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A Research on Measurıng E-Servıce Qualıty in E-Retaılıng

MURAT AKIN
Associate Professor, Department of Marketing,
Faculty of Economics and Business Administration
Ömer Halisdemir University, Nigde, Turkey.
Email: murat.akin1@gmail.com / muratakin@ohu.edu.tr
Tel: +90388225205

Abstract

The advances in information and communication technology, which are gaining momentum every day, have made the Internet an indispensable part of our daily life. The Internet, which is initially used as a communication tool, has begun to take place in every area of life. This has led to the transition of competition among the sectors into an electronic environment. Service quality is one of the most important factors that bring out firms in serving their customers via the web environment to stand one step ahead of their competitors. The widespread use of electronic commerce has emphasized the importance of electronic service quality as well as traditional service quality. In this study, the applicability of the e-service quality scale (ESQUAL) developed by Parasuraman et al. (2005) is tested in Turkey. It is conducted with 425 consumers who reside in Niğde and have shopped at least once over the Internet within the last twelve months. The conformity values of the proposed model as a result of the study are determined as RMSEA: .067, SRMR: .05, CFI: .957 and TLI: .946, x^2 / sd = 2.780. The analysis reveals that efficiency and privacy/security have the highest standardized values. When the values for the whole model analysis are considered, all hypotheses are accepted. Based on the findings obtained as a result of the analyses made, the model measuring the service quality consists of four dimensions and the relations among these dimensions are found. The performed study is expected to contribute to the literature on the subject by detecting applicability of the e-service quality scale (ESQUAL) in Turkey which is developed to measure the service quality in different countries.

Key Words: *E- Service Quality, E-Retailing, ESQUAL.*

Introduction

Internet access, which looms large in the 21st century, has triggered developments in information and communication technologies and has also become the most effective means for the creation of an information society (Talih and Demiralay, 2012). With the recent rise of Internet use in our daily life, increase in the circulation of the information, the destruction of country borders and the evolution of technologies have caused dramatic changes in various issues, from shopping and banking to even making new friends (Taşkın *et al*., 2016; Visinescu *et al*., 2015; Oskaybaş *et al.*, 2014). The retail sector, as the barometer of the economy both in the world and in Turkey, is one of the main sectors that have higher labor force employment and significant trade volume. As a consequence of the need for communication, the increase in personal computer sales and the widespread use of the Internet access have transformed every sector, as well as the retail industry, and physical stores have been replaced with online stores. Thus, traditionally performed visual and sensory product Exchange until the 1990s has led to the creation of a modern channel that allows end users to purchase goods and services on the Internet via online stores built

on a computer interface (Kayabaşı, 2010; Bozbay et al., 2016). E-commerce sites offering hundreds of product types at discounted prices attract both consumers as much as suppliers and retailers who want to take part in the sector (Kaya and Özen, 2012; Öztürk *et al.*, 2012). Today, rapid developments are taking place in internet technologies and these developments are reflected in Turkey as well as all over the world. According to the reports of the International Telecommunication Union, about one out of every four people in the world are internet users (Şenel *et al*., 2012), and about 40% of internet users are expected to shop online (Güreş *et al*., 2015). While 70% of US citizens are shopping over e-commerce sites, this rate is 35% in Europe. Nowadays, as traditional trade is being placed with e-commerce, the foundation of a new era has been laid across the World (http://www.rgsyazilim.com/turkiye-dunyada-e-ticaret, 2016).

The e-commerce sector in our country and the world continues to progress without slowing down. Alibaba, as one of the largest e-commerce sites, launched sales of $ 18 billion on the Singles Day, which began every year on November 11th and is considered the world's largest online shopping event (https://onedio.com/haber/alibaba-dan-bir-gunde-18-milyar-dolarlik-satis--739052, 2016).

The US research firm Adobe Digital Insights (ADI) predicts that the total amount of online purchases alone will increase by 15% to $2 billion in "Thanksgiving Day, by 11% to $3.1 billion in "Black Friday", and by 9% to $3.4 billion in "Cyber Monday" with comparison to 2015 (http://aa.com.tr/tr/dunya/abdde-kara-cuma-satislarinda-rekor-beklentisi-/693372, 2016).

Online retail sales are expected to reach € 191 billion in Europe in 2017 and $ 370 billion in the United States (Martin *et al.*, 2015). In parallel with the developments experienced in the world, online retailing also shows a rapid development in our country. According to the "Turkish e-Commerce Market Size 2014" report of the Association of Information Industries; the online retailing sector has reached a total size of 18.9 billion TL with an annual increase of 35%. According to the report, the share of e-commerce in total retail expenditures has reached the level of 1.6%, and the biggest improvement in the sector has been achieved in the multi-channel retail category with a 47% increase (http://eticaretmag.com/turkiyede-e-ticaret-hacmi-189-milyar-tl/, 20.04.2016). According to the Interbank Card Center data, the amount of card payments made over the Internet in Turkey is 55 billion pounds in 2015, and it reaches to 50 billion pounds within the period until September 2016 (http://bkm.com.tr/internetten-yapilan-kartli-odeme-islemleri, 2016). According to the Ministry of Commerce, it is seen that the target of e-commerce is to reach a trading volume of 170 billion TL in 2018 and 350 billion TL in 2023 (https://www.gtb.gov.tr/haberler/eticarette-2018-hedefi-170-milyar-tl, 2016).

