
Residence area	4.32	3
Online age	49.46*	2
Online frequency	47.07*	1
Online hours	23.36*	3
Sales Website browsing hours	101.35*	4
Internet buying frequency	1120.69*	4
Total amount spent on the Internet	97.69*	4
Frequency visiting the Q Website	6.66	3
Buying frequency at the Q Website	21.67*	4
Total amount spent at the Q Website	18.16*	4

* Significantly different at $p < 0.05$. *Source: this research*

Table 7.20 indicates the two segments differ significantly ($p < 0.05$) in 5 out of the 7 socio-demographic characteristics and 8 of 9 Internet use/buying behaviours. The 5 socio-demographic characteristics are gender, marital status, education, income and age. The 8 Internet use/buying behaviour characteristics are online age, online frequency, online hours, sales Website browsing hours, Internet buying frequency, total amount spent on the Internet, buying frequency at the Q Website, and total amount spent at the Q Website. In short, apart from occupation, residence area, and frequency visiting the Q Website, *more-involved adaptors* differed significantly ($p < 0.05$) from *less-involved innovators* in the remaining tested characteristics.

From these findings, significant ($p < 0.05$) differences in terms of specific socio-demographic characteristics and Internet behaviours between the four consumer segments are apparent, particularly between *less-involved adaptors* and *more-involved innovators* segments. A further discussion can be found in Chapter 8, Section 8.3.3.

7.8 Summary

This chapter has presented the study's descriptive statistics and hypotheses testing results.

Three major findings were generated from the descriptive statistics. **Firstly**, the main survey response rate was 29% and an investigation of the non-response error suggested it was not a threat to this study. Second, the sample majority in this study could be described as male (64.7%), young (72.3% were under 35 years old), highly educated (81.5% were college/university or post-graduate educated), in higher occupational positions (38.2% were managers/professionals), earning higher monthly incomes (33.6% earned above £ 900), and residents in North Taiwan (59%). **Secondly**, the sample majority could be delineated as longer-term and heavy Internet users and highly interested in Internet buying: 74.9% had used the Internet 4 years or more, accessed the Internet frequently (88.7% accessed the Internet at least once daily), and spent a long time on the Internet daily (49.8% spent more than 3 hours on the Internet daily). Also, they browsed sales Websites weekly (63.2% spent 1-8 hours weekly browsing), bought on the Internet repeatedly (63.4% had bought online more than 4 times in the past 6 months excluding buying at the Q Website), and spent a

sizable amount of money on the Internet (60.3% had spent above £80 on the Internet in the past 6 months). As regards behaviour at the Q Website, the sample majority visited the Q Web functionally (57.9% visited after receiving newsletters or when buying), and had spent £20-£200 (59.3%) at the Q Website in the past two years. Finally, approximately half of the sample had bought "only once" (43.2%) and "2-4 times" (41.9%) at the Q Website in the past two years, respectively. **Thirdly**, according to the five scales' findings (see Table 7.5), the sample majority displayed a moderate level of Internet buying innovativeness and attitudinal Q Website loyalty, a generally high level of Internet buying involvement and Q brand loyalty in the traditional market, and a comparatively low level of perceived risk when buying at the Q Website.

Hypotheses testing also revealed three major findings. **Firstly**, factor analysis revealed the dimensional structures of the five major scales. Four out of the five had a two-dimensional structure: Internet buying innovativeness (the DSI scale), Internet buying involvement (the PDI scale), Q brand loyalty in the traditional market, and perceived risk when buying at the Q Website. However, the attitudinal Q Website loyalty scale was found to be uni-dimensional. The results supported the item-to-total correlation coefficients found in Chapter 6, Section 6.6.2. Notably, the two-dimensional structure found in the DSI and PDI scales in this study will be further discussed in Chapter 8, Section 8.6.

Secondly, 8 out of 10 study hypotheses were supported (see Table 7.18), with H3.4 mainly supported, and H3.5 partially supported. Thus, the consumers' brand loyalty/Website loyalty transformation model in the conceptual framework (Figure 5.1 in Chapter 5) was confirmed via, **first**, the validated consumers' brand

loyalty/Website loyalty transformation model; **second**, the regression model of attitudinal Q Website loyalty was found to vary between these four segments; **third**, the four segments were found to differ significantly ($p < 0.05$) in the 5 factors in the brand loyalty/Website loyalty transformation model, namely, commitment, re-purchase intention, distrust, personal loss and attitudinal Q Website loyalty. Moreover, findings also revealed that the four segments differed significantly ($p < 0.05$) in certain socio-demographic characteristics and Internet behaviours.

Thirdly, the structure of the four consumer segments' socio-demographic characteristics and Internet use/buying behaviours were established (see Appendices 12 and 13) and examined (see Tables 7.19 and 7.20). Chi-square tests evidenced that the four consumer segments differed significantly ($p < 0.05$) in 3 out of 7 socio-demographic characteristics and 7 out of 9 Internet use/buying behaviours. Notably, *more-involved adaptors* and *less-involved innovators* segments were found to differ significantly ($p < 0.05$) in more categories: 5 out of the 7 socio-demographic characteristics and 8 of 9 Internet use/buying behaviours. A further discussion will be presented in Chapter 8, Section 8.3.

To summarise, this chapter has supported and demonstrated the robustness of the study's conceptual framework. On the one hand, the hypotheses testing results have confirmed the usefulness of consumers' cognitive constructs in terms of innovativeness and involvement to segment consumers. On the other hand, the consumers' brand loyalty/Website loyalty transformation model was confirmed. Consequently, traditional consumer buying behaviour theories have been validated in the new Internet buying context.

The next chapter discusses the testing of hypotheses results in this chapter. Comparisons with past empirical studies are also presented.

Chapter 8 Findings and Discussions

8.1 Introduction

8.2 Discussion on Innovativeness and Involvement via Consumer Segmentation and Targeting (H1.1 to H1.3, H2.1 to H2.2)

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8.6.1 Dimensionality of the DSI Scale

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8.7 Conceptual Framework Re-visited

8.8 Summary

8.1 Introduction

Following the analysis/hypotheses testing results in Chapter 7, this chapter discusses the study's findings in order to draw conclusions and implications in the next chapter.

Five themes are intensively discussed in this chapter: "innovativeness and involvement via consumer segmentation and targeting"; "innovativeness and involvement via consumer behaviours"; "Q brand loyalty/attitudinal Q Website loyalty transformation"; "attitudinal/behavioural Q Website loyalty link"; and "dimensionalities of the DSI and PDI scales". Within each theme, findings of this study are compared with past empirical results in order to demonstrate the study's contribution.

The first theme (Section 8.2) utilises two approaches to assess the usefulness of using consumers' cognitive constructs in terms of innovativeness and involvement to segment and target consumers. In Section 8.2.1, post hoc Scheffé procedure results, which pinpoint how the four consumer segments differ in their Q brand loyalty, perceived risk and attitudinal Q Website loyalty, are discussed. In Section 8.2.2, hypotheses testing results of the four-group segmentation's (H1.3) and two-group segmentation's (H2.1 and H2.2) differences in attitudinal Q Website loyalty are compared to highlight the better explanatory ability the former offers over the latter.

The second theme (Section 8.3) illustrates how the four consumer segments differ in

their socio-demographic characteristics and Internet use/buying behaviours. The four consumer segments' Internet buying attitudes are developed accordingly (see Table 8.1).

Section 8.4 presents the third theme, which is consumers' brand loyalty/Website loyalty transformation, i.e. how consumers transfer their Q brand loyalty in the traditional market to their attitudinal Q Website loyalty in the Internet market. Hypotheses testing results of H3.1, H3.2, H3.3 and H3.4 together confirm the brand loyalty/Website loyalty transformation model in the conceptual framework (see Table 5.1 in Chapter 5). Also, how each consumer segment's brand loyalty/Website loyalty transformation model differs from that of other segments' model is presented.

Section 8.5 presents the fourth theme: the causal link between attitudinal/behavioural Q Website loyalty. This is the first study known to test such a link in an Internet buying context using large-scale empirical data.

The fifth theme (Section 8.6) focuses on the dimensional structure of the Domain Specific Innovativeness (DSI) scale and the Purchase Decision Involvement (PDI) scale found in this study. Given these two scales are claimed or implied to be a uni-dimensional structure; this study reveals a two-dimensional structure for each scale, respectively. Comparisons between past empirical results and this study's findings are presented.

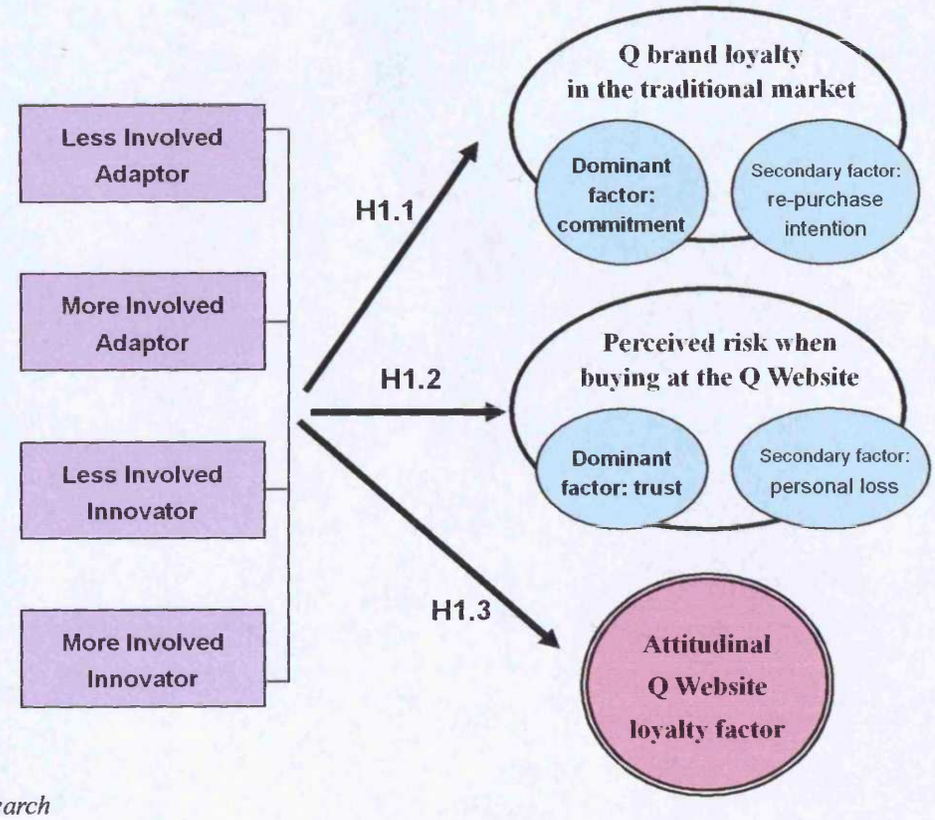
Finally, at the end of this chapter, the research's conceptual framework presented in

Chapter 5 (see Figure 5.1) is revisited and finalised as Figure 8.18 according to the study findings.

8.2 Discussion on Innovativeness and Involvement via Consumer Segmentation and Targeting (H1.1 to H1.3, H2.1 to H2.2)

Hypotheses testing results of H1.1, H1.2 and H1.3 revealed the impacts that consumers' cognitive constructs of innovativeness and involvement had on their attitudes and behaviours. At the time of writing this thesis, no study was known to have explored how consumers' cognitive constructs could impact on their Internet buying behaviours. Foxall and Bhate (1993) had examined consumers' new brand buying behaviour towards health food in the traditional market by dividing consumers into four segments according to the innovativeness (KAI) score and involvement (RPII) score (an intensive comparison between this study and Foxall and Bhate's (1993) study is presented in Section 8.3.3). Although Foxall and Bhate's (1993) survey result revealed only three of the four segments differed significantly ($p < 0.05$), their study established a solid basis upon which this study could continue to investigate consumer brand loyalty/Website loyalty transformation (see Chapter 4, Section 4.3.3). Figure 8.1 presents the hypotheses (see Chapter 5, Section 5.4) and corresponding relationships between variables: e.g. H1.1 tested mean differences between the four consumer segments' Q brand loyalty in the traditional market.

Figure 8.1 Hypotheses Testing Consumer Segments' Differences based upon Q Brand Loyalty, Risk Perception and Attitudinal Q Website Loyalty



Source: this research

This section comprises two parts. Section 8.2.1 comprehensively illustrates post hoc Scheffé procedure results on the four segments in Figure 8.1 (H1.1 to H1.3). Section 8.2.2 compares the testing results of consumers' attitudinal Q Website loyalty of the two-group segmentation (H2.1 and H2.2) and of the four-group segmentation (H1.3) in order to demonstrate the superior explanatory ability the latter method offers over the former.

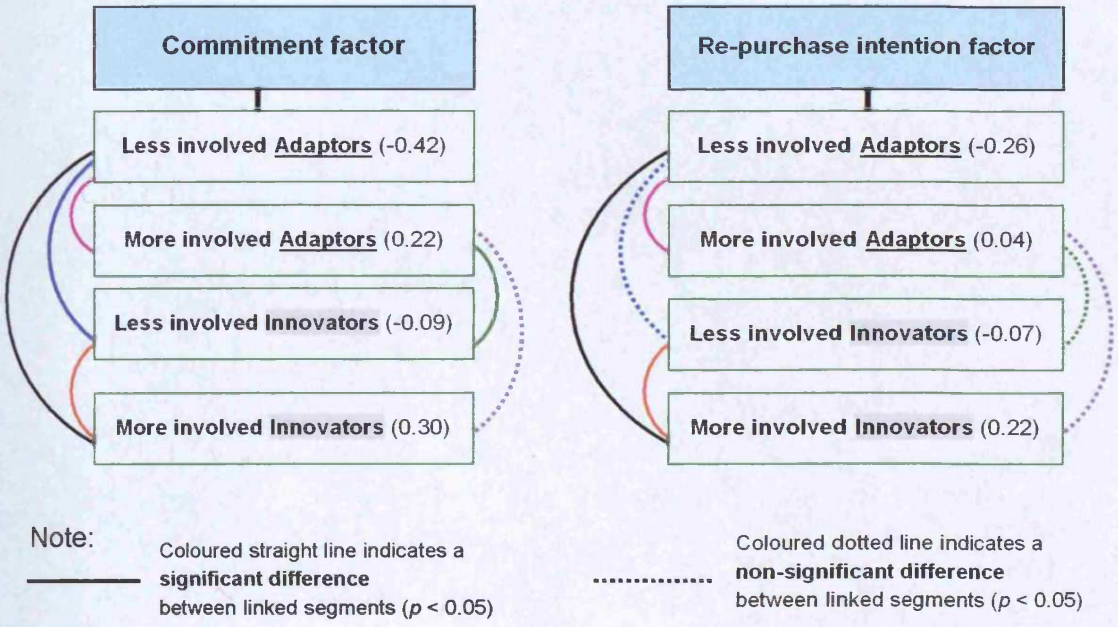
8.2.1 Post hoc Scheffé Procedure Results on the Four Segments' Q brand loyalty, Perceived risk and Attitudinal Q Website loyalty

ANOVA results (see Tables 7.10 to 7.12 in Chapter 7) indicated the four segments differed significantly ($p < 0.05$) in their Q brand loyalty in the traditional market, perceived risks when buying at the Q Website, and attitudinal Q Website loyalty, respectively. In this section, post hoc Scheffé procedures on the four segments (see Appendix 8) are investigated at three levels: **firstly**, the four segments' differences in two brand loyalty factors, attitudinal Q Website loyalty, and two risk factors are discussed sequentially. **Secondly**, *more-involved adaptors* and *less-involved innovators* are two unique segments within which constructs differ considerably, i.e. HIGH involvement/LOW innovativeness vs. LOW involvement/HIGH innovativeness, respectively (see Chapter 7, Section 7.3.2). Thus, more interactions may occur between the segmented constructs and influence consumers' behaviours. In this section, findings are comprehensively discussed across the five tested factors. **Thirdly**, the four consumer segments' Q brand commitment in the traditional market and distrusting the Q brand on the Internet are profiled to suggest their Internet buying attitudes.

I. Two Q brand loyalty factors and attitudinal Q Website loyalty:

Results of post hoc Scheffé procedures on the two brand loyalty factors, i.e. commitment and re-purchase intention, are summarised in Figure 8.2 (extracted from Figure A-8 in Appendix 8) below.

Figure 8.2 Post hoc Scheffé Procedure Results on Commitment and Re-Purchase Intention (extracted from Figure A-8 in Appendix 8)



Source: this research

Looking at Figure 8.2, mean differences between *less/more-involved adaptors* (pink lines), and *less/more-involved innovators* (orange lines) are driven by changes in the involvement level, whereas those between *less-involved adaptors/innovators* (blue lines) and *more-involved adaptors/innovators* (purple lines) are driven by changes in the innovativeness level. Notably, mean differences between *more-involved adaptors/ less-involved innovators* (green lines) are simultaneously driven by changes in innovativeness and involvement levels, thus the underlying interaction between the constructs leads to more variance between these two segments than between other segments.

Figure 8.2 indicates that *more-involved groups*, whether *adaptors* (straight pink lines) or *innovators* (straight orange lines), have significantly ($p < 0.05$) higher Q brand

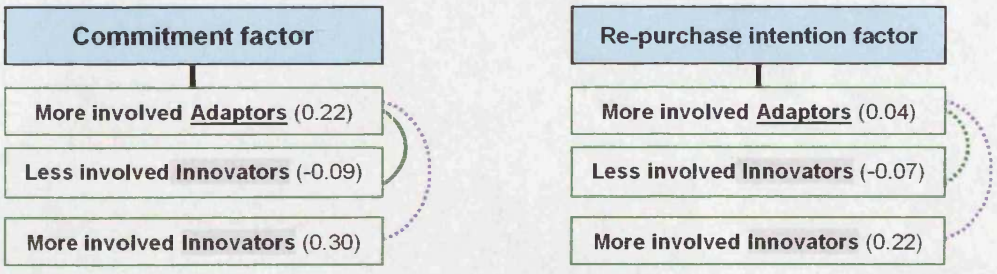
commitment and Q brand re-purchase intention in the traditional market than less-involved groups. This finding is consistent with past studies reporting *more-involved* consumers had a higher brand commitment (e.g. Taylor 1983; Beaty *et al.* 1988; Kim and Scott 1977) and purchased/used the product more frequently (Brisoux and Chéron 1990; Foxall and Bhate 1993) in the traditional market than less-involved consumers.

Differences created by innovativeness indicated that *less-involved innovators* are found to have significantly ($p < 0.05$) higher Q brand commitment than *less-involved adaptors* (straight blue line in Figure 8.2), but their Q brand re-purchase intention in the traditional market does not differ significantly ($p < 0.05$) (dotted blue line). According to Foxall and Bhate (1993), *less-involved adaptors* are restricted to a known brand set and make a conservative choice within an acceptable range of brands, whereas innovators are proactive in problem recognition and subjective in their purchase evaluation (see Table 4.1 in Chapter 4). Although Foxall and Bhate (1993) were not able to distinguish *less-involved innovators* from *more-involved innovators* with their empirical data, it is reasonable to assume that to avoid anticipated unsatisfactory purchase results, *less-involved innovators* will actively and subjectively use famous brands as their buying strategies. Thus, for *less-involved innovators*, the Q brand commitment is more likely to be used as a risk reliever than to develop a real commitment to the brand. This explains why the commitment mean score of *less-involved innovators* (-0.09) is the second to lowest (see Figure 8.2). Even so, *less-involved innovators*' Q brand commitment in the traditional market is still significantly ($p < 0.05$) higher than that of *less-involved adaptors* (straight blue line), whose buying behaviours are simply based on inertia. However, Figure 8.2 indicates these two segments do not differ significantly ($p < 0.05$) in their Q brand re-purchase

intention in the traditional market (dotted blue line). The reason is quite straightforward. Innovators actively seek new and attractive products, whereas adaptors, particularly *less-involved adaptors*, easily switch brand if a price promotion appears for an acceptable brand range. Thus, the re-purchase intentions of both segments tend to be dynamic, reflected in the non-significant ($p < 0.05$) differences detected between them.

Turning to the mean differences driven by changes in innovativeness construct (purple line), Figure 8.3 below indicates that under a more-involved situation, *adaptors'* and *innovators'* Q brand commitment and re-purchase intention in the traditional market do not differ significantly ($p < 0.05$). The literature suggests that consumers' involvement proceeds to their brand loyalty (e.g. Assael 1984; Beatty *et al.* 1988; Coulter *et al.* 2003; Quester and Lim 2003). As such, when both segments are under a more-involved situation, changes in innovativeness construct are too weak to result in differences between segments since the two brand loyalty factors are more strongly correlated with consumers' involvement than innovativeness.

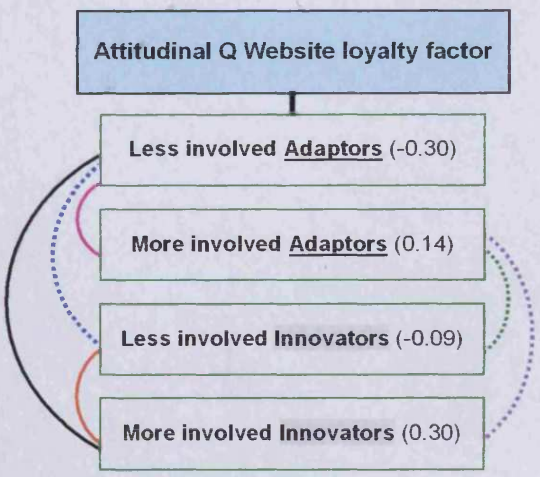
Figure 8.3 Post hoc Scheffé Procedure Results on More-Involved Adaptors'/ Less-Involved Innovators'/More-Involved Innovators' Commitment and Re-Purchase Intention (extracted from Figure A-8 in Appendix 8)



Source: this research

As regards the two unique segments (see Figure 8.3), *more-involved adaptors* are found to have a significantly ($p < 0.05$) higher Q brand commitment than *less-involved innovators* (straight green line), but Q brand re-purchase intention in the traditional market does not differ significantly ($p < 0.05$) between them (dotted green line). Given consumers' involvement is a precondition of the brand loyalty/commitment, it overrules the innovativeness construct and leads to significantly ($p < 0.05$) different Q brand commitment in the traditional market between *more-involved adaptors/less-involved innovators*. Notably, although *more-involved adaptors* report a higher re-purchase intention mean score (0.04) than *less-involved innovators* (-0.07), the difference is not statistically significant ($p < 0.05$, dotted green line). The insignificant finding likely results from the relatively weaker association between involvement and re-purchase intention than that between involvement and commitment. Thus, due to ongoing interactions between consumer innovativeness and involvement constructs, changes in involvement level are not strong enough to generate a significant ($p < 0.05$) difference in consumer re-purchase intention.

Figure 8.4 Post hoc Scheffé Procedure Results on Attitudinal Q Website Loyalty (extracted from Figure A-8 in Appendix 8)



Source: this research

As regards attitudinal Q Website loyalty (see Figure 8.4 above), similar to re-purchase intention, *more-involved groups*, whether *adaptors* (straight pink lines) or *innovators* (straight orange lines), are found to have significantly ($p < 0.05$) higher Q brand commitment and Q brand re-purchase intention in the traditional market than less-involved groups. Again, this supports past results that more-involved consumers are more loyal/committed to a particular brand (e.g. Beatty *et al.* 1988; Kim *et al.* 1997; Pritchard *et al.* 1999; Traylor 1981). In contrast (see Figure 8.4), innovativeness driven differences between *less-involved adaptors/innovators* (dotted blue lines) and *more-involved adaptors/innovators* (dotted purple lines) in terms of their attitudinal Q Website loyalty do not differ significantly ($p < 0.05$).

Notably, the two unique segments: *more-involved adaptors/less-involved innovators*, are also found to differ non-significantly ($p < 0.05$) in their attitudinal Q Website loyalty (dotted green line). The reasons may be twofold. First, more-involved consumers are found to have a higher attitudinal Q Website loyalty than less-involved consumers. Second, innovators who seek novelty tend to search for new products/attractions between Websites, whereas adaptors are either less interested in Internet buying or seek the best price. Given such interaction between involvement and innovativeness, a non-significant ($p < 0.05$) difference is found between *more-involved adaptors'/less-involved innovators'* attitudinal Q Website loyalty.

In sum, the study's findings are threefold. **Firstly**, within the three loyalty related factors (commitment, re-purchase intention and attitudinal Q Website loyalty), the involvement construct either drives significant ($p < 0.05$) differences between segments (e.g. *less/more adaptors* and *less/more-involved innovators* differed

significantly in their commitment/re-purchase intention), or overrules the innovativeness construct leading to a significant difference between *more-involved adaptors'/less-involved innovators'* commitment. This is consistent with past results that consumers' involvement is an antecedent of their loyalty (e.g. Beatty *et al.* 1988; Gounaris and Stathakopoulos 2004; Mellens *et al.* 1996), hence its influence on consumers' brand loyalty/Website loyalty is much stronger than the innovativeness construct.

Second, although the involvement construct is responsible for most of the significant differences in Figures 8.2 and 8.4, when consumers are under a less-involved situation, the innovativeness construct still demonstrates its influence and results in a significant ($p < 0.05$) difference between *adaptors'/innovators'* commitment. However, when consumers are under a more-involved situation, the innovativeness construct is unable to show any influence, thus *adaptors'/innovators'* commitment is not to differ significantly ($p < 0.05$) in the three loyalty related factors.

Thirdly, comparing Figures 8.2 and 8.4, post hoc Scheffé procedure results of attitudinal Q Website loyalty are found to be the same as those of re-purchase intention. This implies the attitudinal Q Website loyalty concept is more similar to Q brand re-purchase intention than to Q brand commitment in the traditional market, very likely due to the fact that consumers are continually being warned of risks associated with Internet buying, e.g. credit card fraud and privacy invasion, by different media. Consequently, consumers were not ready to develop real committed attachment to brand's Website in Taiwan's B2C e-commerce market at the time of the

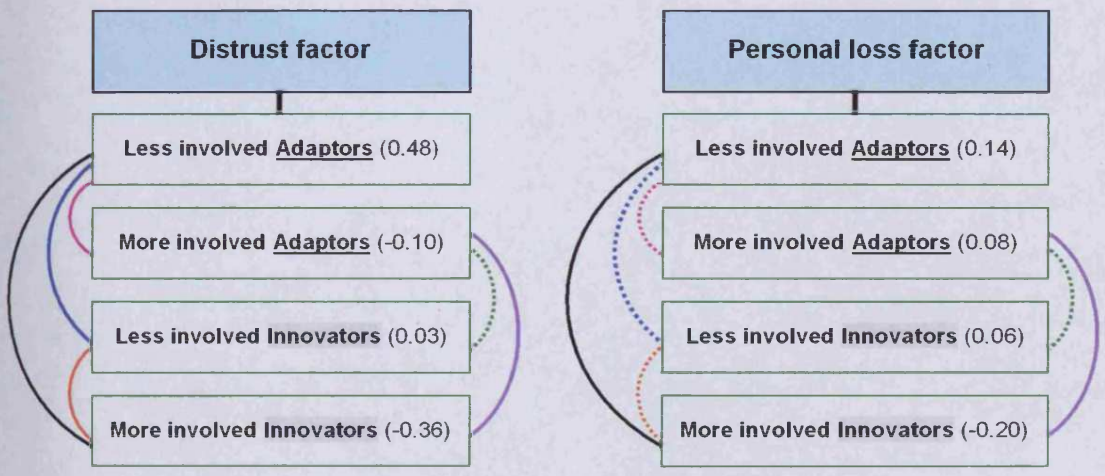
survey. They would likely wait for a more secure, sound and mature Internet buying environment before deciding to become highly committed to the brand's Website. Thus, at this stage, consumers' Website loyalty was more similar to a re-purchase intention than to a real commitment. Moreover, consumers' repeated buying behaviours at the brand's Website were driven by occasional purchase needs rather than a bond to the Website. This finding is in line with the assertion that consumers' loyalty in the Internet market is vanishing (Kuttner 1998; Schultz and Bailey 2000; Schultz and Walters 1997) because Internet buyers are generally more powerful, demanding, and utilitarian in their buying expeditions (Koufaris 2002).

