

## Service Quality-Satisfaction-Intention Relationships in the Internet Retail Context

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### ABSTRACT

*This paper examines the theoretical relationships between service quality, customer satisfaction and purchase intention in the internet context across products. It demonstrates to practitioners the value of investing in service quality improvement and provides possible answers to the general speculation that offering "search" products over the internet may be more promising than offering "experience" products. Initially, a classification study was conducted to identify the classification of products from the users' perspective. Then, a web survey resulting in 636 responses was carried out to test the hypothesised model. The results showed that the mediated relationships between service quality, satisfaction and repurchase intentions were supported in the internet context and this relationship was retained across three services: internet banking, airline ticketing and book retailing. The findings suggest that an advantageous position in the internet retail market may be gained through improvement in the overall service quality performance rather than relying on the classification of product offered to determine increase in internet purchases. Suggestions for further research are also provided.*

### ABSTRAK

*Kajian ini meneliti hubungan teoretikal antara kualiti perkhidmatan, kepuasan pengguna dan niat pembelian dalam konteks internet di kalangan produk-produk yang berlainan. Kajian cuba menunjukkan kepada pengurus betapa beruntungnya melabur untuk meningkatkan kualiti perkhidmatan, disamping mencari jawapan kepada spekulasi umum yang menyatakan bahawa dalam perniagaan internet, menawarkan produk yang bersifat "pencarian" lebih baik berbanding produk yang bersifat "pengalaman". Mula-mula satu kajian klasifikasi dijalankan untuk mengenalpasti klasifikasi produk-produk mengikut perspektif pengguna. Kemudian, satu survei laman web yang menghasilkan 636 respon dijalankan untuk menguji model hipotesis yang diketengahkan. Keputusan analisis menunjukkan hubungan perantaraan di antara kualiti perkhidmatan, kepuasan pengguna dan niat pembelian disokong dalam konteks internet dan hubungan ini kekal bagi ketiga-tiga jenis*

*perkhidmatan: perkhidmatan bank, penempahan tiket kapal terbang dan penjualan buku, melalui internet. Hasil kajian ini menunjukkan bahawa suatu kelebihan dalam pasaran runcit internet lebih baik diperolehi melalui peningkatan prestasi keseluruhan kualiti perkhidmatan yang disediakan daripada bergantung kepada klasifikasi sesuatu produk untuk meningkatkan jualan melalui internet. Cadangan untuk kajian masa depan disediakan.*

## INTRODUCTION

In consumer behaviour and attitude theory, the consumers' purchase decision is explained as the response of their affective attitude and cognitive belief. As the theory was developed in the traditional physical-orientated business-to-consumer environment, it is yet to be reconfirmed within the Internet virtual environment.

In business practice, there is speculation that product classification, in particular the search, experience and credence classification, has a significant influence on the Internet retail purchases (Damesick 2001; Hart, Doherty & Ellis-Chadwick 2000). With the aim of testing the theoretical assumptions and examining the general speculation surrounding them, we designed a two-phase study: the first phase clarifies the product classification of search and experience products from the Internet users' perspective; the second phase tests the theoretical assumption across different products. The reasons for selecting Internet retail service as an empirical base are, firstly, the nature of the Internet environment appears to be more service driven (Damanpour & Madison 2001); secondly, Internet service providers' performance in terms of service quality and ability to satisfy Internet users is one of the key issues in the business-to-consumers Internet commerce (van Riel, Lijander & Jurriens 2001; Yang, Peterson & Huang 2001; Jun & Cai 2001) and finally, the importance of the Internet for retailing, particularly, in retail banking, is expected to be at a high level by 2011 (Bradley & Stewart 2003). Thus, the focus on this area might generate greater insight, which achieves the aim of testing theory as well as identifying the implications.

## LITERATURE REVIEW

In the consumer behaviour and social psychology literature, it has generally been proposed and proven that consumers follow a logical sequence (cognitive-affective-conative) in their decision processes; particularly in relation to rational or planned purchases (Engel, Blackwell & Miniard 1993; Foxall 1996; Howard 1977; Nicosia 1966). Theories that hold the same assumption include the expectancy-value model, theory of reasoned action,

and theory of planned behaviour (Ajzen 2001; Athiyaman 2002; Fishbein 1965; Fishbein, Thomas & Jaccard 1976). Lately the more direct relationship (cognitive-conative) is posited in the Technology Acceptance Model (Davis 1989; Adams, Nelson & Todd 1992; Subramanian 1994). This cognitive-affective-conative relationship is reflected in the services studies through the link of the service quality-consumer satisfaction-repurchase intention model.

