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## The analysis of the relationship among perceived electronic service quality, total service quality and total satisfaction in Banking sector<sup>1</sup>

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### Abstract

In order to competitive and survive, businesses have to understand customers' wants and desires. Today, banks are the cornerstone of finance sector and electronic banking services are becoming increasingly important in all areas. In accordance with this importance, banks should give much attention to enhance efficiency of these services. Service quality can be measured with the help of the servperf, servqual and e-s-qual scales. The aim of the current study is to investigate the structural relationships among electronic service quality, total service quality and total satisfaction by testing a structural model. The current study utilized a survey design. The data was collected from 223 participants in Turkey using a structured questionnaire which was derived from literature. Since there was no list available, convenient sampling method was used. The data at hand was analysed using the structural equation modelling (SEM), specifically Lisrel version 8.7. When the results are investigated, it can be said that the model is statistically significant. The goodness of fit indices of the revised model indicate adequate fit. All of the hypotheses except H<sub>1</sub> and H<sub>3</sub> were verified. A high level positive correlation was identified between the perception of total service quality and the perception of total satisfaction. The variables responsiveness, ease of use, product portfolio and security, which are the dimensions of e-service quality, affect total service quality perception and total satisfaction perception in parallel with the literature. Responsiveness and security are the dimensions which have the highest effect on e-service quality perception. Also total service quality perception affects highly total satisfaction perception.

**Keywords:** Electronic service quality, total service quality and satisfaction, SEM.

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## 1. Introduction

Today, the service sector is the leading sector among the other fastest growing sectors. The types and dimensions of the services from which the people benefit have been gradually changing in parallel with the social transformation. Improving of the quality constitutes an important working area in the service sector which has been achieving a fast growth in terms of dimensional and diversity. How the quality is perceived in the service sector and what needs to be done for improving it form the basis of working subjects. From this focal point forth, the activities as to determining, analyzing and improving the components of the service quality need to be managed with modern managing applications. The situation is the same also for the banking sector which is one of the main constituents of the financial sector. The necessity for banks to offer more quality services adding value to their activities has been gradually increasing in global and local conditions of competition. Customer loyalty and satisfaction is influenced by product quality, service quality and company image in product quality literature. The literature on service quality show that customer perceptions in relation to high service quality and satisfaction result in high-level intention of buying. In addition to this, service quality is directly related with the customer satisfaction and it contributes to customer loyalty (Wu and Ding, 2007:204). One of the most important means is service quality to stay in competition and achieve the goals such as differentiating the e-services from virtual rivals and traditional services, creating loyal customers, keeping the market-share and increasing profitability. It is very difficult and expensive to keep and win new customers in virtual market as well as the traditional market. Because, it is quite easy and affordable (low cost) for customers to find, evaluate and choose the alternative channels. On the other hand, the fact that e-customers' increased service experiences and becoming more sensitive to the quality suppress e-service providers about understanding the perceived e-service quality (Çelik and Başaran, 2008:130). The success in increasing the perceived value of the service and service quality offer additional value for the customers. The customers' awareness of the increased value provides opportunities to the service providers for more valuable harvest (Groth and Dye, 1999; 338).

Because of the fast growth and the profitability in e-services, it has been a necessity to know the factors that affect the repurchase and attitudinal loyalty of the customers that are oriented to e-service (Luarn and Lin, 2003:157). The role of the service quality has been analyzed and emphasized extensively in the service literature for the recent twenty years. The servqual, which is a classical multi-item instrument, and its harmonizations have been valid as an important determining instrument and have been used for the analysis of the service quality perceived by the customers.

With the increase in the use of online shopping, the servqual instrument has been in use and refined to measure electronic service quality provided via websites (Yang and Tsai, 2007:115). On the other hand, the scales, which have been used and valid for measuring e-service quality, have been diversified and used for measuring specific dimensions. In this study, the dimensions and materials of service quality used by Yang, Jun and Peterson (2004) were adopted from. This paper aims, through relational research, to analyze the relationship of the electronic service quality perceived by the customers in the banking sector and the total service quality with the total customer satisfaction.

