American International Journal of Humanities and Social Science, Vol. 5 No 3; September 2019
ISSN 2415-1270 (Online), ISSN 2415-1424 (Print)
Published by Center for Global Research Development

Service quality and customer satisfaction in electronic retailing: An Empirical Study

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Abstract

This study examines empirically the relative importance of various dimensions of e-service quality, (namely website quality, order fulfillment/delivery and customer service) on customer satisfaction in the context of electronic retailing. The study sample contains data from 116 electronic retailers. The results show that order fulfillment/delivery has the strongest impact on customer satisfaction, followed by customer service. Surprisingly, website quality has no major impact on satisfaction. Also, similar to website quality, price (treated as a control variable in our analysis) plays no significant role either. The findings have important implications for e-tailers interested in improving the quality of their service.

Keywords: e-tailing, e-service, service quality, logistics, empirical research

1. INTRODUCTION

Previous research has noted the importance of service quality as an antecedent of customer satisfaction, loyalty and firm profitability, both for off-line (Heskett et al. 1994) and on-line businesses (Tilak and Megha 2014, Chen and Kao 2010, Chang and Chen 2009, Francis 2009, Collier and Bienstock 2006, Wolfinbarger and Gilly 2003, Boyer et al. 2002; Srinivasan et al. 2002, Zeithaml, Parasuraman and Malhotra 2002). In fact, a central tenet of the service profit chain (Heskett et al. 1994, Loveman 1998) is that firms that achieve greater levels of perceived service quality realize improved business results and outperform their competitors (Heskett et al. 1994). This is not surprising as it has long been argued that customers ultimately buy quality results, not merely products or services (Heskett, 1986).

The emergence of e-tailing provides both traditional 'brick-and-mortar' businesses and pure Internet players a unique distribution channel for offering new service models, economically, with tremendous product variety and geographic reach (Boyer et al. 2002). Although there exist notable exceptions, acquiring new customers on the Internet tends to be incredibly costly (Reicheld and Schefter 2000). Therefore e-tailing must be well planned and properly implemented in order to become a viable channel on which to operate (Boyer et al. 2002). According to Reichheld & Schefter (2000), customer satisfaction and loyalty are even more important on the Web compared to the physical world, and without them e-businesses cannot generate superior long-term profits. The same authors have also found that attracting new customers in pure play Internet businesses is up to 40% more difficult than in traditional brick-and-mortar services. This startling insight underscores the fundamental importance of linking service operations strategy with marketing and target market requirements (Roth and Jackson 1995). Simply put, for e-tailing to be a viable strategy the correct profile of customers must be sought and their loyalty must be won through expert business execution.

According to Zeithaml et al. (2002), "*In e-tailing's nascent days, Web presence and low price were believed to be the drivers of success…Electronic service quality then entered the picture as a differentiating strategy*". Given the importance of service quality for customer satisfaction and firm profitability, it is evident that companies have to pay increased attention to the quality of services delivered through electronic channels. According to Hallowell (2000), "…ironically, it may be the less glamorous components of service quality, *customer support* and *logistics*, that are least easily duplicated, and thus the greatest sources of competitive advantage for Internet companies delivering a physical product or service."

Based on the above, we believe that it is important to examine the impact of e-tail quality on customer satisfaction. Recent research has addressed the notion of quality in e-tailing. However, most of these studies tend to address only website quality, ignoring the potentially important role that customer service and order fulfillment/delivery play in driving customer satisfaction (Hallowell 2000, Zeithaml et al. 2002). Though making significant contributions to the literature, neglecting to empirically examine the role of customer service and distribution leaves much with regard to driving e-service quality to be explored. There have been some previous attempts to investigate the impact of delivery and/or customer service on e-tail quality (e.g. Heim and Sinha 2001, Reibstein 2002), but they too suffer from certain drawbacks. These studies employed single questions instead of constructs to measure e-service quality and relied on publicly available data (collected by commercial websites such as Bizrate.com and Gomez.com which evaluate various sites). The validity and reliability of these measures have not yet been established (Zeithaml et al. 2002).