II. Two perceived risk factors:

The literature shows that both involvement and innovativeness constructs are relevant to risk perceptions (e.g. Foxall 1994; Goldsmith 2002; Jain and Srinivasan 1990; Laurent and Kapferer 1986; McQuarrie and Munson 1987; Mittal and Lee 1988; Robertson *et al.* 1984). Thus, unlike loyalty related factors (commitment, re-purchase intention and attitudinal Q Website loyalty), whose significant differences between segments are mainly driven by changes in involvement level, the two risk factors' (distrust and personal loss) significant differences between segments are also derived from changes in innovativeness level. For example, comparing *more involved adaptors/innovators*, the two segments are found to differ non-significantly ($p < 0.05$) in commitment and re-purchase intention (dotted purple line in Figure 8.2), but differ

significantly ($p < 0.05$) in distrust and personal loss (straight purple line in Figure 8.5). This indicates the innovativeness construct has a greater impact on the two risk factors than on the two brand loyalty factors, thus it drives significant ($p < 0.05$) differences between the latter factors but not between the former. Figure 8.5 below presents post hoc Scheffé procedure results on distrust and personal loss.

Figure 8.5 Post hoc Scheffé Procedure on Distrust and Personal Loss (extracted from Figure A-8 in Appendix 8)



Source: this research

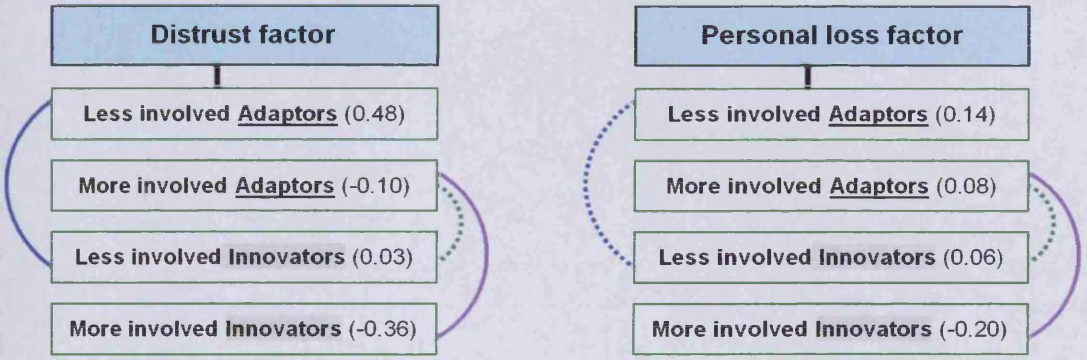
Given the considerable impacts both cognitive constructs (innovativeness and involvement) have on distrust and personal loss, more interactions are expected in the two unique segments: *more-involved adaptors* (HIGH involvement/LOW innovativeness) and *less-involved innovators* (LOW involvement/HIGH innovativeness). **Firstly, looking at involvement driven differences**, Figure 8.5

indicates that more-involved consumers, both *adaptors* (straight pink line) and *innovators* (straight orange line), perceive significantly ($p < 0.05$) lower risk trusting the Q brand on the Internet than less-involved consumers. The reasons are twofold. On the one hand, the literature shows a positive association between involvement and brand loyalty (e.g. Beauty *et al.* 1988; Kim and Scott 1997). On the other hand, the literature suggests brand loyalty is an effective risk reliever used most frequently by consumers (e.g. Cox 1967; Ernst and Young 1996; Lim 2003; Roselius 1971). Consistently, in this study (see Appendix 9), significantly ($p< 0.01$) negative correlations were found between commitment/distrust ($r = -0.47$) and re-purchase intention/distrust ($r = -0.16$), indicating consumers' Q brand loyalty in the traditional market reduces their perceived risk of trusting the Q brand on the Internet and buying at the Q Website. Thus, via the positive association between involvement and the two brand loyalty factors, *less-involved/more-involved* consumers perceived a significantly ($p < 0.05$) different risk level of trusting the Q brand on the Internet.

However, *less-involved/more-involved* consumers, whether innovators (dotted orange line in Figure 8.5) or adaptors (dotted pink line), perceived a non-significant ($p < 0.05$) different personal loss risk when buying at the Q Website. This is derived from the non-significant ($p < 0.05$) correlation between commitment/personal loss ($r = -0.039$) and the significant ($p < 0.05$) but weak correlation ($r = -0.279$) between re-purchase intention/personal loss (see Appendix 9). As a result, changes in involvement level did not generate a significant difference between *less-involved/more-involved* consumers' personal loss risk because, in this study, the two brand loyalty factors were found to

have little impact on personal loss.

Figure 8.6 Innovativeness Driven Differences: Distrust and Personal Loss (extracted from Figure A-8 in Appendix 8)



Source: this research

Secondly, as regards innovativeness driven differences (see Figure 8.6), when consumers are under a less-involved situation, *innovators* perceive significantly ($p < 0.05$) lower risk trusting the Q brand on the Internet than *adaptors* (straight blue line) but their personal loss risk does not differ significantly ($p< 0.05$, dotted blue line). As aforementioned, *less-involved innovators* subjectively use famous brands as their buying strategies to avoid unsatisfactory outcomes, thus the perceived risk of trusting the Q brand on the Internet is reduced. In contrast, *less-involved adaptors*, who buy out of inertia, have the lowest Q brand commitment (-0.42, see Figure 8.2) among the four segments. Consequently, their perceived risk of trusting the Q brand on the Internet cannot be effectively reduced. Thus, *less-involved adaptors* perceived a significantly ($p < 0.05$) higher risk of trusting the Q brand on the Internet than *less-involved innovators*. However, these two segments perceived a non-significantly

($p < 0.05$) different personal loss (dotted purple line in Figure 8.6), simply because less-involved consumers, whether *innovators* or *adaptors*, pay little attention to Internet buying and do not care about personal loss. Still, numerically *less-involved adaptors* report a higher mean personal loss score (0.14) than *less-involved innovators* (0.06). This is in line with the literature which suggests that compared with *adaptors*, *innovators* are more risk taking (Goldsmith 2002), have a more favourable attitude to risk (Robertson *et al.* 1984), and are more willing to accept the risk of buying an unsatisfactory item (Foxall 1994). Moreover, under a more-involved situation, Figure 8.6 also indicates that *innovators* perceive both significantly ($p < 0.05$) lower risk trusting the Q brand on the Internet and personal loss risk when buying at the Q Website than *adaptors* (straight purple lines).

Notably, *more-involved adaptors* and *less-involved innovators* do not differ significantly ($p< 0.05$) in distrust and personal loss (dotted green lines in Figure 8.6). As previously discussed, *more-involved* consumers are likely to have higher Q brand loyalty in the traditional market, thus, they perceive lower risk trusting the Q brand on the Internet and personal loss risk when buying at the Q Website compared to *less-involved consumers*. However, a*daptors* generally perceive a higher risk than *innovators*. Consequently, under the push-pull effects between these two constructs, it is not surprising to find non-significant ($p < 0.05$) differences between *more-involved adaptors*' and *less-involved innovators*' risk of trusting the Q brand on the Internet and personal loss risk when buying at the Q Website.

In sum, this section has presented how consumers' innovativeness and involvement constructs interact with each other leading to different buying attitudes between the four consumer segments. This confirms Foxall's (2003) assertion that each consumer segment has their preferred style of decision making and problem solving. Thus, Table 8.1 below summarises the four consumer segments' attitudes in respect of their Q brand commitment in the traditional market (dominant factor of the Q brand loyalty scale) and distrusting the Q brand on the Internet (dominant factor of the perceived risk scale). Each segment's Internet buying attitudes derived from this study's findings are also described.

Table 8.1 The Four Consumer Segments and Their Buying Attitudes

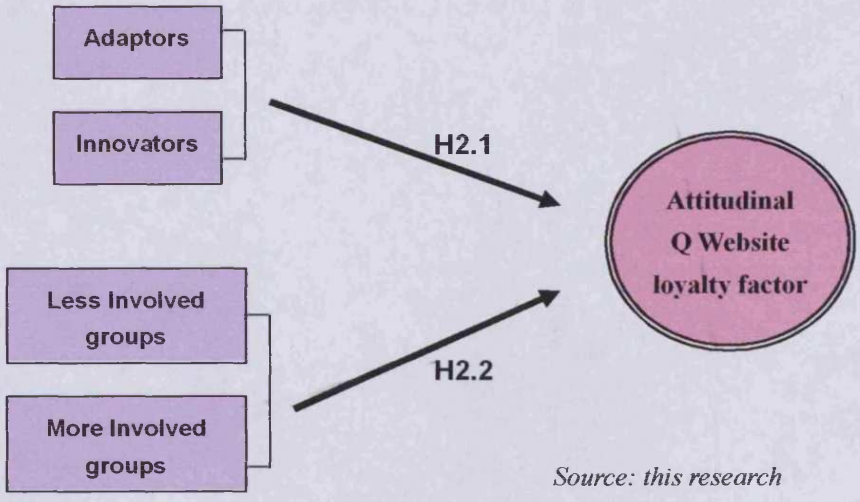
Segment / Attitude	Less-involved adaptors	More-involved adaptors	Less-involved Innovators	More-involved innovators
Q brand commitment in the traditional market	lowest	high	moderate	high
Distrust of the Q brand on the Internet	highest	moderate	moderate	Lowest
Internet buying attitudes towards the brand's Website	Conservative choice within an acceptable range of brands & products, having the least interest in Internet buying thus also having the least tendency towards Website loyalty	Prudent in Internet buying, loyal to the Website if satisfied, thus accounting for the highest buying frequency at the brand's Website among the four segments, seldom seek & try out other new Websites	Subjectively use well-known brand names to avoid the risk of Internet buying, impulsive & high interest in seeking product/information & buying at other new Websites, thus low tendency towards Website loyalty	Less radical, seek and try out new products/services within the Website, account for the second highest buying frequency, have the highest tendency towards Website loyalty

Source: this research

8.2.2 Comparison between Two-group and Four-group Consumer Segmentation

Testing results of H2.1 and H2.2 revealed significant ($p < 0.05$) differences between adaptors/innovators and *less-involved/more-involved groups* in their attitudinal Q Website loyalty, respectively (see Tables 7.13 and 7.14 in Chapter 7). Figure 8.7 below illustrates these two hypotheses.

Figure 8.7 Hypotheses Testing of Two-group Consumer Segments' Attitudinal Q Website Loyalty Differences



Source: this research

Comparing the testing results of H2.1 and H2.2 with those of H1.3, it is found that if the research design had not cross tabulated the two cognitive constructs to form the four consumers segments, the research results would have been misleading. For example, H2.1 suggested significant ($p < 0.05$) differences between *adaptors/innovators* in respect of their attitudinal Q Website loyalty. However,

looking back at Figure 8.4, there is no significant difference in attitudinal Q Website loyalty between *less-involved adaptors/innovators* (dotted blue line). Similarly, H2.2 suggested significant ($p < 0.05$) differences between *less-involved/more-involved groups*. Again, Figure 8.4 indicates a non-significant ($p < 0.05$) difference in attitudinal Q Website loyalty between *less-involved adaptors/more-involved innovators* (dotted green line). Thus, the usefulness of cross tabulating consumers' cognitive constructs in terms of innovativeness and involvement to form the four-group segmentation is demonstrated by revealing the superior explanatory ability the four-group segmentation offers over the two-group segmentation.

8.3 Discussions on Consumers' Innovativeness and Involvement via Behaviour

This section further presents the usefulness of segmenting consumers via their cognitive constructs of innovativeness and involvement, since the four consumer segments were found to differ significantly ($p < 0.05$) in certain Internet use/buying behaviours and socio-demographic characteristics. Consequently, to help marketers and researchers to more effectively target consumers, the profile of each segment is established.

The section comprises three parts. Section 8.3.1 illustrates how the four consumer segments differ from each other regarding their Internet use/buying behaviours.

Section 8.3.2 compares this study with that of Foxall and Bhate (1993) in terms of consumer buying frequency and the research design. In Section 8.3.3, differences between the socio-demographic characteristics of the four segments are discussed.

8.3.1 Internet Use/buying Behaviours

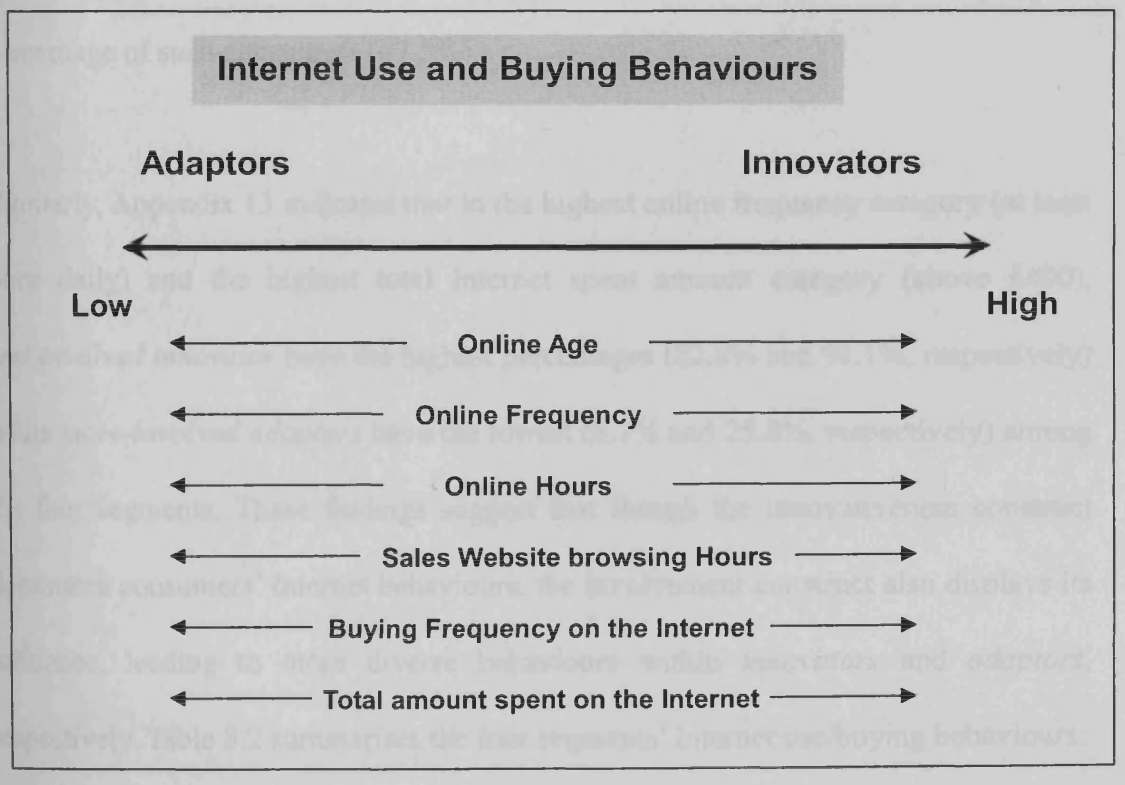
The previous section has revealed and discussed how consumers' involvement and innovativeness constructs interact with each other, generating significant/non-significant differences between consumer segments in respect of the tested factors. When the tested factor is more related to the involvement construct, e.g. commitment, the involvement construct dominates consumers' differences across the four segments (i.e. straight pink/orange lines in Figure 8.2). However, if the tested variable is also correlated with the innovativeness construct, e.g. distrust, both constructs play their roles within and between the four segments leading to significant differences (i.e. straight blue/purple lines in Figure 8.5).

Internet use and buying behaviours are more related to consumers' innovativeness construct than involvement construct because Internet buying can be seen as an adoption of an innovation (e.g. Citrin *et al.* 2000; Goldsmith 2001; Molesworth and Suortti 2002). Thus, the four segments can overall be viewed as two large groups: *adaptors* vs. *innovators* when categorising their Internet behaviours. In fact, Chi-square test results (see Table 7.19 in Chapter 7) revealed the four consumer

segments differ significantly ($p < 0.05$) in respect of 7 out of 9 tested Internet behaviours.

Looking at the first six Internet behaviours in Appendix 13, compared with *adaptors*, *innovators* can be described as having stronger interests in using/buying on the Internet: *innovators* generally have a senior online age, access the Internet more frequently and stay on the Internet longer daily. Also, *innovators* spend more hours browsing sales Website weekly, buy more frequently on the Internet, and spend a larger amount of money on the Internet. Figure 8.8 below illustrates the study's findings.

Figure 8.8 Adaptors vs. Innovators via Internet Use and Buying Behaviours



Source: this research

Turning to the two unique segments, between *more-involved adaptors* and *less-involved innovators*, 8 out of 9 characteristics were found to differ significantly ($p < 0.05$), demonstrating a greater differentiation between them than between the four segments as a whole (7 out of 9 differed significantly, $p < 0.05$). These results (see Table 7.19 in Chapter 7) suggest complex interactions between innovativeness and involvement constructs within these two segments which result in distinct Internet use/buying behaviours.

In fact, these two segments contrast with one other and are sometimes at the extreme ends of certain Internet behaviours. For example (see Appendix 13), *less-involved innovators* have the highest percentage of consumers (82.2%) in the longest online age category (above 4 years), whereas *more-involved adaptors* have the lowest percentage of such consumers (67.5%).

Similarly, Appendix 13 indicates that in the highest online frequency category (at least once daily) and the highest total Internet spent amount category (above £400), *less-involved innovator* have the highest percentages (82.8% and 93.1%, respectively) while *more-involved adaptors* have the lowest (8.7% and 25.8%, respectively) among the four segments. These findings suggest that though the innovativeness construct dominates consumers' Internet behaviours, the involvement construct also displays its influence, leading to more diverse behaviours within *innovators* and *adaptors*, respectively. Table 8.2 summarises the four segments' Internet use/buying behaviours:

Table 8.2 The Four Segments' Internet Use and Buying Behaviours

Segment / Internet Behaviours	Less-involved adaptors	More-involved adaptors	less-involved innovators	More-involved innovators
Internet use behaviours	Comparatively junior online age, access the Internet less frequently and stay fewer hours on the Internet than innovators.	Most junior online age, access the Internet least frequently and spend fewest hours on the Internet daily compared with the other three segments.	Overall longest online age, access the Internet most frequently and spend longest hours on the Internet daily.	Comparatively senior online age, access the Internet frequently and show a higher interest in staying on the Internet than adaptors.
Internet buying behaviours	Spend comparatively fewer hours browsing Web shops, buy fewer times on the Internet and spend a lower amount of money on the Internet than innovators.	Spend least time browsing Web shops, buy least frequently on the Internet and spend the least amount of money on the Internet compared with the other three segments	Spend relatively more hours browsing Web shops, buy more frequently on the Internet and spend the largest amount of money on the Internet. Also include the lowest number of consumers who have never bought at other Websites	Spend longest hours browsing Web shops, buy most frequently on the Internet and spend a larger amount of money on the Internet than adaptors.

Source: this research

8.3.2 Comparison between This Study and Foxall and Bhate's (1993) Study

This study sought to investigate why all the four segments were found to differ significantly ($p < 0.05$) in terms of commitment and distrust in this study (see Figure A-8 in Appendix 8), whereas only three of the four segments, i.e. *less-involved*

adaptors, *more-involved adaptors* and *innovators*, were found to differ significantly ($p < 0.05$) in Foxall and Bhate's (1993) study (see Table 4.1 in Chapter 4). Comparing these two studies, it is found that the two studies' research design differ on at least six levels: the measuring instrument, purchase method, product category, innovative behaviour, survey sample and buying frequency data (see Table 8.3).

Firstly, the measuring instruments used in this study and Foxall and Bhate's (1993) differed. The DSI and PDI scales were used in this study (see Chapter 6, Section 6.4.1) whereas the KAI and PIIA scales were used by Foxall and Bhate (1993). As discussed in Chapter 4, the Kirton adaption-innovation inventory (KAI, Kirton 1976) measures the higher abstract innovativeness construct, i.e. innate innovativeness, while the Domain Specific Innovativeness scale (DSI, Goldsmith and Hofacker 1991) measures the more specific innovativeness construct. Similarly, though both the revised Personal Involvement Inventory for Advertising (PIIA, Zaichkowsky 1994) and the Purchase Decision Involvement (PDI, Mittal 1989) scales were designed to be context-free style instruments, the former is asserted to be applicable over a full range of products, purchase decisions and advertisements (Zaichkowsky 1985), while the latter is more focused on purchase decision involvement (see Chapter 4, Section 4.3.3). Notably, researchers (Buss 1989; Im *et al.* 2003; Gatignon and Robertson 1985) contended that a narrowly defined construct, i.e. domain specific innovativeness and purchase-decision involvement, will have a better predictive ability for particular consumer behaviours than a highly abstract construct. This may explain why all four consumer segments differed significantly ($p < 0.05$) in this study whilst only three consumer segments were found to differ in Foxall and Bhate's (1993) study.

Secondly, the purchase method tested in Foxall and Bhate (1993) was buying in the traditional store, whereas that tested by this study was buying via the Internet. **Thirdly,** the innovative behaviour tested by Foxall and Bhate (1993) was healthy food purchase innovativeness, whereas in this study it was Internet buying innovativeness. The innovativeness to adopt Internet buying is likely to be more salient than to buy a new healthy food brand in the traditional store. Consequently, compared to Foxall and Bhate's (1993) study, both involvement and innovativeness constructs measured and obtained in this study were stronger due to the research topic and design, which may, in turn, have contributed to the characteristics of the four segments being more distinct and supportive of most of the research hypotheses.

Fourthly, the product category tested by Foxall and Bhate (1993) was healthy food, a consumable good, whereas that tested by this study was a printer, a durable good. It is known that consumers are generally more-involved in the purchase of a durable good than in of a consumable good due to the higher price and less purchase frequency of a durable good (Bloch *et al.* 1986; Brisoux and Chéron 1990; Lichtenstein *et al.* 1988). Thus, this product difference could also have led to a higher consumer involvement level, which in turn, contributed to the significant differences between the four consumer segments.

Fifthly, Foxall and Bhate (1993) used a convenience sample of 151 female consumers recruited as they left supermarkets, whereas in this study, valid responses totaled 1,044 and the sample was randomly selected from the Q Website's individual

buyer database (see Chapter 6, Section 6.3.2), thus consumers at extremes within the target population could have been drawn. **Sixthly**, the consumer buying frequency was self-reported in Foxall and Bhate's (1993) study, whereas in this study, the consumer buying frequency was derived from the Q Website database directly (see Chapter 6, Section 6.4.1: Measuring Scales). Not only the more diffuse and varied sample, but also the reliably recorded purchase frequency used in this study likely contributed to the more diverse and significant results between the four consumer segments.

As such, these six-fold differences may provide answers as to why only three segments in Foxall and Bhate's (1993) study but all four segments in this study were found to differ significantly ($p < 0.05$).

Bearing the research design comparisons in mind, consumers' purchase frequency findings in these two studies are presented and discussed intensively. **In Foxall and Bhate's (1993) study**, when investigating the number of "healthy" food brands purchased, *more-involved adaptors* (mean = 3.10) were found to account for the highest brand purchase level, followed by *less-involved innovators* (mean = 2.83), , then *more-involved innovators* (mean = 2.65), and finally *less-involved adaptors* (mean = 2.20), respectively. **In this study** (see Appendix 14), when investigating consumers' actual Q Website buying frequency, *more-involved adaptors* (mean = 3.11) were also found to account for the highest Q Website buying frequency level, followed by *more-involved innovators* (mean = 3.09), then *less-involved innovators* (mean = 2.59), and finally *less-involved adaptors* (mean = 2.50), respectively.

Further, **in Foxall and Bhate's (1993) study**, a post hoc Tukey procedure indicated *less-involved adaptors/more-involved adaptors* differed significantly ($p < 0.05$) in the mean volume of purchase. However, the mean of *less-involved innovators* did not differ significantly ($p < 0.05$) from that of *more-involved innovators*. **In this study**, the ANOVA test indicated the four consumer segments differed significantly ($p < 0.05$) in their Q Website buying frequency (see Appendix 14), but a post hoc Tukey HSD procedure (see Appendix 15) only indicated two segments, i.e. *less-involved adaptor/more-involved adaptors*, differed significantly ($p < 0.05$) in their Q Website buying frequency **(this result is similar to that in Foxall and Bhate's (1993) study)**. Moreover, a post hoc Tukey LSD procedure (see Appendix 15) indicated three segments, i.e. *less-involved adaptors, more-involved adaptors* and *more-involved innovators* differed significantly ($p < 0.05$) in their Q Website buying frequency.

The above results suggest that although the two studies' research design differed at six levels, this study still supported Foxall and Bhate's (1993) finding that more-involved adaptors account for the highest purchase frequency. This consistency suggests the finding is not influenced by different research settings and has a generalisability to consumer buying behaviours. Together, the two studies provide a robust foundation for future consumer research in terms of consumer segmentation and targeting: using the involvement construct to increase the explanatory ability of consumer innovative buying behaviour, both in the traditional and Internet market contexts.

Table 8.3 below summarises comparisons between this study and Foxall and Bhate's (1993) study.