## **2. Banks as service enterprises and their basic functions**

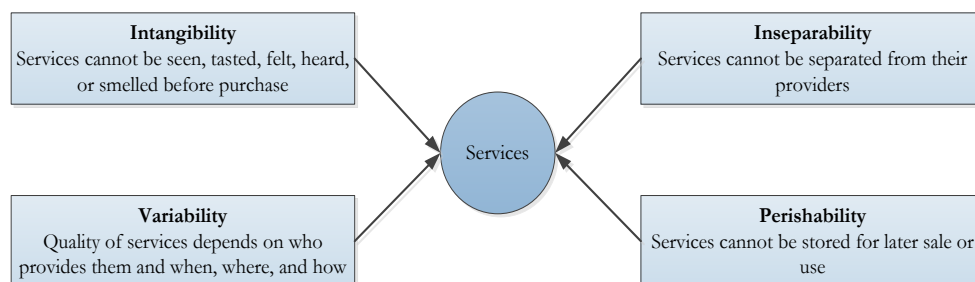
The banks that are modeled as independent bodies are dynamic groups giving optimal reactions to its environments. In industrial economics, the bank is defined as a service business which provides service to its customers in a specific market and endures a certain cost for producing this services. Within this period the banks, which are obliged to compete successfully with other banks, need to follow an effective marketing strategy which makes its presence felt in the sector by using the price and the nonprice instruments (Yağcılar, 2011:5). The banking services have improved significantly based upon the development of technology (Okumuş, Bozbay ve Dağlı, 2010:90). The intensive competitive environment in the banking sector has forced the banks to plan and apply effective marketing strategies. The customer oriented marketing strategies have to focus on constructing the best serving. The service diversification has to be done constantly in accordance with the performed competition and sector analysis (Tolon, *m3.gazi.edu.tr*). These developments have created significant changes in the ways of delivering the products and services in the banking system to the customers in last ten years. Besides this, many bank mergers have taken place and there have been decreases in the number of banks. In spite of the decrease in the number of banks there have been increases in the selling points. With internet, ATM, ABM and the branches, a bigger part of the market has been acquired. The customers of the banks have been able to make transactions out of bank like opening a bank account via the functional web sites of the banks, applying for a loan, performing all types of control about all subaccounts and transactions related with his/her account, funds transfer, EFT transactions, payment transactions and portfolio management (Toraman, 2002).

As one of the important factors which has affected the service providers, change in technology has become a significant determiner. With the development of the technologies based upon the knowledge, many new service areas have emerged in markets (Öztürk, 2010:39). A study in which the affect of the technology on the banking services is analyzed, it is stated that the

internet banking has been seen as an important distribution channel from the aspect of the customers and workers (Pala ve Kartal, 2010:44). As a result of the changes have taken place in finance sector, the banks have been in search of innovation continuously as they have carried out their functions. It has been seen that also the governments have assumed various roles in structuring of the sector. One of the innovations that the banks have started in this sense is personal banking. Personal banking can be defined as serving the banking services which meet the needs of the customers that change permanently by seeing the marketing and the technology as a complement of each other in the frame of modern banking concept (Tutcuoğlu, 2010:23). The banks, which form the building blocks of the economic system, have also various functions like making financial intermediations, creating liquidity, evaluating and following loan applications, solving asymmetric information problems, improving the efficiency of monetary policy, affecting the economic stabilization, making use of scale and scope economies, improving the efficiency of the payment systems, funding the foreign trade and encouraging export they have assumed as commercial and personal while they carry out their activities with profit motive as a business firm (Yağcılar, 2011:5).

