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Abstract

Despite the fact that service quality is a critical determinant of website success, studies show that consumers frequently view the service quality delivered through websites as unsatisfactory. This paper outlines a study investigating the dimensions of website service excellence valued by Irish customers of a small to medium enterprise specialising in gifts. The e-S-QUAL measurement instrument was applied to customers who purchase products online from this retailer, in order to determine their purchasing patterns and the dimensions of e-service quality that they value. This study makes a major contribution to the literature as it describes the application of the newly operationalised E-S-QUAL measurement instrument. The findings will also benefit both practitioners and researchers in developing an understanding of the factors that contribute towards the creation and maintenance of consumer satisfaction in Irish online transactions.

Keywords: Website service quality, small-to-medium enterprises, E-S-QUAL.

1.0 Introduction

In Ireland the need for online vendors to understand the dimensions of e-service quality that customers value has an added impetus as Irish consumers continue to resist transacting via the Internet – using it as an information rather than a transaction medium and thus limiting its commercial potential. For example, by the end of 2002, nearly half of the Irish population had Internet access, but only 38% of Irish Internet users had made an online purchase (Amarach Consulting, 2002). Studies in the UK have also found that the percentage of the Internet population who shop online has not increased in line with Internet penetration. Thus, while increases in the sheer size of the Internet population mean that more people have made an online purchase, the proportion of Internet buyers is not increasing. Therefore, in order that the commercial potential of the Internet is to be realized - a potential that is expanding dramatically as a result of advances in consumer wireless technologies and their

transaction-facilitating capabilities – understanding the dimensions of service quality that Irish online consumers value is of critical importance.

1.1 Research Objectives

This research extends our understanding of service quality within the setting of online retailing. The study has two objectives. Firstly, it examines the dimensions of website service quality that are valued by customers of a small to medium online company in Ireland. Secondly, by applying the newly operationalised e-S-QUAL measurement instrument, it explores the relevance of this instrument in the evaluation of business to consumer website service quality.

2.0 Service Quality

Service quality in is one of the most researched topics in the area of service marketing. Although research into the dimensions of website service quality that are valued by online consumers is in an embryonic stage, it is an issue of considerable importance. In part, this is due to the fact that as competition for online consumers intensifies, service quality has become a key differentiator for online vendors and thus it has become increasingly important to have an appropriate means by which to measure it. This is particularly true in the business to consumer electronic commerce marketplace where web vendors compete for a limited number of consumers and where consumer loyalty has become a key indicator of success.

Service quality has been defined as the difference between customers' expectations for service performance prior to the service encounter and their perceptions of the service received (Asubonteng *et al.*, 1996). When performance does not meet expectations, quality is judged as low and when performance exceeds expectations, the evaluation of quality increases. Thus, in any evaluation of service quality, customers' expectations are key to that evaluation. Moreover, Asubonteng *et al.*, (1996) suggest that as service quality increases, satisfaction with the service and intentions to reuse the service increase.

Meeting customer service requirements is both a performance issue (whether the service satisfies the customers requirements) and an issue of conformity to measurable standards. For example, for Swartz and Brown (1989) distinguish between the consumer's post-performance evaluation of 'what' the service delivers and the consumer's evaluation of the service during delivery. The former evaluation has been termed 'outcome quality' (Parasuraman *et al.*, 1985), 'technical quality' (Gronröos (1983) and 'physical quality' (Lehtinen and Lehtinen, 1982). The latter evaluation has been termed 'process quality' by Parasuraman *et al*., (1985), 'functional quality' by Gronröos (1983) and 'interaction quality' by Lehtinen and Lehtinen (1982).