The tendency of consumers to prefer online shopping has led to a rapid increase in the number of companies operating in this area. Along with the widespread use of the Internet, the shift of competition among sectors towards electronic media has led the consumers from their traditional purchasing behavior to online shopping which is more beneficial to them (Oskaybaş *et al.*, 2014).

Therefore, enterprises that want to achieve sustainable competitive advantage in the online shopping sector must first comprehend how consumers perceive and evaluate online services (Tsao and Tseng, 2011; Turan, 2011).

For this reason, the internet offers important opportunities for shopping sites to reach, identify and rank the targeted consumers. It also contributes to the positioning of brands offered for sale and the diversification of new products made possible by the new communication opportunities due to cost reduction (Pelenk *et al.*, 2011).

Private shopping centers and opportunity sites, which are increasing in number day by day, present the preferred and popular brands and services to the attention of consumers along with advantageous prices and discount options (Engin, 2012). With increasing competition, online retailers tend to differentiate themselves from their competitors by creating web atmospheres that would push the positive emotional and

cognitive situations of online consumers towards more money and time spending behavior (Oskaybaş *et al.*, 2014; Gao and Bai, 2014).

Consumers who make purchases from online sites have a fairly wide range of comparison possibilities regarding alternative and competitive prices when choosing products and services. As a result, there is a high level of competition among different internet sites to attract consumers' attention so that they would purchase again. Many researchers indicate that the service quality in retailing has a crucial role in achieving success in the short and the long-term. Therefore, identifying the relationships among the antecedents of online businesses' service quality will also increase the effectiveness of marketing strategies (Barrera *et al.*, 2014). The widespread use of e-commerce has led to an increase in the importance of electronic service quality as well as traditional service quality (Talih and Demiralay, 2012; Taşkın *et al*., 2016). Due to the interactive nature of the Internet sites and their abilities to provide continuous information, businesses can be provided with the advantage of having long-term relationships with their existing and potential consumers (Bauer *et al.*, 2002). From this point of view, an effective website design of businesses may be depending on their ability to follow the experiences of consumers with whom they are communicating through this channel, and determining the quality dimensions of the website (O'Cass and Carlson, 2012). In order for businesses to retain existing consumers and gain new consumers through the Internet, it is very important that their internet sites are designed to be accurate, explicit, practical (Taylor and England, 2006), fast, user-friendly, highly-qualified (Bayram and Yaylı, 2009), attractive, secure and satisfactory (Liu and Arnett, 2000; Cox and Dale, 2002; Başkol, 2016). Otherwise, businesses with a website that cannot fully meet the expectations of users may face the risk of losing their existing users (Bayram and Yaylı, 2009; Tan and Tung, 2003; Güreş *et al*., 2015). Since e-retailing is a form of virtual merchandising rather than the physical one, online consumers should be perceived different from traditional consumers regarding their purchasing behavior. For this reason, online consumers should be considered as consumers who buy products/services in the shopping process and also as web-based technology users (Wu, 2013).

While online shopping is becoming more attractive rather than shopping from a physical store due to speed factor, negative word-of-mouth communication about the lack of service quality will spread much faster among consumers who use the Web (Cox and Dale, 2001). Previous research studies have shown that the quality of service of the online shopping process has important impacts on consumers' purchasing decisions, consumer satisfaction, logistics choices and loyalty (Subramanian *et al*., 2014). Increased consumer satisfaction does not always increase the repurchase rate although the high quality of service in e-retailing increases consumer satisfaction (Lin and Lekhawipat, 2014). Just as it is in traditional markets, it is also crucial to understand how the quality of the electronic service is perceived and evaluated by the consumers to sustain the assets of the businesses in the internet marketing (Başkola, 2016; Akıncı *et al.*, 2010: 232). The Internet offers consumers the opportunity to access products on more favorable terms, as well as the ability to compare both the technical features and prices of products in a faster, easier and safer way than traditional channels (Bilgihan and Bujisic, 2014; Lee and Lin, 2005).

According to the results of the research study conducted by Google and Nielsen (2013) on consumers' online and mobile shopping preferences; 45% of consumers shop online, 17% prefer to shop directly on mobile phones or mobile applications, more than half of them want to complete their shopping within one hour, and 93% is influenced by the convenience of accessing the product via internet (Google and Nielsen, 2013).

Online consumers request to be able to personalize their web pages so that they can acquire options, appropriate conditions and responsive services that appeal to their personal preferences. Along with the widespread use of the Internet and the increasing interest of consumers on the Internet, the need for efficient measuring the Internet service quality as one of the main subjects of service marketing studies looms large (Akıncı *et al.*, 2010; Boshoff, 2007; Connolly *et al.*, 2010). Moreover, it is inevitable for companies to adapt themselves to the electronic service sector in order to differentiate themselves in this increasingly competitive environment, to create consumer value and to develop consumer loyalty (Güllülü,

Uçan, and Karabulut, 2016; Ding *et al.*, 2011). Zeithaml *et al.* (2005) emphasize that companies need to focus on e-service quality, including all information and situations that occur before, during, and after the transaction (Zhang and Tang, 2006).

Although low price level and the Internet presence are considered to be the drivers of success at first, service quality issues have become important. Online and other environments offer an unquestionably different shopping experience, even if the same product is purchased. Experience before and after the purchase of the product comprises such elements as ease of ordering, product selection, product information, price, on-time delivery, and consumer support (Wolfinbarger and Gilly, 2003). All these vital experiences can be jeopardized when consumers are unable to complete their transactions, products are not delivered punctually or at all, e-mails are not replied, and desired information cannot be reached. If consumers are required to accept Internet channels, businesses must shift their focal points from e-commerce to e-services. Business managers operating on the internet who desire to provide superior service quality have first to understand how consumers perceive and evaluate online services (Parasuraman *et al.*, 2005).