### **3. The term of service, its features and quality**

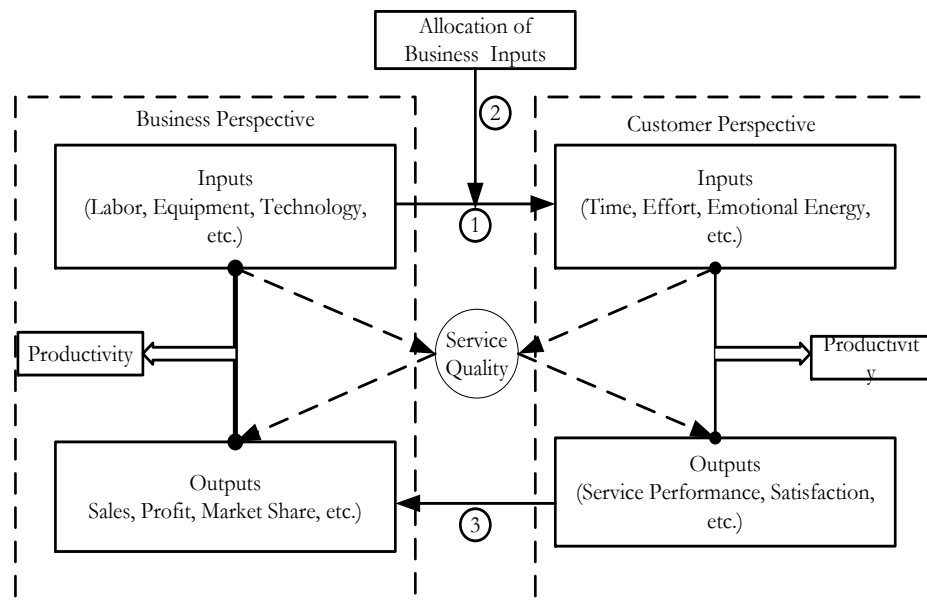
Fundamentally services differ from the goods because of the various characteristics (Rahman et. al., 20007:39). Thus, defining of the notion of service is more complex and difficult than the notion of goods. Modern definitions of services focus on the fact that a service in itself produces no tangible output, although it may be instrumental in producing some tangible output (Baker, 2003:588). Kotler and Keller (2006) define a service as follow “a service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything”. Most of the challenges in services marketing due to the basic characteristics of services which mentioned frequently such as intangibility, variability, inseparability and perishability [Jan, 2012; Kotler and Armstrong, 2004). Thus, a company must consider four special features when designing marketing programs (Kotler and Armstrong, 2004). These features are schematically depicted in figure 1.



**Figure 1** The basic characteristics of services (Kotler and Armstrong, 2004)

Onkvisit and Shaw (2004) state that service providers generally have more flexibility in providing services because service quality evaluations of customers is more difficult than goods among suppliers. Even though not arriving at a consensus in conceptualization for what the service quality means, the researchers of service marketing have developed the term of service quality based upon the customer behaviour models. According to the some customer behavior models, the perception of product is a function of the expectations of the customers before buying the product. The model of disconfirmation of the service quality has formed the basic of this aspect. The level of perception of the service quality of the customers changes accordingly to the meeting or not meeting the expectations of service quality. In other words, the service quality perception depends on the meeting of the expectations. The customers perceive the service quality subjectively depending on their expectations. The service quality at the same level can be perceived differently by different persons (Ardıç ve Sadaklıođlu, 2009:170). The market conditions of today which are based upon competition and the rapid communication have helped persons to know other persons by getting information about their life standards and level of welfare and so have caused these persons to try to raise their own life qualities to this level. For improving the service quality and enhancing the level of service perceived, it needs to research and making the necessary evaluations of what expect the ones who have benefited from the services of the corporation which have provided services, how the services they present have been perceived and how much the customers are satisfied (Demirel, Yoldaş, Uslu Divanođlu, 2009:2). In the service literature, the structuring of the quality has focused on the quality which is defined and perceived as a customer consideration related to the total excellence or superiority of the foundation. This approach is different from the objective quality which comprises the objective evaluation of the object or the event. The perceived quality is a form of 'attitude' which emerges from the comparison of the expectations and the perceived performance. Moreover, though it is emphasized in the literature, the perceived service quality has continued to be a term which is hard to be understood (Kang, 2006:38).

Related to the service quality and productivity, in figure 1, a conceptual framework is presented which is oriented to providing the productivity from the perspectives of the business and customer and describing the central role of the service quality in two connections. The productivity has been dealt with from the aspects of business and customer. There can be a conflict between the two aspects of productivity if the productivity is dealt with separately. Improving of the productivity unidirectionally causes to the disruptions in the others. In addition to this it is not necessary to be dealt with separately also. The businesses which report that they analyze bidirectionally in customer-business perspective, with standing out amongst the service businesses they can benefit from the synergy of the double aspect. As indicated by the arrows which are directed to the circle at the center of the frame, business and customer inputs affect the service quality. In case the other things are equal, causing the high level service quality of the high level business inputs and low level customer inputs can be a hypothesis (also it is possible that the low level business inputs and high level customer inputs decrease the service quality). The service quality is also affected from the business and customer outputs. Based upon the literature which is based on the service quality, higher (lower) quality of service will contribute to the higher (lower) inputs from the aspect of the business and customer (Parasuraman, 2002:7, 8).