The most frequently cited measure of service quality is SERVQUAL, an instrument developed by Parasuraman *et al.,* (1985; 1988). It has been widely cited in the literature and has been used to measure service quality in a variety of settings e.g. health care (Babakus and Mangold, 1992; Bebko and Garg, 1995, Bowers *et al.*, 1994), large retail chains (Teas, 1993; Finn and Lamb 1991), fast food restaurants (Cronin and Taylor 1992), a dental clinic, a tyre store and a hospital (Carman 1990). Designed to measure service quality from a customer perspective, it consists of five basic dimensions that represent the service attributes that consumers use to evaluate service quality. The five dimensions are tangibles, reliability, responsiveness, assurance and empathy. In their model, Parasuraman *et al.,* (1985; 1988) suggest that it is the gap between consumer expectations with actual service performance that informs service quality perceptions. To the degree that service performance exceeds expectations, the consumer's perception of service quality increases. To the degree that performance decreases relative to expectations, the consumer's perception of service quality decreases. Thus, it is this performance-to-expectations gap that forms the theoretical basis of SERVQUAL. However, Parasuraman *et al.,* also note that the evaluation of service quality is not based solely on the service outcome but also involves evaluations of the process of service delivery.

Despite its popularity, a number of issues related to the use of SERVQUAL remain contentious, such as the proposed causal link between service quality and satisfaction (eg Woodside *et al*., 1989; Bitner 1990), and the question as to whether one scale can be universally applicable in measuring service quality regardless of the industry or environment (Asubonteng *et al.,* 1996; Cronin and Taylor 1992; 1994; Teas, 1993;

Carman, 1990; Finn and Lamb, 1991). Moreover, although it remains the dominant model for both researchers and managers, its proposed universality and applicability is made even more questionable by viewing the numerous modifications that are evident in many studies that purport to use this model (Paulin and Perrien, 1996).

2.1 e-Service Quality

Website service quality, frequently termed e-service quality, has been defined as "consumers overall evaluation and judgement of the excellence and quality of e-service offerings in the virtual marketplace (Santos, 2003) and "as the extent to which a website facilitates efficient and effective shopping, purchasing and delivery" (Zeithaml 2002). E-service quality is constantly evolving due to the pace of competition and the ease of duplicating service features in the online world (Trabold et al., 2006). Notwithstanding evidence of continuing consumer dissatisfaction with service delivered through the Internet (Gaudin 2003; Ahmad 2002) studies of e-service quality remain limited and frequently employ instruments that were developed for use in a traditional environment such as the SERVQUAL survey instrument. For example, researchers (Van Iwaarden *et al.*, 2004) have used SERVQUAL to examine the quality factors perceived as important in relation to the use of websites, despite the fact that it was not designed to measure perceived service quality in an online environment and its applicability is therefore unlikely to extend to that context. While it is true that past conceptualisations can be useful platforms for describing e-services (Van Riel, 2001), there is an increasing awareness (Cai and Jun, 2003; Lie et al., 2003) that the SERVQUAL instrument is limited in terms of its ability to measure e-service quality particularly as there are dimensions of service quality unique to the electronic context. For example, Cox and Dale (2001) argue that dimensions of service quality specific to a traditional environment such as competence, courtesy, cleanliness, comfort, and friendliness, are not salient in the electronic retail environment while such dimensions as accessibility, communication, credibility, and appearance, are of critical importance in an on-line environment. Support for inclusion of specific dimensions unique to the on-line retail environment is also provided by Long and McMellon (2004) who argue that factors such as geographic

distance and face-less ness of the experience form part of the online service experience and therefore should be part of any e-service quality measurement instrument.

However, although several researchers have proposed scales to evaluate websites, many of these scales do not provide a comprehensive evaluation of the service quality of the website. For example, the focus of the WebQual scale (Loiacono *et al.*, 2000) is to provide website designers with information regarding the website (e.g. informational fit to task) rather than to provide specific service quality measures from a customer perspective. Other scales such as WebQual (Barnes and Vidgen, 2002) provide a transaction-specific assessment rather than a detailed service quality assessment of a website. The SITEQUAL (Yoo and Donthu, 2001) scale excludes dimensions central to the evaluation of website service quality as does Szymanski and Hise's (2000) study, while researchers (Parasuraman *et al*, 2005) have expressed caution regarding the consistency and appropriateness of dimensions used in the eTailQ scale proposed by Wolfinbarger and Gilly (2003).