Therefore, it has become necessary for a business to propose strategies by determining the relationships among the antecedents of online service quality. The aim of this study is to contribute to the development of competitive strategies of omnichannel retail establishments by determining the relationships among the antecedents affecting service quality in omnichannel retail sites.

E-Servıce and E-Servıce Qualıty

With the development of the Internet and technology, the website is taking the place of physical business units. The perceived usefulness of the website and the new electronic environment constitute a significant portion of the corporate image. The increase in the number of Internet-based services can also affect the interaction patterns and shopping behaviors of firms and consumers (Al-Momani and Mohd. Noor, 2009; Yang, 2001; Santos, 2003; Şenel *et al.*, 2012; Talih and Demiralay, 2012). Along with the developments in the Internet world, consumers are becoming more sensitive to service quality due to the competitive and comparable system of electronic commerce. As a result, electronic commerce, electronic service, quality of electronic service and measurement of this quality have begun to be introduced to the scope of the marketers (Talih and Demiralay, 2012; Şenel *et al.*, 2012).

The concept of e-service includes all types of services from e-retailing to after-sales consumer services on the Internet (Voss, 2002). However, e-service is not just about transferring traditional services to the Internet. This does not only seriously affect the duration and cost of services, but also changes the positions of the consumer and the service provider in the process (Bozbay *et al.*, 2016). In an e-service newsletter, the reader easily gives feedback, and the information transfer process begins to shift from unilateral to bilateral.

This is not only the transmission of information but also a development that affects the role of the parties on that information (Kayabaşı et al., 2013; Taşkın et al., 2016). Electronic service (e-service) can be defined as a self-service service process (Çelik and Başaran, 2008), which enables the consumer to interact with the web site supported by the technological infrastructure without direct intervention of the service personnel (Çelik and Başaran, 2008; Şenel and Gümüştekin, 2012; Bayram and Şahbaz, 2015). In this context, e-service is viewed as a resultant interaction between the consumer and the website supported by the technological infrastructure that the operator owns without the direct participation of the service agent (Zeithaml et al., 2000; de Ruyter, 2001; Ghosh et al., 2004; Rowley, 2006; Li and Suomi, 2009; Özer, 2011; Şenel et al., 2012; Bayram and Şahbaz, 2015). The development of e-service has also been reflected in quality expectations over time.

As consumers can share their satisfaction and dissatisfaction instantly and widely, quality expectations for the services consumers receive in everyday life have increased, and their perceptions about quality have also changed. E-service quality has also become an additional competitive element in the quality of services among businesses. This is because e-services offered by businesses that meet consumer expectations will end up with purchasing and loyalty using more of them in the presence of consumers. Thus, businesses with a high and steady level of e-service quality perception will continue to be one step ahead in competition (Taşkın *et al.,* 2016; Altunışık *et al*., 2010). The quality of e-service, conceptualized by Zeithaml *et al.,* (2000), is defined as the visual evaluation of website quality by internet users (Şenel *et al.,* 2012; Santos, 2003; Kim and Lee, 2006).

The quality of service is perceived as the measurement of the extent to which consumer expectations are met (Santos, 2003). Grönroos (1984) explains the perceived service quality as a process of comparing and evaluating services and expectations that consumers perceive. Nevertheless, Santos (2003) describes the concept of internet service quality as consumers' evaluation and judgment of the quality and excellence of e-services offered in the virtual marketplace (Udo *et al.,* 2010; Başkol, 2016). Moreover, although the website's suitability and low pricing strategy are considered as the main factors of success in terms of quality of service, it is understood that they are not sufficient (Güllülü *et al*., 2016; Lee and Lin, 2005; Yang, 2001; Santos, 2003; Talih and Demiralay, 2012). Efforts to measure the quality of internet services such as ESQUAL have attracted the considerable attention of e-commerce administrators regarding accurate evaluation of the service quality offered to consumers (Marimon *et al.,* 2010; Güllülü *et al.,* 2016). E-service quality with high standards for online consumers is a tool in realizing the potential benefits of the internet. E-Service quality not only offers the commercial firms advantages to compete in the market but also incorporates consumers into product development with increasing consumer relations and rapid feedback processes (Haryono *et al*., 2015). Because comparison of technical specifications and prices of products is much easier than comparing them through traditional channels, e-service quality is becoming a key factor for consumers (Lee and Lin, 2005; Talih and Demiralay, 2012). Online consumers want options, appropriate conditions and responsive services that appeal to their personal preferences. Also, Zeithaml emphasizes that companies need to focus on e-service quality including all information and situations that occur before, during and after the transactions (Zhang and Tang, 2006; Talih and Demiralay, 2012). Online service delivery is very different from traditional service delivery. In online service delivery, information obtained from consumers can be collected and used by e-service providers to customize the service to consumers (Rowley, 2006).

While physical resources are provided by important service personnel in performing traditional service, they are replaced with the infrastructure comprised of fast service providers (servers), databases and technical personnel (Pandya and Dholakia, 2005; Rayport and Sviokla, 1994; 1995; Şenel *et al.,* 2012). The vast difference between e-retailing and traditional retail channels is the transition from human to human interaction to human to machine interaction. This difference naturally leads to some problems about what dimensions should be taken into account in e-retailing service quality measurements (Janda *et al.,* 2002). Traditionally, a service can be achieved as a result of the interaction process between consumer and service providers. Nevertheless, when a service is provided over the Internet, there is virtually no face-to-face interaction between the consumer and the service provider, but interaction occurs between the consumer and the website (Yapp *et al*., 2014).