#### SERVICE QUALITY-SATISFACTION-INTENTION IN THE TRADITIONAL SERVICE CONTEXT

Service quality has been recognised as an important construct because of its significant relationship with consumer satisfaction (Bolton & Drew 1991; McDougall & Levesque 2000; Parasuraman, Zeithaml & Berry 1988) and repurchase intention (Cronin & Taylor 1992). On the one hand, there is a proposition that consumer satisfaction is the antecedent to service quality (see, for example, Bitner 1990; Cronin & Taylor 1992; Johnston 1995; Parasuraman, Zeithaml & Berry 1994). On the other hand, empirical studies indicate a positive effect of service quality on consumers' satisfaction (Bolton & Drew 1991; Boulding, Kalra, Staelin & Zeithaml 1993; Caruana 2002; Churchill & Surprenant 1982). This means the higher the quality of service, the higher the level of consumers' satisfaction. The exception is for consumers with a low degree of service expertise (meaning less capability in evaluating the quality of a service); where service quality has no significant impact on consumers' satisfaction (Andreassen & Lindestad 1998). The opposite situation has also been reported in Hellier, Geursen, Carr and Rickard's (2003) investigation of the insurance industry; they found that perceived quality is not significantly related to customer satisfaction.

Results from empirical studies also reveal a positive relationship between service quality (SQ) and consumers' repurchase intention (Bitner 1990; Cronin & Taylor 1992). However, this relationship is less prominent or not supported in some studies (Patterson & Spreng 1997). Recently, Ranaweera and Neely (2003) confirmed the direct relationship between perceptions of service quality and repurchase intentions within the fixed line telephone industry. They discovered "that increasing SQ can significantly strengthen the rate of retention of even those who are unhappy about price" (Ranaweera & Neely 2003:240). Ranaweera and Neely's (2003) findings also indicate that those respondents who perceived unreasonable price as the reason for switching had a recent problem in service quality. They, therefore, posited that an incident of poor service quality might trigger these customers (perceived unreasonable price) to leave. Their study firmly supports the view that an increase in service quality can significantly increase the level of retention.

#### MEDIATING ROLE OF CONSUMERS SATISFACTION

Studies demonstrate that the effect of service quality on consumers' repurchase intention is mediated through consumer satisfaction. Researchers hypothesise that consumers' satisfaction is the key antecedent of consumers' repurchase intention and has been empirically supported (Eggert & Ulaga 2002; Liljander & Strandvik 1993; McDougall & Levesque 2000; Patterson & Spreng 1997). This clarifies the mediating role of consumers' satisfaction between service quality and consumers' repurchase intention. In addition, Caruana (2002) and Caruana, Money and Berthon (2000) also confirm that satisfaction is a mediating variable between service quality and service loyalty. Furthermore, Shankar, Smith and Rangaswamy (2003) show that satisfaction and attitudinal loyalty have a positive reciprocal relationship; meaning satisfaction may cause loyalty and loyalty may enhance satisfaction. On the contrary, Hellier et al. (2003) found that customer satisfaction and loyalty path was not significant or weak across company sub-samples. In addition, Mittal and Lasar (1998) found that dissatisfied customers would definitely switch service suppliers; nonetheless, satisfied customers also have a tendency to switch service suppliers. Their results indicate that satisfaction is necessary and positively related to loyalty, but a high degree of satisfaction does not guarantee loyalty.

#### SERVICE QUALITY-SATISFACTION-INTENTION IN THE INTERNET SERVICE CONTEXT

Trocchia and Janda (2003) stated that "online marketing is one area where research pertaining to service quality is lacking." Regardless of the increase in number of purchases over the Internet, unfavourable experiences were also recorded, thus signalling the importance of performance improvement and service quality in Internet-based business environment (Trocchia & Janda 2003; Walters & Lancaster 1999). Other researchers also agree with the view that Internet service quality has not been fully explored and further investigation is needed (Janda, Trocchia & Gwinner 2002; Joseph & Stone 2003; Wolfenbarger & Gilly 2003; Zeithaml 2002).

With reference to the cognitive-affective-conative assumption, Athiyaman (2002) adopts the expectancy-value model and theory of planned behaviour in explaining the Internet users' intention to purchase air travel online and support the usefulness of the theories in the Internet context. The results indicate that Internet users' (who never purchase an airline ticket online) attitude towards purchasing air travel online and their perception of social influence and control beliefs, have a significant impact on their intention to purchase air travel online, thus supporting the linear compensatory models of consumer behaviour. Out of the three factors (attitude, social influence and control belief), attitude has the most influence on purchase intention. Janda et al.'s (2002) nomological test of their Internet Retail Service Quality

(IRSQ) model indicate that IRSQ has a significant impact on online satisfaction, word-of-mouth recommendation, likelihood of future purchases and likelihood of complaining. Zhu, Wymer and Chen's (2002) investigation of IT-based service quality also suggests that perceived service dimensions such as reliability, responsiveness and assurance have an effect on consumer satisfaction and perceived overall service quality.

Wolfenbarger and Gilly (2003) developed and verified the 'eTailQ' (electronic retail quality scale). They reported that 'eTailQ' consists of four factors: fulfilment/reliability, website design, privacy/security, customer service. Moreover, their statistical testing shows that website design and fulfilment/reliability are significantly related to satisfaction and loyalty intentions. Additionally, the customer service factor also significantly influences loyalty intentions. Montoya-Weiss, Voss and Grewal (2003) investigated the determinants of online channel use and overall satisfaction. They found that online channel service quality perceptions and alternative channel service quality perceptions have a significant impact on overall satisfaction and online channel use. Dabholkar's (1996) experiment on self-service technology (fast food touch screen setting) also suggests that expected service quality of the technology-based self-service option will have a positive influence on intention to use that option; in other words, a direct relationship between service quality and intention.