Table 8.3 Comparison between This Study and Foxall and Bhate's (1993) Study

Descriptions	This Study		Foxall and Bhate (1993)
measuring instrument	the DSI and PDI scales		the KAI and RPII scales
purchase method	buy via the Internet		buy in the traditional store
product category	Durable good		Consumable good
innovative behaviour	Internet buying innovativeness		Healthy food purchase innovativeness
survey sample	Q Website individual buyers, total valid responses: 1,044		Convenience sample of females, total valid responses: 151
Buying Frequency	Derived from the Q Website database		Self-reported
Mean of Buying Frequency (from the highest to the lowest)	More-involved adaptors: 3.11 More involved innovators: 3.09 Less-involved innovators: 2.59 Less-involved adaptors: 2.50		More-involved adaptors: 3.10 Less-involved innovators: 2.83 More involved innovators: 2.65 Less-involved adaptors: 2.20
Post hoc Method	Post hoc Tukey LSD procedures	Post hoc Tukey LSD procedures	Post hoc Tukey procedures
Post hoc Analysis	Less-involved adaptors and more involved adaptors differ significantly ($p < 0.05$)	Less-involved adaptors, more-involved adaptors and more-involved innovators differ significantly ($p < 0.05$)	Less-involved adaptors and more involved adaptors differ significantly ($p < 0.05$)

Source: this research

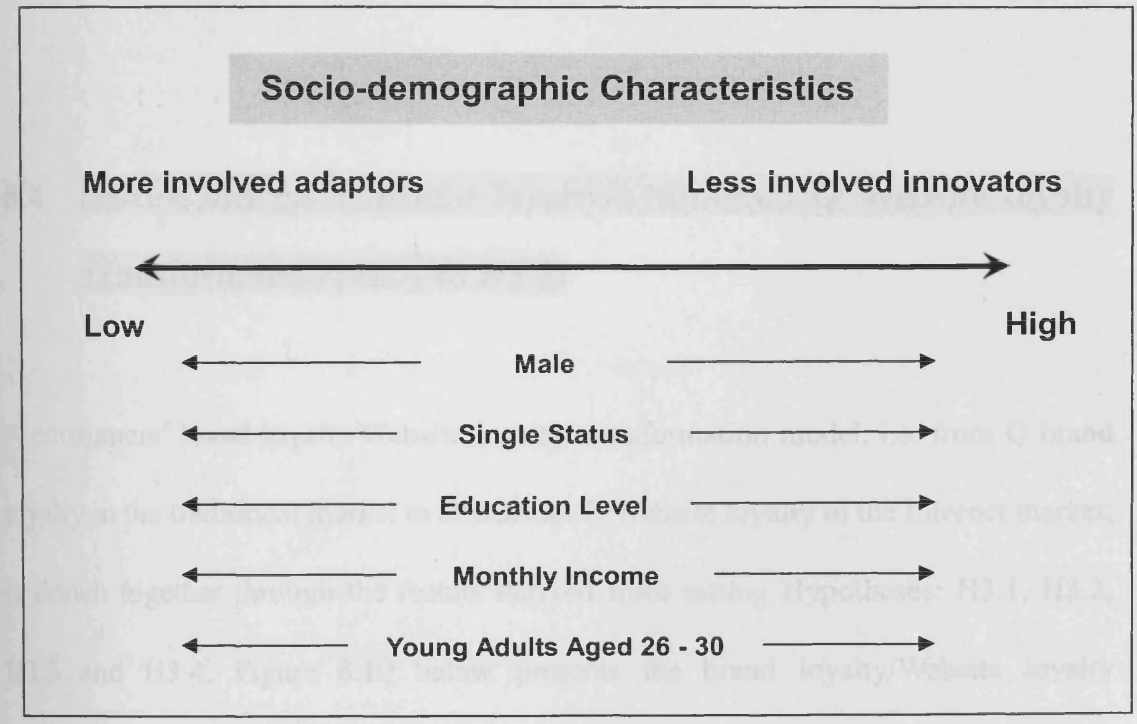
8.3.3 Socio-demographic Characteristics

Chi-square tests revealed that among the seven tested socio-demographic characteristics, three differed significantly ($p < 0.05$) between the four segments, namely, gender, marital status and education (see Table 7.19 in Chapter 7). However, more significant ($p < 0.05$) differences, i.e. 5 out of 7 characteristics, were found between *more-involved adaptors*' and *less-involved innovators*': gender, marital status, education, income, and age. These findings are consistent with previous findings, demonstrating that these two segments are more diversified than the four segments as a whole.

Looking at the socio-demographic characteristics (see Appendix 12) *less-involved innovators* included a higher percentage of males (79.7%) of single status (63.2%) than *more-involved adaptors* (55.6% and 56.2%, respectively). Regarding educational level, a higher percentage of *less-involved innovators* were college/university or post-graduate educated (82.8%) than *more-involved adaptors* (76.3%). Turning to monthly income, a higher percentage of *less-involved innovators* (49.3%) earned a higher level monthly income (e.g. above £700) than *more-involved adaptors* (55.7%). Finally, over half (56.8%) of *less-involved innovators* were under 30 years old compared to 48.1% of *more-involved adaptors*. Notably, 31.3% of *less-involved innovators* were between 26 to 30 years old whereas only 18.8% of *more-involved adaptors* were within this age range.

In sum, compared to *more-involved adaptors*, more *less-involved innovators* were male, single, highly educated, earned a higher income, and were relatively younger, with a considerable percentage (31.3%) aged between 26 and 30. These findings are illustrated in Figure 8.9 below.

Figure 8.9 More-Involved Adaptors' versus Less-Involved Innovators' Socio-demographic Characteristics



Source: this research

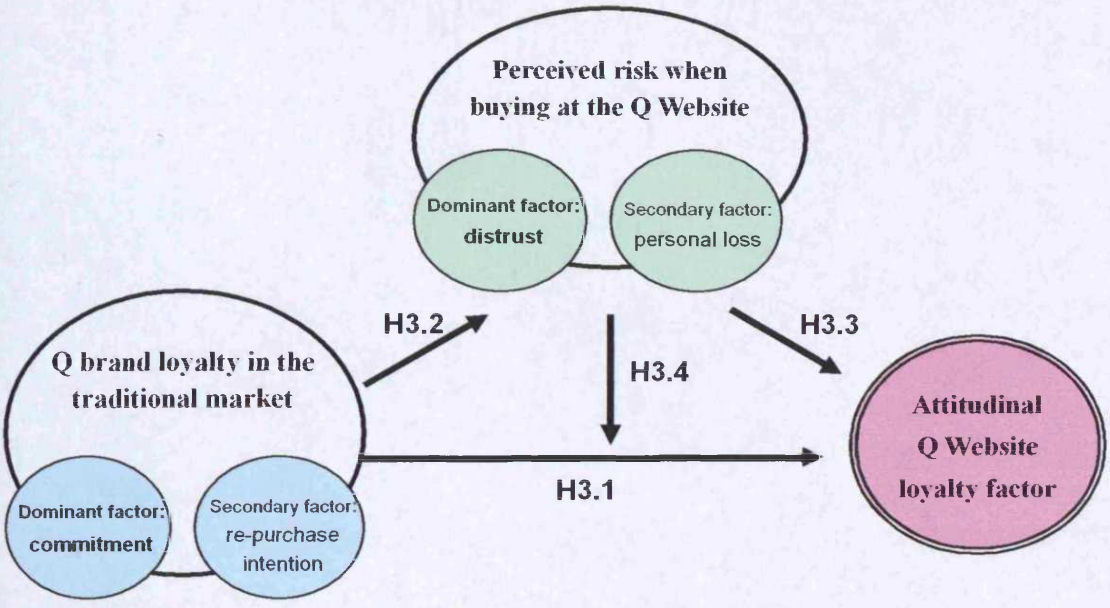
The study's findings were consistent with those of Robertson *et al.* (1984), who found innovators were more highly educated and earnt a higher income than adaptors. However, in this study, innovators were not younger than adaptors as was the case in Robertson *et al.*'s (1984) research. This was likely derived from the study's sample

comprising only individual Internet buyers, whose characteristics have been suggested to differ from general buyers in the traditional market (Kumer 2002). The age differences between Internet buyers were consequently less significant than those surveyed by Robertson *et al.* (1984). Undoubtedly, the findings regarding socio-demographic characteristics will be useful for Internet businesses/marketers when designing marketing activities and targeting potential/valuable consumers.

8.4 Discussions on Q brand loyalty/Attitudinal Q Website loyalty Transformation (H3.1 to H3.4)

A consumers' brand loyalty/Website loyalty transformation model, i.e. from Q brand loyalty in the traditional market to attitudinal Q Website loyalty in the Internet market, is drawn together through the results derived from testing Hypotheses: H3.1, H3.2, H3.3 and H3.4. Figure 8.10 below presents the brand loyalty/Website loyalty transformation model by illustrating each research hypothesis and the corresponding relationship tested between the variables. Dominant factors, i.e. commitment (Q brand loyalty in the traditional market scale) and distrust (perceived risk when buying at the Q Website scale), which accounted for the majority of variances in each scale (see Table 7.6 in Chapter 7), are highlighted in bold.

Figure 8.10 Brand Loyalty/Website Loyalty Transformation Model



Source: this research

With the brand loyalty/Website loyalty transformation model and each corresponding hypothesis in mind, this section is divided into two parts. Section 8.4.1 compares findings related to the total sample's model of brand loyalty/Website loyalty transformation with past studies. Section 8.4.2 illustrates the brand loyalty/Website loyalty transformation model of the four consumer segments, respectively. Discussions and comparisons between each model are presented.

8.4.1 Brand loyalty/Website loyalty transformation model for the Total Sample

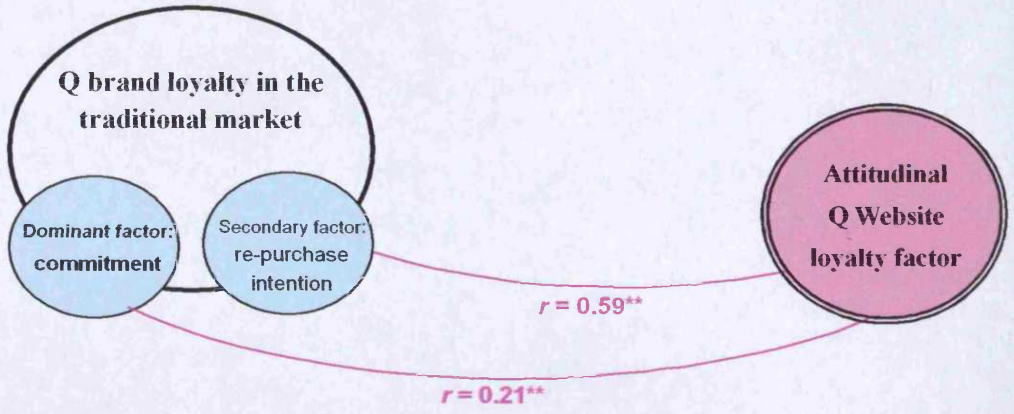
Figure 8.10 above shows the four links constructing the consumer brand

loyalty/Website loyalty transformation model: the Q brand loyalty/attitudinal Q Website loyalty link, the Q brand loyalty/perceived risk link, the perceived risk/attitudinal Q Website loyalty link, and the mediating effect the perceived risk has on the Q brand loyalty/attitudinal Q Website loyalty link. Notably, the loyalty transformation model discussed in the present section was analysed using the total sample (1,044) whereas the models presented in the next Section 8.4.2 will be analysed using the samples within each consumer segment, respectively.

I. Q brand loyalty/Attitudinal Q Website loyalty link

In this study, significant ($p < 0.01$) and positive correlations were found between two brand loyalty factors and attitudinal Q Website loyalty (see Figure 8.11 below derived from Appendix 9). The dominant factor/commitment achieved a Pearson correlation coefficient of 0.59 while that of the secondary factor/re-purchase intention was 0.21 ($p < 0.01$).

Figure 8.11: Correlation Coefficients between Two Brand Loyalty Factors and Attitudinal Q Website Loyalty



** Correlation is significant at $p < 0.01$ (2-tailed).

Source: this research

This finding supports Gommans *et al.*'s (2001) assertion that Internet consumers seem to perceive the brand's Website as a brand extension of the multi-channel business. Thus, they contend that a company uses the same well-known brand name in the traditional market in the Internet market (e.g. Dixons – Dixons.co.uk) in order to leverage existing consumers in the traditional market to buy at the brand's Website. Supportively, ThorbjØrnsen and Supphellen (2004) assert that brand loyalty is a major determinant for Website use and affectively loyal consumers sense a relationship to their favoured brands. Thus, these loyal consumers are motivated to visit Websites for such brands more frequently than non-loyal consumers. DelVecchio (2000) also argues that if consumers have had satisfactory past experiences with the brand in the traditional market, the risk associated with buying at the brand's Website will be reduced. Moreover, Ward and Lee (2000) reported that nearly nine-tenths (85.8%) of those surveyed in their study required (68.4%) or preferred (17.4%) a well-known brand's Website when they bought on the Internet.

In this study, the correlation between commitment and attitudinal Q Website loyalty was slightly stronger than in similar past studies. For example, in a survey of Principle's and Gap's Websites selling casual clothes in the United Kingdom, Balabanis and Reynolds (2001) found consumers' positive attitudes towards a brand also influenced positive attitudes towards the brand's Website. They found a significant ($p < 0.01$) correlation coefficient between positive attitude towards a brand and positive attitude towards the brand's Website at Principle's Website (r=0.45), and at Gap's Website (r=0.55), respectively. The variance between this study's and

Balabanis and Reynolds' (2001) findings may have derived from the different products' characteristics. This study used a durable good while theirs used a consumable good. The lower buying frequency and relatively higher price of the printer product may thus have generated a slightly stronger correlation ($r = 0.59$, $p < 0.01$) between consumers' Q brand loyalty and their attitudinal Q Website loyalty.

Another study by Supphellen and Nysveen (2001) also revealed a significantly positive correlation ($r = 0.30$, $p < 0.01$) between consumers' brand loyalty in the traditional market and their attitudes towards the brand's Website. This finding is similar to that pertaining to the secondary brand loyalty factor/re-purchase intention in this study which revealed a significant but weak correlation ($r = 0.21$, $p < 0.01$) to attitudinal Q Website loyalty. Both insignificant correlation findings are likely to be derived from the inactive intention. In Supphellen and Nysveen's (2001) study, because the airline company's Website provided information only, the correlation between brand loyalty/Website attitude was therefore low. The printer surveyed in this study is a durable good with an infrequent purchase rate, thus the correlation between re-purchase intention/Website loyalty was also low due to the inability to foresee the next re-purchase occasion.

This study further examined the Q brand loyalty/attitudinal Q Website loyalty link using the multiple regression technique (see Chapter 7, Section 7.4.1). Both brand loyalty factors, i.e. commitment and re-purchase intention, were found to be significant ($p < 0.05$) predictors of consumers' attitudinal Q Website loyalty. Equation 7.1 is re-listed below for easy reference

Equation 7.1: Multiple Regression model of attitudinal Q Website loyalty

Attitudinal Q Website loyalty = 0.01 + 0.41 Commitment* + 0.11 Re-purchase intention*

– 0.37 Distrust * – 0.14 Personal loss*

Adjusted R^2=0.502 *** Significant at $p < 0.05$**

Source: this research

In Equation 7.1, commitment (beta value = 0.41) is found to be the most important predictor of attitudinal Q Website loyalty, and its explanatory ability for the latter is three times above that for re-purchase intention (beta value = 0.11). Academically, Morgan and Hunt (1994) contend that the loyalty construct is similar to the commitment construct as both consumer behaviour research and the market have matured. Other researchers argue that commitment is akin to brand loyalty (e.g. Dick and Basu 1994; Fournier 1998) and provide an essential basis for distinguishing between brand loyalty and other forms of repeat purchase behaviour (Jacoby and Chestnut 1978).

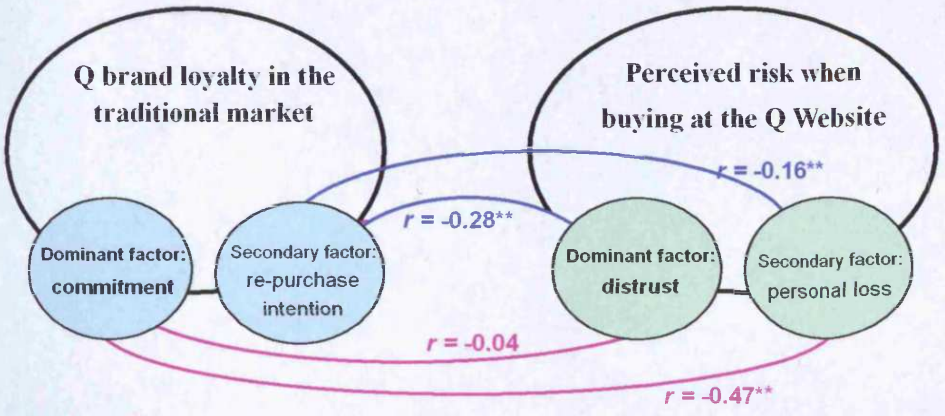
In short, while past studies have only tested the impact of brand attitudes in the traditional market on the brand's Website or the impact of brand loyalty on a non-selling company's Website, this study has tested and also proved brand loyalty in the traditional market can result in loyalty to the brand's Website. Moreover, this study has verified the brand commitment/attitudinal Website loyalty link, which

suggests consumers' brand commitment in the traditional market is an important antecedent to their Website loyalty to the brand.

II. Q brand loyalty/Perceived risk link

Two factors were extracted from the Q brand loyalty scale (commitment/re-purchase intention) and perceived risk scale (distrust/personal loss), respectively (see Appendix 6). The risk-relieving effect of brand loyalty was demonstrated by the significantly strong and negative correlation (r = - 0.47, $p < 0.01$) found between the two dominant factors of each scale, i.e. distrust/commitment. However, only a weak though significant (r = - 0.16, $p < 0.01$) correlation was found between distrust and the secondary brand loyalty factor/re-purchase intention. Figure 8.12 illustrates results derived from Appendix 9.

Figure 8.12: Correlation Coefficients between Two Brand Loyalty Factors and Two Perceived Risk Factors



** Correlation is significant at $p < 0.01$ (2-tailed).

Source: this research

This finding is consistent with past studies that consumers are generally risk averse (Mowen 1987), and brand loyalty is the most common risk reliever adopted by non-store buyers (e.g. Kim and Lennon 2000; Roselius 1971). Brand loyalty is also adopted by Internet buyers to avoid various purchase risks, e.g. merchandise quality, transaction safety, and privacy protection when buying via the Internet. For example, Ward and Lee (2000) indicated consumers used well-known brands as information sources to ensure satisfactory Internet buying outcomes, and their survey result supported this statement: the respondent majority (85.8%) required or preferred buying at a well-known brand's Website. Similarly, Tan (1999) indicated that, for consumers, a multi-channel business' established reputation (r = 0.33) and brand image (r = 0.32) are great utility risks relievers when buying on the Internet. Van den Poel and Leunis (1999) also found the well-known brand is a significant ($p < 0.01$) risk reliever for consumers when buying on the Internet. Finally, Chen and He (2003) reported consumers' brand knowledge developed in the traditional market significantly ($p < 0.05$) reduced their perceived risk (r = -0.43) when buying at the brand's Website. All these works reveal similar results.

This study's findings also confirm literature assertions that brand commitment is a psychological attachment to a brand (e.g. Lastovicka and Gardner 1978), leading to consistent re-purchase behaviour of the same brand over time. It is therefore easy to understand why brand commitment is the dominant factor extracted from the Q brand loyalty scale and shows a stronger risk relieving effect than re-purchase intention in respect of trusting the Q brand on the Internet and buying at the Q Website.

As regards the secondary risk factor/personal loss, commitment was found to have a non-significant correlation (r = -0.04, $p < 0.05$) with it, whereas re-purchase intention had a significant but weak correlation (r = -0.28, $p < 0.01$) with it. The weak and non-significant relationship between commitment/personal loss is to be expected given that strong confidence in the well-known Q brand, whether in the traditional market or in the Internet market, will lead consumers with high Q brand commitment to consequently perceive a weak personal loss risk when buying at the Q Website.

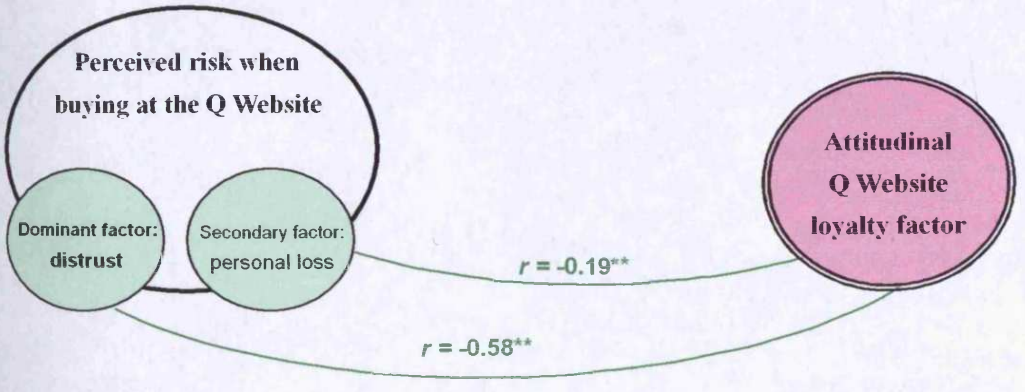
In short, while past studies have examined only various brand attributes, e.g. brand knowledge, brand image and brand reputation, and shown their significant effects on reducing consumers' perceived risk regarding Internet buying, this study has deepened the investigation and focused on the important and widely researched concept: brand loyalty. Moreover, this study has also extended past studies' findings related to the risk relieving ability of brand loyalty in the traditional market and confirmed it in an Internet buying context: brand loyalty in the traditional market will reinforce consumers' confidence to buy at the brand's Website and reduce their perceived risk level when buying at the brand's Website.

III. Perceived risk/Attitudinal Q Website loyalty link

Recently, more and more studies have reported consumers' perceived risk as a primary obstacle to the growth of Internet buying (Miyazaki and Fernandez 2001).

Among various types of risks, privacy and security risks have been widely discussed due to the unique environment of the Internet (e.g. Hsu and Luo 2003; Olivero and Lunt 2004; Phelps *et al.* 2001; Ratnasingham 1998; Sheehan and Hoy 2000). Particularly, Gommans *et al.* (2001) suggested these two types of risk play critical roles in generating consumer loyalty to an Internet business. **In this study**, factor analysis (see Appendix 6) revealed the two risk factors' contents: distrust consisted of performance risk (0.81), brand risk (0.85), and privacy risk (0.76), and personal loss consisted of security risk (0.80), time risk (0.56), and financial risk (0.75). Thus, in this study, privacy and security risk loaded on each of the risk factors, respectively. Because both risk factors were found to significantly ($p < 0.01$) decrease consumers' attitudinal Q Website loyalty (see Figure 8.13 below derived from Appendix 9). The study's findings were supportive of the literature.

Figure 8.13: Correlation Coefficients between two Perceived Risk Factors and Q Website Loyalty



** Correlation is significant at $p < 0.01$ (2-tailed).

Source: this research

Figure 8.13 shows a significantly strong and negative (r = -.58, $p < 0.01$) association between distrust and attitudinal Q Website loyalty but a weak but significant (r = -0.19, $p < 0.01$) association between personal loss and attitudinal Q Website loyalty. This supports Anderson and Srinivasan's (2003) statement that consumers' trust is important to an Internet business as it directly influences their perceived risk level associated with Internet buying. In their regression analysis, trust was found to be a significant predictor (beta value = 0.41, $p < 0.05$) of consumers' Website loyalty. Consistently, Molesworth and Suortti (2002) proposed the perceived risk (feelings of uncertainty) mediate the relationship between consumer trust and Internet buying behaviour (an adoption of an innovation). Therefore, if consumers perceive risks when buying at the Website, their trust in the Website will be minimal and, in turn, attitudinal Q Website loyalty will be decreased.

In this study, a multiple regression model (Equation 7.1, see Chapter 7) was established to conduct a further investigation on consumers' perceived risk/attitudinal Q Website loyalty link. The two risk factors were found to be significant ($p < 0.05$) predictors of and contribute negatively to consumers' attitudinal Q Website loyalty. Consistently, according to Pearson's correlation coefficients, distrust reported a greater beta value (-0.37) than personal loss (-0.14), indicating the former factor contributed to attitudinal Q Website loyalty more than twice as much as the latter. Thus, consumers' perceived risk of trusting the Q brand on the Internet had a greater negative impact on their attitudinal Q Website loyalty than their personal loss risk when buying at the Q Website. This finding is supportive of that in Singh and Sirdeshmukh's (2000) study, in which trust was indicated as a crucial variable

determining outcomes and holding the relationship between the multi-channel business and consumers together. Similarly, Anderson and Srinivasan (2003) suggested that in the Internet buying context, consumers who do not trust a multi-channel business will not be loyal to it even though they are generally satisfied with its offerings.

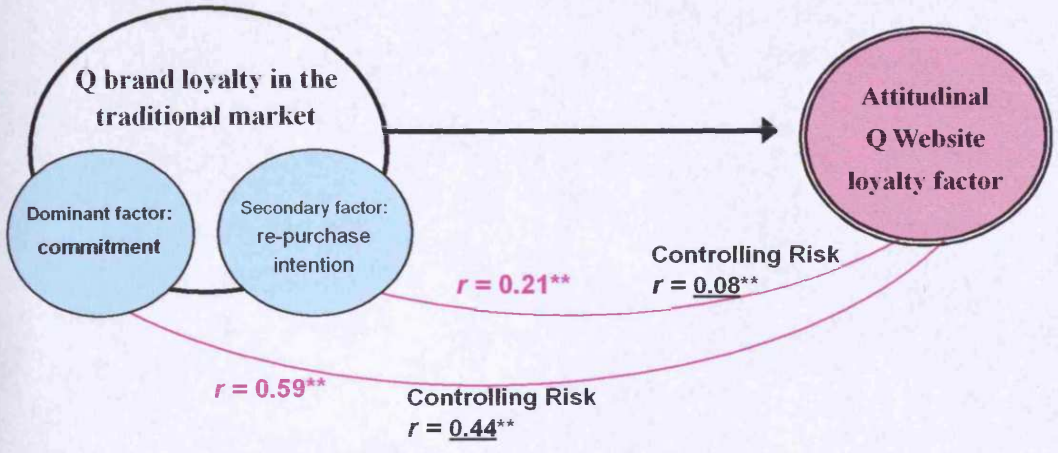
In short, past studies (e.g. Hsu and Luo 2003; Olivero and Lunt 2004) have viewed privacy and security risks as two important and distinct concerns when consumers buy at Websites. In this study, each of these risks fell on separate risk factors: security risk was subordinate to distrust while privacy risk was subordinate to personal loss, and both factors were found to significantly ($p < 0.01$) decrease consumers' attitudinal Q Website loyalty. Notably, distrust (the dominant factor) was found to have a greater impact on attitudinal Q Website loyalty than personal loss. Thus confirming past results that consumers' trust is vital to their Website loyalty.

IV. Perceived risk mediates the Q brand loyalty/Attitudinal Q Website loyalty link

At the time of writing this thesis, no studies were known to have examined brand loyalty/Website loyalty transformation using empirical data, or the mediating effect that perceived risk has on this brand loyalty/Website loyalty transformation link. In the absence of empirical results with which to compare them, this study's findings are presented in order to offer insights for future studies. Figure 8.14 is derived from the

analysis result in Appendix 9, showing the correlation coefficients between the two brand loyalty factors (commitment/re-purchase intention) and attitudinal Q Website loyalty before and after controlling the two risk factors (distrust/personal loss), respectively.