While some of the researchers who aim to measure the quality level of e-services highlight the appearance of the website (Dabholkar, 1996; Yoo and Douthu, 2001; Yang *et al.,* 2004), some focus on the content of the information presented to the consumer (Zeithaml *et al*., 2000; Madu and Madu, 2002; Loiacono *et al*., 2007; Li and Suomi, 2009). In most of the work done on online service quality is focused on the technical quality of the internet sites rather than the service quality. Studies on technical quality of Internet sites and electronic satisfaction (Anderson and Srinivasan, 2003; Cyr *et al*., 2005; Evanschitzky *et al*., 2004; Szymanski and Hise, 2000; Zhang and Prybutok, 2005) have been leading the researchers in efforts to measure and develop the service quality of the Internet sites (Akıncı *et al*., 2010). The research area of

measuring service quality focuses on the interaction between consumers and websites. Some of these studies consider the quality of the website as an evaluation of the design and system functions of the website (Loiacono *et al.*, 2002; Yoo and Donthu 2001; Başkol, 2016).

Thus, some different ideas about the size of e-service quality have been put forward. One of the reasons for so many different ideas is the applicability of research in different sectors. While the information security infrastructure in banking services is ahead of the design, design or product variety dimension in a fashion shopping site is more important than information security infrastructure. Some of the outstanding studies on e-service quality in the related literature are summarized in Table 1 (Kayabaşı *et al*., 2013; Bayram and Şahbaz, 2015, Bozbay *et al*., 2016).

Table 1: Enhanced Scales for e-Service Quality

Researcher(s)	Scale	Dimensions under Consideration
Zeithaml *et al.* (2000)	e-SQ	Contact, accessibility, efficiency, elasticity, credibility, personalization, privacy/security, accountability, trust, aesthetic,
Szymanski and Hisse (2000)	N/A	Design, product information, financial security
Yoo and Donthu (2001)	SITEQUAL	Ease of use, design, transaction speed and security
Barnes and Widgen (2002)	WEBQUAL	Useability, design, information, trust, empathy
Wolfinbarger and Gilly (2003)	ETAILQ	Design, customer services, reliability, security
Yang *et al*. (2004)	N/A	Competence, incentive, reliability, ease of use, security, product
Lee and Lin (2005)	N/A	Design, reliability, incentive, trust, personalization
Parasuraman *et al*. (2005)	E-S-QUAL	Efficiency, fullfilment, system availability, security
Parasuraman *et al*. (2005)	R-E-S-QUAL	Responsiveness, compensation, contact
Bauer *et al*. 2006	eTransQual	Perceived quality, satisfaction, repurchase and life time value
Loiacono *et al.* (2007)	WEBQUAL	Convenience, trust, response time, design, appearance, innovativeness, flow, interactivity, business process,
Cristobal *et al.* (2007)	PeSQ	Design, consumer services, guarantee, order management

Studies in the literature on e-service quality indicate that there are many scales and sub-dimensions that constitute those scales (Cristobal *et al*., 2007; Li and Suomi, 2009; Loiacono *et al*., 2007; Parasuraman *et al*., 2005; Wolfinbarger and Gilly, 2003). The most commonly mentioned scale used in this study is ESQUAL which is developed by Zeithaml *et al*. (2005) inspired by SERVQUAL. Akıncı *et al.* (2010), in their study on reassessment of the reliability of ESQUAL scale developed by Parasuraman *et al*. (2005), indicate that the ESQUAL service quality scale is highly effective in measuring Internet service quality, although there are some shortcomings such as not having the same level of activity in each dimension. Many authors also express their concerns about ESQUAL. Boshoff (2007) argues that the ESQUAL internet service quality scale is insufficient for 4 dimensions, suggesting that 6 dimensions should be used in measuring service quality. In this sense, he refers to "reliability and delivery" dimension that can be evaluated within "fulfillment" dimension within ESQUAL scale. Nonetheless, the author also states that ESQUAL is a successful tool in measuring e-service quality in general. However, some authors such as Connolly *et al.* (2010) argue that ESQUAL is the best method in many respects. All these research studies, despite the criticisms, express that the necessity and effectiveness of ESQUAL is an inevitable reality. The

first developed ESQUAL scale had 11 dimensions as described below (Güllülü *et al.*, 2016; Şenel *et al.*, 2012; Bozbay *et al.*, 2016):

1-Reliability: The site fulfills its function correctly. It fulfills the service promises (it has products in stock, distributes whatever is ordered, makes timely delivery) and provides accurate billing and product information.
2- Sensitivity: Consumers who have problems and questions get help on time.
3- Access: Consumers reach the site quickly and can reach the company when necessary.
4- Flexibility: The site offers various choices of purchasing, shipping and searching and refunding of products for consumers
5- Ease of Navigation: The site contains functions to help consumers find what they are looking for. It has a good search engine and allows consumers to navigate pages quickly and easily.
6- Efficiency: The site is easy to use, well structured and the information is kept to a minimum to be entered into by the consumers.
7- Assurance/Trust: The consumer believes that the products and services of the site have a good reputation and/or that the site provides clear and reassuring information.
8- Security/Privacy: The consumer believes that the site is protected against intrusion and that personal information is protected.
9- Price Knowledge: Consumer can determine the shipping price, the total price and the relative prices during shopping.
10- Site Aesthetics: The site looks visually attractive to the consumer.
11- Customization / Personalization: Site can easily be arranged according to individual consumer's preferences, purchase history, and shopping method.