Even though these studies provide useful guidance, they do not provide a direct examination of Internet service quality-satisfaction-intention model. For instance, Dabholkar (1996) focuses on the use of computerised, touch screen technology rather than Internet-based purchases. Athiyaman (2002) includes Internet non-purchasers rather than purchasers. Zhu et al. (2002) focus on IT-based services, which include ATMs, online banking and Internet banking. Finally, Wolfenbarger and Gilly's (2003) model is more comprehensive and provides a useful insight into the phenomenon under study, but their model might require further cross-validation.

#### PRODUCT CLASSIFICATION

In the literature, there is an attempt to classify product (goods and services) into search, experience and credence products. Search products possess highly tangible attributes. These attributes of services or physical goods are offered as part of the total offering, such as colour, style and price of a product. These attributes can be assessed and the quality of search product can be evaluated prior to purchase (Girard, Silverblatt and Korgaonkar 2002; Zeithaml 1981). However, attributes of experience products can only be evaluated during or after the service purchase such as on-flight services and holiday packages. This means that the qualities of experience products cannot be determined prior to purchase. As a result, purchasing experience products via the Internet is relatively difficult unless consumers have

previously experienced the products and are involved in repurchases or routine purchases. Finally, credence products possess products' attributes that are highly intangible and hard to evaluate even after the purchase, such as mortgage repayment schemes or banking services. Thus, it is assumed that when purchasing credence products, consumers prefer traditional face-to-face contact than the Internet-based purchases (Davies, Baron, Gear & Read 1999; Rust, Zahorik & Keiningham 1995; Zeithaml 1981; Zeithaml & Bitner 2000).

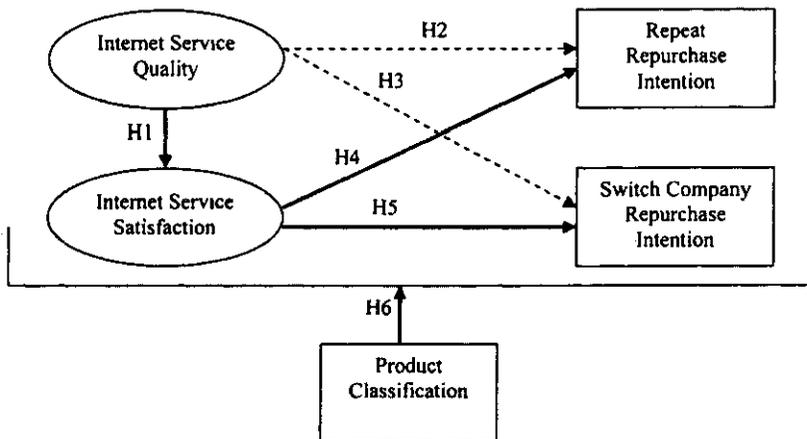
In general, Damesick (2001) and Hart et al. (2000) speculate that product classification; in particular the search, experience and credence classification, has a significant influence on the Internet retail purchases. Girard et al. (2002) have empirically studied this speculation. They support the contention that consumers' Internet purchase preferences are significantly influenced by the product categories of search, experience and credence. Girard et al. (2002) reported that search products (books, personal computers and computer accessories) are the most preferred for Internet purchases and therefore are more likely to succeed than the experience and credence category in the Internet retail context. On the contrary, Peterson, Balasubramanian and Broneenberg (1997) suggest that products with obvious experience or credence properties (intangible or informational) are highly likely to take the advantage of the Internet retail channel. This argument suggests that experience and credence products might receive more favourable responses than search products in the Internet context.

Gabbott and Hogg (1998) provide further discussion by pointing out that the information search behaviour (the first stage in consumer decision making processes) is not reflected in the classification of search, experience and credence. They restate the definition given by Nelson (1974) that attributes of search product can be determined prior to purchase when associated with information searching behaviour. The consumer might search for extrinsic (searchable) information as an approximate of intrinsic (non-searchable) information; subsequently, extrinsic information of services is available in quantities (Gabbott & Hogg 1998). Similarly, copious information of "experience" product's attributes might be gathered through similar service experiences, observation or sharing with other consumers' experiences (Gabbott & Hogg 1998; Locander & Hermann 1979; Murray 1991; Zeithaml 1981). With regard to the Internet environment, information search is the fundamental activity undertaken by shoppers and provides a key benefit for Internet users. This substantial information search might change the consumers' perception on product evaluation. Information regarding a product's attribute can be gathered via the Internet before and after the purchase decision and would ease the product evaluation process. Despite some hypothetical propositions, there is a lack of empirical evidence to support the association between product classification and Internet purchases.