**Figure 2** The conceptual frame related to the role between the service quality and efficiency (Parasuraman, 2002).

#### 4. Electronic service quality and its dimensions

A website of a business is a useful tool for directing its customers and structuring the experience of online shopping. An outstanding web experience of customer has a significant potential for continuing the senses, attitudes of customers and extra sales (Zarei, 2010:6). It has been seen that the electronic service is connected to the e-business model inseparably (Luarn and

Lin, 2003:157). E-service can be defined as an interactive content-centered and internet-based customer service, driven by customer and integrated with related organizational customer support processes and technologies with the goal of strengthening the customer-service provider relationship (Luarn and Lin, 2003:157, Ancarani, 2005:7, Ho and Lin, 2010:7). E-service is defined as web based service or interactive service provided through the internet. In e-services, the interaction or the connection of the customer with service providers is through the web sites through the agency of technology (Ho and Lin, 2010:7). E-service quality is defined as the level of facilitating of the web the effective shopping, purchasing and delivery of products and services (SwaidandWigand, <http://www.decisionsciences.org>, SwaidandWigand, 2009:13). In the studies, which deal with the interaction of human-technology, it is stated that the evaluating of the new technology of the customers is a different process. Evaluating of the customers the technology based products and the results of the empirical studies which research how the interaction takes place with them explain that (a) the customer satisfaction with suchlike products involve a very complex, meaningful and long term period, (b) the period changes between the different customer segments, (c) the satisfaction is not always a function of the preconsumption comparing standards in this regard. Another study which researches the people's reactions to technology states that technology may trigger positive or negative feelings simultaneously (Parasuraman, Zeithaml and Malhotra, 2005:216). Whereas service quality is known to be based on multiple dimensions there is no general agreement as to the nature or content of the dimensions (Kang and James, 2004:267, İlter, 2009:101). E- service quality is defined as a holistic evaluation and an opinion of the customer for the e-service which is provided to him/herself in virtual marketplace. Although the importance of the e-services provided to the customers with a high level of quality has been understood by the most of the companies, it is stated that the problem of how the quality of online services is defined continues. There are many models and methods of measuring and evaluating the quality of the traditional services. But there is not any which is not based on the heuristic study made by Parasuraman, Zeithaml and Malhotra which provides the most comprehensive study about service quality (Sun, Wang and Cao, 2009:243). Becoming a significant criteria of e-service quality for measuring the e-retail web sites, has directed many researchers to develop the basic dimensions of e-service quality for the level of customers' quality perceptions (Kim and Kim, 2010:259). In accordance with the Collier and Bienstock (2006), various dimensions of services quality for measuring service quality is used in some studies and web sites.

In their study, Ha and Stoel (2012) indicate that an important question given to the multi-dimensionality of the online textile retailing is concerned with how different service quality

dimensions can provide support for shopping outcomes (e-shopping and e-shopping satisfaction and e-shopping intention). According to the Bagozzi's (1992) study, there are key ingredients such as attitudes, subjective norms and intentions in terms of explains of behaviour, but if each is to produce predicted effects, certain self-regulatory process encompassed appraisal process, emotional reactions and coping responses is required (Bagozzi, 1992). Behavior is determined directly by the behavioural intention in accordance with the reasoned action theory [Bagozzi, 1992; Vallerand et al., 1992]. Behavioral intentions are determined by a personal (attitudinal) and social (normative) factors (Vallerand et al., 1992). A scientific specification of behavior is of great importance in terms of economic theory. In general terms, behaviour might be defined as what a consumer does that can be observed and verified intersubjectively (Bagozzi, 2000). Behavioral intentions is classified into the two categories: favourable and unfavourable. While favourable behavioural intentions include positive word of mouth, paying a price premium, spending more money with company, unfavourable behavioural intentions include leaving the company, spending less money, spreading negative word of mouth and taking legal action (Ladhari, 2009). In accordance with mentioned above, the framework of link among quality, satisfaction and behavioural intentions proposes that cognitive evaluations (appraisal) lead to e-shopping satisfaction evaluation (affective) by contributing continuance satisfaction level. The period of evaluation is related to the current and past facts and it creates two results as output-desired conflict and output-desired realization. The output-desired conflict takes place when the person becomes unsuccessful in fulfilling his/her desire or when the experiments of an undesirable event create negative emotional reactions (like dissatisfaction, getting angry, astonishment) which direct the person to the avoiding or remedying the negativeness. Outcome grows with the realization of the desired, reaching one's goal, satisfying experiences or positive emotional responses (satisfaction, pleasure, comfort, etc.) when a dissatisfying event is avoided, and when those directs the person to keep the satisfying output (Ha and Stoel, 2012:201).