Figure 8.14 Correlations Showing the Mediating Effect Perceived Risk has on the Q Brand Loyalty/Attitudinal Q Website Loyalty Link



** Correlation is significant at $p < 0.01$ (2-tailed).

Source: this research

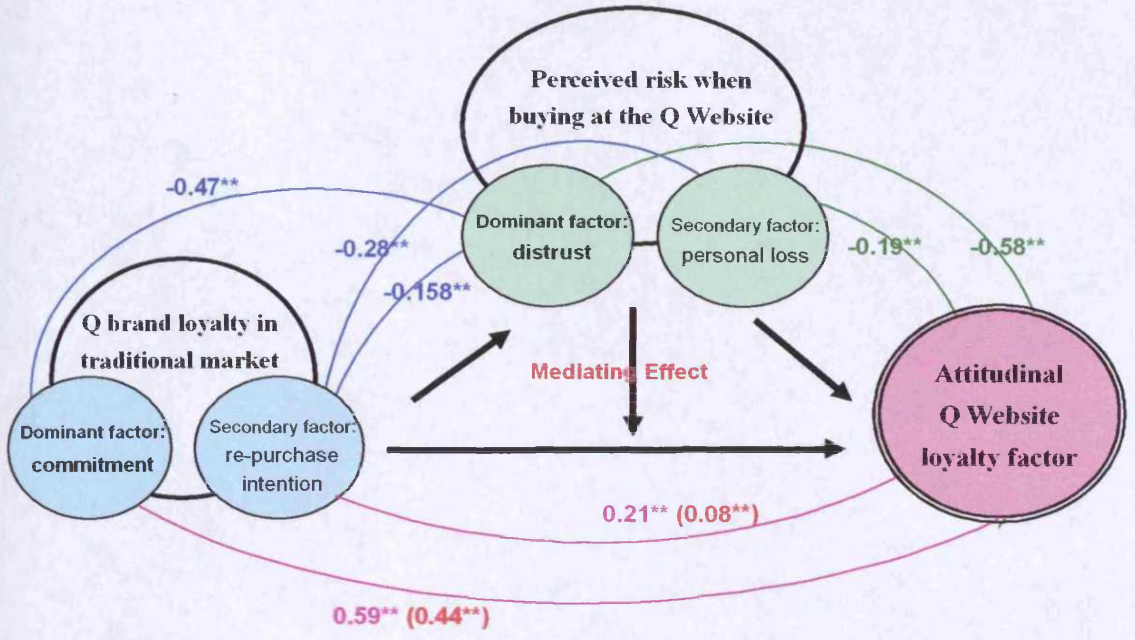
In Figure 8.14, the correlation coefficient between commitment and attitudinal Q Website loyalty is 0.59 ($p < 0.01$), however, after controlling the two risk factors, the correlation coefficient between these two variables decreases by 0.15 and drops to 0.44 ($p < 0.01$). Similarly, the correlation coefficient between re-purchase intention and attitudinal Q Website loyalty is 0.21 ($p < 0.01$), however, after controlling the two

risk factors, the correlation coefficient between these two variables decreases by 0.13 and drops to 0.08 ($p < 0.01$). These results reveal the two risk factors' mediating effect on consumers' Q brand loyalty/attitudinal Q Website loyalty link as both tests show considerable decreases in correlation coefficients ($r = 0.15$ and 0.13, respectively) after controlling the two risk factors.

Notably, although the correlation between commitment/attitudinal Q Website loyalty decreases after controlling the two risk factors, it still implies a substantial association between them ($r = 0.44$, $p < 0.01$), suggesting a positive and significant association between commitment/attitudinal Q Website loyalty. This indicates that although two risk factors contribute to this connection, they do not dominate or generate this link. However, after controlling the two risk factors, the correlation between re-purchase intention/attitudinal Q Website loyalty drops from 0.21 to 0.08, i.e. from a weak to a very weak level. Though this association is still significant ($p < 0.01$), the weak correlation coefficient indicates the association between re-purchase intention/attitudinal Q Website loyalty has reduced to an unimportant level. Thus, part of the correlation between these two factors actually comes from the two risk factors, instead of re-purchase intention alone.

Briefly, the brand loyalty/Website loyalty transformation model shown in Figure 8.12 is confirmed by these findings. Figure 8.15 below highlights the correlations between the five factors within the brand loyalty/Website loyalty transformation model.

Figure 8.15 Correlations Within the Brand Loyalty/Website Loyalty Transformation Model



** Correlation is significant at the 99% confidence level (2-tailed)

( ) After controlling the mediating effect of the two risk factors

Source: this research

This model provides an empirical addition to the literature in three ways: **firstly**, Equation 7.1 has demonstrated the robustness of the brand loyalty/Website loyalty transformation model presented in Figure 8.15. **Notably, the four factors: commitment, re-purchase intention, distrust, and personal loss together explain half (adjusted R^2 = 0.50) of consumers' attitudinal Q Website loyalty.** Among the four significant ($p < 0.05$) predictors, commitment (Q brand commitment in the traditional market) is found to be the most powerful predictor contributing most to consumers' attitudinal Website loyalty. Thus, **secondly**, commitment is found to dominate the major links/impacts in the brand loyalty/Website loyalty transformation model. Directly, consumers' Q brand loyalty in the traditional market impacts on their attitudinal Q Website loyalty via the commitment/attitudinal Q Website loyalty link (*r*

= 0.59, $p < 0.01$). Indirectly, it is via the commitment/distrust/attitudinal Q Website loyalty link, generating a significant ($p < 0.01$) correlation of 0.27 (i.e. computed by (-0.47) x (-0.58)). As regards other links shown in Figure 8.15, e.g. the re-purchase intention/distrust/attitudinal Q Website loyalty link, although this contributes significantly ($p < 0.01$) to attitudinal Q Website loyalty, the input is relatively small due to the weak association between re-purchase intention/distrust.

Thirdly, due to the unique environment of Internet buying, consumers perceive risk buying at Websites. The role of perceived risk in the brand loyalty/Website loyalty transformation model is threefold (see Figure 8.15): risk reduces consumers' attitudinal Q Website loyalty while, simultaneously, a high level of Q brand loyalty in the traditional market can effectively relieve it. Further, risk mediates the direct link between Q brand loyalty/attitudinal Q Website loyalty. In this study, consumers' perceived risk is evidenced to play a mediate role in the consumer brand loyalty/Website loyalty transformation model. At the time of writing this thesis, no study was known to have examined the mediating effects the perceived risk has on consumers' cross-channel buying behaviour, thus this study's finding is an important contribution to the literature.

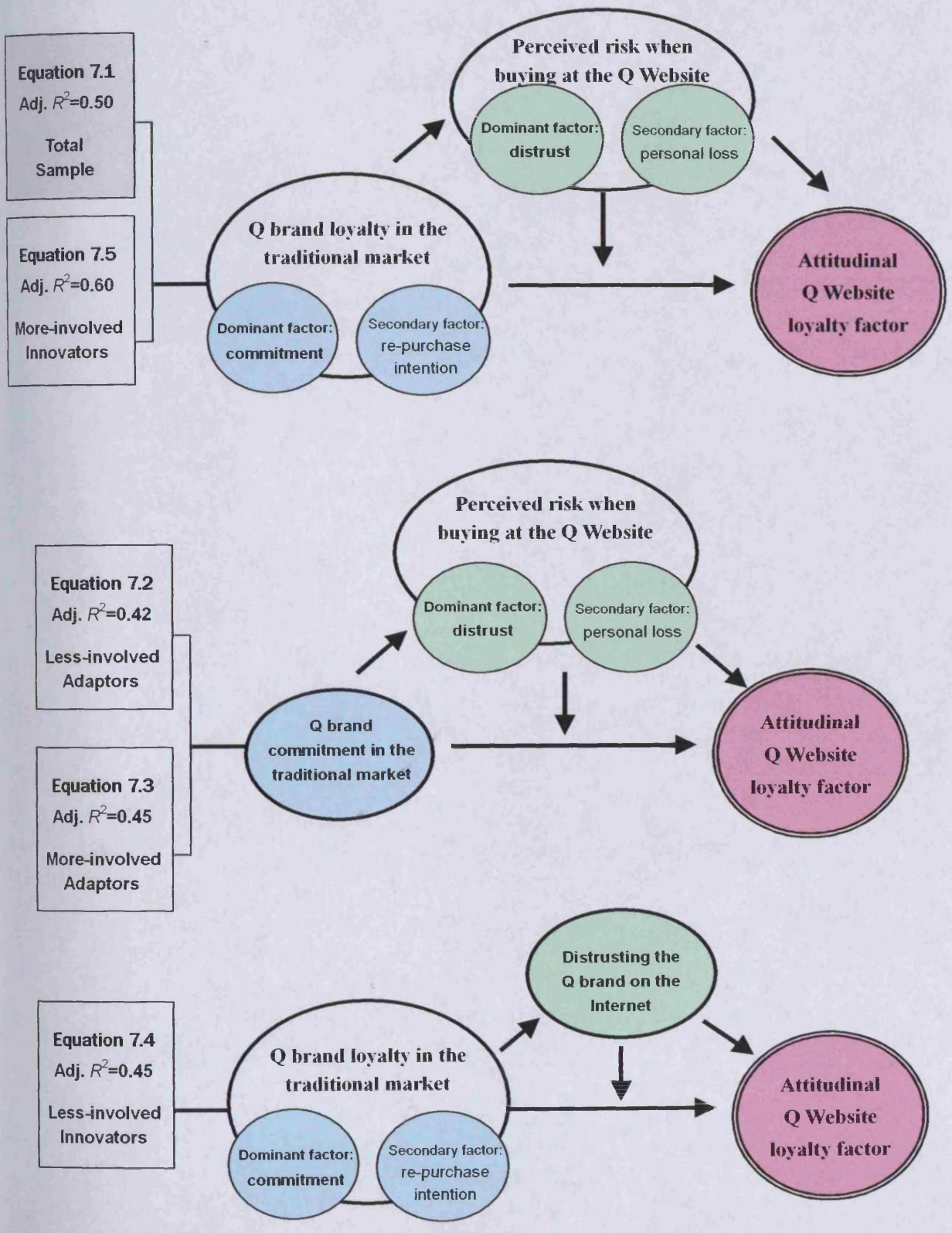
8.4.2 Brand loyalty/Website loyalty transformation model of the Four Consumer Segments

A further investigation of the brand loyalty/Website loyalty transformation model was

undertaken by comparing the attitudinal Q Website loyalty regression model established by the total sample with that established by each consumer segment (see Table 7.15 in Chapter 7). Figure 8.16 illustrates the five attitudinal Q Website loyalty regression models.

Firstly, between the five models (Equations 7.1 – 7.5), Table 7.15 (see Chapter 7) indicates ***more-involved innovators' model*** (Equation 7.5) has the highest adjusted R^2 value of 0.60, followed by 0.51 of the total sample's model (Equations 7.1), then 0.45 of both the *more-involved adaptors*' model (Equation 7.3) and *less-involved innovators*' model (Equation 7.4), and, finally, 0.42 of the *less-involved adaptors'* model (Equation 7.2). The highest adjusted R^2 value (0.60) of Equation 7.5 indicates that the four factors, i.e. commitment, re-purchase intention, distrust and personal loss together explain 60% of the variance in *more-involved innovators*' attitudinal Q Website loyalty, which is higher than that of the sample as a whole (adjusted $R^2 = 0.50$). **The finding is supportive of the previous post hoc Scheffé procedure (see Section 8.2.1): *more-involved innovators* had the highest tendency towards Q Website loyalty which was derived from their high Q brand commitment in the traditional market and lowest distrust of the Q brand on the Internet compared with the other three segments.** Moreover, Foxall (2003) indicated ***more-involved innovators*** are highly involved and likely to continuously seek alternative brands that will fulfil their expectations. Given the serious and aggressive Internet buying decision-making process of *more-involved innovators*, all four factors play an important role and make a significant ($p < 0.05$) contribution to their attitudinal Q Website loyalty in the model (see Figure 8.16).

Figure 8.16 Brand Loyalty/Website Loyalty Transformation Model of the Four Consumer Segments



*All predictors shown are significant at $p < 0.05$

Source: this research

Secondly, these five brand loyalty/Website loyalty transformation models (Equations 7.1 – 7.5) are composed of different significant ($p < 0.05$) predictors, indicating they vary for each of the four consumer segments and the total sample as a whole. This is supportive of Foxall's (2003) assertion that each consumer segment has a preferred decision-making and problem solving style. Figure 8.16 indicates that both the total sample's (Equation 7.1) and *more-involved innovators*' (Equation 7.5) attitudinal Q Website loyalty models include FOUR significant ($p < 0.05$) predictors, whereas the remaining three models only include THREE significant ($p < 0.05$) predictors. To some extent, this explains the higher adjusted R^2 value of the former two models (0.60 and 0.50, respectively) than the three latter models (0.42, 0.45 and 0.45, respectively).

The adaptors' loyalty transformation model, i.e. *less-involved adaptors'* (Equation 7.2) and *more-involved adaptors'* (Equation 7.3), includes three significant ($p < 0.05$) predictors: commitment, distrust and personal loss, but re-purchase intention does not significantly ($p < 0.05$) contribute to their attitudinal Q Website loyalty (see Figure 8.16). Foxall (2003) suggested ***less-involved adaptors*** do not have an extensive information process but view experience as a guide to purchase safety. Foxall (1994) also indicated that *less-involved adaptors* will easily switch to another brand within an acceptable range of brands because of a price reduction. Consequently, this segment's Q brand re-purchase intention in the traditional market is too changeable to contribute to their attitudinal Q Website loyalty in the model. As regards ***more-involved adaptors,*** Foxall (2003) suggested they are highly involved and will go through an extensive cognitive learning process before making a purchase. However, because they always undertake a complex evaluation before buying, their re-purchase intention is

unpredictable and dynamic. Moreover, they are prudent in Internet buying (see Table 8.1). Thus, their conservative attitude towards Internet buying and unpredictable Q brand re-purchase intention make re-purchase intention an insignificant ($p< 0.05$) predictor of their attitudinal Q Website loyalty in the *more-involved adaptors'* model.

Thirdly, turning to the ***less-involved innovators'*** model (Equation 7.4), this includes three significant ($p < 0.05$) predictors: commitment, re-purchase intention and distrust, but personal loss does not contribute significantly ($p < 0.05$) to their attitudinal Q Website loyalty. This is because, first, *innovators* are inherently more risk taking than *adaptors* when buying on the Internet, particularly under a less-involved situation. Foxall (2003) indicated *less-involved innovators* who choose something new to relieve boredom have typical novelty seeking behaviours. They just want to get the product quickly and do not consider personal loss carefully when they buy via the Internet. In turn, personal loss is not a significant ($p < 0.05$) predictor in their model.

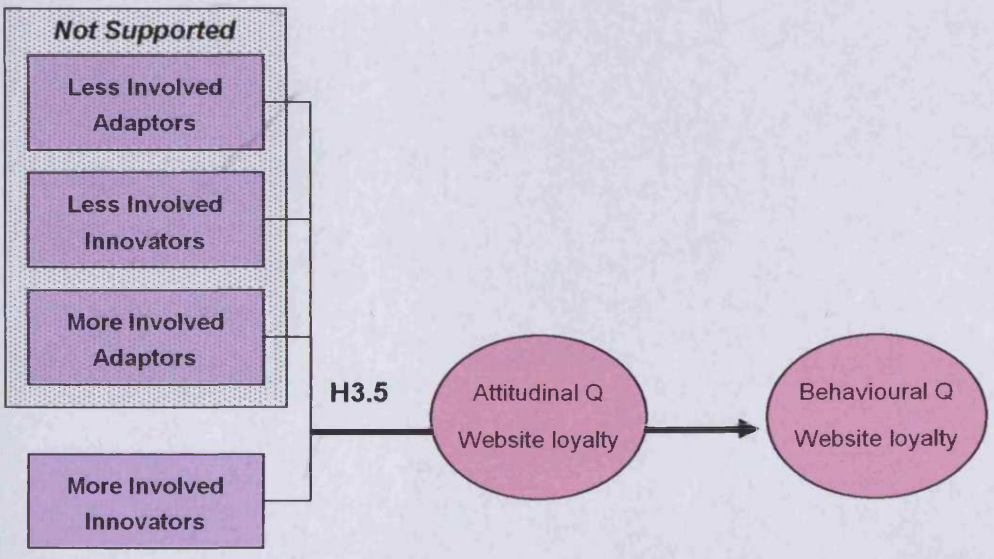
Notably, re-purchase intention was a significant ($p < 0.05$) predictor contributing positively to *less-involved innovator's* attitudinal Q Website loyalty (Equation 7.4), although it was not a significant ($p < 0.05$) predictor in the models of *less-involve/more-involved adaptors* (Equations 7.2 and 7.3). This was not surprising since the post hoc Scheffé procedure (see Table 8.1 in Chapter 8) indicated that, unlike *less-involved/more-involved adaptors*, who are conservative and select within an acceptable brand's range, *less-involved innovators* keep seeking novelty without extensive active evaluation and subjectively use well-known brand names to avoid unsatisfactory Internet buying outcomes in their quick purchase decisions. As such, *less-involved innovators'* brand attitude in the traditional market is likely to influence

their Internet buying decisions. Consequently, their Q brand re-purchase intention is a significant ($p < 0.05$) predictor contributing positively to their attitudinal Q Website loyalty in the loyalty transformation model.

8.5 Discussions on the Attitudinal/Behavioural Q Website loyalty Link (H3.5)

This section discusses the causal link between attitudinal/behavioural Q Website loyalty among more-involved consumers. The testing results of hypothesis 3.5 are illustrated in Figure 8.17 below.

Figure 8.17 Attitudinal/Behavioural Q Website Loyalty Link Among the Four Consumer Segments



Source: this research

According to Table 7.17 (see Chapter 7), among the four consumer segments, only *more-involved innovators* demonstrated a significant but very weak ($r = 0.17, p < 0.01$) correlation between attitudinal Q Website loyalty and behavioural Q Website loyalty (actual buying frequency at the Q Website). In contrast, the remaining three segments, i.e. *less-involved adaptors* ($r = 0.08$), *less-involved adaptors* ($r = 0.05$) and *more-involved adaptors* ($r = 0.07$) both showed a weak and non-significant ($p < 0.05$) correlation between attitudinal/behavioural Q Website loyalty.

This finding is consistent with that in Ehrenberg's (1988) study where attitudes had only a weak correlation with actual behaviours. Researchers (e.g. Bird and Ehrenberg 1970) modelled consumer choice behaviours across different product categories and Ehrenberg (1997) reported no evidence to suggest attitude change could lead to a different future behaviour.

In this study, a further investigation was undertaken using the simple regression model (see Equation 7.6 in Chapter 7) established by attitudinal Q Website loyalty (the independent variable) and buying frequencies at the Q Website (the dependent variable). Equation 7.6 indicates that among *more-involved innovators*, their attitudinal Q Website loyalty is a significant ($p < 0.05$) predictor contributing positively (beta value = 0.23) to their behavioural Q Website loyalty, i.e. their buying frequencies at the Q Website. However, the very low adjusted R^2 of 0.03 indicates that attitudinal Q Website loyalty alone explains only a very small portion of the variance in behavioural Q Website loyalty. Thus, consistent with the previous correlation result,

although Equation 7.6 appears to suggest the higher the attitudinal Q Website loyalty *more-involved innovators* have, the more frequently they are likely to buy at the Q Website, such a link is too weak to have practical implications.

This section has investigated the positive causal link between consumers' attitudinal Website loyalty and behavioural Website loyalty (i.e. actual purchase frequency). Baldinger and Rubinson (1997) had contended that consumers' attitudinal loyalty will lead to their behavioural loyalty, hence attitudes can be usefully incorporated into a predictive model of behaviours. However, the very weak correlation/adjusted R^2 value found within *more-involved innovators* did not reveal attitudinal Q Website loyalty as a useful predictor of consumers' Website buying frequency. This very weak attitudinal/behavioural Q Website loyalty link may have been due to, **first**, the infrequently purchased nature of the survey product. **Second**, the well-developed retailing system the Q company has in the traditional market. Such purchase conveniences could decrease consumers' motivation to buy via the Internet all the time. **Thirdly**, at the time of the survey, Taiwan's B2C Internet market was still immature for consumers to transform their positive brand/Website attitudes into Website buying actions.

Notably, this finding is in line with the previous post hoc Scheffé procedure on attitudinal Q Website loyalty (see Section 8.4.1): consumers' attitudinal Website loyalty is more similar to a re-purchase intention driven by occasional purchase needs than to a real commitment/attachment to the brand's Website.

8.6 Discussions on the Dimensionality of the DSI and PDI scales

This section discusses the two-dimensional structure of the Domain Specific Innovativeness (DSI) scale and Purchase Decision Involvement (PDI) scale found in this study. The study's findings are compared with those of past studies to make an addition to the literature. The section comprises two parts. Section 8.6.1 presents the DSI scale's dimensionality and Section 8.6.2 presents the PDI scale's dimensionality.

8.6.1 Dimensionality of the DSI scale

The Domain Specific Innovativeness (DSI) scale was designed by Goldsmith and Hofacker (1991). It is a six-point Likert scale intended to measure consumer innovativeness in a specific construct (see Chapter 4, Section 4.3.3 for DSI scale details). The validity and reliability of the DSI scale has been proven by Goldsmith's series of studies (e.g. Flynn and Goldsmith 1993a, 1993b; Goldsmith 1998, 2000, 2001; Goldsmith *et al.* 1995; Goldsmith and Flynn 1992). The DSI scale has also been adopted by other researchers: Citrin *et al.* (2000) used it to measure consumers' Internet buying innovativeness, Foxall and Szmigin (1999) verified the constructs measured by the DSI and KAI scales, Roehrich *et al.* (2001) used the DSI scale to test new snack purchase, and Blake *et al.* (2003) used the DSI scale to investigate Internet

use/buying behaviours. **In this study,** the DSI scale was also used to measure consumers' Internet buying innovativeness. The aforementioned studies are summarised in Table 8.4 in terms of author, research product, the sample, the mean score and standard deviation of the DSI scale, the Cronbach alpha correlation coefficient, the scale dimensionality, and variances explained by the factors extracted from factor analysis (eigenvalue > 1).

First, regarding the means/standard deviations of the DSI scale, Table 8.4 shows the means found in past studies ranged between 14.4 and 20.27, with the standard deviations varying from 3.84 to 5.6. **In this study, findings generated the second highest mean score of 20.0 compared with other studies in Table 8.4 and a moderate standard deviation of 4.0. This suggests a fairly consistent response to the DSI scale in this study and past studies. The relatively high mean score of the DSI scale found in this study was likely derived from the sample's nature: Internet buyers generally have higher Internet buying innovativeness.**

Notably, the mean of Citrin *et al.*'s (2000) study is not included in the comparison because Citrin *et al.* (2000) used a 7-point Likert scale whilst the remaining studies in Table 8.4 used 5-point Likert scales. Also, unlike other studies, the mean score in Citrin *et al.*'s (2000) study was computed for each item in the scale instead of the scale as a whole.

Table 8.4 Studies using the DSI Scale

Authors	Product/Sample	Mean/S.D.	Cronbach α	Dimensionality/ variances explained	
Citrin *et al.* (2000)	Internet buying/ 403 students	2.37*/0.93	0.85	1 factor/N/A	
Foxall & Szmigin (1999)	financial services vs. credit card/ 26 students	financial services: 18.19^/4.46 credit card: 20.27^/3.84	financial services: 0.82 credit card: 0.80	N/A	
Goldsmith & Hofacker (1991)	Rock music/ 274 students	15.8^/5.2	0.83	1 factor /55.1%	
	Designer fashions/ 97 convenience sample	19.4^/4.64	0.82	1 factor /53.9%	
	Fashion & electronics/ 462 convenience sample	Fashion: 16.5^/4.8 Electronics: 17.29^/4.83	Fashion: 0.79 Electronics: 0.81	1 factor /49.4%	
Goldsmith & Flynn (1992)	fashion/ 135 convenience female	16.6^/4.3	0.73	1 factor /N/A	
Flynn & Goldsmith (1993b)	Vacation travel/ 180 convenience sample	18.8^/4.6	0.79	1 factor /42.1%	
Goldsmith & d'Hauteville (1998)	Wine/ 271 adult convenience sample	15.7^/5.3	0.87	1 factor /62%	
Goldsmith *et al.* (1998)	Wine/ students of German: 113 US: 121 French: 175	German: 14.6^/4.2 US: 14.6^/5.6 French: 14.4^/5.5	German: 0.75 US: 0.90 French: 0.84	1 factor	German: 68% US: 46% French: 56%
Goldsmith (2000)	wine/ 48 vs. 52 students	N/A	0.82	1 factor /68%	
Goldsmith (2001)	Internet buying/ 117 students	18.0^/5.4	0.85	1 factor /58.4%	
Roehrich *et al.* (2001)	Snack food/ 141 convenience sample	N/A	Hedonic: 0.87 Social: 0.85	**2 factors/N/A**	
Blake *et al.* (2003)	Internet use & buying/208 convenience sample	N/A	0.77	**N/A**	
This study	Internet buying/ 1,044 random buyers from Q Website database	20.0^/4.0	0.73	**2 factors:** 35.38/28.38%	

*6 items using a 7-point Likert type scale, i.e. score range is between 7 - 42, and the mean is computed for each item.

^6 items using a 5-point Likert type scale, i.e. score range is between 5 - 30.

Source: this research

Looking at the Cronbach coefficient α values in Table 8.4, in all the studies this value is between 0.73 and 0.90, indicating they achieved an acceptable/excellent internal consistency. As regards the scale dimensionality, a uni-dimensional structure of the DSI scale was reported by Citrin *et al.* (2000) and the 7 works of Goldsmith (see Table 8.4). However, Roehrich *et al.* (2001) suggested a two-dimensional structure according to their empirical survey of new snack purchase. In Roehrich *et al*'s. (2001) findings, "interested to buy new snacks" (0.74), "know new snacks" (0.69) and "buy new but unknown snacks" (0.63) were loaded on the first factor: hedonist innovativeness. Another three items: compared with my friends, I am "the last to know new snacks" (0.61), "own few snacks" (0.94) and "the last to buy new snacks" (0.69) were loaded on the secondary factor: social innovativeness. They did not recode the data before analysis hence they reported two factors were negatively correlated ($r = -.43, p < 0.01$). Instead of using the six items to compute one Cronbach alpha correlation coefficient for the whole scale, Roehrich *et al.* (2001) used three loaded items to compute the Cronbach alpha correlation coefficient for the hedonist factor (0.87) and social factor (0.85), respectively. Notably, scale variances explained by each factor were not stated in their work. This finding of the two-dimensional structure of the DSI scale was the first known at the time of writing this thesis. In fact, it motivated this study to further investigate the dimensionality of the DSI scale (see Chapter 1, Section 1.3: Research Aims).

In this study, using principle components factor analysis with Varimax rotation, a two-dimensional structure was also found in the DSI scale (see Appendix 6). The dominant factor: enthusiastic trend-setter accounted for 35.38% of the total variance, and the secondary factor: novelty seeker accounted for 28.38% of the

total variance (see Chapter 7, Section 7.3.1). Notably, Table 8.4 indicates this study is the only one to use a random sampling method within a target population. The result of this more diffuse sample randomly selected within the Q Website individual buyer database is twofold: first, a two-dimensional structure was found in this study which differed from the uni-dimensional structure asserted by Goldsmith and Hofacker (1991). Second, a comparatively low but acceptable Cronbach alpha correlation coefficient of 0.73 was recorded. In fact, given the study's exploratory research nature (see Chapter 1), a Cronbach alpha correlation coefficient of 0.73 is acceptable according to Robinson *et al.'s* (1991) and Sekaran's (2000) rules (see Chapter 6, Section 6.6.2: Reliability).