For example, Brown, Pope and Voges's (2003) study indicated that there is a significant relationship between product type and intention to purchase via the Internet, but their research design is unable to provide details about this relationship across products.

### CONCEPTUAL FRAMEWORK AND HYPOTHESES

Based on the theoretical review discussed earlier and some empirical research on the relationship between service quality, satisfaction and intentions, we propose a conceptual model, as presented in Figure 1 for empirical testing. In the model, a mediated relationship is hypothesised, which suggests that Internet service quality influences consumer repurchase intention via satisfaction. However, the direct paths (Internet service quality and consumer intentions - the dotted lines in Figure 1) are also included to provide a comprehensive simultaneous test.



*Note:* Observable indicators, factor loadings and measurement and latent errors are not included for simplicity of depiction.

FIGURE 1. Modelling the internet service quality, satisfaction and intention.

### HYPOTHESES

Evidence from traditional service quality studies indicates a positive effect of service quality on consumer satisfaction (Bolton & Drew 1991; Boulding et al. 1993; Spreng & Mackoy 1996). Additionally, initial empirical work in the Internet context also suggests a similar proposition (Janda et al. 2002; Zhu et al. 2002; Montoya-Weiss et al. 2003; Wolfenbager & Gilly 2003). On the basis of these findings, we predict that the Internet service quality is positively related to consumers' satisfaction of the service.

**Hypothesis 1: Internet service quality is positively related to consumers' satisfaction of the service.**

Athiyaman (2002) found that the Internet users' (who never purchase online) intention to purchase air travel online is determined by their attitude towards purchasing air travel online and their perception of social influence and control beliefs. The link between Internet service quality and consumers' intentional purchases of the Internet services is also directly (Dabholkar 1996; Janda et al. 2002; Wolfinbarger & Gilly 2003) or indirectly (Beckett, Hewer & Howcroft 2000; Jarvenpaa & Todd 1997) indicated in some empirical studies. Though focused on a different area, Chen and Wells's exploratory (1999) and confirmatory (Chen, Clifford & Wells 2002) studies on attitude towards the site confirmed that there are significant correlations between items such as website features (comfortable surfing, web site rating, easy relationship building), satisfaction and revisit intention. As a result of this indication, the direct effect, even though not well supported, was included for further examination as shown in the following hypotheses.

**Hypothesis 2: Internet Service Quality is positively related to consumer repeat repurchase intention.**

**Hypothesis 3: Internet Service Quality is negatively related to consumer switch-company repurchase intention.**

There is a paucity of direct studies which investigate the relationship between Internet service satisfaction and consumers' intentional repurchases of Internet services. However, a few studies, though not focusing directly on this relationship suggest a positive relationship between satisfaction and intention to revisit Internet retailers (Chen & Wells 1999; Chen et al. 2002; Jarvenpaa & Todd 1997). Furthermore, in the traditional service quality studies, the satisfaction-intention is strongly supported (Eggert & Ulaga 2002; Liljander & Strandvik 1993; McDougall & Levesque 2000; Patterson & Spreng 1997). Thus, we hypothesise the following:

**Hypothesis 4: Consumers' satisfaction of the Internet service is positively related to their repeat repurchase intention.**

**Hypothesis 5: Consumers' satisfaction of the Internet service is negatively related to their switch-company repurchase intention.**

Even though Girard et al. (2002) show the potential of search product over the experience product in the Internet context, they do not examine the service product. Products such as books, personal computers, computer accessories, clothing, perfume, cell phones, television, vitamins and water

purifiers are more reflective of tangible products. Generally, the effect of product classification on service quality-satisfaction-intention relationship remains largely unexplained; therefore, we state a null hypothesis for initial testing.

Hypothesis 6: There is no difference in regression weights with regard to the relationships between service quality, satisfaction and intention across product category.

## RESEARCH DESIGN

To achieve our research objectives, a two-stage study was organised. The objective of the first stage is to classify products into search, experience and credence products. The objective of the second stage is to examine the interrelationships between the constructs and testing of hypotheses. Data for this study was collected in the UK in 2003. The UK was chosen for this study because of the following reasons. Firstly, in terms of e-commerce as a percentage of retail sales, the UK is in third place after the US and Sweden (Key Note 2002). Secondly, "The UK is the world's fourth largest economy (behind the US, Japan and Germany) and the nation's e-business adoption rate generalizes well to North America and continental Europe" (Frohlich & Westbrook 2002:733). Finally, according to industry experts prediction, by the year 2005, electronic home shopping will capture between 8 and 30 percent of the UK retail market, which is worth about £260 billion (Key Note 2000). The research methods and results of these studies are discussed in the following sections.

## CLASSIFICATION STUDY

### *Method*

The classification study was designed to empirically group the three selected Internet services (Internet banking, airline ticketing and book retailing) into search, experience and credence properties. Although these services are commonly used to represent credence, experience and search products, it is uncertain whether this representation remains in the Internet service context.