Recently however, many of these concerns have been addressed by the original authors of the SERVQUAL instrument through the development and operationalisation of a multi-item scale for examining website service quality (Parasuraman, Zeithaml and Malhotra, 2005). This scale, termed E-S-QUAL, is a four-dimensional, 22-item scale that captures the critical dimensions of service quality outlined in the extant literature. The dimensions are efficiency, fulfilment, system availability, and privacy. The scale has an accompanying subscale called E-RecS-Qual which contains items focused on handling service problems and is relevant to customers who have had non-routine recovery service encounters with the website. E-RecS-Qual consists of a three-dimensional, 11 item scale. These three dimensions comprise responsiveness, compensation, and contact. Both scales, whose specific purpose is the measurement of website service quality, have been subjected to reliability and validity tests and demonstrate good psychometric properties.

As E-S-QUAL is a relatively new measure it has therefore not been used extensively in online service quality research. A recent study that has utilised the measure (Kim *et al.*, 2006) found that online apparel retailers are failing on specific service

dimensions leading to dissatisfaction on the part of their consumers. Such insights provide critical insights and have the potential to assist apparel retailers in improving their service and thus increase their success in the commercial arena. In this study the E-S-QUAL instrument will be applied to a narrowly focused business context as has been done by other researchers who have sought to identify the key dimensions of service quality in contexts such as online banks, or travel agencies (e.g. Jun and Cai, 2001; Van Riel et al, 2001).

3.0 RESEARCH METHODOLOGY

Having reviewed the relevant literature, the decision was taken to use the E-S-Qual questionnaire (Parasuraman *et al.*, 2005). A well known, Dublin based online retailer was chosen to host the questionnaire. This portal assists 25 vendors to maximise their online selling potential through advertising special offers, co-ordinating deliveries and taking advantage of Internet business models. It was felt that as there was a mix of businesses selling goods ranging from holidays to flowers, there would be a good cross-section of customer types in terms of ages, tastes, and spending power. Using the portal as a host would have the added advantage of targeting the research at the correct population; those who regularly shop on line.

The authors met with the portal's Marketing Manager and Web Content Manager to discuss the possibility of the research being carried out there. The discussions with the managers culminated in an agreement that the portal would host the questionnaire on each of their 25 partner stores. It was also decided that three managers from each of the stores (vendors) would complete an online questionnaire similar to the customers so that responses to the same statements could compared. The authors agreed to provide a confidential report for each individual vendor as well as a comparative report for the online portal.

The final survey utilised, based on the Parusaman *et al.*, (2005) questionnaire, was divided into two sections, 1 & 2 and set up in a web-based format. Customers completed Sections 1 and 2 and vendors completed Section 1 only. In Section 1 of the survey a varying number of questions were asked regarding several dimensions of

online service quality. The owners of the online gift website requested that the questions relating to compensation be omitted from the final questionnaire as they viewed these questions as introducing a negative view of interactions with the website.

eService Quality Dimension	**Number of Questions**
Efficiency	8
System availability	4
Fulfilment	7
Privacy	3
Responsiveness	5
Efficiency	8
Compensation*	3
Contact	3
Perceived value	4
Loyalty intentions	5

* Dimension omitted on request of online vendor

Table 1 eService Quality Dimensions

In addition, a statement on the influence of the service quality dimension on the consumer's trust beliefs was also included. For example, in relation to the dimension of website efficiency, customers were asked to address the following: *The ease of use of a website increases my trust in the on-line vendor.* Section 2 of the survey collected demographic information on the respondents. In order to obtain participation in the study, the Web Content Manager emailed customers to ask them to take part in the web-based survey. The data obtained from the questionnaire was converted into Excel and analysed using SPSS (Statistical Package for the Social Sciences), a widely used programme for statistical analysis.