In short, the findings of this study and Roehrich *et al.*'s (2001) study both challenge the DSI scale's uni-dimensional structure claimed by Goldsmith and his associates (e.g. Flynn and Goldsmith 1993a, 1993b; Goldsmith 2000, 2001, 2002). Thus, more studies across different types of samples are required to investigate the dimensionality issue of the DSI scale.

8.6.2 Dimensionality of the PDI scale

The literature shows three versions of the purchase decision involvement (PDI) scale used by different researchers (see Table 8.5 below). Initially, a 7-item and 5-item PDI scale was proposed and tested in Mittal's (1989) work. In the final version, Mittal (1989) kept only four items after the testing. **This four-item PDI scale was used in**

this study (see Chapter 4, Section 44.1). However, Goldsmith and Emmert (1991) adopted the five-item PDI scale in their study. Mittal's (1989) initially proposed 7-item PDI scale was adopted by Pallister and Foxall (1998). Table 8.5 presents the diverse PDI scales ranging from 4 to 7 items used by different researchers.

Table 8.5 Studies utilising the PDI Scale

Authors	Product /Sample	Mean/S.D.	Cronbach α	Dimensionality/ variances explained	
Beharrell &Denison (1995)	7 grocery Products/463 convenience sample	Preserves: 4.95*/ N/A	N/A	1 factor	Preserves: 58.6%
		Bakery: 5.33*/ N/A			Bakery: 58.2%
		Cereals: 5.52*/ N/A			Cereals: 57.0%
		Dairy: 5.68*/ N/A			Dairy: 55.9%
		Soup: 4.68*/ N/A			Soup: 64.8%
		Toiletries: 5.08*/ N/A			Toiletries: 63.1%
		Fresh meat: 5.96*/ N/A			Fresh meat: 60.4%
Goldsmith & Emmert (1991)	Clothing & fitness/ 106 students	Clothing: 28.4/4.4** fitness: 28.06/4.4**	Clothing: 0.80 fitness: 0.72	1 factor/N/A	
Mittal (1989)	1st study: Beer/90 Camera/80 Jeans/86	N/A	N/A	1 factor: Beer/49.8% Camera/55.4% Jeans/48.7%	
	2nd study: 15 products/ 138 students	1.91~6.27*/ 0.58~1.64	N/A	1 factor/N/A	
Pallister & Foxall (1998)	4 financial products/308 UK buyers	Pensions: 40.70/7.83^ Life assurance: 39.47/8.62^ Mortgages: 38.75/8.26^ Savings & investments: 40.01/7.51^	Pensions: 0.85 Life assurance: 0.85 Mortgages: 0.81 Savings & investments: 0.82	**2 factors:** (within buyers) Pensions: 60.70/17.20% Life assurance: 56.5/15.4% Mortgages: 48/17.9% Savings & investments: 48.9/19.1%	
This study	Internet buying/ 1,044 random buyers from Q Website database	17.4/2.4+	0.71	**2 factors:** 42.27/37.53%	

*4 items using a 7-point Likert type scale, i.e. score range is between 7 - 28, and mean score is computed for each item.

** 5 items using a 7-point Likert type scale, i.e. score range is between 5 - 35.

^ 7 items using a 7-point Likert type scale, i.e. score range is between 7 - 49.

+ 4 items using a 5-point Likert type scale, i.e. score range is between 4 - 20.

Source: this research

The PDI scale was initially designed as a 7-point Likert type scale by Mittal (1989). Most works in Table 8.5 have also used a 7-point Likert type scale. However, **in this study, a 5-point Likert type was used in order to achieve consistency with other scales used in the questionnaire (see Table 6.1 in Chapter 6).**

Given the diversity of the scale's item number and the 4/5/7 point Likert scale used in different studies (see Table 8.5), it is meaningless to compare PDI scale means and standard deviations between studies.

As regards the Cronbach alpha correlation coefficient, Table 8.5 indicates variation ranging from 0.71 to 0.85 across different studies. Notably, the Cronbach alpha correlation coefficient is sensitive to the scale's item number, which likely explains why the seven-item PDI scale adopted by Pallister and Foxall (1998) reported a higher Cronbach alpha correlation coefficient (0.81 – 0.85) than the other studies in Table 8.5.

As regards the PDI scale's dimensionality, Table 8.5 shows that 4 out of 6 studies reported a uni-dimensional structure. However, an investigation of the samples of these 4 studies indicated they were either convenience or student samples which may account for the uni-dimensional structure found for the following reasons. First, a student sample tends to be less diverse, and, second, sample representativeness and generalisability were lacking. In contrast, Foxall and Pallister (1998) used a more diverse sample obtained from a nationwide commercial omnibus survey. Employing

the 7-item PDI scale, they revealed a two-dimensional structure: the dominant factor was rational and the secondary one was emotional.

In this study, a four-item PDI scale was used and a mean of 17.4 (scale range: 4-20) was found, indicating that most respondents perceived a high involvement towards buying a printer on the Internet. Again, the more diffuse sample randomly selected from the Q Website individual buyer database likely generated two results: a two-dimensional structure of the PDI scale was found: the dominant factor was product-oriented buyer and the secondary one was brand-oriented buyer (see Chapter 7, Section 7.3.1). Second, given the exploratory nature of the research, a relative low but acceptable (Robinson *et al.* 1991; Sekaran 1992) Cronbach alpha correlation coefficient of 0.71 was recorded.

8.7 Conceptual Framework Re-visited

Given the study's findings discussed in this chapter, the research's conceptual framework (see Figure 5.1 in Chapter 5) is revisited in this section. According to the study's findings, it is believed the basic framework still holds. But there are three main differences:

1. Q brand loyalty in the traditional market is found to have two dimensions,

namely, Q brand commitment and Q brand re-purchase intention in the traditional market. Compared with Q brand re-purchase intention, Q brand commitment in the traditional market is more dominant, showing a greater impact on the other two variables in the loyalty transformation model, namely, perceived risk when buying at the Q Website and attitudinal Q Website loyalty.

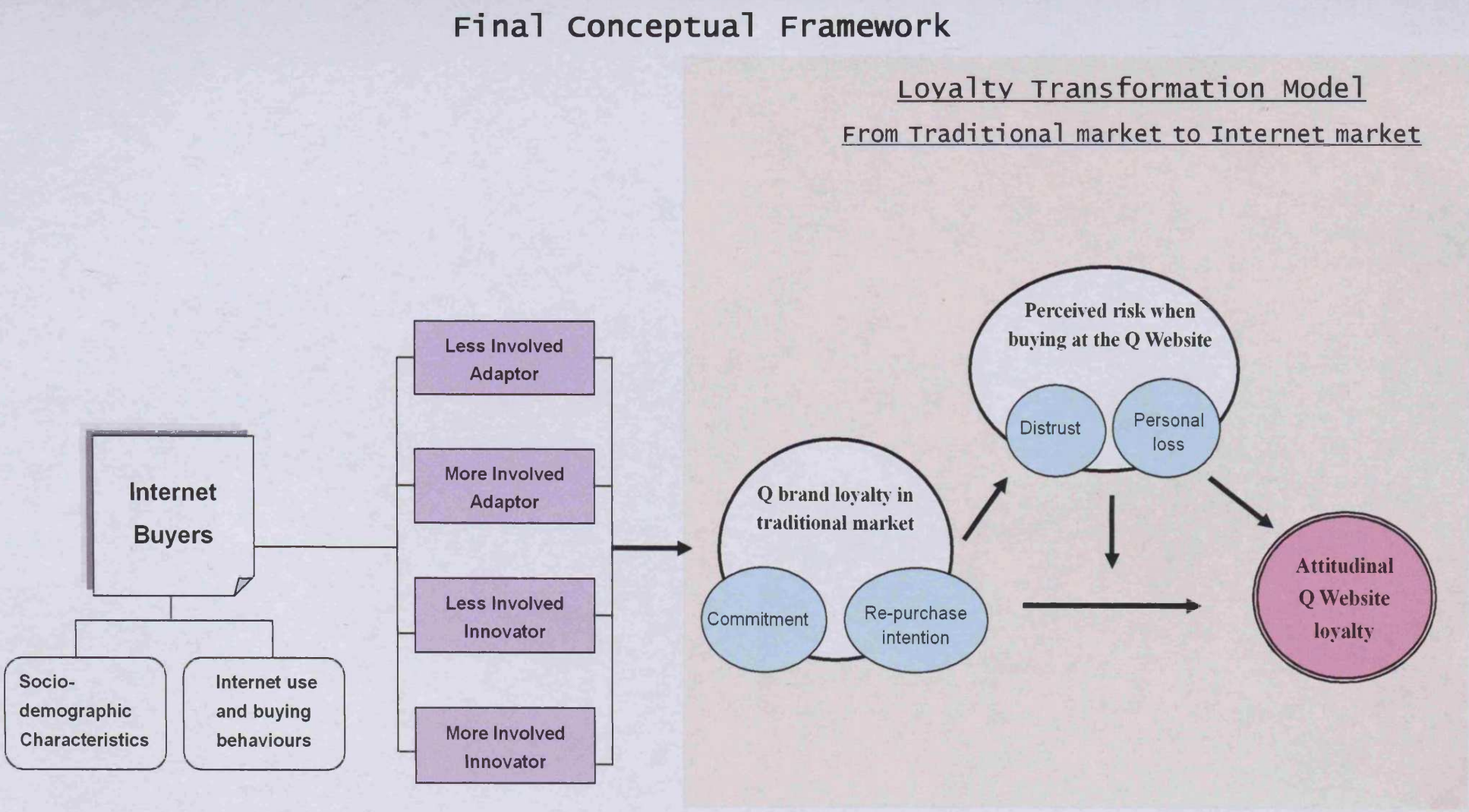
The perceived risk when buying at the Q Website is also found to have two dimensions, namely, distrusting the Q brand on the Internet and personal loss risk when buying at the Q Website. Compared with personal loss risk, distrusting the Q brand on the Internet is more dominant, showing a greater negative impact on consumer' attitudinal Q Website loyalty, and is also more influenced by Q brand commitment in the traditional market (the dominant dimension of Q brand loyalty). Notably, Q brand commitment has a weak and non-significant ($p > 0.05$) impact on personal loss risk when buying at the Q Website (the secondary dimension of perceived risk), possibly because those who are highly committed to the Q brand perceive little personal loss when buying at the Q Website. Further, Q brand re-purchase intention in the traditional market shows a significant ($p < 0.01$) though relatively weak ($r = -0.28$) association with personal loss risk when buying at the Q Website.

This study's findings indicated that at the time of the survey, consumers attitudinal Q Website loyalty was more similar to a re-purchase intention than to a real commitment or attachment to the Q Website. This could be derived from

the fact that the printer surveyed in this study was infrequently purchased, the convenience of buying the Q brand product in the traditional market, and consumers perceived Taiwan's B2C e-commerce market as immature and dynamic. Consequently, this relatively weak attitudinal bond could not induce their actual buying frequency at the Q Website (behavioural Q Website loyalty). Notably, though a significant ($p < 0.05$) causal link between attitudinal/behavioural Q Website loyalty was found within the *more-involved innovators* segment in this study, the adjusted R^2 value (0.03) was too weak to be meaningful in practice.

Nevertheless, research findings evidenced the robustness of the consumers' brand loyalty/Website loyalty transformation model. Internet buyers in each segment were found to differ significantly ($p < 0.05$) in the five factors within the brand loyalty/Website loyalty transformation model (see Appendix 8). Moreover, the four segments were found to considerably differ in the brand loyalty/Website loyalty transformation model as a whole (see Table 7.15 in Chapter 7). Further, the four segments also differed significantly ($p < 0.05$) across certain socio-demographic characteristics and Internet use/buying behaviours (see Tables 7.19 in Chapter 7). As a result, the research's conceptual framework (see Figure 5.1 in Chapter 5) is revisited and the final conceptual framework shown in Figure 8.18 is devised according to the study's findings.

Figure 8.18 Final Conceptual Framework



Source: this research

8.8 Summary

This chapter has presented the research findings by way of five themes.

The first theme showed how consumers' cognitive constructs in terms of innovativeness and involvement could impact on their decision making and behaviours two-fold. **First**, Scheffé procedure results indicated the four segments differed significantly ($p < 0.05$) in the five loyalty transformation factors, i.e. commitment, re-purchase intentions, distrust, personal loss and attitudinal Q Website loyalty. **Second**, the superior explanatory ability the four-group segmentation offered over the two-group segmentation was also demonstrated. While *adaptors/innovators* and *less-involved/more-involved groups* were found to differ significantly ($p < 0.05$) in their attitudinal Q Website loyalty according to the two-group segmentation, respectively, four-group segmentation test results revealed a non-significant ($p < 0.05$) difference between *less-involved adaptors/innovators* and *less-involved adaptors/more-involved innovators*, respectively.

The second theme revealed *innovators* had senior online age, accessed the Internet more frequently, stayed on the Internet longer daily, spent more hours browsing sales Website weekly, bought more frequently on the Internet, and spent a larger amount of money on the Internet (see Figure 8.8) compared with *adaptors*. In short, *innovators* demonstrated higher interest in Internet use/buying than *adaptors*. An Internet use/buying behaviour profile of each segment was developed accordingly (see Table 8.4). Regarding socio-demographic characteristics, compared with *more-involved*

adaptors, more *less-involved innovators* were single, male, had a higher educational level and earned a higher income (see Figure 8.9). In this theme, an intensive comparison (see Table 8.3) between this study and Foxall and Bhate's (1991) study was presented. Findings indicated that though these two studies differed six-fold: measuring instrument (specific vs. broad trait), purchase method (Internet vs. traditional market), the product category (durable vs. consumable good), innovative behaviour (Internet buying innovativeness vs. healthy food purchase), sample (randomly selected from the Q Website individual buyer database vs. female convenience sample) and buying frequency data (derived from the database vs. respondent self-reported), **a common finding was that *more-involved adaptors* accounted for the highest purchase frequency, indicating this finding was not affected by different research settings and could be used to generalise consumers' innovative buying behaviour and contribute to marketing theory.**

The third theme verified the consumers' brand loyalty/Website loyalty transformation model (see Figure 8.15). A brand loyalty/Website loyalty transformation regression model, using attitudinal Q Website loyalty as the dependent variable and commitment, re-purchase intention, distrust and personal loss as independent variables, was established for the 1,044 sample as a whole (Equation 7.1) and each of the four consumer segments (Equations 7.2 to 7.5), respectively. Within this model, commitment was found to dominate the major impacts on attitudinal Q Website loyalty: directly via the commitment/attitudinal Q Website loyalty link, and indirectly via the commitment/distrust/attitudinal Q Website loyalty link. Notably, the mediating effect the perceived risk had on the commitment/attitudinal Q Website

loyalty link was also evidenced in this study. Moreover, these five equations (Equations 7.1 – 7.5) showed varied loyalty transformation models (see Table 8.16) between the total sample and four consumer segments. This confirmed Foxall's (2004) assertion that each consumer segment has their preferred style of decision making and problem solving. Among the four segments, the ***more-involved innovators'*** model reported the highest adjusted R^2 value (0.60), indicating the four factors (i.e. commitment, re-purchase intention, distrust and personal loss) together explained 60% of their attitudinal Q Website loyalty. Supportively, Foxall (2003) described ***more-involved innovators*** as highly involved and continuously seeking alternative brands to fulfil their expectations. Given their serious and aggressive Internet buying decision-making, all four factors significantly ($p < 0.05$) contributed to their attitudinal Q Website loyalty in the model. As regards the ***more-involved adaptors'*** model, Foxall (2003) suggested they are highly involved with purchase, thus an extensive cognitive learning process is undertaken. Their complex decision-making and prudent Internet buying attitude resulted in re-purchase intention as a non-significant ($p < 0.05$) predictor of their attitudinal Q Website loyalty. Turning to the ***less-involved adaptors'*** loyalty transformation model, because this segment views experience as a guide to purchase safety (Foxall 2003), and easily switch to another brand within their acceptable range of brands because of promotions (Foxall 1995), their re-purchase intention in the traditional market was too changeable to become a significant ($p < 0.05$) predictor of their attitudinal Q Website loyalty. Finally, concerning the ***less-involved innovators'*** model, seeking novelty is a form of entertainment to them thus they make purchases without extensive decision-making (Foxall 2003). Consequently, in their quick purchase decision, personal loss is not

carefully considered. In turn, personal loss does not contribute significantly ($p < 0.05$) to their attitudinal Website in the model.

The fourth theme was the causal link between attitudinal/behavioural Q Website loyalty. Findings indicated that only within the *more-involved innovators'* segment, the attitudinal/behavioural Q Website loyalty link found to be significant ($p < 0.01$). However, both the weak Pearson correlation coefficient (0.17) between these two variables and the very low adjusted R^2 value (0.03) of the regression model suggested this causal link is too weak to be representative and generalisable in practice. This result was supportive of a previous post hoc Scheffé procedure: consumers' Website loyalty concept is more similar to re-purchase intention in the traditional market than real commitment to the brand/Website, implying that at the time of the survey Taiwan's consumers had not yet fully committed themselves to the brand's Website in the Internet market. This was likely due to the infrequent purchase nature of the printer surveyed in this study, the purchase conveniences in Taiwan's traditional market, and the immaturity of Taiwan's B2C e-commerce market. However, this finding should be viewed as tentative. Because of the rapid growth of the Internet market and its great commercial potential, it is believed that further investigation is necessary to market progress and buyer behaviour changes in Taiwan's B2C e-commerce market.

Finally, **the fifth theme** revealed the two-dimensional structure of the DSI and PDI scales found in this study. Past studies using the DSI and PDI scales were reviewed and compared with the study's findings, respectively (see Tables 8.4 and 8.5). Given

the sample's diversity, it was believed the more diffuse sample, randomly selected from within the target population/the Q Website individual buyer database used in this study led to the two-dimensional structure.

The conceptual framework developed in Chapter 5 (see Figure 5.1) was re-visited and modified in this chapter and a new conceptual framework was proposed (see Figure 8.18).

The final chapter presents the study conclusions, and theoretical, empirical and managerial implications.

Chapter 9 Study Conclusions, and Theoretical, Empirical and Managerial Implications

9.1 Introduction

9.2 Study Conclusions and Theoretical Implications

9.3 Empirical Implications

9.4 Managerial Implications

9.4.1 Behavioural Website Loyalty

9.4.2 Attitudinal Website Loyalty

9.1 Introduction

This chapter has three parts. Section 9.2 presents the study conclusions and four theoretical implications derived from consumer cognitive constructs of innovativeness and involvement, consumers' brand loyalty/Website loyalty transformation model, consumers' attitudinal/behavioural Website loyalty link, and, finally, dimensionalities of the DSI and PDI scales.

Section 9.3 presents the empirical implications derived from the Internet survey design and data collection.

Section 9.4 presents the managerial implications as a result of behavioural Website loyalty and attitudinal Website loyalty findings. Suggestions are made to managers of multi-channel businesses which sell computer-related durable goods, such as printers, digital cameras, scanners, MP3 players and LCD monitors etc. in Taiwan's B2C e-commerce market.

9.2 Study Conclusions and Theoretical Implications

Chapters 7 and 8 have analysed and discussed the study's findings. In this section, the study's conclusions and four theoretical implications derived from the findings are presented.

1. Consumer Segmentation via Innovativeness and Involvement

In the late 1980s and 1990s, Foxall undertook a series of studies using the KAI scale to investigate market initiators and their purchase/use behaviours of innovations. With an expectation that market initiators would be innovators, Foxall (1994) found respondents' KAI scores did not correlate with the number of new brands purchased, and 40% of the sample were adaptors in his early works. He proposed that adaptors who are involved in a healthier lifestyle, may continuously buy more health food brands. Thus, Foxall and Bhate (1993) included a consumer involvement construct as an explanatory variable to investigate consumers' purchase of health food brands. Findings confirmed their assumption: the highest level of purchased brands was made by *more-involved adaptors*. The same four consumer segments (i.e. *less-involved adaptors*, *more-involved adaptors*, *less-involved innovators*, and *more-involved innovators*) were subsequently examined across different product categories, including home software applications, organisational software use, financial services and credit card, in Foxall's later works (see Foxall 2003). Similar results were also found in each of these studies.

In this study, Foxall and Bhate's (1993) model using consumer innovativeness and involvement was adopted. This study examined consumers' cognitive-construct segmentation within a durable good (printer) category in an Internet buying context, and the strengths of this study would add important dimensions to the literature on innovativeness and involvement.

First of all, consistent with Foxall's (2003) findings, this study found that

more-involved adaptors were responsible for the highest purchase frequency at the Website, although the two studies' research methods differed in six ways (see Table 8.3 in Chapter 8). **Second**, the four consumer segments were found to differ significantly ($p < 0.05$) in five factors (commitment, re-purchase intention, distrust, personal loss and attitudinal Q Website loyalty) within the brand loyalty/Website loyalty transformation model. **Third**, the four consumer segments presented different brand loyalty/Website loyalty transformation models (see Figure 8.16 in Chapter 8), which is supportive of Foxall's (2003) assertion that each consumer segment has their preferred decision making and problem solving style. **Fourth**, the four segments were found to vary significantly ($p < 0.05$) in certain socio-demographic characteristics and Internet use/buying behaviours (see Table 7.19 in Chapter 7). Particularly, *more-involved adaptors* and *less-involved innovators* were found to have more differentiations (see Table 7.20) in their characteristics and Internet use/buying behaviours, likely derived from the extreme levels of underlying cognitive constructs (see Chapter 7, Section 7.3.2). **Fifth**, the superior explanatory ability of the four consumer segments was demonstrated by comparing the analysis results with the two-group segmentation (i.e. *adaptors/innovators* OR *less-involved/more-involved* groups).

In sum, **this study's theoretical contribution is three-fold**: **firstly**, it confirmed the findings of Foxall (2003) in a new durable good category and a new Internet buying context. **Secondly**, the superior discriminatory ability of the four consumer segments (cross tabulating innovativeness and involvement constructs) was illustrated not only via differences in the brand loyalty/Website loyalty transformation model as a whole

and different levels of factors within the model, but also via socio-demographic characteristics and Internet use/buying behaviours differences. Accordingly, Foxall's (2003) assertion that each of the four segment has their preferred styles of decision making and problem solving was confirmed in an Internet buying context. **Thirdly**, the better explanatory ability via consumer cognitive constructs (innovativeness and involvement) for investigating consumers' behaviour of the innovation adoption (an Internet buying) was also confirmed.

Notably, the consistent findings of this study and Foxall's (2003) series of works provide a robust foundation for future studies of consumer cognitive constructs and the decision making process in both traditional and Internet markets. However, more studies are suggested to continuously examine this four-segment model (see Figure 8.18 in Chapter 8) in the context of consumer innovativeness/involvement across different types of samples, product category, purchase method, and even countries, to further validate Foxall's cognitive style theories.

2. Consumers' Brand Loyalty/Website Loyalty Transformation Model

Past studies have only tested the impact of brand attitudes in the traditional market on the brand's Website or the impact of brand loyalty on a non-sales company's Website. For example, Balabanis and Reynolds (2001) reported consumers' positive attitudes towards a brand influenced positive attitudes towards the brand's sales Website. Similarly, Supphellen and Nysveen (2001) revealed a significant positive correlation between consumers' brand loyalty in the traditional market and their attitudes towards

the brand's service Website. Moreover, Ernst and Young (1996) found 69% and Ward and Lee (2000) found 85.8% of those surveyed reported that brand names played a significant role in their Internet buying decision.

As regards consumer perceived risk, at the time of writing this thesis, few studies were known to have examined its impact on Website loyalty/purchase. A study similar to that of the present is that of Anderson and Srinivasan (2003), which indicated that consumers' trust is important to an Internet business as it directly influences their perceived risk level associated with Internet buying. Consistently, Molesworth and Suortti (2002) also contended that consumers' perceived risks mediate the link between their trust and Internet buying. Anderson and Srinivasan (2003) thus suggested that if consumers do not trust a multi-channel business, they will not be loyal to the Website even though they are generally satisfied with its products/services.

In this study, a further investigation using well-defined constructs of "brand loyalty" and "Website loyalty" was undertaken within a brand's B2C sales Website, which is subordinate to a well-known multi-channel business. This study has verified the positive causal link between consumers' brand loyalty/Website loyalty using large-scale empirical data in an Internet buying context. Further, this study also explored the mediating role of consumer perceived risk regarding the brand loyalty/Website loyalty link. Findings not only confirmed the loyalty transformation model (see Figure 8.18 in Chapter 8), but its robustness was also demonstrated (adjusted R^2 was between 0.42 – 0.60 for the five regression models). Within the

brand loyalty/Website loyalty transformation model, **first**, the risk relieving effect that brand loyalty has on perceived risk was confirmed. **Second**, consumers' perceived risk was evidenced to reduce their attitudinal Website loyalty. **Third**, the mediating effect that consumers' perceived risk has on their brand loyalty/Website loyalty link was revealed. A new research perspective is illustrated by these three confirmed links. It is possible, in the new and dynamic environment of the Internet market that consumers' perceived risk is strengthened due to inherent risks of Internet buying, e.g. transaction fraud, privacy invasion by hackers, and credit card embezzlement. Consequently, unlike buying in the traditional market, consumers' perceived risk may play a more complex role in their Internet buying decision. In this study, consumers' perceived risk is relieved by their brand loyalty in the traditional market, simultaneously, it negatively impacts on their attitudinal Website loyalty. Yet it is also shown to mediate consumers' brand loyalty/Website loyalty transformation link.

In sum, **this study's theoretical contribution is twofold. Firstly**, a robust loyalty transformation model is established. Further studies are suggested to extend the consumer decision process forwards (e.g. information search) or backwards (e.g. post-purchase satisfaction) to obtain more insights for modelling consumers' brand loyalty/Website loyalty transformation. **Secondly**, the mediating role of consumer perceived risk in the Internet market is revealed, offering a good foundation for researchers to further explore how consumers' perceived risk functions differ regarding consumer buying behaviours in the traditional/Internet markets, given different consumer characteristics (e.g. self-esteem), product category (e.g. consumable good), price range (high vs. low) or countries.

3. Consumers' Attitudinal/Behavioural Website Loyalty Link

Debates over whether consumers' attitudinal loyalty will lead to behaviour loyalty (actual purchases) have long existed in the literature. While the first school believes that attitudinal loyalty can be used to predict behaviours (e.g. Baldinger and Rubinson 1996 1997; Beatty and Kahle 1988; Odin *et al.* 2001; Gounaris and Stathakopoulos 2004), the second school points to the lack of evidence to prove the attitude change can lead to different future behaviours (e.g. Ehrenberg 1997; Ehrenberg *et al.* 1990; Ehrenberg and Goodhardt 2002).

This study has investigated the causal link between consumers' attitudinal/behavioural loyalty in an Internet buying context. In this study, actual purchase frequency, which was derived from the database instead of the self-reporting by respondents, was used. Consequently, this study was able to offer a more valid and reliable insight. Findings indicated that among the four consumer segments, ONLY *more-involved innovators* demonstrated a significant causal link between their attitudinal/behavioural Website loyalties. Even so, the adjusted R^2 was too small to be viewed as having any practical impact (see Chapter 8, Section 8.5). This result is likely to be derived from the product surveyed in this study, a printer, was durable good. Because of the low purchase frequency, it could be difficult for consumers to present a significantly high association between their attitudinal/behavioural Website loyalties in a short time. Another possible reason could be the higher Internet buying risks perceived by the consumers than buying in a store. Thus, given the buying conveniences resulting from the well-developed retailing system of the Q company in

the traditional market, consumers are more likely to select in-store purchases than Internet buying. However, at the time of the survey, Taiwan's B2C e-commerce market was still at its early development stage. Therefore, consumers may need more time to accept this innovative buying method. Consequently, a non-significant attitudinal/behavioural Website loyalty link was found in this study.