This expression pool consisting of 11 dimensions with 121 items which included website features constitutes the first e-service quality measurement scale. Parasuraman *et al.* (2004) applied this scale to consumers online through a marketing research firm. They performed purifications by applying known methods to 549 available surveys that they obtained. The dimensions they obtained are determined as follows (Güllülü *et al*., 2016; Şenel *et al*., 2012; Bozbay *et al.*, 2016; Başkol, 2016).

Efficiency: It is defined as the speed and ease of connection to a site (Parasuraman et al. 2005). The main reason for the consumers to make purchases from the internet is the time and power savings offered by the internet (Kim *et al*., 2006; Güllülü *et al*., 2016). In this sense, the speed and ease of use of the website is an important dimension in measuring the quality of Internet service. Efficiency involves the ease of use of the website from which the e-service is received, shopping speed, and features such as whether or not the information on the site is well organized.

Fulfillment: A process involving a site having products and services we seek and delivering products/services we receive in a secure manner (Parasuraman, A., Zeithaml, V. and Malhotra, 2005; Zeithaml *et al.* 2002). In this context, it is one of the important factors in assessing the service quality of a website. Fulfillment involves whether or not the goods or service provided by the site offering the e-service exist, and the consumers can fully meet their expectations.

System availability: It is the dimension about the correct functioning of technical features such as links, buttons of a website (Parasuraman, A., Zeithaml, V. and Malhotra, 2005). The technical specifications of the internet site include features that can be experienced during shopping such as navigation, crash, freezing out, etc. Success of a website can be attributed to the ease of use, time usage, quality of information presented, sufficient information provided, interactivity, attractive design, safe payment methods, ability to compare price options, and variety of information (Small, 1997; Lu and Yeung, 1998; Wan, 2002; Marsico and Levialdi 2003; Law and Wong 2003; Chung and Law, 2003).

The level of comfort that the consumer feels while navigating within site is directly proportional to the degree to which the site acquires the factors mentioned above. According to Schaffer (2000), 30% of consumers leave the site without making any purchases since they get lost within site. A user-friendly website would enable the consumers to reduce their mistakes throughout the purchasing process and be more satisfied with their purchasing experiences (Öztürk et al., 2012).

Privacy/Security: Privacy and security are about the degree to which customers believe that the site being safe from intrusion and the customers' personal information are under protection (Parasuraman, A., Zeithaml, V. and Malhotra, 2005; Wolfinbarger and Gilly, 2003). It includes such features as confidentiality of the information that the consumers provide at the beginning, during and at the end of the shopping process and not being shared with unwanted people. Since many people have such concerns, they tend to hesitate about shopping on the internet. In this context, the privacy/security principle is the main quality of the site and the main factor playing a role in stimulating the purchasing impulse of the consumers (Loiacono *et al.*, 2002). In the same study, Parasuraman, A., Zeithaml, V. and Malhotra (2005) also used the ERECSQUAL scale, which is composed of the dimensions such as responsiveness, communication, and personalization. However, this scale is an application where consumers can evaluate the experience they have only when they face the problems. Despite no expectation of a positive result in the light of the current literature, this scale is addressed to participants in our survey questionnaire.

Research Methodology

It is aimed to determine the validity and reliability of the ESQUAL measurement scale for measuring e-retailing service quality in a different culture such as Turkey's. For this purpose, the multidimensional quality of service scale developed by Parasuraman *et al.* (2005) is used by translating it into Turkish. A preliminary test is conducted with 50 selected consumers to represent the research sample by convenience sampling method in order to get opinions on the clarity, scope and length of the items in the translated survey questionnaire form. Depending on the feedback from the consumers, the survey form is finalized, and the survey is conducted between September 1st and October 15th, 2016 with consumers over 18 years of age in Niğde. Depending on the time and budget constraints of the study, convenience sampling as one of the non-random sampling methods that allow rapid data collection be preferred. With this method, 500 survey questionnaires are obtained. However, only 425 surveys are found to be suitable for analysis when the questionnaires with both sloppy and a significant level of missing data are excluded. High survey response rate (85%) assures that the survey sample has sufficient ability to represent the population. The prepared questionnaire consists of two parts. In the first part, the ESQUAL measurement scale developed by Parasuraman *et al.* (2005) consisting of 4 dimensions with 22 items is used.

The participants are asked to describe the extent to which they agree with 22 items involved in the scale by using a 5-point Likert scale. They are asked to respond to each item by stating their rating as "5: Strongly agree, 1: Strongly disagree". SPSS and AMOS software are utilized in the data analysis in the study. Exploratory factor analysis is conducted to determine the literature relevance of the dimensions that constitute the e-service quality. Confirmatory factor analysis is performed to test the validity and reliability of the conceptual structure that constituted e-service quality (ESQUAL). The maximum likelihood estimation method used in the analysis is one of the most commonly used estimation methods in confirmatory factor analysis (Chou and Bentler, 1995). Although the maximum likelihood estimation method assumes multiple normal distributions, it yields good unbiased estimates with less-skewed and low-kurtosis data (skewness less than 2 and kurtosis less than 7) (Bollen, 1998; Hoyle and Panter, 1995).