3 RESULTS

3.1 Response rates

A survey was undertaken for this research, and the URL link to the survey web site was sent in the participating company newsletter, via email to the 5,000 people who were registered customers. 84 respondents completed the questionnaire within 1 week of the initial notification. This represents 1.68% of the sample. A second notification was sent by email 3 weeks later, which increased the number of respondents to 119. This represents an increase of 43% to a total sample response rate of 2.38%. One possible explanation for the low response rate is the difficulty in checking the validity and continued operation of the email addresses. This response rate is despite the incentive of entry into a draw for a free prize. The second mailing succeeded in increasing the response rate from 1.68% to 2.38%. Within the responses received 25% completed section 1 in full, and all 119 completed section 2. This gives the figure 0.6% as the percentage of the total sample that returned a fully completed questionnaire for section 1, and 2.38% for section 2.

3.2 Reliability Analysis

The E-S-QUAL scale (Parasuraman, Zeithaml and Berry, 2005) outlined four constructs for website service quality and developed a scale by which these constructs can be measured in relation to their influence on perceived value and consumers' loyalty intentions. For the purpose of this study, it was decided to also examine the relationship between each of these four website service quality dimensions and the online consumers trust response. Table 2 shows the Cronbach's alpha values for each of the constructs. All of the constructs worked well with this sample with the four constructs 'Efficiency', 'Fulfilment', 'Responsiveness' and the 'Loyalty Intentions' providing particularly strong internal reliability measures.

Construct	**Number of Items**	**Cronbach's Alpha**
Efficiency	8	0.95
System Availability	4	0.86
Fulfilment	7	0.94
Privacy	3	0.88

Responsiveness	5	0.95
Contact	4	0.85
Perceived Value	4	0.87
Loyalty Intentions	5	0.96

Table 2 Reliability Analysis – Scale (Alpha)

3.3 Correlation Results

Having secured reliability measures for the variables the measure of association between pairs of variables was now examined using correlation techniques. Correlation is a statistical technique that provides a measure of the association between two variables i.e. how strongly the variables are related, or change, with each other. In order to test the data a simple average for each of the related questions was calculated for each construct and the relationship between the variables then considered. The correlation coefficient results are displayed in appendix 1.

The website service quality constructs showing the strongest inter-relationships are system availability with privacy (0.84), and efficiency with system availability (0.80). The weakest inter-relationships are those of fulfillment with contact (0.39) and privacy with contact (0.53). The relationships between the website service quality constructs and the dependent variables were then examined. In relation to the dependent variable 'perceived value', the strongest result is provided by the responsiveness construct (0.87), followed by the system availability construct (0.81). The weakest relationship is that between contact and perceived value (at 0.72).

In relation to the dependent variable 'loyalty intentions', the results again show a positive relationship between the dependent and independent variables. However, the website service quality dimensions show a slightly weaker relationship with customer loyalty than with perceived value. Efficiency has the strongest influence on customer loyalty at 0.76 and this is followed by system availability at 0.68. This indicates that website attributes exert a strong influence on the loyalty intentions of online customers. Interestingly, fulfillment and privacy were the website service quality variables with the weakest relationships with loyalty intentions at 0.62 each. Finally,

the results indicate a positive relationship between each of the dependent variables. The strongest level of association was that between trust and perceived value (0.76), with the next strongest being that between perceived value and loyalty intentions (0.72) and the weakest of these relationships being that between trust and loyalty intentions (0.60).

3.4 Regression Analysis

ultiple regression techniques were used in this study to establish whether the set of independent variables could explain a proportion of the variation in the dependent variables at a significant level, and to establish the relative predictive importance of the independent variables**.** The independent variables were: Efficiency, System Availability, Fulfilment, Privacy, Responsiveness and Contact. The dependent variables are Perceived Value and Loyalty Intentions. The results, outlined in tables 3 and 4 show that these independent website service quality variables explain 87% of the variation in perceived value and 69% of the variation in loyalty intentions respectively.