Judgemental sampling is usually used when inviting judges to group the subjective object into prior identified groupings (Armstrong & Overton 1977; Holsti 1969; Rosenthal & Rosnow 1991). In general, two or three qualified judges are invited for this type of study. However, foreseeing that Internet service is a relatively new phenomenon and most of the Internet retail service users are also in their early stage of consuming these services, more judges were invited to gain a better understanding. This is to achieve an empirical understanding of how Internet service users perceive the

evaluation process in purchasing Internet retail services.

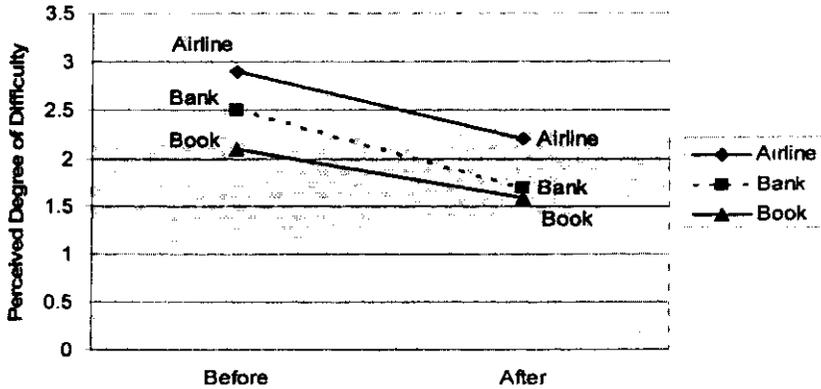
Judges were experienced Internet service users who have used or purchased banking services, airline tickets and books through the Internet in order to accurately express their opinions in terms of the perceived degree of difficulty in evaluating these products before and after the purchase experiences. Ten qualified judges were selected (a judgmental sampling) from 61 voluntary participants. The 10 qualified judges consisted of 5 males and 5 females. The majority of them were doctoral researchers with two lecturers and one research fellow. They had purchased various goods and services through the Internet.

In terms of analysis and reporting, the internal agreement of judges (i.e. the inter-judge reliability) was assessed first, as inter-judge reliability is usually assessed in studies involving judges (Armstrong & Overton 1977; Holsti 1969; Rosenthal & Rosnow 1991). Paired sample t-tests were then carried out to examine the means differences between the groups. The internal agreement of judges was assessed by the inter-judge reliability. It is a composite reliability that takes into account the average inter-judge agreement (see Holsti 1969). The calculated inter-judge agreement fell within the acceptable range ( $\alpha = 0.85$  for two-way mixed effect model;  $\alpha = 0.71$  for two-way random effect model).

### *Results*

Pair sample t-tests were used to examine the differences between these services. Figure 2 shows that the Internet book retailing is approximate as search products as there is no significant difference in terms of perceived degree of difficulty in evaluating the service before and after the purchase; moreover it is perceived to be less difficult to evaluate as compared to Internet banking and airline ticketing service. The Internet airline ticketing service can be used to represent the experience product since there is a significant difference in perceived degree of difficulty before and after the purchase of the service, and in both situations the perceived degree of difficulty is the highest among the selected Internet services. The Internet banking service is in between the other two services and perhaps is more appropriate to be grouped under the experience service since there is a difference in terms of the perceived degree of difficulty in product evaluation before and after the purchase. However, none of the selected services approximates to a credence product because they are within the range of "easy to be evaluated" (below 3.5 in a 6-point scale). This finding supports Gabbott and Hogg's (1998) argument that extrinsic information may be gathered via the Internet as an approximate of intrinsic information, and subsequently, reduces the perceived difficulty in evaluating products. In addition, the traditional approach of using banking, airline ticketing and book retailing as being representative of credence, experience, and search

product respectively might not truly reflect Internet services users' perception in product evaluation.



Note: Difference between Airline & Book	Difference between Airline & Bank
Before: 2.90-2.10 = 0.80 (significant)	Before: 2.90-2.50 = 0.40 (not significant)
After: 2.20-1.60 = 0.60 (significant)	After: 2.20-1.70 = 0.50 (significant)

FIGURE 2. Grouping of product based on purchase evaluation

INTERNET USERS SURVEY

Method

The survey sample consisted of 636 individual Internet services users who voluntarily participated in an online survey. The measurement scales of constructs were adapted from the literature review and the findings from our qualitative studies (focus groups and interviews: these separate studies are not reported in this paper). In brief, a literature review was carried out and two focus groups as well as 61 personal interviews were conducted to develop the initial measurement instrument of Internet Service Quality (that is, the 3R framework – Reliability, React-ability, Readability. See Appendix for measurement items.). In addition, a consumer survey was carried out and various statistical tests (e.g. Exploratory Factor Analysis, reliability and validity tests) were run with reference to guidelines in the literature (Hair, Anderson, Tatham & Black 1998; Tabachnick & Fidell 2001; series of literature in SERQUAL development). As shown in Table 1 Internet service quality and satisfaction were operationalised by 10 items and 3 items respectively. The repeat repurchase and switch-company repurchase intention variables were measured by single statements. In order to maintain consistency, a 7-point Likert scale was used across measurement items and reliability alpha of multiple items were above 0.80.