Analysis and Findings

When the demographic distribution of the research sample is examined, it is seen that 74.7% of the sample consists of women. 40.4% of the research sample is between the ages of 25-40 and 40.4% is a university graduate. It is seen that 65.7% of the participants have a monthly income of 5000 TL or less. 69.6% have

bought goods or services online within the last 12 months, 79.7% have visited shopping sites more than four times a week, and 34.3% have shopped at least once a month.

Research Model and Research Hypotheses

The reliability and validity of the e-service quality scale will be determined based on findings from the model developed for the purpose of the study.

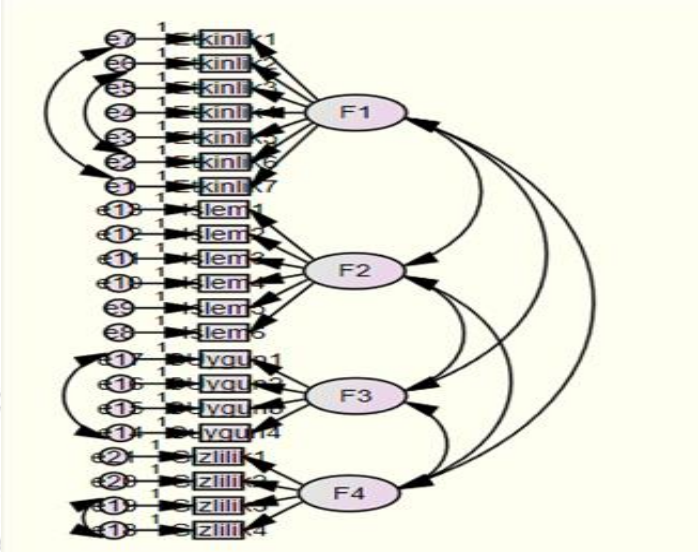

Figure 1: Research Model

In order to verify the validity of the dimensions constituting the quality of e-service, the research model developed by using the related studies is shown in Figure 1.

Research Hypotheses

H_0: The model proposed for the consumer-based brand value is appropriate.
H_1: The model proposed for the consumer-based brand value is inappropriate.

Reliability and Validity Test Results Of The Scales Used In The Research Study

The analyses are performed by determining the internal consistency of the e-service quality scale. Table 1 shows the alpha coefficients for the dimensions that comprise the e-service quality. Alpha coefficients of e-service quality dimensions are calculated as .946, .912, .903 and .903 for efficiency, fulfillment, system availability, and security, respectively. Since the calculated alpha coefficients are well above the recommended threshold of .70, the used scale can be considered reliable (Nunnally and Bernstein, 1999, p.265; Hutcheson and Sofroniou, 1999).

The exploratory factor analysis is performed to determine the dimensions that comprise e-service quality (efficiency, fulfillment, system availability, and security). The result of Kaiser-Meyer-Olkin test (KMO) in this study is .852. Since the calculated KMO test results are well above the recommended threshold of 60%, it can be said that the collected data set is suitable for factor analysis. Bartlett's Test of Sphericity is a statistical test that determines whether the correlation matrix used for the exploratory factor analysis is a unit matrix (Hair *et al*., 1998). If the significance level of the test is less than .05, it indicates that the correlation matrix is not a unit matrix and thus the variables relate to each other. In this study, Bartlett's

Test of Sphericity significance levels are (p = .000), indicating that the correlation matrix is not a unitary matrix and the relations among the variables exist. Results of the tests performed suggest that the data set is suitable for factor analysis. The results of the exploratory factor analysis are shown in Table 1.

Table 2: Exploratory Factor Analysis Results

	Factor Loading (EFA)	**Ex. Var.**	**Cronbach's Alpha**	**A.V. E.**	***t***
EFFICIENCY	26.550				
Efficiency 6	.873		**.946**	.678	------
Efficiency 7	.861				31.296
Efficiency 3	.854				24.635
Efficiency 4	.852				23.602
Efficiency 2	.777				20.843
Efficiency 5	.776				19.642
Efficiency 1	.765				17.934
SYSTEM		19.638			
AVAILABILITY	.960		**.903**	.887	------
S.Availability 1	.948				12.54
S.Availability 4	.930				14.67
S.Availability 3	.930				13.48
S.Availability 2		17.170			
FULFILMENT	.819		**.912**	.572	------
Fulfilment 6	.805				19.572
Fulfilment 2	.773				19.550
Fulfilment 5	.766				18.699
Fulfilment 1	.691				17.245
Fulfilment 4	.673				16.825
Fulfilment 3		16.414			
PRIVACY	.905		**.903**	.790	------
Privacy 1	.890				19.604
Privacy 2	.889				11.124
Privacy 3	.872				10.699
Privacy 4					

As a result of the exploratory factor analysis, the variables that measure the dimensions of e-service quality are gathered under the related factors. Efficiency8 variable of efficiency dimension is all excluded from the analysis because its factor loading is below .50. Efficiency, fulfillment, system availability and privacy/security have been identified as dimensions that comprise the e-service quality. Efficiency dimension accounts for the highest variance.