Perhaps the most comprehensive studies to date were undertaken by Parasuraman et al. (2005) and Wolfinbarger and Gilly (2003). Parasuraman et al. (2005) developed a multi-item scale for assessing the service quality of Web sites on which customers shop online. They found that efficiency (the ease and speed of assessing and using the site) and fulfillment (the extent to which the site's promises about order delivery and item availability are fulfilled) are the most critical aspects of Web site service quality, followed by system availability (the correct technical functioning of the site) and lastly by privacy (the degree to which the site is safe and protects customer information). Wolfinbarger and Gilly (2003) sought to empirically validate the drivers of online retail success. Although their analysis explores several dimensions of e-tail quality, Wolfinbarger and Gilly find that website design factors are the most important determinant of success. This conclusion however is in some ways contradictory to that of Parasuraman et al. (2005) and also to the conceptual work we seek to test, which underscores that Web presence and low prices cannot make up for issues such as products not delivered on-time and e-mails not answered (Zeithamal et al. 2002). The objective of this study is to address this inconsistency in current literature, empirically investigating the role of theoretically grounded but thus far inadequately tested dimensions of e-tail quality. Broadly, and in response to two fundamental questions proposed by Zeithaml et al. 2002), this research has the following aims:

1. To systematically investigate the impact of website quality, order fulfillment/delivery and customer support, on customer satisfaction within the context of e-tailing. Although many dimensions of e-service quality have been proposed, and to a lesser extent, tested, the majority of existent literature has concentrated primarily on Web site design and quality. Zeithaml et al. (2002), however, have proposed that drivers other than Web presence and low price are possibly more important in satisfying customers. We seek to answer this question by examining the relative explanatory power of each variable with regard to determining e-tail quality.
2. To legitimize the use of publicly available data sources for empirical studies of this nature. Although such data sources have been widely used in academic and practitioner studies, the validity of this data has been called to question and looked upon with suspicion. Through the construction and validation of construct, we intend to provide valuable new contributions to management and academia, while lending credibility to earlier studies that incorporated lesser measures.

The rest of the paper is organized as follows: next, we discuss the concept of e-tail quality and present our hypotheses. Then we discuss our sample, measures and statistical results. Subsequently we discuss our findings, outline our contribution to the literature and provide managers useful guidelines for achieving customer satisfaction in the e-tailing arena. Finally, we conclude with suggested future research directions.

1.1 Service quality in electronic retailing

According to Zeithaml et al. (2002), "e-service quality (e-SQ) is the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery." Supporting this claim and underscoring the need to better understand what actually constitutes "etail quality", Wolfinbarger and Gilly (2003) argue the necessity of defining and measuring the host of components associated with such quality, including website design, order fulfillment, privacy/security and customer service. Scholars in the field of operations management have also discussed what constitutes service quality in e-tailing. Commenting on e-tail quality, Boyer et al. (2002) point out that one of the major lessons learned from the failure of many e-tailers is that having a good website is not enough; the ability to deliver the right product at the right place at the right time (supply chain), along with the ability to provide customer service are also very important in an e-world. Also, according to Hallowell (2000), the three major components of service quality in electronic retailing are website quality, customer support and logistics.

By and large, the earlier studies mentioned above all converge to the same three dimensions of service quality in e-tailing: quality of the website, order fulfillment/delivery and customer service. And, although certain research has hypothesized that privacy/security may be a fundamental driver of quality, it has either been dismissed as generally insignificant in most instances (Wolfinbarger and Gilly 2003), or it has been shown to have the least impact (Parasuraman et al. 2005). In the following paragraphs we discuss each one of the three widely recognized dimensions of quality e-tailing and develop hypotheses linking them to customer satisfaction.