R	R Square	Adjusted R Square	Std. Error of Estimate
.936(a)	.876	.844	.28194

Independent variables: Efficiency, System Availability, Fulfillment, Privacy, Responsiveness, Contact. Dependent variable: Perceived Value

Table 3: Model Summary: Perceived Value

R	R Square	Adjusted R Square	Std. Error of the Estimate
.829(a)	.687	.605	.51010

Independent variables: Efficiency, System Availability, Fulfillment, Privacy, Responsiveness, Contact. Dependent variable: Loyalty Intentions

Table 4: Model Summary: Loyalty Intentions

The F-statistics for each of the relationships reported above indicate that with 99.9% confidence, we can assert that there is a systematic relationship between the dependent variables and the set of independent variables. Thus, at least one of the independent variables is explaining changes in the dependent variable.

Predictive Importance of Independent Variables

Perceived Value: The coefficient results indicate that two of the independent variables – system availability (coefficient beta weight 0.390) and responsiveness (coefficient beta weight 0.371) - exert the strongest effect on the dependent variable perceived value. Fulfilment and contact are significant independent variables – but to a lesser degree. Each of these variables is positively related to the dependent variable.

Loyalty Intentions: The coefficient results indicate that two of the independent variables - fulfilment (coefficient beta weight 0.355) and contact (coefficient beta weight 0.329) - exert the strongest effect on the dependent variable Loyalty Intentions. However, none of the independent variables are statistically significant. This result contradicts the results of the F-test that indicated with 99.9% confidence that there was a systematic relationship in this case. This contradiction is a typical outcome where independent variables are highly correlated with one another – where multicollinearity is present. The coefficient results for both dependent variables are shown in appendix 1.

4.0 DISCUSSION

The study findings provide evidence of a strong relationship between the system availability and privacy dimensions of website service quality. This indicates that consumers' evaluation of a website as reliable (in terms of availability for business) appears to result in a parallel evaluation of the vendor as likely to take adequate measures to protect their personal information. The findings also confirm a strong inter-relationship between system availability and efficiency, confirming the close association between these dimensions of website service quality in the mind of the consumer.

An interesting distinction emerged in terms of the difference between contact and responsiveness. For example, the results show that consumers' perception of value is positively influenced by vendor responsiveness but negatively influenced by contact. This indicates that while consumers perceive aspects of responsiveness such as the ability to take care of consumer problems, to handle product returns well, and to tell the consumer what to do if a transaction is not processed as adding value to their service interaction with the vendor, all contact must be initiated by the consumer as non-solicited contact (e.g. as with event notification emails) is perceived as an infringement of privacy.

The service quality variable with the strongest ability to influence consumers' perception of value is efficiency, followed by system availability, again confirming the inter-relationship between these two variables. Similarly, in relation to consumers' loyalty intentions, the dimensions of website service quality that provide the strongest explanatory power are efficiency and system availability respectively. These results indicate that technical website attributes such as ease of use and reliability have strong potential to influence perceived value and customer loyalty and outweigh consumers' fulfillment and privacy concerns. Vendors seeking to increase consumer's perception of value and intention to re-purchase from the website should therefore focus on the ease of use of the website customer interface and the reliability of their websites.

While previous research has argued that privacy of websites may not be critical for more frequent users (Wolfinbarger and Gilly, 2003), the results of this study indicate otherwise. For example, the majority of respondents in this study were reasonably frequent purchasers from this gift website (29% purchased on a monthly basis and 33% purchased every 2-3 months) spending an average of €50-€149 per transaction. While experience may mitigate concerns about website security, it clearly does not mitigate the influence of privacy concerns on the online consumers' trust response.