The average variance extracted (A.V.E) values that indicate explanatory powers of each dimension alone are calculated as .678, .572, .887, and .79 for efficiency, fulfillment, system availability and security/privacy, respectively. Confirmatory Factor Analysis (CFA) is conducted to test the scales used in the study. CFA is performed using the AMOS software program. The χ^2 / df ratio is calculated as 2.423 in the study. Expression elimination and residual values are examined, and no high level of the faulty variable is encountered. Since most of the goodness of fit indexes are within the limits of acceptance, no variable is excluded from the model, only covariances among some variables are formed. Modifications have been made to the error terms of the dimension items Efficiency1 - Efficiency7, Efficiency2 - Efficiency6, S.Availability1 - S.Availability4 and Privacy3 - Privacy4. It is necessary to determine whether or not the model is statistically valid by utilizing the structural equation model (SEM) before evaluation of the relations in the research model. The goodness of fit indexes for the structural equation model are presented in Table 2. The value that tests the statistical suitability of the model and analysis data proposed in the SEM

is χ^2 (Schumacker and Lomax, 2004, p. 82). It is desirable to find a meaningless and small chi-square value in the SEM. However, since this value is sensitive to the sample size and high χ^2 values can be reached in multi-element samples, it is more appropriate to use the value of χ^2 / df corrected by the degree of freedom (df) (Bagozzi, 1981, p.380). Since χ^2 (392.446) value found for the working sample (N = 425) is high, the value of χ^2 corrected with df is considered. Since the value of χ^2 / df is calculated to be 2.423, which is considered to be in the range of 0-3 interval (Schermelleh-Engel et al., 2003), the research model is statistically significant. It does not necessarily mean that the model is accepted just because the chi-squared value is insignificant, but some other goodness-of-fit tests (especially ones that are not affected by the sample size) have to be applied. On the other hand, a single statistical significance test is not sufficient to correctly define a model obtained from the data as correct in the structural equation model, and it is necessary to evaluate it according to several criteria (Schermelleh-Engel *et al.,* 2003). Therefore, other statistical significance tests (goodness-of-fit indices) and acceptable boundaries are given in Table 2.

The goodness-of-fit measures the suitability of the observed input matrix (covariance or correlation) estimated by the proposed model(s) or indicates to what extent the specified model fits the empirical data (Hair et al., 1998; Schermelleh-Engel et al., 2003).

Schermelleh-Engel *et al.* (2003) suggest that p values, χ^2 / df, RMSEA, SRMR, NNFI, CFI, GFI and AGFI values should be examined and reported in measuring the model fit. There are different opinions in the literature regarding the evaluation of fit measures. Hu and Bentler (1999) suggest that the CFI value should be higher than .95, the other criteria should be above .90, the RMSEA value should be less than .06, and the SRMR value should be smaller than .08.

Schumacker and Lomax (2004) suggest that values of χ^2 / df between 1-5, values of GFI, AGFI, NFI and NNFI close to .95, and the values of RMSEA less than .05 indicate good fit (Adams, Nelson, *et al*., 1992; Wang, Lin, *et al*., 2006). However, the ratio of χ^2/df smaller than 2 is considered as a good fit (Seyal, Rahman, *et al*., 2002). The other goodness-of-fit indices used to assess the model between .80 and .90 are usually acceptable, while any indice values above .90 is considered good fit (Yap and Khong, 2006; Wang, Lin, *et al.,* 2006). Another indice, namely the RMR indice, must be between 0 and 1, and any of its value less than .05 indicates good fit (Golob, 2003). RMSEA is determined to be .05 as the analysis result. The RMSEA indices within the range of .05-.08 indicate good fit. (Byrne, 2001; Costa-Font and Gil, 2009; Adams, Nelson, *et al*., 1992). The model fit measures used in this study are shown in Table 2.

Table 3: Goodness-of-Fit Indices for SEM

Fit Measure	Good Fit	Acceptable Fit	Research Model
NFI	$0.95 \leq NFI \leq 1$	$0.90 \leq NFI < 0.95$	*0.950*
CFI	$0.97 \leq CFI \leq 1$	$0.95 \leq CFI < 0.97$	*0.970*
GFI	$0.95 \leq GFI \leq 1$	$0.90 \leq GFI \leq 0.95$	*0.919*
AGFI	$0.90 \leq AGFI \leq 1$	$0.85 \leq AGFI \leq 0.9$	*0.884*
RMSEA	$0<RMSEA \leq 0.05$	$0.05< RMSEA \leq 0.08$	*0.060*
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 < SRMR \leq 0.10$	*0.053*
χ^2/df	$0<\chi^2/df<3$		*392.446 / 69 =* ***2.423***

Source: Schermelleh-Engel et al. (2003: 52)

According to the confirmatory factor analysis results of the measurement model, RMSEA = .060, SRMR = .053, X^2/sd = 2.423 (392.446 / 69), CFI = .97, GFI = .919, AGFI = .884, NFI = .950, and TLI = .961. These findings are within the intervals of good fit and acceptable given in Table 2. According to the findings obtained in the research, the model indicates good fit with the criteria of X^2/sd, NFI, and CFI; and has acceptable fit with the criteria of GFI, AGFI, RMSEA, and SRMR. The e-service quality scale confirmatory factor analysis shows that the values are at good fit level (Hu and Bentler, 1999; Demirtaş and

Alanoğlu, 2015). According to the confirmatory factor analysis results, twenty-one items of which the e-service quality is supposedly comprised are evaluated, and the validity of the scale is found to be very high. These results show that the sample size is sufficient for the research model and that the model is statistically significant and valid. Fornell and Larcker (1981) suggested the use of composite reliability and AVE calculations for reliability measurements in structural equation modeling studies. Composite reliability values should be higher than .70, and AVE values should be above .50 (Fornell and Larcker, 1981; Hair *et al*., 1998; Hatcher, 1994). The results of the validity and reliability analysis for the measurement tool are presented in Table 1. As shown in Table 1, all composite reliability values of the factors are greater than .70, and they vary between .673 and .96. All AVE values are greater than .50, and they range from .572 to .887. These findings show that the measurement tool is reliable.