Website Quality. Recent research has addressed the impact of website quality on customer satisfaction (Tilak and Megha 2014, Chang and Chen 2009, Francis 2009, Collier and Bienstock 2006, Loiacono et al. 2002, Rice 2002). According to Zeithaml, Parasuraman and Malhotra (2002), the quality of a website is associated with overall satisfaction. And complementing this work, Rice (2002) has showed that website attributes predict intention to return to the website.

Loiacono, Watson and Goodhue (2002) have found a link between Website quality and overall customer satisfaction within the online experience. Novak, Hoffman and Yung (2000) have also measured the customer experience in online environments; their focus was on better understanding what online attributes were associated with a "compelling online experience." They too found Website quality to be an important driver. Based on the above, we posit:

H1: Website quality is positively related to customer satisfaction.

Order Fulfillment/Delivery. Delivering e-tail quality involves a great deal more than merely building and maintaining a high-quality website; additionally, careful planning and implementation are required (Boyer et al. 2002). We argue that one particularly important undertaking is establishing a sound logistics protocol with seamless distribution. This view has been upheld by academic and practitioner research alike. Supporting this claim, the qualitative work of Zeithaml, Parasuraman and Malhotra (2002) suggests that order fulfillment is a key dimension of what constitutes service quality in e-tailing. Similarly, Heim and Sinha (2001) argue that accurate inventory management is crucial to pleasing customers and demonstrate empirically that product availability and timeliness of delivery are statistically significant. Comparable results were found in studies Reicheld and Schefter (2000) and Wolfinbarger and Gilly (2003). An in-depth case study conducted by Boyer et al. (2002) of a traditional auction house implementing e-tailing sheds light on the critical role distribution plays in this channel: "in traditional auctions slightly more stuff was shipped than was taken away by hand. In the dot com auctions, 100% of the items are shipped." Further supporting the criticality of logistics to e-service, a significant body of research underscores the magnitude of the stress e-tailing initiatives add to a company's distribution process. For example, it is noteworthy that, Hallowell (2000), and Boyer et al. (2002) emphasize the impact of distribution as a crucial aspect of customer satisfaction in e-commerce. This leads to the following hypothesis:

H2: Order fulfillment/delivery is positively related to customer satisfaction in electronic retailing.

Customer Service. A significant part of the purchasing experience occurs at the end of the purchase process, when critical factors influence one's overall satisfaction with the experience and also his/her likelihood of returning to the site (Ariely and Carmon 2000). Zeithaml et al. (2002) propose that customer service is an elementary component of e-service quality in e-tailing. Loiacono, Watson and Goodhue (2002) concede that one key limitation of their instrument is that it does not consider the role of customer service as a determinant of overall customer satisfaction with the online experience. To this extent, we propose:

H3: Customer service is positively related to customer satisfaction in electronic retailing.

2. METHODOLOGY

2.1. Data

The data used in this study were collected from bizrate.com. Bizrate is an on-line market research firm that collects data form customers regarding their online shopping experience. A total of 116 e-tailers, representing two product categories (books and computer hardware), were included in our sample. The scores for each one of the e-tailers are the aggregate scores of a sample of customers who have purchased from the specific e-tailer. The number of customers surveyed for each e-tailer ranges from 100 to 900,000 customers, with a total of 5.5 million customers surveyed between the 116 companies included in our sample (sample size per site: median=10,000, mean=47,655 respondents).