Finally, the use of the E-S-QUAL measurement instrument in an Irish context provided interesting insights into the critical facets of website service quality valued by Irish consumers. The authors of the E-S-QUAL instrument had previously applied it in the United States. Based on their results they concluded that the most critical and

equally important E-S-QUAL dimensions were the efficiency and fulfillment dimensions and that customers' assessment of a website on these two dimensions would have the strongest influence on perceived value and loyalty intentions. In this study the full measurement instrument (comprising E-S-QUAL and E-RecS-QUAL) was applied and the results obtained differ considerably from those of the instrument authors. For example, system availability and responsiveness respectively were the dimensions of website service quality shown to exert the strongest effect on perceived value, while in relation to loyalty intentions, the variables fulfilment and contact exert the strongest effect.on the dependent variable. System availability is a significant independent variable – but to a lesser degree. However, due to the limitations relating to sample size further research is necessary to establish whether or not the E-S-QUAL model is culture independent. At present, all that can be concluded is that this study has provided results that indicate that online consumers in Ireland differ in terms of the facets of website service quality that most influence their perceptions of value and their loyalty intentions.

5.0 CONCLUSION

One of the limitations of this study relates to the sample size, a fact that was beyond the control of the authors. Secondly, the company used in the study was an online gift store. The fact that those purchasing from this website are purchasing products that they will not be consuming themselves may lead to a different emphasis on certain facets of service quality. In order to ascertain whether this could indeed be the case, it is necessary to conduct further website service quality studies of websites where the consumer is purchasing the product for their own use. Thirdly, the online vendor in this study requested that the items on compensation should not be included in the questionnaire, as the company did not provide product compensation assurances. This resulted in one of the E-RecS-Qual sub dimensions being omitted from the study. While the E-RecS-QUAL section of the study is secondary to the E-S-QUAL section, which was represented in full, it is nevertheless a point that should be noted as the other two sub dimensions of E-RecS-QUAL were included in this study. Finally, this study extended the E-S-QUAL model by introducing a number of trust items relating to each of the service quality dimensions. However, it is not claimed that these items provide an extensive representation of consumer trust in the online vendor and further

research to specifically measure the influence of website service quality on online consumers' trust responses would be valuable.

The study also contributes to the small but growing body of work that exists on website service quality and provides insight into the use of the E-S-QUAL instrument in an Irish context. The insights provided by this study will also be of benefit to practitioners in their efforts to compete for and retain customers in the competitive electronic commerce marketplace.

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APPENDIX 1

Correlation Coefficient Results

Correlation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Efficiency (1)	1.00	0.80	0.56	0.67	0.82	0.71	0.79	0.76
System Availability (2)		1.00	0.60	0.84	0.73	0.53	0.81	0.68
Fulfillment (3)			1.00	0.78	0.63	0.39	0.73	0.62
Privacy (4)				1.00	0.75	0.53	0.80	0.62
Responsive (5)					1.00	0.71	0.87	0.72
Contact (6)						1.00	0.72	0.69
Perceived Value (7)							1.00	0.72
Loyalty Intentions (8)								1.00

Regression Coefficient Results: Perceived Value

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.790	.441		-1.794	.086
	Efficiency	-.099	.177	-.093	-.560	.581
	System Av	.425	.192	.390	2.212	.037
	Fulfillment	.335	.140	.295	2.389	.025
	Privacy	-.100	.183	-.102	-.548	.589
	Responsiveness	.356	.147	.371	2.423	.024
	Contact	.247	.112	.249	2.197	.038

Dependent Variable: Perceived Value

Regression Coefficient Results: Loyalty Intentions

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.863	.797		-1.083	.290
	Efficiency	.284	.320	.235	.886	.385
	System Av	.326	.347	.263	.938	.358
	Fulfillment	.460	.254	.355	1.810	.083
	Privacy	-.281	.330	-.253	-.852	.403
	Responsiveness	.068	.266	.062	.255	.801
	Contact	.371	.203	.329	1.826	.081

Dependent Variable: Loyalty Intentions