TABLE 1. Illustration of measurement items

Construct	Dimension	Variable name	Measurement Items
Internet service quality (ISQ)	Reliability	Secure/Promise	feel safe to use the company's online transaction services. The company always breaks its promise in delivering the Internet service. (R)
		Consistent/Accuracy	The company consistently provides quick service. Inaccurate service is given when I use the company's online transaction. (R)
	React-ability	Transaction procedure	The company's online transaction procedures are difficult to understand.(R)
		Accessibility	Under normal conditions, the company's web site is always accessible.
		Loading speed	It is slow to view the company's web pages. (R)
	Readability	Transaction function	The company's online transaction service always works when needed.
		Easy navigation	The company's web site is easy to navigate.
Consumer satisfaction	Clear direction	The online directions (step by step instructions) are clear.	
	Internet service satisfaction	I am happy with the company's Internet services. I am disappointed with the company's online transaction service. (R) I am satisfied with the company's overall services.	
Intentional repurchase options	Subsequent repurchase	It is likely that I will use the company's Internet service again in the future.	
	Switch company repurchase	It is likely that I will switch to other online company's Internet services in the future. (R)	

(R) indicates scoring of the item is reversed so that higher scores indicate more positive responses

The sample consisted of individual Internet services users who voluntarily participated in the web survey conducted in the UK. Web surveys are a "high potential" data collection mode (Grandcolas, Rettie & Marusenko 2003; Griffis, Goldsby & Cooper 2003; Sheehan 2002; Shermis & Lombard 1999) and a convenience sample is commonly used among researchers in view of time, cost and resources restrictions (McDougall & Levesque 2000; Spreng & Mackoy 1996; Taylor & Baker 1994). This practice is generally accepted provided that the sample characteristics are reported and its potential bias is acknowledged.

A total of 636 usable responses were collected with 247 (38.8%) males, 373 (58.6%) female and 16 missing values on this variable. There were slightly more females than males. The increase of women online has been reported in market research publications in this area ("The Internet" 2000; "Internet" 2000). In terms of age, 36.8% were 16 to 24 years old, 23.6% were in the 25-29 years age category and 12.7% were in the 30-34 years age category. In total, 73.1% were between the ages of 16 and 34. This means the majority of the respondents were part of the youngest group. This feature is similar to the characteristics of Internet users reported by the UK National Statistics, where the UK Internet users tend to be younger with 88% of those aged between 16 and 24 years and 76% of those aged between 25 and 44 years have used the Internet. The examination of the annual income level indicated that 35.1% of the respondents had an annual income of less than £10,000, 22.2% reported income in the £10,000 to £20,000 category and 18.6% reported an annual income ranging from £20,000 to £30,000. Only 8.6% of the respondents had an annual income of higher than £40,000. This means the majority of the respondents were within the lower income group. This characteristic is not surprising since the NetValue's findings in 2001 confirm that low-income groups are in the majority of Internet users and that the Internet in the UK has become a mass market medium (UK Low-Income 2001).

Furthermore, a majority of the respondents (75.7%) reported having completed at least a first degree level. This is also consistent with the report that Internet users are likely to be highly educated (Castells 2000; Jarvenpaa & Todd 1997; UK Web Banks 2000). Out of 636 respondents, 161 were undergraduate students, 202 postgraduate students and 252 employed. It has been argued that students and populations within education institutions possess economic potential as they are frequent users of the Internet and they are an important target market for understanding Internet users and shoppers (Brackett & Carr 2001; Jayawardhena & Foley 2000; Gallagher, Parsons & Foster 2001; Yoo & Donthu 2001). This cross examination suggests that even though this is a convenience sample, it does reflect certain characteristics of Internet users and is a useful source in investigating Internet services users' perceptions and behaviour. Moreover, the respondents

had experienced the selected Internet services prior to participating in this study. The purchase experiences that were evaluated by respondents were banking (257), airline ticketing (235) and book retailing (144) services delivered through the Internet. It is also important to note that only 26.4% (168 out of 636) of the respondents self-reported that they had experienced a problem with their Internet transaction service, whereas the majority (73.1%) reported that they had never experienced any problem.

A check for non-response bias, in which the date the questionnaires were received by the researchers was regressed on each of key independent variables, produced a non-significant overall model (Bettencourt & Brown 2003). Non-significant results are also reported for the test of the early and late responses on the key constructs and variables. Structural Equation Modelling (Byrne 2001; Hair et al. 1998; Tabachnick & Fidell 2001) was used to test the hypotheses.

### *Results*

The significant correlations of the tested variables at the  $p < 0.01$ , provide initial support for hypotheses 1 to 5. The 2-tailed Pearson correlation values range from 0.209 to 0.681, with the mean being 0.379. The AMOS 5 program (using Maximum Likelihood Estimation) was used to perform the structural equation modelling. Even though we expect mediated relationships, the direct relationships were also included in the model for comprehensive testing. The results of the structural model estimated are presented in Table 1. All the hypothesised paths were tested simultaneously. Model A shows the hypothesised model. Hypothesis 1, 4, 5 and 6 are supported ( $p < 0.05$ ). The proposed structural model's GFI of 0.971, CFI of 0.991, chi-square of 77.418 ( $p = .076$ ), with 61 degree of freedom, and RMSEA of 0.021 indicate a good fit (Byrne 2001; Hair et al. 1998). The square multiple correlations (SMC) for Internet service satisfaction are above .70 across the different product categories, which is high. The SMCs for the two intention variables are slightly lower; however, the proposed structural model performed as predicted.