2.2. Measurement

The questions used in the Bizrate survey are shown in Appendix A. The three constructs used as independent variables in the study are website quality, order fulfillment/delivery and customer service. In order to validate the three-dimension solution, we conducted confirmatory factor analysis (CFA). In our CFA we treated the items of the scales as reflective indicators of their corresponding latent constructs (Edwards and Bagozzi, 2000) and the construct scores were calculated based on the weights of the estimated lambdas. The results confirmed the three-factor solution (χ^2 significance >.05, GFI, NFI and CFI were all above the .90 threshold and RMSEA=.04). All factor loadings were significant (t-values were well above 2.0 and $p < .01$) and all were above .80, which shows that the measures exhibit convergent validity (Anderson and Gerbing 1988). Discriminant validity was assessed by conducting a series of χ^2 difference tests (Anderson and Gerbing 1988, O'Leary-Kelly and Vokurka 1998).That is, for each pair of constructs, we first tested a two-factor CFA model and then we imposed a single-factor solution. In each case, the single-factor model resulted in a significantly higher χ^2-value. Since when a single factor solution was imposed on the two sets of measures, the model fit deteriorated significantly ($p < .05$), the results suggest that website quality, order fulfillment/delivery and customer service exhibited discriminant validity. Appendix B shows the results of factor analysis.

Website Quality. The scale comprised of four items: site look/design, ease of search, product selection and product information. All four items are rooted in the literature as dimensions of website quality. Specifically, both *site look/design* and *ease of search* have been addressed by Francis (2009), Ariely (2000), Loiacono et al. (2002), Lynch & Ariely (2000) and Zeithaml et al. (2000). *Product selection* has been discussed by Wolfinbarger & Gilly (2003). Finally, several studies (Ariely 2000, Lynch & Ariely 2000) have stressed the role of *product information*. Table 1 provides descriptives for all measures.

Table 1: Descriptive Statistics and Correlation Matrix (N=116)

	Mean (st.dev.)	Satisfaction	Website Quality	Order Fulfillment/ Delivery	Customer Service	Price
Satisfaction	8.454	1.000	.465[a]	.848	.890	.299
	(.673)	.	.000[b]	.000	.000	.001
Website Quality	8.360		1.000	.446	.553	.489
	(.350)		.	.000	.000	.000
Order Fulfillment/Delivery	8.743			1.000	.576	.361
	(.578)			.	.000	.000
Customer Service	8.279				1.000	.246
	(.768)				.	.009
Price	8.647					1.000
	(.431)					

Notes:

[a]: Coefficient, [b]: significance level

Order Fulfillment/Delivery. The scale consists of three items: on-time delivery, accurate delivery and product available for shipment. Both *on-time delivery* and *accurate delivery* have been identified as key aspects of the order fulfillment/delivery dimension of quality e-tailing (Tilak & Megha 2014, Francis & White 2002, Wolfinbarger & Gilly 2003,). The importance of *product availability* has also been stressed as a central element to this dimension (Raman et al. 2001, Zeithaml et al. 2002).

Customer Service. The scale includes two items: customer support and order tracking Customer support has been identified as an important dimension of e-tail quality by various studies (Chen and Kao 2010; Chang and Chen 2009; Francis 2009, Francis & White 2002, Wolfinbarger & Gilly 2003). The importance of *order tracking* has also been highlighted (Francis & White 2002, Wolfinbarger & Gilly 2003,).

Customer Satisfaction. The dependent variable used in the study is customer satisfaction. Respondents rated their satisfaction with the site where they shopped on a 10-point scale, with 10 being very satisfied with their purchase experience at that site.

2.3. Statistical Analysis

We used OLS regression analysis to test our hypotheses. The full model is as follows:

$$\text{Customer Satisfaction} = b_0 + b_1 * \text{Product Category} + b_2 * \text{Price} + b_3 * \text{Website Quality} + b_4 * \text{Logistics} + b_5 * \text{Customer Service}$$

The *product category* dummy (0=books, 1=computers) is a control variable. Previous studies have argued that product category is likely to influence customer satisfaction (Reichheld & Schefter 2000, Chen & Hitt 2001).

Price is also entered as a control variable in our model. There is inconclusive evidence as to whether price sensitivity is higher or lower online and the impact of price on customer satisfaction (Reibstein 2002). Some authors argue that on the Internet, customers are provided with full information about prices and can therefore make the most economical decision. On the other hand some argue that because lower prices are being charged on the Internet does not mean that there is more price sensitivity, but it is merely a reflection of e-tailer behavior (Lynch & Ariely 2000).