Table 4. Decomposition Validation

	AVE	EFFİCİENCY	FULFİLMENT	S.AVAİLABİLİTY	PRİVACY
EFFİCİENCY	0,678	**0,823**			
FULFİLMENT	0,572	0,535	**0,756**		
S.AVAİLABİLİTY	0,887	0,151	0,074	**0,942**	
PRİVACY	0,790	0,298	0,572	0,194	**0,889**

Table 4 shows the results of the analysis on decomposition validity. The average disclosure variance value in the relevant table is the square root of the mean variance of the relevant variable written in bold characters and the correlation matrix between the factors. As can be seen from the analysis of the tables, the mean explanatory variance of all the variables considered in our study is larger than the correlation coefficient of the other variables in the square root model with the corresponding variable. These results indicate that the factors involved in our study have adequate level of discrimination validity (Fornell and Larcker 1981; Gefen et al., 2000).

Table 5. The Second Order Confirmatory Factor Analysis Hypothesis Test Results

Variable			Unstandardized Values	t value ** p<0.01	Hypotheses
Efficiency	<---	ESQual	0.852	11.064**	H1 Accepted
Fulfilment	<---	ESQual	0.584	5.898**	H2 Accepted
S.Availability	<---	ESQual	0.308	3.460**	H3 Accepted
Privacy	<---	ESQual	0.778	9.725**	H4 Accepted

It is found that our model indicates good fit in accordance with the goodness-of-fit indices (x^2/sd ratio: 2.780, RMSEA: .067, SRMR: .05, CFI: .957 and TLI: .946) obtained as a result of second level confirmatory factor analysis. The analysis revealed that efficiency and privacy/security had the highest standardized values. When the values for the whole model analysis are considered, it is seen that all hypotheses are accepted. Based on the findings obtained as a result of the performed analyses, it can be said that the model measuring the e-service quality consists of four dimensions and the relations between these dimensions are found. By determining the applicability of the e-service quality scale in Turkey which is developed to measure the e-service qualities in different countries, it is thought to contribute to the literature on the subject.

Discussion

In this study, the scale applied by Parasuraman *et al.* (2005) is investigated on its validity and reliability about and the shopping experiences of consumers over the age of 18 living in Niğde and an acceptable compliance with confirmatory factor analysis is observed. First of all, it is determined that variables are

gathered with exploratory factor analysis under four factors determined by Parasuraman *et al*. Demographically, the majority of the participants are women under the age of 40, educated, and with a monthly income less than 5000 TL. It is determined that the vast majority visit more than four shopping sites a week. In online purchases, the common type of products are personal items such as clothing, accessories, etc. because the majority of the respondents are female consumers. These products are followed by technology products and books, respectively.

The most frequently visited online shopping websites are morhipo, hepsiburada, gittigidiyor, sahibinden, markafoni, trendyol, bimeks, teknosa, kitapyurdu, etc. Because the findings obtained from the research are limited to Niğde province and also the units are easily reached with the sample, it is limited to the research sample. For this reason, it is not possible that the findings can be generalized to cover all consumers. In order for the results to be generalized and accepted, it is necessary to study on larger samples including different provinces. In the research, the dimensions of e-service quality such as transaction performance, security, and system suitability have been realized in accordance with the literature. Besides these dimensions which have not been covered in the research, although have been tested before, the effects of such dimensions pertaining consumer complaints as order conditions, order status and order delivery time should be considered in the future studies.

According to the findings obtained, it has been determined that efficiency and privacy/security dimensions have a significant influence on e-service quality. These results indicate that factors such as the ease of understanding and non-complexity of the e-retailer's website, site layout, technical suitability, and accessibility to the site play an important role in the consumer's perception of quality. The second most important dimension of average quality is the privacy/security dimension. In the preferences of Turkish consumers, the protection of their records and personal information seems to be one of the most effective determinants. The distrust about the theft of credit card and personal information also has an important effect on the quality of service. This result seems to bear similarities with some previous studies (Bilgihan and Bujisic 2014; Swaid, S.I., and Wigand, 2009; Yapraklı and Yılmaz, 2008) in the literature.

The higher the rates of dimensions such as efficiency and privacy/security for an e-commerce site, the higher the quality of e-service that consumers perceive on the site. Another dimension that consumers perceive as important in the evaluation of e-service quality beside these two dimensions is fulfillment. Fulfillment dimension constitutes another dimension which has a crucial impact on quality perception if the site fulfills its commitments related to shopping and delivers accurate and reliable offers to customers.

Participants can be said to have chosen these sites for purchasing products from their most used sites due to their purchases and deliveries of products on time as promised, accurate and reliable offers made to them. System availability and fulfillment dimensions have lower ratios than other dimensions because the developments made possible by today's e-retailing companies as a consequence of increasing the competition and consumer satisfaction in these issues have reflected on the consumers. In short, the consumer is now less concerned with such issues than before. Studies on broader and different aspects, particularly towards the comparison between the perception of loyalty and e-service quality, with a sample size larger than the one used in the study, can be conducted.

In line with the results obtained from the research study; firms that sell products over websites should invest more in efficiency and privacy/security if they wish to positively affect overall quality assessments of the firm and to create more loyal consumers. Consumers must be convinced of a secure shopping and protection of their information. It is very important for the companies selling at websites to have a distribution network through which they can deliver their orders in the fastest and the most reliable way. Investments to be made in this sense will result in more consumer satisfaction and purchasing.

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