The multiple indexes reported also suggest, at certain level, the reliability and validity of the measurement model is at the acceptable level. Though construct validity is difficult to established, considerable effort was used to reflect the theoretical characteristics of the constructs included in this study. For example the attitude-behaviour theories and theoretical framework of service quality in the traditional face-to-face context is used to develop the research framework. The inclusion of satisfaction and intention measures also help to establish some convergent and discriminate validity. The observations of correlations between concepts, where closely related concepts (i.e. service quality and satisfaction) are highly correlated as compared to conceptually different concepts (i.e. service quality and intentional repurchase

TABLE 2. Structural model estimation results

Path	Model A			Model B		
	The hypothesized model that the three groups have the same regression weights			The alternative model that the three groups have different regression weights		
	Book	Bank	Airline	Book	Bank	Airline
ISQ → ISS	.885**	.962**	.881**	.867**	.942**	.908**
ISQ → RRI	-.283	-.321	-.323	.181	-.337	-.447
ISQ → SCRI	-.003	-.004	-.005	.243	.164	.035
ISS → RRI	.700**	.732**	.804**	.300	.664	.977*
ISS → SCRI*	.320*	.371*	.439*	.018	.129	.489*
SMC <sub>ISS</sub>	.783	.926	.776	.752	.887	.825
SMC <sub>RRI</sub>	.220	.186	.293	.217	.133	.361
SMC <sub>SCRI</sub>	.101	.134	.190	.067	.083	.272
Chi-square (df)	77.42 (61)			61.67 (51)		
P	.076			.146		
GFI	.971			.976		
AGFI	.949			.950		
NFI	.958			.967		
CFI	.991			.994		
RMSEA	.021			.018		

Note: All estimates are common metric and completely standardized. ISQ=Internet service quality; ISS=Internet service satisfaction; RRI=Repeat repurchase intention; SCRI=Switch-company repurchase intention; SMC=squared multiple correlation; GFI=Goodness-of-Fit Index; AGFI=Adjusted goodness-of-Fit Index; NFI=Normed Fit Index; CFI=Comparative Fit Index; RMSEA=root mean square error of approximation

\*\*  $\alpha=0.001$ ; \*  $\alpha=0.05$ ; SCRI\* =the negative score of SCRI has been reversed, thus the higher the score (positive sign) reflect the lower tendency to switch  
Chi-square difference between Model A and B:77.418-61.666 = 15.752 (df =61-51=10); not significant at 0.1 level

options), also provide support for construct validity (Diamantopoulos & Schlegelmilch 1997; Nunnally 1978; Peter 1979; Rosenthal & Rosnow 1991).

#### HYPOTHESES RESULTS

The results for the hypotheses 1 to 5 are listed in Table 2. Internet service quality is positively related to Internet service satisfaction, thus hypothesis 1 is supported (effect estimated range from 0.881 to 0.962,  $p < .01$ ). The direct effect hypotheses (Hypotheses 2 and 3) were not supported as all the direct paths (ISQÆERRI, ISQÆESCRI) were not statistically significant. Internet service satisfaction has a significant positive effect on repeat repurchase and significant negative effect on switch-company repurchase intention, supporting Hypotheses 4 and 5. Hypothesis 6 was tested by Model B that estimates the regression weights across the three groups. Similarly, we used maximum likelihood estimation in AMOS5 to test this alternative model, then compared these results with the results of our proposed model and examined the chi-square differences. To test this alternative model, we released all the main effect paths for estimation as suggested in the literature (Byrne 2001; Steenkamp & Baumgartner 2000). Model B in Table 2, shows the test results. The fit indexes for this alternative model, although is good, are not statistically different from Model A. Comparing Model B against Model A gives a non-significant chi-square of 15.752 ( $df=10$ ). This examination of the significant difference in chi-square values is suggested and used in the literature in comparing structural equation models (Anderson & Gerbing 1988; Bagozzi & Phillips 1982; Cronin, Brady & Hult 2000). Assuming that Model A is indeed correct, the estimates are preferable over the Model B estimates, supporting hypothesis 6. The reason for using Model A is that it is developed based on theoretical and some related empirical findings in Internet service context. As structural equation modelling is a confirmatory analysis it is strongly suggested that the tested model must be developed with regard to theoretical proposition instead of purely matching by examining the indexes (Hair et al. 1998; Tabachnick & Fidell 2001). In brief, the findings support the mediated relationship between service quality-satisfaction-intention across products in the Internet context.