3. RESULTS

Table 2 presents the results of the regression analyses for customer satisfaction as the dependent variable. We first present the basic model (1), which includes only the control variables (product category dummy and price). In regression models (2), (3) and (4) we add website quality, order fulfillment/delivery and customer service respectively to the basic model. In all three instances, the components of e-tailing quality have a positive and significant impact on customer satisfaction. Finally, model (5) is the full model that investigates simultaneously the impact of all three aspects of e-tail quality on customer satisfaction. Interestingly enough, order fulfillment/delivery and customer service are strong drivers of satisfaction, while the impact of website quality has diminished compared to model (2). The full model explains 85.6% of customer satisfaction, as opposed to a mere 5.3% explained by the basic model. Also, neither price nor product category is significant in the full model.

Table 2: Results of Regression Analysis; Dependent Variable: Satisfaction (N=116)

	(1)	(2)	(3)	(4)	(5)
Constant	5.441**	0.665	0.492	1.210*	-0.570
Industry	- 1.288	- 1.984	- .259	- .320	- .101
Price	.356**	.131	.057	.131*	.012
Website Quality		.809**			.014
Order Fulfillment / Delivery			.971**		.755**
Customer Service				.742**	.293**
R^2 adjusted	.053	.223	.726	.614	.856

Notes:

* denotes significance at the .05 level, ** at the .01 level

We conducted additional analyses to examine the relative importance of each of the dimensions of quality e-tailing in driving customer satisfaction. As shown in Table 3, the basic equations include the control variables (product category and price) and website quality. Next, order fulfillment/delivery and customer service are individually and jointly added and we demonstrate how much incremental explanatory power is added by order fulfillment/delivery and customer service. The results indicate that order fulfillment/delivery has more explanatory power than customer service (as indicated by the increase in adjusted R^2).

Table 3: Incremental explanatory power: adjusted R^2 by individually and jointly adding order fulfillment/delivery and customer service to equations including product category, price and website quality. Dependent Variable: Customer Satisfaction

	Customer Satisfaction
	R^2 adj.
Basic model (product category, price & website quality)	0.223
Step	
Add Order Fulfillment/Delivery	0.761**
Then add Customer Service	0.856*
Add Customer Service	0.712**
Then add Order Fulfillment/Delivery	0.856**
Add both Order Fulfillment/Delivery and Customer Service	0.856**

Notes:

* denotes that the increase in R^2 adjusted is significant at .05, ** at .01

We also tested for the existence of interaction effects between the three dimensions of e-tailing quality. The results (not presented here) showed that none of the interaction effects were statistically significant. Also, none of the first-order coefficients changed after introducing the interaction effects. In addition, we ran the original analysis by allowing each of the two product categories to have each own coefficient for each independent variable. The story was the same as in the original analysis and the adjusted R-square for the full model showed a statistically insignificant increase of 1% (from .856 to .866).

Finally, we should note that in all of the above analyses, the variance inflation factor for all independent variables was below the threshold of 10; hence there is no evidence of significant multicollinearity (Hair et al. 1998). Also, the normal probability plots of the standardized residuals showed no violation of normality.

4. DISCUSSION AND CONCLUSION

Overall, our analysis provides strong support for the hypothesis that service quality is related to customer satisfaction in the context of e-tailing. Two out of the three dimensions of e-tail quality (order fulfillment/delivery and customer service) are associated with higher customer satisfaction, while website quality has no significant impact. Also noteworthy, similar to website quality, price (treated as a control variable in our analysis) plays no significant role in satisfying customers among our sample.