In sum, **the study's theoretical contribution** lies in it being the first to investigate consumers' attitudinal/behavioural loyalty causal link in an Internet buying context. Moreover, though findings indicated at the time of survey, this causal link did not exist, likely because of the three reasons previously given, a continuous investigation is required as consumer Internet buying will continue to grow (BCG 2003) and has the potential to become the most powerful in-home shopping channel in the 21st century (Ernst and Young 2000). Thus, future studies are suggested to either investigate the same market annually to see the growth trend and to discover factors driving differences across the product categories (e.g. price and purchase frequency), companies (e.g. brand image and penetration of traditional channels) or countries (e.g. consumer acceptance of Internet buying, the Internet penetration rate, and government policy). In fact, this attitudinal/behavioural loyalty causal link could be a useful indicator for companies in practice. When this link is found to be significantly and highly correlated, consumers are more likely to transform their positive brand attitudes to actual purchase frequencies. Thus, the company's Website can be re-positioned as a profitable sales channel rather than the information and service provider only.

4. Dimensionalities of the DSI and PDI scales

Goldsmith and Hofacker (1991) developed the Domain Specific Innovativeness (DSI) scale to measure consumers' innovativeness in one category. It was claimed to be a uni-dimensional structure confirmed by Citrin *et al.*'s (2000) and Goldsmith's series of works (e.g. Flynn and Goldsmith 1993a, 1993b; Goldsmith 2000, 2001, 2002; Goldsmith *et al.* 1995; Goldsmith and Flynn 1992). However, in a recent survey of snack purchase, Roehrich *et al.* (2001) revealed a two-dimensional structure which aroused the researcher's interest to validate the DSI scale in this study.

Similarly, Mittal (1989) developed the Purchase Decision Involvement (PDI) scale to measure consumers' purchase-decision involvement. Although not specified, some indications suggested that Mittal (1989) expected a uni-dimensional structure (Pallister and Foxall 1998). However, in a survey of financial service purchase, Foxall and Pallister (1998) suggested the PDI scale may be a two-dimensional structure: they found the dominant /secondary factors were rational and emotional, respectively.

In this study, a two-dimensional structure was revealed in both the DSI and PDI scales. After a comprehensive investigation (see Tables 8.4 and 8.5 in Chapter 8), findings indicated that because past studies mostly used either students samples which are more homogeneous or convenience samples which lack representativeness of any population, a uni-dimensional structure was revealed in the DSI and PDI scales in the literature. However, this study's sample (1,044) was randomly selected from the Q Website's individual buyer database. Such a huge and diverse sample obviously

challenged the uni-dimensional structure expected from Goldsmith and Hafacker (1991) and Mittal (1989).

In sum, **the study's theoretical contribution** lies in revealing the two-dimensional structure of the DSI and PDI scales when using a large-scale and random sample. Moreover, this study is the first known to have used the PDI scale in an Internet buying context. Consequently, more studies using more diverse and large-scale samples are suggested to continuously examine the DSI and PDI scales in terms of their dimensionality, validity and reliability, e.g. using stratified sampling method to obtain samples for each group of consumer characteristics (e.g. gender, age and education) and residence area (e.g. city or countryside). Also, it is important to examine consumers' cognitive constructs of innovativeness and involvement and their behaviours using the DSI and PDI scales across different product categories (e.g. service vs. consumable), market type (e.g. traditional, TV purchase and Internet buying) and nations (e.g. the USA, Europe and Asia) to reveal the usability of these two scales in different contexts.

9.3 Empirical Implications

Past studies of Internet surveys have mainly concentrated on comparing response rates to traditional survey methods (e.g. fax, mail and telephone) or combining existing evidences into a meta analysis of Internet survey response rates (e.g. Cook *et*

al. 2000; Cobanoglu *et al.* 2001; Ilieva *et al.* 2002; Sheehan 2001; Shermis and Lombard 1999). Some authors have tested the influence of certain Webpage format or design parameters (Couper *et al.* 2001; Dillman *et al.* 1998; Lozar Manfreda *et al.* 2002; Sheehan and McMillan 1999). These studies have been criticised as being narrow in scope and limited to the assessment of response rates only (Deutskens *et al.* 2004; Simsek and Veiga 2001). Although Lockett and Blackman (2004) argued that the introduction of the World Wide Web would facilitated the large-scale market research projects, there has been a general lack of knowledge and experience in the design of Internet surveys (Grandcolas *et al.* 2003). Simsek and Veiga (2001) also pointed to the lack of studies providing specific and detailed guidelines to overcome the difficulties of conducting Internet surveys.

More recently, researchers have started to investigate the impacts that different incentives have on the response rate, speed, quality, cost, survey outcome and even the sample composition (Cobanoglu and Cobanoglu 2003; Deutskens *et al.* 2004; Göritz 2004). However, few Internet surveys have employed entire known targeted populations or samples randomly drawn from the larger set (Cook *et al.* 2000). For example, although Kehoe and Pitkow (1996) obtained large numbers of responses, Cook *et al.* (2000) argued no information could be gathered about response rates because, in such studies, a distinct population is not defined. Under such a situation, the non-response error is also difficult to estimate (Rosen *et al.* 1999). In fact, McDevitt and Small (2002) have contended that in the Internet survey, managing non-response error has virtually been ignored, regardless of its importance in the survey administration. Thus, Simsek and Veiga (2001) highlighted the importance of

the sample frame, sampling method and non-response rate in an Internet survey because they primarily determine the extent to which a survey can generate valid and reliable inferences about the population from which the sample is drawn. As regards the sampling method, McMellon and Schiffman (2001) admitted their survey approach was restricted because it allowed for self-selection and sampling bias. Similarly, Deutskens *et al.* (2004) used non-probabilistic samples whereas Grandcolas *et al.* (2003) used a self-selected sample in their survey.

In this study, a large-scale (the total samples/responses were 3,600/1,044, respectively) Internet survey using both an e-mail invitation and Web-based questionnaire was designed and administrated (see Chapter 6, Section 6.4). The study has presented details of the Internet survey design, including the selection of the target where population, sample frame, sampling method, control of sampling error, non-response rate examination, Internet survey process, the length of the questionnaire, design of the Web-based questionnaire, type and distribution of incentives, and response quality control in terms of response rate improvement and survey Website control. Thus, this study has provided comprehensive guidelines to overcome the difficulties of conducting Internet surveys. Moreover, this study employed a scientific and rigorous research design comprising of a well-defined population and sample frame, random sampling method and sampling error and non-response error concerns. This Internet survey design proved successful according to the acceptable validity examination (see Section 6.5.1 in Chapter 6) and acceptable reliability (Cronbach alpha correlation coefficients are between 0.70 ~ 0.75, see Table 6.5 in Chapter 6) of the survey findings. In turn, the generalisability of this study's

findings was supported. Moreover, the table presented in Table 7.1 (see Chapter 7) will be useful for administrative and comparative purposes to other researchers in this field.

In sum, **the study's empirical contribution to the growing body of knowledge about the Internet survey is threefold**. **Firstly**, it demonstrates a scientific and rigorous Internet survey design which confirms traditional survey rules are also applicable and successful in an Internet survey. Moreover, this study offers a detailed and rigorous survey implementation process. This is an important contribution given that Internet survey design was still limited at the time of undertaking this survey. **Secondly**, using samples randomly selected within the well-defined population/sample frame, this study has provided valid and reliable research findings. This study is one of the very few studies known to have used a well-defined population and complete sample frame to conduct a large-scale Internet survey. Accordingly, the Internet survey's potential as a major data collection method with good sample representativeness and finding generalisability to the survey population is revealed. It may be worth to mentioned that, Internet survey population is varied from general population as not everyone uses the Internet thus the generalisability is limited. **Thirdly**, both the response rate/speed and each stage of the survey design can serve as good indicators to help future researchers design and administrate their empirical Internet surveys and data collections.

9.4 Managerial Implications

The managerial implications derived from this study's findings are presented in two approaches: behavioural Website loyalty and attitudinal Website loyalty.

9.4.1 Behavioural Website Loyalty

Porter (1996) once said:

> *"At general managements' core is strategy: defining a company's position, making trade-offs, and forging fit among activities".*

The study's findings have indicated that, at the time of the survey, consumers' attitudinal Website loyalty might not lead to their behavioural Website loyalty, at least in terms of actual purchase at the Website. Although the causal link between attitudinal/behavioural Website loyalty was significant ($p < 0.05$) within *the more-involved innovators'* group, still, the adjusted R^2 of the regression model was too weak to be of practical use. The evidence suggested that for this particular Website, where the Website sells the single product of the single brand, it is more sensible for managers to focus on service because it will provide more added values to consumers. Thus, the role of the brand's Website should be clearly delineated as satisfying the core consumers and ensure their stickiness to the brand/Website, instead of using the Website to make profits via the B2C Internet sales. Multi-channel businesses selling similar durable computer accessories, e.g. scanner, digital camera, MP3 player, LCD monitor etc., as the printer surveyed in this study, were

consequently suggested to position their Websites as service-oriented offering company/product profiles and consumer services rather than sales-oriented.

However, B2C direct selling could still be included as a part of the Website's full function, servicing individual consumers who have time/geographical/physical limits for accessing stores. After all, a sense of loyalty comes from an Internet company offering better services than its competitors (Reichheld and Schefter 2000), thus, the quality of service should be a primary concern of e-commerce (Griffith and Krampf 1998). In this way, the company creates/serves a unique Internet consumer segment and develops a closer relationship with them. This consumer segment, although presently small, will form a robust basis for the Website's next move towards a sales-oriented Website.

Managers should recognise that even if this trade-off is made (i.e. the Website is service-oriented instead of a major sales channel), the entire company will still benefit from the brand's Website's positive and fresh image, operational effectiveness of marketing sources (Porter 2001), new product development (Ozer 2003), and cheap Internet surveys (Dibb *et al.* 2001; Schillewaert *et al.* 1998). Moreover, the company can offer consumers services without time/geographical limits (Srinivasan *et al.* 2002) and support one-to-one service (Zinkhan 2002) at a much lower cost compared to doing business in the traditional market. Additionally, Gounaris and Stathakopoulos' (2004) assert that the positive word-of-mouth communication created by the brand's Website, though not necessarily related to purchases at the Website, can still promote consumers' loyalty to the brand/website.

Because Taiwan's B2C market was still at its very early stage of development at the time of survey and more and more researchers are pointing to the Internet's great potential to become the most important and successful sales channel of non-store shopping in 21 century (Ernst and Young 2000), it is believed that the insignificant causal link between attitudinal/behavioural Website loyalty found in this study is tentative. To improve consumers' behavioural Website loyalty in terms of the actual purchase at the Website, it is suggested achieving this via strengthening consumers' attitudinal Website loyalty which will be discussed below.

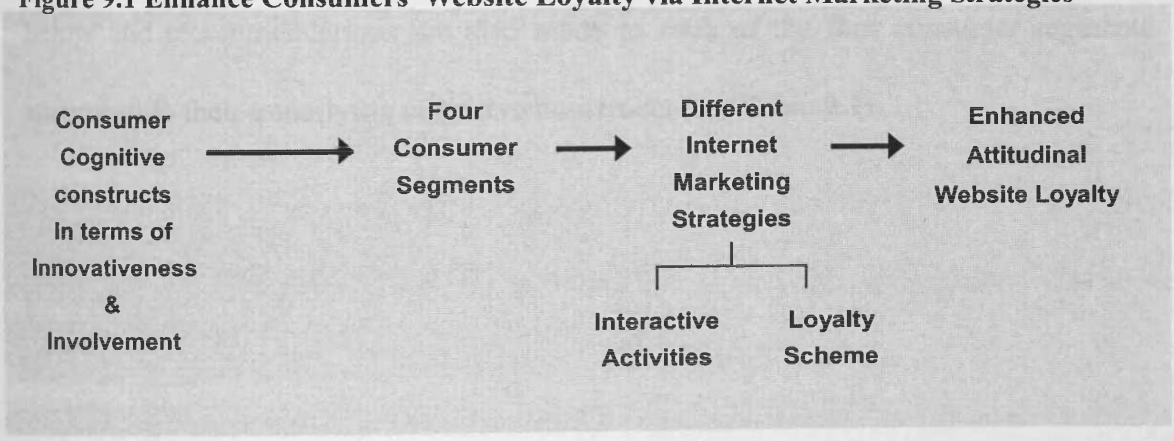
9.4.2 Attitudinal Website Loyalty

In this study, a robust causal link between consumers' brand loyalty/attitudinal Website loyalty has been confirmed. Moreover, the study has successfully linked consumers' cognitive constructs and their attitudinal Website loyalty. Notably, this study's findings suggested that consumers' attitudinal Website loyalty was more similar to their re-purchase intention in the traditional market than real commitment attached to a brand/Website. Porter (1996) commented:

> *"Consumers' differences in needs will not translate into a company's meaningful position unless the best set of activities to satisfy them also differs."*

In fact, consumers' brand loyalty gives companies some protection from competition and greater control in planning their marketing programmes (Kotler 1994) and is strategically important for companies to obtain a sustainable competitive advantage (Gounaris and Stathakopoulos 2004). As such, Website managers should be aware of the importance of enhancing consumers' attitudinal Website loyalty and design/tailor marketing activities/strategies to each consumer segment's different underlying cognitive constructs. To facilitate the company's marketing decisions, Figure 9.1 below suggests that to effectively enhance consumers' Website loyalty, Website managers should target the underlying cognitive constructs of innovativeness and involvement in each consumer segment because they will respond to Internet marketing activities differently.

Figure 9.1 Enhance Consumers' Website Loyalty via Internet Marketing Strategies



Source: this research

Similar to Porter (1996), the Pareto principle (80:20 rule) highlights the importance of

targeting and serving high-value consumers. Moreover, Davies *et al.* (1999) assert that when individuals can be seen to have a range of available choices, there is a need for providers to endeavour to deliver a product that meets the need, wants and desires of consumers. Thus, to stay ahead of rivals and deepen the consumer relationship, the brand's Website should deliver high-value consumers a unique mix of values by designing a set of activities tailored to best serve their needs. To do so, the four consumer segments found in this study: *less-involved adaptors, more-involved adaptors, less-involved innovators* and *more-involved innovators* could be divided into **low-value** and **high-value consumers** according to their Website loyalty tendency and actual buying frequency at the Website. In this way, each consumer segment can be best captured to the Website's advantage, the Website's marketing sources can be efficiently utilised, and the Website/consumer relationship can be effectively reinforced. Marketing strategies (interactive activities and loyalty scheme) drawn from Chapter 2, Section 2.2.1: the Internet as a retailing medium, are discussed below and recommendations are also made to each of the four consumer segments according to their underlying cognitive constructs (see Table 9.1).

Table 9.1 Internet Marketing Strategies for the Four Consumer Segments (for a Printer)

Consumer Segmentation and Targeting		Interactive Website Activity				Recommended Strategy	
		2-hand shop	Chat room/ community	Personal album /public gallery	Workshop	**Marketing Strategy**	**Loyalty Scheme**
Low-value consumers	*Less-involved adaptors*	Price seeking	Obtain product information/ problem shooting	Deepen identification with the Website	May not use, but instil confidence in the Website	Price promotion & free gifts	Basic Loyalty Scheme
	Less-involved innovators	Get rid of an old model & buy a new one	Share extensive product test experiences	Attractive only for a short time	Attractive only for a short time	Yearly Best Photo Event/Thematic Gallery Exhibition	
High-value consumers	*More-involved adaptors*	Find bargain products	Become important support due to the habit of post-adoption appraisal	Potential to use it frequently once they learn it	Potential to use extensively & recommend to others once they learn it	Incentives to encourage the learning and use of the personal album, public gallery and workshop	Premium Loyalty Scheme
	More-involved innovators	Get rid of an old model & buy a new model	Active, sharing product expertise derived from the novelty-seeking behaviour	Enjoy updating photos from time to time and inviting friends to visit	Use sophisticated tools to add special effects on the photos	Update new functions regularly in the workshop and album	

Source: this research

I. Low-value Consumers:

Less-involved adaptors and *less-involved innovators* are found to be less-value consumers for the Q Website because of their lower Website loyalty tendency and lower buying frequency at the Q Website among the four consumer segments (see Table 8.1 in Chapter 8). Given the **four interactive activities** indicated in Chapter 2: the second-hand shop, chat room/community, photo album/gallery and workshop, how these two low-value consumer segments will likely interact with the Website is discussed below:

1. Less-involved adaptors

Less-involved adaptors were found to have the lowest Q brand commitment in the traditional market and the highest distrust of the Q brand on the Internet in this study (see Table 8.1 in Chapter 8). Moreover, there is evidence that they are conservative, buying within an acceptable range of brands, and have the least interest in Internet buying. Thus, to motivate these consumers, it is very important to provide them with more details about the brand/Website and highlight additional values that the Website can offer to them. Once they accept the Website, they are likely to keep buying at the Website because "they learn from past experience and with little or no decision-making buy a brand that is satisfactory" (Foxall 2003). That is to say, although *less-involved adaptors* are not really involved with the brand/Website, they are likely to form a stable consumer foundation because they regard satisfactory

experience as the safest guide when buying. Thus, price promotion and free gifts are suggested to stimulate *less-involved adaptors*' interests to accumulate their buying experiences with the Website. Moreover, the four interactive activities will be used at an entry level by these consumers because they simply want to increase their knowledge about the brand/Website. From the second-hand shop, they can start to use the brand's old models at a cheap price. Once they are satisfied, they will be happy to keep buying the brand's printer. From the chat room/community, they can easily obtain product information/problem shooting via friendly group talk. Through this association they will start to identify themselves as part of the community/Website. The photo album/gallery is an effective means to deepen their identification with the Website. By inviting friends/relatives to visit their albums at the Website, they will continue to increase their identification with it. Finally, because they are wary of newness, they will probably not make use of all the functions offered in the workshop to edit their photos. However, knowing the Website exists and offers a variety of functions, which they may not use, will instil confidence in the Website. In this way, their attitudinal loyalty/identification with the Website will be enhanced.

2. Less-involved innovators

Less-involved innovators are found to have moderate Q brand commitment in the traditional market and distrust the Q brand on the Internet (see Table 8.1 in Chapter 8). Foxall (2003) indicated that although these consumers are low involved and less committed to a particular brand, they perceive significant brand differences. Moreover, because they continuously seek newness to relieve boredom and make the purchase

decision quickly, *less-involved innovators* thus subjectively use well-known brand names to avoid possible unsatisfactory outcomes and the risk associated with Internet buying. Consequently, these consumers will use the four interactive activities in a way that differs from that of *less-involved adaptors*. The second-hand shop will enable them to get rid of an old model when a new one becomes available on the market. Exhibiting greater social participation (Roberson *et al.* 1984) and always seeking variety (Hirschman 1980), *less-involved innovators* may be willing to share their own product experiences at the chat room/community. The photo album/gallery and workshop will only be attractive to them in the beginning during which time they will use and explore it extensively. However, they will get bored very easily! As a result, Website managers should design other related marketing activities, such as a yearly photo competition or thematic gallery exhibition to attract them back to the Website time from time.

As regards the **loyalty scheme**, although *less-involved adaptors* have the potential to become regular buyers once they are attracted to the brand/Website, it will still take time to change their underlying attitudes/behaviours before converting them into stable Website consumers. *Less-involved innovators* inherently seek novelty to avoid boredom, thus, it is difficult to make them loyal to any particular Website. The best a manager can expect from them is to come back from time to time when a new model is on offer. Nevertheless, regular contact should be maintained with these two segments but excessive marketing costs should not be spent on them. A basic loyalty scheme could be presented to these two low-value consumer segments. For example, personalised newsletters could be sent to their identified e-mail accounts, loyalty-points to obtain certain products for free or to obtain orders at a discounted

price could be won when they buy at the Website, and a personal account made available to manage their purchase/loyalty point records.

II. High-value Consumers:

More-involved adaptors and *more-involved innovators* are regarded as high-value consumers for the Q Website because of their higher tendency towards Website loyalty and higher buying frequency at the Website among the four segments (see Table 8.1 in Chapter 8). Supportively, Wu (2002) asserted that Internet strategies should first focus on the market segment with a high degree of Internet market involvement. According to their cognitive constructs, *more-involved adaptors'* and *more-involved innovators'* likely interactions with the Website in terms of the **four interactive activities** (i.e. the second-hand shop, chat room/community, photo album/gallery and workshop) are presented below:

1. More-involved adaptors

In this study, *more-involved adaptors* had high Q brand commitment in the traditional market and moderate distrust of the Q brand on the Internet (see Table 8.1 in Chapter 8). They were prudent but interested in Internet buying, in turn, once they were satisfied, they were likely to remain loyal to the Website. Consistently, they were found to account for the highest buying frequency among the four segments in this study. Foxall (2003) indicated that *more-involved adaptors* perceive differences in brands. Thus, they will actively search for information and go through a cognitive learning process, i.e. information search, brand evaluation, detailed post-adoption

appraisal etc. Consequently, the four interactive activities will be used at a different level. First, because they are highly involved in the brand/product and actively search out information for a purchase, the second-hand shop will enable them to acquire bargains because they are aware of the best models and the best prices! Due to the habit of post-adoption appraisal, *more-involved adaptors* will become an important support of the chat room/community, where they can share their experiences of the brand and products. As regards the photo album/gallery, although they are not interested in learning about new technology of how to publish/share their pictures, their meticulous but confident personality will make them highly involved in the photo album once they learn how to use it. Very likely, they will be the consumer segment which uses it most frequently and invites most friends to visit it in the long term. Similarly, *more-involved adaptors* will not be initially attracted by the workshop tools and practically apply them, but once they learn how to use them, they are likely to use the workshop extensively, enjoy this advantage, share experiences with other members and even promote the tools to others. Thus, it is very important to motivate *more-involved adaptors* towards learning about workshop tools and using the personal album, public gallery and workshop. Incentives could be given to these consumers when they achieve, say the first 20 hours in the workshop or the first 100 photos posted in the album or gallery, in order to stimulate their desires to learn about and use the activities.

2. More-involved innovators

In this study, *more-involved innovators* had high Q brand commitment in the traditional market and lowest distrust of the Q brand on the Internet (see Table 8.1 in

Chapter 8). Because they are highly involved in the brand/purchase, *more-involved innovators* love to seek and try out new products/services within the Website and show the highest tendency towards Website loyalty. However, Foxall (2003) indicated that these consumers are likely to continue to seek alternative brands that will fulfil their expectations. Thus, they will be happy to use the second-hand shop to sell their existing model and may find something new to buy. *More-involved innovators* will also be very active in the chat room/community because their novelty seeking nature will lead to their extensive searching within the Website and on the Internet. Consequently, they will have product expertise to share with other members which will impact on their purchase decisions. The photo album/gallery and workshop will be their favourite activity since they will enjoy updating their photos from time to time and will be happy to learn how to apply the sophisticated workshop tools to add special effects to their photos. Because of their high involvement and inherent novelty seeking nature to avoid boredom, *more-involved innovators* are likely to enjoy updating photos, displaying them in the public gallery and inviting friends to visit. However, Website managers should be aware of their adventurous nature and renew functions regularly in the workshop or photo album to keep them interested in the Website.

As regards the **loyalty scheme**, a premium loyalty scheme ranking according to their yearly purchase amount is suggested for these two high-value consumer segments. Generally speaking, apart from the basic scheme, services such as free delivery, extended warranty, free interest instalment, double/triple loyalty-points when buying, free birthday gift and discounted prices for new product trials could be offered to these consumers. Moreover, an upgraded service pack could be offered to them. For

example, their old printers could be exchanged for a discounted price when they buy new printers at the Website. Also, a larger storage space for the Internet personal album and a more sophisticated tool to edit their pictures and personalise their personal album (e.g. thematic colour and music) could be offered. Notably, because these two segments will be the main force supporting an interesting and friendly chat room/community, it is important to include the most active members among them as part of a new product development project. Varki and Wong (2003) indicated that more-involved consumers express greater interest in engaging in relationships with service providers, i.e. Websites. Accordingly, the company will benefit from their first-hand consumer response/feedbacks to a new design. Meanwhile, these high-involved consumers will be motivated to become more vigorous in promoting the brand/products in the community because of the wish to be included in the project and be respected by both the company and the members.

The four segments can help to promote the brand/Website and enhance both the awareness and positioning of the brand's Website. Via the four interactive activities, the Website will not only build a fresh and positive image of well-servicing its consumers, but gain potential consumers through members' involvement in the chat room/community, invitations to photo albums, and even the C2C trade in the second-hand shop. Moreover, the great potential of C2C direct marketing will greatly benefit the Website via consumer elites who are highly involved in the Website community. Gounaris and Stathakopoulos (2004) asserted that consumers with a favourable attitude towards a brand do not hesitate to communicate their positive opinion to other consumers. Accordingly, the relationship between the Website/existing consumers will deepen, and the relationship with future consumers

will develop. Notably, Website mangers should realise that building attitudinal consumer loyalty to the Website is a long-term goal. Further, because the re-purchase frequency of the durable product is low, and an intensive Website/consumer relationship is essential and worthy of investment in time and resources.

In conclusion, applying the behavioural Website loyalty approach, suggestions for the Website's positioning strategy have been presented. Utilising the attitudinal Website loyalty approach, the study has revealed how consumers are likely to interact with the Website's marketing activities according to their cognitive constructs and how managers can leverage these characteristics to enhance consumer relationships with the brand and the Website.

Aaker (1996) stated:

> *"A loyal consumer base represents a barrier to entry, a basis for a price premium, time to respond to competitor innovations, and a bulwark against deleterious price competition."*

More recently, researchers (de Figueiredo 2000; Harris and Goode 2004; Lewis 1997) have contended that consumer loyalty is even more important in the Internet market than it is in the traditional market. As a result, Website managers should take full advantage of the Internet technology by incorporating Internet features in its marketing and sales efforts. In this way, overall operational effectiveness can be enhanced across different channels. At the same time, the company's competitive advantage comprising strengthened sales power, effective marketing activities, and

efficient product supply is built. Ultimately, when the B2C e-commerce market in Taiwan is more mature and consumers are more disposed to Internet buying, all these advantages and an established Website/consumer relationship will become the company's intangible assets which can be used creatively to achieve a competitive edge in the Internet market.

Appendix

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Appendix 1:

English Questionnaire

PART I : Internet Use and Buying Behaviours

1.How many years have you been using the Internet?

○ Under 3 years ○ 3 – 4 years ○ Above 4 years

2.How often do you access the Internet?

○ At least once per day ○ Once per other day

3.How many hours, on average, do you normally spend on the Internet per day?

○ Under 1 year ○ 1 – 3 hours ○ 3 – 5 hours ○ Above 5 hours

4.In the past 6 months, on average, how many hours have you spent browsing sales Websites per week?