#### DISCUSSION

As discussed earlier in the literature, the results obtained in this study can be explained by consumer behaviour and attitude theories (Ajzen 2001; Athiyaman 2002; Engel et al. 1993; Fishbein et al. 1976; Taylor, Peplau & Sears 2000), which suggest that the effect of consumer cognitive belief on conative behaviour is mediated via their affective evaluation. In addition,

this result is consistent with previous empirical studies of the mediated link between service quality, satisfaction and intention in the physical based service context (Caruana et al. 2000; Eggert & Ulaga 2002; Liljander & Strandvik 1993; McDougall & Levesque 2000). Therefore, it is highly likely that traditional marketing theory is applicable in the Internet context subject to empirical confirmation (Merrilees, 2001). The second key finding of this research is that competitive advantage cannot be gained through selective offering. The general speculation that offering search products such as books or CDs over the Internet may be more promising as compared to offering experience products such as banking or airline ticketing services is not supported. The plausible explanation is that the perceived degree of difficulty in product evaluation is reduced as the Internet may ease the extrinsic and intrinsic information search (Gabbott & Hogg 1998). This means information related to products' features are readily available. Perhaps, consumers are selective in Internet purchases, and they only purchase products that can be easily evaluated by gathering relevant information.

### STUDY IMPLICATIONS

This study supports the potential applicability of the consumer behaviour and attitude theories in the Internet context. Specifically, the cognitive-affective-conative behaviour link is useful in explaining Internet users' behaviour. With regard to our findings, Internet service quality has a strong effect on consumers' satisfaction, explaining 88 to 96 percent of its variance across different product category. This supports the general view that service quality is a key antecedent of satisfaction regardless of contextual differences (traditional or Internet).

The findings can also be used to help other Internet-based services providers. For instance, Internet retailers selling CDs (which are similar to books) can adopt or adapt the measurement instrument to measure their customers' perception of service quality and satisfaction. The benefit of adopting the instrument is that it is a parsimonious model (with 10 items) and is able to explain substantial variances in consumer satisfaction. Furthermore, with reference to the applicability of the traditional marketing models in the Internet context, marketing managers at an appropriate level can use the traditional marketing model in assisting their strategic and tactical decisions making related to Internet service management.

In addition, as shown in this study, a simple classification study can be conducted to gain some basic understanding with regard to product category and consumers' perception of the degree of difficulty in evaluating the product. Products that fall within the same category might share similar properties. This is useful information as it determines the conditional facet before adopting an appropriate framework in service management. For

example, in this study, the selected services such as Internet banking or airline ticketing and book retailing though statistically different in their means perceptions of perceived degree of difficulty in product evaluation, still have their features fall within the range of “easy to be evaluated”. This means in general Internet service users perceived that they are able to evaluate the service features prior to the purchasing decision through the Internet channel. Therefore, in the conceptual testing of relationships between service quality, satisfaction and intention, the same relationships persist across these services. This study has supported the simple 3R’s (Reliability, React-ability, Readability) model that consists of the key dimensions of Internet service quality based on consumers’ perspective (see Table 1). It has also confirmed the significant influence of these dimensions on consumer satisfaction. The important message from this study is that Internet retailers need to improve their service quality performance. In particular, they have to communicate to their target market the “reliability” and “react-ability” features of their services. Furthermore, to retain their existing customers, Internet retailers must consistently assess their customers’ perception of service quality and their current level of satisfaction.

It may also be unrealistic for Internet retailers to expect that by offering “search” type products such as books, they will be in an advantageous position in the Internet retail market. Therefore, the management goal of Internet retailers is to create competitive advantage through concrete improvement of their service performance and investment in educating customers or potential customers in order to enhance overall service performance. This is because at this early stage, consumers might lack proper service scripts that enable them to use the Internet services efficiently.

The complexity of Internet service offerings is also evident in the fact that direct relationships between service quality and repurchase intention was not strongly supported. This means Internet retailers need to emphasise both the improvement on service quality and its consequences on consumer satisfaction. Without taking into consideration these related measures, a change in service quality’s features may have little impact on consumers’ repurchase intentions. The impact of service quality enhancement activities is therefore dependent on the full commitment of creating satisfied customers not only in terms of verbal communication but also in terms of action and substantial technical and non-technical investment.

## CONCLUSION

This study only addresses a few of the many issues within the Internet retail services. It does not mean service quality is the only panacea for effective service delivery and business performance. To succeed, Internet retailers still have to consider other factors such as consumers’ satisfaction of the

supplementary telephone service, perceived value and technical web site quality.

Like in most studies, this study has limitations that need to be recognised and addressed in future research. First, the consumers' repurchase intentions were measured using a single item; although using such a single item is not an uncommon practice, developing a multi-item measure might better capture the constructs. Second, our research uses convenience sampling. This limits the generalisation of the results outside the studied area. Using a probability sample might be considered in future research. Third, as the "credence" product is not represented in our study, future research might want to include a more comprehensive and distinctive representation of different product categories. Finally, as the variances in the intentions remain largely unexplained; additional covariates need to be further explored and included in the model to increase the overall predictive power in future studies.

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