We believe that the results of this study contribute to both academia and practice. With regard to academia, our study builds on previous studies that have investigated the role of e-tail quality on customer satisfaction, and makes at least three important contributions to the growing body of literature. First, it goes beyond merely looking at quality of the website; instead it also investigates and provides empirical support for the impact of physical distribution and customer service on customer satisfaction. Second, our research effort addresses a major gap in the empirical literature with regard to inadequate measures. Specifically, we have demonstrated the viability of measures drawn from publicly available data (bizrate.com), by rigorously validating theoretically grounded constructs. Finally, our work provides additional support for the notion that price is not the correct means in which to compete on the Internet (Zeithaml, Parasuraman and Malhotra 2002).

We have strong empirical evidence confirming much of the preceding conceptual/anecdotal research proposing that Website quality alone does not guarantee overall e-service quality and satisfaction (Voss 2002). In fact, both customer service and order fulfillment/delivery have a significantly stronger association with customer satisfaction than does website quality among our sample. This is counter to the work of Wolfinbarger and Gilly (2003) but consistent with the conceptual study of Zeithaml et al. (2002) that suggested issues such as customer service and on time delivery are possibly more important than Web presence and low prices for achieving customer satisfaction. Our findings are also partially in alignment with the empirical evidence provided by Parasuraman et al. (2005), who also found that fulfillment is extremely important. However, we also found that customer service (enabling customers to track their orders and to seek help on line) is a close second to order fulfillment/delivery. Ariely and Carmon (2000) have argued that a significant part of the purchasing experience occurs at the end of the purchase process, when critical factors influence one's overall satisfaction with the experience and also his/her likelihood of returning to the site. Our results fortify this argument, showing that order fulfillment/delivery and customer service, important aspects of the end and post purchase process, play an even greater role than the design of the Website and the information provided at the site during the pre-purchase stage. This particular finding is also congruous with the conclusions of Agrawal et al. (2001), who concluded that the early focus of on-line businesses on attracting customers to their sites through superior websites was to a large extent unrewarded, since it had no impact on customers' intention to come back to the website.

It turns out that in order to achieve customer satisfaction, e-tailers have to focus on physical distribution and customer service. In other words, our findings confirm the point made by Hallowell (2000) that "…ironically, it may be the less glamorous components of service quality, *customer support* and *logistics*, that are least easily duplicated, and thus the greatest sources of competitive advantage for Internet companies delivering a physical product or service." The fact that our data shows physical distribution to be the number one driver of customer satisfaction in electronic retailing helps confirm that "…putting things into boxes and shipping them out, in a timely manner … is where operations can make or break customer satisfaction" (Boyer et al. 2002).

Our work addresses a major limitation of previous studies, as stated by Zeithaml et al. (2002). According to the authors: "*Because Bizrate has been in existence for the longest period of time, data using the scale are available and are being used in academic research. However the reliability and validity of the Bizrate scale remain to be demonstrated.*" Unlike previous studies that have used Bizrate data as single items without any attempt to conceptualize and operationalize constructs (e.g. Heim & Sinha 2001, Reibstein 2002), this study has examined the extent to which the items included in Bizrate are related to extant literature and proceeded to develop scales grounded in literature (website quality, physical distribution and customer support) based on the Bizrate data. This effort not only increases the validity of our findings, but also lends credibility to earlier work based on this type of data.

Finally, the service management literature has suggested that it is important to target the right type of customers (Roth and Menor 2003). Ironically, according to the early research on electronic retailing, Web presence and low price were believed to be the key drivers of success (Zeithaml et al. 2002). Our study shows that neither price nor quality of the site itself is a significant driver of customer satisfaction. The finding about price seems to confirm the views of Lynch & Ariely (2000), who believe that overtime price sensitivity decreases online and the service quality attributes become of greater importance. Price may be important in initially attracting customers, but if these customers do not receive good customer service and on-time delivery, it will be hard to attract them back and they will likely not be profitable. This finding has a particularly important managerial impact.

With regards to practitioners, our findings provide useful guidelines for achieving customer satisfaction in the electronic retailing arena. These guidelines are directed primarily at two distinct areas of the firm, namely the operations function (responsible for logistics and supply chain management in general) and the marketing function (responsible for customer service). We believe however, that it is of fundamental importance that these tasks are not considered in isolation, but rather implemented together. Our findings suggest that if marketing and operational targets are not aligned and implemented in unison, initiating e-service may be a poor decision and the outcome is doomed to failure.