○ Under 1 year ○ 1- 2 hours ○ 2 – 4 hours ○ 4 – 8 hours ○ Above 8 hours

5.In the past 6 months, except from the Q Website, how often have you purchased products from e-tailing Websites?

○ Never ○ 1 – 3 times ○ 4 – 6 times ○ 8 – 14 times ○ Above 15 times

6.In the past 6 months, approximately how much have you spent on the Internet in total?

○ Under £39.9 ○ £40 - £79.9 ○ £80 - £159.9 ○ £160 - £399.9 ○ Above £400

7.How often do you visit the Q Website?

○ Once per day – twice per week ○ Once per week – once per month
○ Only when buying online ○ When receiving newsletter ○ Others

8.Purchase frequency at the Q Website in the last two years (*consumer's actual purchase record from the Q Website database)

○ once ○ 2 times ○ 3 times ○ 4 times ○ 5 – 37 times

9.Total amount spent at the Q Website in the last two years (*consumer's actual purchase record from the Q Website database)

○ Under £19.9 ○ £20 - £39.9 ○ £40 - £79.9 ○ £80 - £159.9 ○ Above £160

PART II： Perceptions of Internet Buying

	Please Choose the number on the right to represent your agreement level with the following descriptions (5 represents totally agree and 1 represents totally disagree).	Totally Disagree 1	2	Neutral 3	4	Totally Agree 5
1.	In general, I am among the last in my circle of friends to buy something over the Internet.	○	○	○	○	○
2.	If I heard that a new retail Website was available, I would be interested enough to buy from it.	○	○	○	○	○
3.	Compared to my friends, I shop on-line more often.	○	○	○	○	○
4.	In general, I am the last in my circle of friends to know of any new retail Website.	○	○	○	○	○
5.	I will buy from a new retail Website, even if I have not heard of it before.	○	○	○	○	○
6.	I love to try on-line shopping before other people do.	○	○	○	○	○
7.	When selecting from many types and brands of printers available in the market, I care a great deal about which brand of printer I buy.	○	○	○	○	○
8.	I feel it is very important for me to make a right purchase choice of a printer.	○	○	○	○	○
9.	I think the various types and brands of printers available in the market are all very alike.	○	○	○	○	○
0.	I am concerned about the outcome of my choice when I make my purchase selection of printers.	○	○	○	○	○
1.	I feel more confident about obtaining satisfactory services and merchandise at the Q Website.	○	○	○	○	○
2.	Transaction safety, such as releasing credit card details, on the Q Website, is no different from that of other Website on the Internet.	○	○	○	○	○
3.	If I purchase at the Q Website, I believe I will be held in higher esteem by my associates at work as well as my friends.	○	○	○	○	○
4.	I can trust the brand name of Q and engage in on-line shopping at the Q Website.	○	○	○	○	○
5.	Purchasing products from the Q Website is not an efficient use of my time.	○	○	○	○	○
6.	I believe my personal information will be protected and respected by the Q Website.	○	○	○	○	○
7.	I believe the problems that I have if I purchase at another Website will still happen even if I buy at the Q Website.	○	○	○	○	○

PART III： Q Brand Loyalty vs. Q Website Loyalty

	Please Choose the number on the right to represent your agreement level with the following descriptions (5 represents totally agree and 1 represents totally disagree).	Totally Disagree		Neutral		Totally Agree
		1	2	3	4	5
1.	I will buy the Q brand next time I buy a printer.	○	○	○	○	○
2.	I am committed to the Q brand printer.	○	○	○	○	○
3.	I would be willing to pay a higher price for the Q brand printer over other brands.	○	○	○	○	○
4.	Even when I hear negative information about the Q brand printer I usually buy it, I still stick to the Q brand.	○	○	○	○	○
5.	If Q brand printers were not available at the store, I would not buy whatever brand was available.	○	○	○	○	○
6.	If Q brand printers were not available at the store, I would not buy another favourite brand.	○	○	○	○	○
7.	If Q brand printers were not available at the store, I would go to another store to find the Q brand printer I want.	○	○	○	○	○
8.	For the same product, I would be willing to pay a higher price buying at the Q Website rather than buy from another Website.	○	○	○	○	○
9.	Even when I hear negative information about the Q Website where I usually buy it, I still stick to the Q Website.	○	○	○	○	○
10.	I will buy at the Q Website next time I buy a printer on-line.	○	○	○	○	○
11.	I am committed to the Q Website.	○	○	○	○	○
12.	If I cannot find the brand product I want, I will purchase a similar product at the Q Website even if I have to change to another brand rather than purchase at another Website.	○	○	○	○	○

Socio-Demographic Characteristics

1.Gender

○ Male ○ Female

2.Marital Status

○ Single ○ Married

3.Age

○ Under 25 ○ 26-30 ○ 31-35 ○ Above 36

4.Education

○ Junior high school ○ Senior high school ○ College/University ○ Post-graduate

5.Occupation

○ Managers & professionals ○ General employees & assistants ○ Student ○ Others

6.Average Monthly Income

○ Under £499.9 ○ £500 - £699.9 ○ £700 - £899.9 ○ £900 - £1,199.9 ○ Above £1,200

7.Residence Area

○ North Taiwan ○ Mid Taiwan ○ South Taiwan ○ East Taiwan

Appendix 2:

Chinese Questionnaire

第一部份 網路使用及購買行爲

1.您使用網路的時間已經有____?

○ 3 年以下 ○ 3 – 4 年 ○ 超過 4 年

2.您上網的頻率爲____?

○ 每天至少一次 ○ 每二天一次

3.平均來說，您每週上網多少小時?

○ 1 小時以下 ○ 1 – 3 小時 ○ 3 – 5 小時 ○ 超過 5 小時

4.在過去的六個月中，平均而言，您每週花多少時間在網路上逛購物網站呢?

○ 1 小時以下 ○ 1- 2 小時 ○ 2 – 4 小時 ○ 4 – 8 小時 ○ 超過 8 小時

5.不包含在 Q Website 的購買次數，過去六個月中，您曾經在網路上購物幾次？

○ 從未 ○ 1 – 3 次 ○ 4 – 6 次 ○ 8 – 14 次 ○ 超過 15 次

6.在過去六個月中，您在網路購物上的總消費金額大約是多少新台幣?

○ NT$1,999 以下 ○ NT$ 2,000 – 3,999 ○ NT$ 4,000 – 7,999
○ NT$8,000 – 19,999 ○ 超過 NT$ 20,000

7.平均而言，請問您造訪 Q Website 的頻率爲____？

○ 每天 ~ 每周兩次 ○ 每周一次 ~ 每月一次
○ 只有在要購物的時候 ○ 收到 the Q Website 廣告新聞信時 ○ 其他

8.過去兩年中，在 Q Website 購買的次數 (*Q Website database 的實際記錄)

○ 1 次 ○ 2 次 ○ 3 次 ○ 4 次 ○ 5 – 37 次

9.過去兩年中，在 Q Website 的消費總金額 (*Q Website database 的實際記錄)

○ NT$999 以下 ○ NT$ 1,000 – 1,999 ○ NT$ 2,000 – 3,999
○ NT$ 4,000 – 7,999 ○ 超過 NT$ 8,000

第二部分 網路購買的認知

	請回答您對下列敘述的認同程度，數字越大表示認同程度越強： 5表示『完全同意』；1表示『完全不同意』	完全不同意	中立			完全同意
		1	2	3	4	5
1.	一般而言，在我的朋友中，我是最後一個嘗試網路購物的人。	○	○	○	○	○
2.	當我聽說網路上出現新的購物網站，我會有興趣去該網站買買看。	○	○	○	○	○
3.	我比我的朋友們，更常在網路上購物。	○	○	○	○	○
4.	一般而言，當網路上出現新的購物網站，在我的朋友中，我通常是最後一個知道。	○	○	○	○	○
5.	我會在新的購物網站購買東西，即使那是我沒有聽過的新網站。	○	○	○	○	○
6.	我喜歡比其他人先嘗試網路購物。	○	○	○	○	○
7.	在購物網站購買時，我一點也不在意我買的印表機是哪種廠牌。	○	○	○	○	○
8.	對我而言，在網路上購買印表機時，這個購買的決定是非常重要的。	○	○	○	○	○
9.	我認爲，所有在網際網路上販售的印表機，不論廠牌，其實都大同小異。	○	○	○	○	○
10.	當我在網站上購買印表機時,我非常重視這個購買決定。	○	○	○	○	○
11.	我有信心我可以得到令我比較滿意的服務以及商品。	○	○	○	○	○
12.	就交易安全方面而言，例如：輸入信用卡資料後的傳輸與保密，和其他購物網站沒有兩樣。	○	○	○	○	○
13.	如果我在 Q Website 消費，我周遭的朋友或同事會給我比較高的評價。	○	○	○	○	○
14.	我可以信賴Q 這個廠牌的專業購物網站，並且嘗試網路購物。	○	○	○	○	○
15.	在 Q Website 消費，是有效運用時間的好方法。	○	○	○	○	○
16.	我相信 Q Website 會妥善處理並且尊重我的隱私及個人資料。	○	○	○	○	○
17.	我相信在 Q Website 消費，將可以避免我在另外不知名網站購物所可能遭遇到的麻煩。	○	○	○	○	○

第三部分 Q 品牌忠誠與網路忠誠

請回答您對下列敘述的認同程度，數字越大表示認同程度越強： 5表示『完全同意』；1表示『完全不同意』		完全不同意	中立			完全同意
		1	2	3	4	5
1.	下次買印表機，我會買 Q brand 的印表機。	○	○	○	○	○
2.	我是 Q brand 印表機的忠實支持者。	○	○	○	○	○
3.	我願意付出比別的廠牌高一點的價格來買 Q brand 的印表機。	○	○	○	○	○
4.	即使我聽到不利於 Q brand 的消息，我還是忠實支持 Q brand。	○	○	○	○	○
5.	如果在某家店裡買不到您想要的 Q brand 印表機，我會隨意選擇有現貨的任何品牌。	○	○	○	○	○
6.	如果在某家店裡買不到您想要的 Q brand 印表機，我會選擇另外一個我偏好的品牌。	○	○	○	○	○
7.	如果在某家店裡買不到您想要的 EPSON 印表機，我會去另外一家店尋找。	○	○	○	○	○
8.	同樣的產品，即使 Q Website 賣的比其他不知名網站貴一些，我還是寧願在 Q Website 買。	○	○	○	○	○
9.	即使我聽到不利於 Q Website 的消息，我還是忠實支持這個購物網站。	○	○	○	○	○
10.	下次我要在網路上購買印表機，我還是會在 Q Website 購買。	○	○	○	○	○
11.	我是 Q Website 的忠實支持者。	○	○	○	○	○
12.	如果我在 Q Website 找不到我想要的品牌，我寧願在 Q Website 尋找其他品牌的相同產品來替代，也不願到另外一個網站購買。	○	○	○	○	○

Appendix 3:

Cronbach alpha Coefficient Comparison between the Pilot survey and the Main survey

Notably, when comparing the Cronbach alpha coefficient of each scale between the pilot and main survey (see Table 6.2 and Table 6.5), it was found that except for the PDI scale, the Cronbach alpha coefficient for the remaining four scales decreased in the main survey. After investigation, the Q Website manager admitted a manual error had occurred in the pilot survey's sampling. Despite the researcher's instruction to randomly select the sample from Q Website buyers who had bought in the past two years (see Section 2.2 for details), the 300 samples for the pilot survey were randomly selected from Q Website buyers who had bought within the past three months. However, the 3,600 samples for the main survey were randomly selected from Q Website buyers who had purchased within the past two years, consistent with the researcher's instruction. As such, the different sampling frames generated Cronbach alpha coefficient differences between the pilot and main survey. Notably, this mistake did not affect the "goodness" measurement used in the main survey. As indicated above, Cronbach alpha coefficients of the main survey were between 0.70 and 0.75, indicating the measuring scales of this study were reliable.

Appendix 4:

Sample Representative Test

A Chi-square test was undertaken to test the distribution difference between the sample and population in terms of four socio-demographic characteristics: gender, age, education and residence area. Findings (see Table A-4 below) indicate the sample's gender, age, education and residence area distributions significantly ($p < 0.01$) differed from those of the population. As a result, the weight process was undertaken in order to generalise the study's findings to the survey population, i.e. individual buyers of the Q Web site. Un-weighted and Weighted sample distribution can be found in Table 7.3 in Chapter 7.

Table A-4 Sample Representativeness Test by Chi-square

Socio-Demographic Characteristics	Dimensions	SAMPLE		POPULATION	Sample Representativeness Test
		Frequency	Percentage	Percentage	
Gender	Male	756	72.4	64.7	$\chi 2$ =27.20*
	Female	288	27.6	35.3	
	Total	*1,044*	*100%*	*100%*	
Age	Under 25	212	20.3	27.7	$\chi 2$ =30.29*
	26-30	276	26.4	24.6	
	31-35	257	24.6	20.9	
	Above 36	296	28.4	26.5	
	No response	3	0.3	0.3	
	Total	*1,044*	*100%*	*100%*	
Education	Junior high school	8	0.8	2.1	$\chi 2$ =17.91*
	Senior high school	207	19.8	16.5	
	College or university	695	66.6	69.5	
	Post-graduate	134	12.8	11.9	
	Total	*1,044*	*100%*	*100%*	
Residence Area	North Taiwan	565	54.1	59.0	$\chi 2$ =14.82*
	Mid Taiwan	229	21.9	21.2	
	South Taiwan	225	21.6	17.4	
	East Taiwan	25	2.4	2.4	
	Total	*1,044*	*100%*	*100%*	

* Significant at $p < 0.01$level.

Source: this research

Appendix 5:

The sample size adequacy, Bartlett test and Kaiser-Meyer-Olkin Measure of sampling adequacy for applying factor analysis

1. **Sample size adequacy**:

There were 1044 cases and 28 variables in this study, yielding a 39-to-1 ratio of observation to variables, which is much higher than the acceptable 10-to-1 ratio suggested by Hair *et al.* (1998).

2. **Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy**:

The Bartlett Test of Sphericity provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables (Hair *et al.* 1998). Factor analysis can be conducted if the value of the sphericity test is large but associated significance level is small. In this study, the Bartlett test results were all between 1127 and 1611 at the 0.0001 confidence level (see Table A-5 below), indicating the presence of nonzero correlations and the factorability of this study.

The Kaiser-Meyer-Olkin measure of sampling adequacy compares the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients (Hair *et al.* 1998; Norusis 1994; Kervin 1992). It ranges from zero to one, reaching one when each variable is perfectly predicted without error by the

other variables (Hair *et al.* 1998). Thus, a small KMO measure value indicates that using factor analysis may not be a good idea, since correlations between pairs of variables cannot be explained by the other variables (Norusis 1994). A guideline to interpret the KMO measure (Hair *et al.* 1998; Norusis 1994) is: 0.90 or above, *marvellous*; 0.80 or above, *meritorious*; 0.70 or above, *middling*; 0.60 or above, *mediocre*; 0.50 or above, *miserable*; and below 0.50, *unacceptable*. In this study, four out of the five variables/scales had a KMO measure between 0.74 and 0.78, i.e. in the middling category. Only one variable (involvement) had a KMO measure of 0.61, implying mediocre (see Table A-5 below).

As a whole, **both indexes (the Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy) suggested the five variables/scales in this study were suitable for conducting factor analysis.**

Table A-5 the KMO measure of sampling adequacy and Bartlett's Test of the five main variables

Variable / KMO and Bartlett's Test		Internet buying Innovativeness	Internet buying Involvement	Q brand loyalty	Perceived risk	Attitudinal Q Website loyalty
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.74	0.61	0.79	0.75	0.74
Bartlett's Test of Sphericity	Approx. Chi-Square	1399.49	1127.40	1611.18	1297.70	1190.03
	Degree of freedom	15	6	21	15	10
	Sig.	0.00*	0.00*	0.00*	0.00*	0.00*

* Significant at $p < 0.05$ level.

Source: this research

Appendix 6:

Factor Analysis Results on the Five Main Scales

Principal components factor analysis was undertaken along with the Varimax rotation method on the five main scales, i.e. Internet buying innovativeness (Domain Specific Innovativeness Scale), Internet buying involvement (Purchase Decision Involvement Scale), Q brand loyalty in the traditional market, perceived risk when buying at the Q Website, and attitudinal Q Website loyalty. Tables A-6.1 to A-6.5 below present the content and factor loading of each item on the five scales, respectively.

Table A-6.1 The DSI Scale: loadings of extracted factors after rotation

	Domain Specific Innovativeness Scale	Dominant factor	Secondary factor
1	In general, I am among the first in my circle of friends to buy something over the Internet.		0.83
2	If I heard that a new retail Website was available, I would be interested enough to buy from it.	0.71	
3	Compared to my friends, I shop online more often.	0.61	0.53
4	In general, I am the first in my circle of friends to know about any new retail Website.		0.78
5	I will buy from a new retail Website, even if I have not heard of it before.	0.77	
6	I love to try online shopping before other people do.	0.79	
	eigenvalue	2.58	1.25
	% of variance	35.38	28.38
	Cumulative % of variance	63.76	

*Extraction Method: Principal Component Analysis.
**Rotation: the Varimax Method.
***Factor loadings of less than 0.5 omitted.

Source: this research

Table A-6.2 The PDI scale: loadings of extracted factors after rotation

	Purchase Decision Involvement Scale	Dominant factor	Secondary factor
1	When selecting from many types and brands of printers available in the market, I care a great deal about which brand of printer I buy.		0.83
2	I feel it is very important for me to make a right buying choice of a printer.	0.89	
3	I think the various types and brands of printers available in the market are very different.		0.86
4	I am concerned about the outcome of my choice when I make my buying selection of printers.	0.92	
	eigenvalue	54.06	25.73
	% of variance	42.27	37.53
	Cumulative % of variance	79.80	

*Extraction Method: Principal Component Analysis.
**Rotation: the Varimax Method.
***Factor loadings of less than 0.5 omitted.

Source: this research

Table A-6.3 The Q brand loyalty Scale: loadings of extracted factors after rotation

	Q Brand Loyalty Scale	Dominant factor	Secondary factor
1	I will buy the Q brand next time I buy a printer.		0.57
2	I am committed to the Q brand printer.	0.83	
3	I would be willing to pay a higher price for the Q brand printer over other brands.		0.72
4	Even when I hear negative information about the Q brand printer I usually buy it, I still stick to the Q brand	0.84	
5	If Q brand printers were not available at the store, I would not buy whatever brand was available.		0.67
6	If Q brand printers were not available at the store, I would not buy another favourite brand.		0.62
7	If Q brand printers were not available at the store, I would go to another shop to find the Q brand printer I wanted.	0.70	
	eigenvalue	2.87	1.08
	% of variance	30.29	26.13
	Cumulative % of variance	56.42	

*Extraction Method: Principal Component Analysis.
**Rotation: the Varimax Method.
***Factor loadings of less than 0.5 omitted.

Source: this research

Table A-6.4 The Perceived risk Scale: loadings of extracted factors after rotation

	Perceived risk when buying at the Q Website Scale	Dominant factor	Secondary factor
1	I feel less confident about obtaining satisfactory services and merchandise at the Q Website.	0.81	
2	The transaction process is just as dangerous at the Q Website as at other Websites.		0.80
3	I cannot trust the brand name Q and engage in on-line shopping at the Q Website.	0.85	
4	Buying products from the Q Website is not an efficient use of my time.		0.56
5	I believe my personal information will not be protected and respected by the Q Website.	0.76	
6	The same problems that occur at other Websites will also occur at the Q Website		0.75
	eigenvalue	2.55	1.16
	% of variance	35.41	26.32
	Cumulative % of variance	61.73	

*Extraction Method: Principal Component Analysis.
**Rotation: the Varimax Method.
***Factor loadings of less than 0.5 omitted.

Source: this research

Table A-6.5 The Q Website loyalty Scale: loadings of extracted factors after rotation

	Attitudinal Q Website loyalty Scale	Factor
1	For the same product, I would be willing to pay a higher price buying at the Q Website rather than buying from another Website.	0.74
2	Even when I hear negative information about the Q Website from where I usually buy, I still stick to the Q Website.	0.79
3	I will buy at the Q Website next time I buy a printer online.	0.61
4	I am committed to the Q Website.	0.76
5	If I cannot find the product brand I want at the Q Website, I will search for a similar product at the Q Website rather than buy at another Web shop.	0.63
	eigenvalue	2.52
	% of variance	50.30
	Cumulative % of variance	50.30

*Extraction Method: Principal Component Analysis.
***Factor loadings of less than 0.5 omitted.

Source: this research

Appendix 7:

Non-response Error Test

The extrapolation method (Armstrong and Overton 1977) was used in this study to estimate the non-response error resulting from a systematic difference between those who did and did not respond to the study's measurement (McDaniel and Gates 1996). Armstrong & Overton (1977) assumed those who respond later in a survey are more like non-respondents. Thus, the *t* test was applied on early/late respondents to test if they significantly ($p < 0.05$) differed in responses to the major scales in the main survey. Finding no significant ($p < 0.05$) difference indicated the non-response error was not a threat to the external validity of this study.

The cut-off point between early and late respondents in this study was 18 September 2002, the third day of the survey. Thus, 903 early respondents and 141 late respondents were found. Table A-7 presents the *t test* result on the study's five major scales.

Table A-7 Non-response Error test Results

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the difference	
						Lower	Upper
DSI 1	-0.02	1042	0.98	0	0.085	-0.17	0.17
DSI 2	-0.36	1042	0.72	-0.04	0.10	-0.23	0.16
DSI 3	-0.08	1042	0.94	-0.01	0.10	-0.21	0.19
DSI 4	0.57	1042	0.57	0.05	0.08	-0.12	0.21
DSI 5	-0.7	1042	0.46	-0.07	0.10	-0.26	0.12
DSI 6	0.08	1042	0.94	0.01	0.1	-0.19	0.21
PDI 1	0.15	1042	0.88	0.01	0.08	-0.15	0.17
PDI 2	0.60	1042	0.55	0.04	0.07	-0.09	0.17
PDI 3	0.74	1042	0.46	0.06	0.09	-0.11	0.23
PDI 4	1.06	1042	0.29	0.07	0.07	-0.06	0.20
Loyalty 1	1.29	1042	0.20	0.1	0.08	-0.05	0.26
Loyalty 2	3.29	1042	**0.00***	0.28	0.09	0.12	0.45
Loyalty 3	-0.58	1042	0.56	-0.06	0.10	-0.25	0.13
Loyalty 4	1.21	1042	0.23	0.1	0.08	-0.06	0.27
Loyalty 5	0.76	1042	0.45	0.07	0.09	-0.11	0.24
Loyalty 6	-1.69	1042	0.09	-0.19	0.11	-0.41	0.03
Loyalty 7	1.11	1042	0.27	0.09	0.08	-0.07	0.24
Risk 1	-0.00	1042	1.00	0	0.07	-0.14	0.14
Risk 2	-1.51	1042	0.13	-0.13	0.09	-0.30	0.04
Risk 4	-0.89	1042	0.38	-0.06	0.07	-0.20	0.08
Risk 5	-1.21	1042	0.23	-0.09	0.07	-0.24	0.06
Risk 6	-0.08	1042	0.94	-0.01	0.08	-0.16	0.15
Risk 7	-0.40	1042	0.69	-0.03	0.08	-0.20	0.13
Web-loyalty 1	1.27	1042	0.20	0.13	0.10	-0.07	0.32
Web-loyalty 2	0.94	1042	0.35	0.08	0.08	-0.08	0.23
Web-loyalty 3	2.82	1042	**0.01***	0.2	0.07	0.06	0.35
Web-loyalty 4	1.54	1042	0.12	0.12	0.08	-0.03	0.28
Web-loyalty 5	0.86	1042	0.39	0.08	0.10	-0.10	0.27

*Significantly different at $p < 0.05$.

Source: this research

Appendix 8:

Scheffé post hoc procedures on the five factors between the four segments

Table A-8 below helps to explain Figure A-8 (Scheffé test results) on the second following page which uses straight/dotted lines to indicate the significant/non-significant differences between linked segments ($p < 0.05$). Also, different colours are used to highlight comparisons between different segments. For example, the black line indicates the mean comparison between less-involved *adaptors* and *more-involved innovators*, while the blue line indicates the mean comparison between *less-involved adaptors* and *less-involved innovators*.

Table A-8 Description of Segments linked by coloured straight/dotted lines

Significant	Description of linked Segments	Non-significant
———	Less-involved adaptors vs. More-involved Innovators	N/A
———	Less-involved Adaptors vs. Innovators	.....
———	Less vs. More-involved Adaptors	.....
———	Less vs. More-involved Innovators	.....
———	More-involved adaptors vs. Less-involved Innovators	.....
———	More-involved Adaptors vs. Innovators	.....

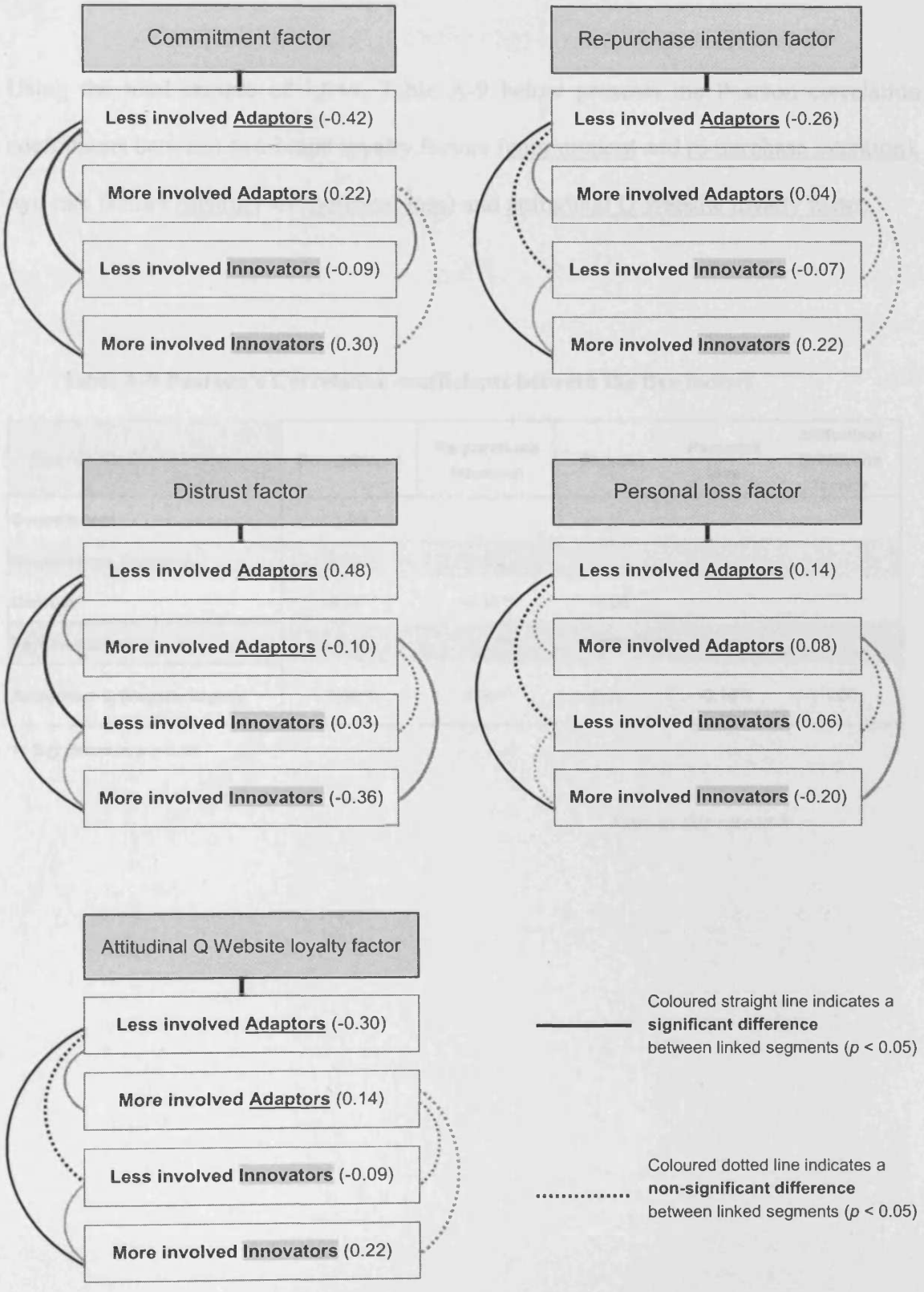
Source: this research

Consistently, looking at Figure A-8, the dotted green lines which indicate

non-significant differences between *more-involved adaptors* and *less-involved innovators* are found for every factor except commitment. A straight green line indicates that *more-involved adaptors* possessed a significantly ($p < 0.05$) higher Q brand commitment in the traditional market (0.22) than less-involved *innovators* (-0.09).