There are many different ways to approach e-tail design and there exist a wide variety of competitors building their businesses to target markedly different customer segments within the same market. The overall e-tail strategy, including website design, order fulfillment/delivery, price and customer service, will have an impact on the type of customers attracted.

Because developing e-tail operations and capturing customers on the Internet is immensely expensive, satisfying customers is important (Reicheld and Schefter 2002). Our results suggest that e-tailers who rely solely on low prices may have a hard time retaining their customers, since price-sensitive customers tend to be the least loyal ones. Within our sample, price in fact was not associated with customer satisfaction. Similarly, a good website by itself does not guarantee satisfied customers. Rather, on-time deliveries and good customer service are found in our data to be strong drivers of customer strategy.

Overall, the findings highlight the important role of supply chain management as a key success driver in e-tailing. They also illustrate the dominant role of customer service in achieving customer satisfaction. Executing business on the electronic channel may not be right for everyone. E-tailing will add additional strain to firms' logistics and customer service, and the resources required to fill the gap are wide and costly. Although an e-tailing success story, this reality is particularly obvious in the case of Sotheby's, whose cost of customer service rose dramatically and the percentage of goods sold required shipping almost doubled as a result of their Internet strategy (Boyer et al. 2002). Firms with operations inadequate for the job may find that they are doing their company more harm than good entering into the new space without the proper infrastructure or the willingness and ability to implement it.

Finally, as with any research, this study is subject to several limitations. First, there are several issues related to the data (Reibstein 2002). For example, non-response bias is a potential threat. Also, we are lacking data on potentially important control variables such as size of the organization, well-established or start-up, etc. Another data-related issue is the dependent variable (customer satisfaction), which is operationalized with a single item, as opposed to a scale. We believe this to be the most serious limitation of the study. The only way around it though is to collect our own data instead of using the Bizrate dataset, and we hope to do this in future research studies.

Second, online shoppers are not necessarily a homogeneous group; they may differ in terms of demographics (age, education, gender, etc). The data available by Bizrate do not provide this kind of information. However, it would be interesting to investigate the role of demographics on the link between e-service quality and customer satisfaction.

Finally, the link between e-tail quality and customer satisfaction, as well as what constitutes quality in electronic retailing, could be investigated in contexts other than e-tailing, such as purely informational sites, or sites delivering digitizable products and services.

Appendix A: Questions in BizRate's Survey

BizRate Survey Item	**Description**
Site look/design	Overall look and design of the site
Ease of search	How easily were you able to find the product you were looking for
Product Selection	Types of products available
Product Information	How clear and understandable was the product information
Price	Prices relative to other websites
Product Availability	Product was in stock at time of expected delivery
On-time Delivery	Product arrived when expected
Accurate Delivery	Correct product was delivered
Order Tracking	Ability to track orders until delivered
Customer Support	Any post-purchase activity such as questions, complaints replacements and returns
Satisfaction	Overall experience with this purchase

Note: All questions are on a 10-point scale where 1 denotes a low (poor) score and 10 denotes a high (good) score.

Appendix B: Maximum Likelihood Confirmatory Factor Analysis Results

	Standardized Loadings
Website Quality (α=.90)	
Ease of search	.967
Site look/design	.948
Product Information	.946
Product Selection	.932
Order fulfillment/delivery (α=.75)	
Accurate Delivery	.964
On-time Delivery	.987
Product Availability	.830
Customer Service (α=.83)	
Order Tracking	.925
Customer Support	.925
χ^2 significance > .05	
NFI = .96	
GFI = .95	
CFI = .96	
RMSEA = .04	

Notes: 1. All loadings are significant at the .01 level.
2. Total variance extracted by the three factors= 86%

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