It is noteworthy that in all factors the straight black lines indicate *less-involved adaptors* significantly ($p < 0.05$) differed from *more-involved innovators* in this study (see Figure A-8 below). These two groups are the extremes of the four-group segmentation, i.e. the former is formed by low innovativeness and low involvement while the latter is formed by high innovativeness and high involvement. Naturally their distinct inherent characteristics lead to different buying perceptions ($p < 0.05$). This reflects the robustness of measurements and the collected data. First, the scales measure what they are supposed to measure, i.e. *adaptors* behave significantly ($p < 0.05$) different from *innovators*, and *less-involved* customers behave significantly ($p < 0.05$) different from *more-involved* customers. Second, this significantly different condition is consistent across the five tested factors in this study. As a result, **in Chapter 10, Section 2, significant differences between *less-involved adaptors* and *more-involved innovators* (straight black lines) will be skipped in the discussion of every factor to avoid repetition.**

Figure A-8 Outcomes of Scheffé post hoc test on two Q Brand Loyalty factors, two Perceived Risk factors and one Q Website loyalty factor



Source: this research

Appendix 9:

Pearson's Correlation tests on the five factors

Using the total sample of 1,044, Table A-9 below presents the Pearson correlation coefficients between two brand loyalty factors (commitment and re-purchase intention), two risk factors (distrust and personal loss) and attitudinal Q Website loyalty factor.

Table A-9 Pearson's Correlation coefficients between the five factors

Pearson's Correlation	Commitment	Re-purchase intention	Distrust	Personal loss	Attitudinal Q Website loyalty
Commitment	1.00				
Re-purchase intention	-0.01	1.00			
Distrust	-0.47**	-0.16**	1.00		
Personal loss	-0.04	-0.28**	-0.01	1.00	
Attitudinal Q Website loyalty	0.58**	0.21**	-0.58**	-0.19**	1.00

** Significant at $p < 0.01$

Source: this research

Appendix 10:

Outcomes of the attitudinal Q Website loyalty regression analysis (using the total sample of 1,044)

Using the two brand loyalty factors (commitment and re-purchase intention) and two risk factors (distrust and personal loss) as independent variables and attitudinal Q Website loyalty as the dependent variable, a linear multiple regression analysis employing the enter method was undertaken. Notably, the total sample of 1,044 was used to construct this regression model. Results of this analysis are presented in Table A-10 below.

Table A-10 Outcomes of the attitudinal Q Website loyalty regression analysis (using the total sample of 1,044)

Multiple Regression Model of attitudinal Q Website loyalty	Adjusted R Square	Sum of Squares	Degree of freedom
	0.502	1052.009	1043
	Unstandardised Coefficients B	*p* value	Variance Inflation Factor (VIF)
(Constant)	0.01	0.89	N/A
Commitment factor	0.41	0.00*	1.31
Re-purchase intention	0.11	0.00*	1.13
Distrust factor	-0.37	0.00*	1.34
Personal loss factor	-0.14	0.00*	1.10
a Dependent Variable: attitudinal Q Website loyalty * Significant at $p < 0.05$			

Source: this research

Appendix 11:

Outcomes of the Behavioural Q Website loyalty regression analysis for two more-involved segments

Using attitudinal Q Website loyalty as the independent variable and the actual buying frequency (obtained directly from the Q Website database) as the dependent variable, simple regression analysis was undertaken on the two more-involved customer groups, namely, *more-involved adaptors* and *more-involved innovators*. Results are presented in Table A-11 below.

Table A-11 More-involved Adaptors' and More -involved Innovators' Behavioural Q Website Loyalty Regression Model

Simple Regression Models		Unstandardised Coefficients B	*P* value	Tolerance of Inflation (VIF)	Adjusted R Square	Sum of Squares	Degree of freedom
More-involved adaptors	(Constant)	2.44	0.00*	n/a	0.00	712.27	284
	Attitudinal Q Website loyalty	0.08	0.37	1.00			
More-involved innovators	(Constant)	2.45	0.00*	n/a	0.03	652.54	290
	Attitudinal Q Website loyalty	0.23	0.00*	1.00			

a Dependent Variable: buying frequency at the Q Website

* Significant at $p < 0.05$

Source: this research

Appendix 12:

The Four Customer Segments' Socio-demographic Characteristics' Structure

Table A-12 The Four Customer Segments' Socio-demographic Characteristics' Structure

Socio-demographic Characteristics		Four Customer Segments								Total	
		Less-involved adaptors		More-involved adaptors		Less-involved innovators		More-involved innovators		Col %	Count
		Col %	Count	Col %	Count	Col %	Count	Col %	Count		
Gender	Male	65.1%	193	55.6%	159	79.7%	137	64.4%	187	64.7%	675
	Female	34.9%	103	44.4%	127	20.3%	35	35.6%	104	35.3%	368
Marital status	Single	53.5%	158	56.2%	160	63.2%	108	64.7%	188	59.0%	615
	Married	46.5%	138	43.8%	125	36.8%	63	35.3%	103	41.0%	428
Education	Under junior high school	0.7%	2	4.4%	13	0.0%	0	2.4%	7	2.1%	22
	Senior high school	14.2%	42	18.2%	52	17.2%	29	16.8%	49	16.5%	172
	college & university	74.1%	219	66.9%	191	69.9%	120	67.3%	196	69.6%	726
	Post-graduate	11.0%	33	10.4%	30	12.9%	22	13.5%	39	11.9%	124
Occupation	Managers and Professionals	34.6%	102	40.0%	114	35.5%	61	41.6%	121	38.2%	398
	General employees & assistants	28.4%	84	28.4%	81	25.6%	44	21.4%	62	26.0%	271
	Student	17.1%	51	15.0%	43	16.8%	29	19.4%	57	17.1%	179
	Others	13.8%	41	11.5%	33	12.5%	21	12.0%	35	12.4%	130
	No response	6.2%	18	5.1%	15	9.6%	17	5.6%	16	6.3%	66
Average monthly income	Under £499.9	27.6%	82	26.2%	75	27.7%	48	31.9%	93	28.4%	297
	£500 - £699.9	16.9%	50	24.5%	70	16.5%	28	15.8%	46	18.6%	194
	£700 - £899.9	21.8%	64	18.5%	53	23.2%	40	15.2%	44	19.3%	201
	£900 - £1,199.9	13.5%	40	15.5%	44	15.5%	27	16.9%	49	15.3%	160
	Above £1,200	20.2%	60	15.3%	44	17.0%	29	20.2%	59	18.3%	191
Age	Under 25 years	25.1%	74	29.3%	84	25.5%	44	30.1%	88	27.7%	289
	26-30 years	22.6%	67	18.8%	54	31.3%	54	28.3%	82	24.6%	257
	31-35 years	22.3%	66	23.6%	67	18.3%	31	18.6%	54	20.9%	219
	Above 36 years	29.7%	88	27.9%	80	24.9%	43	22.7%	66	26.5%	276
	No response	0.3%	1	0.4%	1	0.0%	0	0.3%	1	0.3%	3
Residence area	North Taiwan	62.0%	183	60.1%	171	56.5%	97	56.3%	164	59.0%	616
	Middle Taiwan	15.7%	46	20.7%	59	23.4%	40	25.9%	75	21.2%	221
	South Taiwan	20.4%	60	17.2%	49	16.3%	28	15.3%	45	17.4%	182
	East Taiwan	2.0%	6	2.0%	6	3.9%	7	2.5%	7	2.4%	25
Row%		28.3%	296	27.3%	285	16.5%	172	27.9%	291	Total	
										100.0%	1044

Source: this research

Appendix 13:

The Four Customer Segments' Internet use and Buying Behaviours' Structure

Table A-13 The Four Customer Segments' Internet Use and Buying Behaviours' Structure

Internet use and buying behaviours		Four Customer Segments								Total	
		Less-involved adaptors		More-involved adaptors		Less-involved innovators		More-involved innovators		Col %	Count
		Col %	Count	Col %	Count	Col %	Count	Col %	Count		
Online age	Under 3 years	12.9%	38	17.2%	49	11.3%	19	9.2%	27	12.8%	133
	3-4 years	14.8%	44	15.2%	43	6.5%	11	10.5%	31	12.4%	129
	Above 4 years	72.3%	214	67.5%	193	82.2%	141	80.3%	234	74.9%	781
Online frequency	At least once a day	88.1%	261	82.8%	236	93.1%	160	92.3%	269	88.7%	925
	Once per two days or longer	11.9%	35	17.2%	49	6.9%	12	7.7%	22	11.3%	118
Daily Online hours	Under 1 hour per day	33.0%	98	28.8%	82	20.0%	34	18.8%	55	25.7%	269
	1-3 hours per day	21.8%	65	26.1%	74	26.2%	45	24.6%	72	24.5%	256
	3-5 hours per day	22.6%	67	27.8%	79	25.6%	44	25.0%	73	25.2%	263
	Above 5 hours	22.5%	67	17.4%	50	28.2%	48	31.6%	92	24.6%	257
Weekly sales Website browsing hours	Under 1 hour	33.4%	99	36.1%	103	16.0%	27	12.7%	37	25.5%	266
	1-2 hours	28.6%	85	27.0%	77	23.8%	41	27.2%	79	27.0%	282
	2-4 hours	22.0%	65	20.6%	59	28.7%	49	27.1%	79	24.2%	252
	4-8 hours	8.8%	26	9.4%	27	16.7%	29	15.3%	45	12.1%	126
	Above 8 hours	7.2%	21	6.8%	20	14.9%	26	17.7%	51	11.3%	118
Internet buying frequency	Never	11.4%	34	19.9%	57	1.0%	2	2.8%	8	9.6%	100
	1-3 times	45.3%	134	48.4%	138	29.1%	50	27.6%	80	38.5%	402
	4-6 times	25.6%	76	21.1%	60	33.2%	57	28.0%	81	26.3%	274
	8-14 times	11.9%	35	7.6%	22	21.2%	36	24.7%	72	15.8%	165
	Above 15 times	5.8%	17	3.0%	9	15.5%	27	16.9%	49	9.7%	102
Total amount spent on the Internet	Under £ 39.9	26.4%	78	27.5%	79	13.7%	24	11.0%	32	20.3%	212
	£ 40 - £ 79.9	22.6%	67	23.8%	68	14.6%	25	14.8%	43	19.4%	203
	£ 80 - £ 159.9	19.1%	56	23.8%	68	21.2%	37	26.3%	77	22.7%	237
	£ 160 - £ 399.9	20.7%	61	16.2%	46	24.7%	42	24.1%	70	21.1%	220
	Above £ 400	11.2%	33	8.7%	25	25.8%	44	23.8%	69	16.4%	171
Frequency visiting the Q Website	Once a day ~ twice a week	12.0%	36	11.8%	34	11.0%	19	10.0%	29	11.2%	117
	Once a week ~ once a month	30.8%	91	28.1%	80	34.0%	58	28.8%	84	30.0%	313
	Only when buying at the Q Website	22.2%	66	20.5%	58	16.1%	28	17.4%	51	19.4%	202
	After receiving newsletter	34.7%	103	39.2%	112	37.8%	65	42.1%	122	38.5%	402
	Others	0.2%	1	0.4%	1	1.1%	2	1.8%	5	0.8%	9
Buying frequency at the Q Website	Once	42.6%	126	42.8%	122	47.6%	82	36.2%	105	41.7%	435
	Twice	25.1%	74	19.1%	54	17.8%	31	23.0%	67	21.7%	226
	3 times	10.5%	31	8.8%	25	14.8%	25	14.3%	42	11.8%	123
	4 times	9.7%	29	9.1%	26	5.9%	10	8.1%	23	8.4%	88
	5-37 times	12.1%	36	20.2%	58	13.9%	24	18.5%	54	16.4%	171
Total amount spent at the Q Website	Under £ 19.9	23.0%	68	18.6%	53	22.7%	39	17.3%	50	20.2%	211
	£ 20 - £ 49.9	24.0%	71	24.7%	70	21.8%	37	21.1%	61	23.0%	240
	£ 50 - £ 99.9	19.0%	56	18.2%	52	18.2%	31	23.6%	69	19.9%	208
	£ 100 - £ 199.9	13.6%	40	13.8%	39	20.1%	35	16.6%	48	15.6%	163
	Above £ 200	20.4%	60	24.7%	70	17.2%	30	21.4%	62	21.3%	222
Row%		28.3%	296	27.3%	285	16.5%	172	27.9%	291	Total	
										100.0%	1044

Source: this research

Appendix 14:

ANOVA test on the Four Customer Segments' Q Website Actual Buying Frequency

Table A-14 Outcomes of the ANOVA test on Q Website Actual Buying Frequency

	Attitudinal Q Website loyalty factor			Size
	Mean	Standard Deviation	Min/Max	
Less-involved adaptors	2.24	1.40	2.08/2.40	296
More-involved adaptors	2.45	1.58	2.26/2.63	285
Less-involved innovators	2.21	1.44	1.99/2.42	172
More-involved innovators	2.50	1.50	2.32/2.67	291
Total	2.36	1.49	2.27/2.45	1044
ANOVA Test	F value =16.21		$p = 0.062$	

* Significantly different at $p < 0.05$.

Source: this research

Appendix 15:

Post hoc Procedures (Tukey HSD, LSD and Scheffé) on the Four Customer Segments' Q Website Actual Buying Frequency

Table A-15.1 Post hoc Tukey HSD procedure on Q Website Actual Buying Frequency between the Four Customer Segments

Post hoc Procedures on Q Website Actual Buying Frequency						95% Confidence Interval	
	Four customer segments	Four customer segments	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Tukey HSD	Less-involved Adaptors	More-involved Adaptors	-.62(*)	.24	.048	-1.23	-3.77E-03
		Less-involved Innovators	-9.75E-02	.28	.99	-.80	.61
		More-involved Innovators	-.59	.24	.061	-1.20	1.87E-02
	More-involved Adaptors	Less-involved Adaptors	.62(*)	.24	.048	3.77E-03	1.23
		Less-involved Innovators	.52	.28	.24	-.19	1.23
		More-involved Innovators	2.56E-02	.24	1.00	-.59	.64
	Less-involved Innovators	Less-involved Adaptors	9.75E-02	.28	.99	-.61	.80
		More-involved Adaptors	-.52	.28	.24	-1.23	.19
		More-involved Innovators	-.49	.28	.28	-1.20	.22
	More-involved Innovators	Less-involved Adaptors	.59	.24	.06	-1.87E-02	1.20
		More-involved Adaptors	-2.56E-02	.24	1.00	-.64	.59
		Less-involved Innovators	.49	.28	.28	-.22	1.20

* The mean difference is significant at the .05 level.

Table A-15.2 Post hoc LSD procedure on Q Website Actual Buying Frequency between the Four Customer Segments

Post hoc Procedures on Q Website Actual Buying Frequency						95% Confidence Interval	
	Four customer segments	Four customer segments	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
LSD	Less-involved Adaptors	More-involved Adaptors	-.62(*)	.24	.01	-1.08	-.15
		Less-involved Innovators	-9.75E-02	.28	.72	-.64	.44
		More-involved Innovators	-.59(*)	.24	.01	-1.05	-.12
	More-involved Adaptors	Less-involved Adaptors	.62(*)	.24	.01	.15	1.08
		Less-involved Innovators	.52	.28	.06	-2.59E-02	1.06
		More-involved Innovators	2.56E-02	.24	.92	-.44	.49
	Less-involved Innovators	Less-involved Adaptors	9.75E-02	.28	.72	-.44	.64
		More-involved Adaptors	-.52	.28	.06	-1.06	2.59E-02
		More-involved Innovators	-.49	.28	.08	-1.03	4.95E-02
	More-involved Innovators	Less-involved Adaptors	.59(*)	.24	.01	.12	1.05
		More-involved Adaptors	-2.56E-02	.24	.91	-.49	.44
		Less-involved Innovators	.49	.28	.08	-4.95E-02	1.03

* The mean difference is significant at the .05 level.

Table A-15.3 Post hoc Scheffé procedure on Q Website Actual Buying Frequency between the Four Customer Segments

Post hoc Procedures on Q Website Actual Buying Frequency						95% Confidence Interval	
	Four customer segments	Four customer segments	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Scheffé	Less-involved Adaptors	More-involved Adaptors	-.62	.24	.083	-1.28	5.12E-02
		Less-involved Innovators	-9.75E-02	.28	.99	-.87	.67
		More-involved Innovators	-.59	.24	.10	-1.25	7.34E-02
	More-involved Adaptors	Less-involved Adaptors	.62	.24	.03	-5.12E-02	1.28
		Less-involved Innovators	.52	.28	.32	-.26	1.29
		More-involved Innovators	2.56E-02	.24	1.00	-.64	.69
	Less-involved Innovators	Less-involved Adaptors	9.75E-02	.28	.99	-.67	.87
		More-involved Adaptors	-.52	.28	.32	-1.29	.26
		More-involved Innovators	-.49	.28	.37	-1.26	.28
	More-involved Innovators	Less-involved Adaptors	.59	.24	.10	-7.34E-02	1.25
		More-involved Adaptors	-2.56E-02	.24	1.00	-.69	.64
		Less-involved Innovators	.49	.28	.37	-.28	1.26

* The mean difference is significant at the .05 level.

Appendix 16:

Literature Comparison between E-mail Survey and Mail Survey

Table A-16 summarises the studies comparing traditional survey methods and Internet survey methods. Findings show a large variation in response rate across these studies, from a low of 26% to a high of 76% for mail, and a low of 6% to a high of 68% for e-mail. Eleven out of 16 reported mail surveys had a higher response rate than e-mail surveys (Bechmann *et al.* 1996; Cobanoglu *et al.* 2001; Couper *et al.* 1999; Dommeyer and Moriarty 2000; Kiesler and Sproull 1986; Schaefer and Dellman 1998; Sheehan and McMillan 1998; Schuldt and Totten 1994; Tse 1998; Tse *et al.* 1995; Weible and Wallace 1998) while the other three gave opposite results (Parker 1992; McDonald and Adam 2003; Mehta and Sivadas 1995; Oppermann 1995; Ranchhod and Zhou 2001). A similar variation was also found in response speed, from a low of 9.79 to a high of 21 days for mail, and a low of 2.5 to a high of 9.6 days for e-mail. Though 3 out of 16 studies found e-mail respondents more willing to answer open-ended questions (Bechmann *et al.* 1996; Kiesler and Sproull 1986; Schaefer and Dellman 1998), data quality in terms of mistakes and data omission again gives inconsistent results. Two out 16 reported e-mail surveys had less mistakes and omissions (Kiesler and Sproull 1986; Schaefer and Dellman 1998), while five indicated no significant differences (Couper *et al.* 1999; McDonald and Adam 2003; Mehta and Sivadas 1995; Tse 1998; Tse *et al.* 1995).

Couper *et al.* (1999) suggested that the dramatic differences between studies likely reflected many design differences, from the population surveyed, content and length of the instrument, to methods of delivery and number of contacts. It is worth noting that

all the studies reviewed in Table A-16 show one consistent finding, that the e-mail survey is returned more quickly than the survey method it is compared against, with an average increased response time ranging from 1.2 days to 18.5 days.

In addition, cost saving due to the elimination of paper and mailing costs (Parker, 1992) is another big benefit the e-mail survey provides over the mail survey. Calculations based on the cost of research conducted by Simon Godfrey Associates estimated that the cost of an e-mail survey was about one-seventh the cost of a postal equivalent (Comley 1997). Mehta and Sivadas (1995) indicated that the direct cost of a mail survey exceeded the cost of an e-mail survey by $0.58 a unit, while Weible and Wallace (1998) calculated the additional cost as $1.56.

TABLE A-16 Comparative Survey Studies on Internet vs. Traditional Survey Methods

Author	Method	Response rate (%)	Response Speed (day)	Response quality	Topic/Sample
Kiesler & Sproull (1986)	E-mail	67	9.6	E-mail had fewer mistakes and a higher item completion rate	Corporate communication/ Fortune 500 company employees
	Mail	75	10.8		
Parker (1992)	E-mail	68	N/A	N/A	Internal communication/ Employees of AT&T
	Company mail	38			
Schuldt & Totten (1994)	E-mail	19.3	E-mail faster	N/A	Shareware copying/ Marketing and MIS professors(US)
	Mail	56.5			
Mehta & Sivadas (1995)	E-mail	59.6	2.5	e-mail respondents wrote more, though both groups had a similar number of item omissions	Internet communication/ Usenet users
	Mail	58.0	21.0		
Oppermann (1995)	E-mail	48.8	E-mail faster	N/A	E-mail survey/ Association of American Geographers
	Mail survey1	26.0			
	Mail survey2	33.0			
Tse *et al.* (1995)	E-mail	6.0	8.09	No significant difference in number of item omissions	Business ethics/ University population (H.K.)
	Mail	27.0	9.79		
Bechmann *et al.* (1996)	E-mail	52.5	4.68	e-mail respondents were more willing to answer open-ended questions	Total Quality Management/ Business school Deans
	Mail	65.6	11.18		
Schaefer & Dellman (1998)	E-mail	57.5	9.16	e-mail surveys had fewer item omissions and longer answers to open-ended questions	Unknown/ MIS professors (US)
	Mail	58.0	14.39		
Tse (1998)	E-mail	7.0	E-mail faster	No significant differences found	Business ethics/ University population (H.K.)
	Mail	52.0			
Weible & Wallace (1998)	Web-based	34.4	7	N/A	Internet use/ University faculty
	E-mail	29.8	6.1		
	Fax	30.9	8.8		
	Mail	35.7	12.9		
Sheehan & McMillan (1998)	E-mail1	47.4	4.99	N/A	Individual; Batch; Merge program/ University's E-mail account users
	E-mail2	47.2	4.57		
	E-mail3	24.0	3.57		
Couper *et al.* (1999)	E-mail	37-63	N/A	Data quality (item missing data) was similar in two methods	Organisational climate survey/ Employees of five agencies
	Mail	68-76			
Dommeyer & Moriarty (2000)	Embedded form	37.0	4.34	No item was omitted in the attached survey while 7% of items were omitted in the embedded one	E-mail survey/ Undergraduate students
	Attached form	8.0	5.75		
Cobanoglu *et al.* (2001)	Web-based	44.2	5.97	Data consistency did not differ significantly between 3 methods	Hospitality Education/ Council members Hotel, Restaurant and Institutional Education
	Fax	17.0	4.0		
	Mail	26.3	16.46		
Ranchhod & Zhou (2001)	E-mail	6.0	N/A	N/A	Internet use behaviours/UK marketing executives
	Mail	20.0			
McDonald & Adam (2003)	E-mail + Web	21.0	3.9	Response quality did not significantly differ	Club member satisfaction/ Football club subscribers
	Mail	46.0	10.8		

Source: a literature review for this research

Appendix 17:

Features of E-mail and Web-based questionnaire Survey

According to Bradley (1999), both e-mail questionnaire survey and Web-based questionnaire survey can be divided into three types, respectively:

- **E-mail questionnaire**

1. Type I is a 'simple' e-mail message with questions. The simple format has the advantage of easy reply, but the text only layout decreases respondents' reply intention and generates difficulties when keying in answers.
2. Type II is an 'attachment', which is delivered with a covering e-mail letter. The attached format has the advantages of better questionnaire presentation with graphics/fonts, but the complex download-to-answer and upload-to-reply procedures influence respondents' participation willingness. Particularly, the fear of computer viruses greatly decreases the response interest.
3. Type Ill is 'URL embedded', whereby an e-mail request for participation has a URL embedded in the message. Respondents simply click on this hypertext link, which then evokes their Web browser, presenting the reader with a Web-based questionnaire.

Ilieva *et al.* (2002) indicated significant advantages of e-mail surveys lie in the speed of data collection, the very low cost to the researcher (no postage and printing costs and no involvement of interviewers), and instant access to a wide audience, irrespective of

their geographical location, which makes it very appropriate for cross-sectional studies and/or international comparisons.

Web-based questionnaire

1. Type I is part of a website 'open' to any visitor, there is no control over who visits. This type includes the Banner invitation.
2. Type II is 'closed', and respondents are invited to visit the site to complete the questionnaire, which may be password protected.
3. Type III is 'hidden', and the questionnaire appears to a visitor when triggered by some mechanism (eg date, visitor number, interest in specific page etc.). This type includes the pop-up survey.

Web-based questionnaire offers especially appealing possibilities (Cook *et al.* 2000). The graphics capabilities of HTML and Java Script permit more innovative interfaces than the limited options of paper surveys or telephone interviews, an aspect that practitioners find promising (Schillerwaert *et al.* 1998). Particularly, Kehoe and Pitkow (1996) indicate the CGI script allows adaptive questioning, i.e. the questions that a respondent is asked depend on his/her answers to previous questions. This user friendly function facilitates easy navigation and a smooth answering process for respondents. Thus, Web-based surveys are noted for their ability to generate a high number of responses (Kehoe and Pitkow, 1996) and a quick response time (Smith, 1997; McCullough, 1998). Notably, the Web-based survey allows for anonymity in responses, which may have a positive impact on the response rate (Kiesler and Sproull 1986). Further, Web-based surveys are able to transform the collected data directly into the

analysis software package (e.g. SPSS or SAS), bringing about data that is free from key-in error (McCullough, 1998).

Apart from the technical benefits, Ilieva *et al.* (2002) suggest that Web-based questionnaire surveys are appropriate for a wide audience, where all the visitors to certain websites have an equal chance to enter the survey. However, the researcher's control over respondents entering the Web-based survey is lower than for email surveys. Thus, Ilieva *et al.* (2002) recommend the mix of e-mail and Web-based questionnaire survey to combine the advantages of each approach.

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