## **5. Methodology**

### **5.1. The aim of the study**

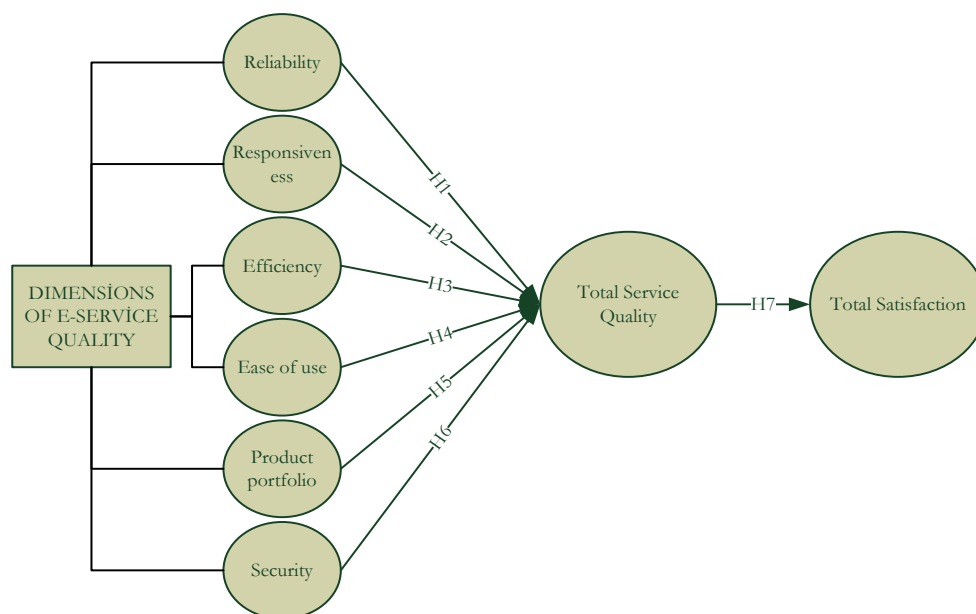
Banking is a sector which directs the demand. The information technology and internet has gradually become more important for serving financial services by providing an effective banking service to the customers. The banks have started to set up their own web portals for providing Internet service and have gained the advantages of more customers, lower cost, unlimited time, scope through internet. Therefore, service quality is an important tool for the banks to



compete. Thus it is important to benefit from the good service quality for differentiating from the other service providers. Though the forms of the internet services are different from the classical services, the service quality has still been the basic competitive feature of the internet banking services (Ho and Lin, 2010:5). In terms of long term relationship with clients in banking sector, service quality, relationship quality and overall service satisfaction can improve customers' intention to stay with a bank (Prim, 1999; Gürbüz et al., 2008:792). The aim of this study is to analyze the relationship of the electronic service quality perceived by the customers in the banking sector and the total service quality with the total customer satisfaction.

## 5.2. The method and the model of the research

This study was structured in the relational research model. The data were gathered by the survey method. The survey consists of two parts. There are items related to the demographic variables in the first part, related to the service quality dimensions, total service quality and customer satisfaction in the second part. The items in the survey which are for measuring the perceived service quality dimensions, total service quality, and total customer satisfaction were adapted from the study of Yang, Jun and Peterson (2004). All these items were measured using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). The data was collected from 223 participants in Turkey using a structured questionnaire which was derived from literature. Since there was no list available, convenient sampling method was used. The data at hand was analysed using the structural equation modelling (SEM), specifically Lisrel version 8.7. In the figure 1 the research model which will be tested is schematized towards the aims of the study.



**Figure 3** The model of the research

### 5.3. The hypotheses of the research

Hansemark and Albinson (2004), defined customer satisfaction as “overall customer attitude toward a service provider”. Customer satisfaction is the outcome felt by those that have experienced a company’s performance that have fulfilled their expectations. Many researcher and academicians highlight the importance of customer satisfaction (Angelova and Zekiri, 2011). Customer satisfaction is regarded as customers can get more benefits than their cost. Many empirical studies have shown that customer satisfaction secures future revenues, reduces future transactions costs, decreases price elasticity and minimizes the likelihood of customers defecting if quality falters (Hu et.al, 2011). Customer satisfaction plays a key role in services (Ranjbarian et al., 2012:41). It is stated that the evaluation of customer satisfaction is subjective (Yang, et al., 2012:79). Customers have a level of quality expectation before getting a service and the perceived quality emerges when they benefit from the services. The difference between the expected and the perceived quality is used in the evaluation of service quality (Yang, et al., 2012:79). Thus, satisfaction is the output of service quality (Mosavi and Ghaedi, 2012:4912). Overall customer satisfaction is an important indicator in terms of behavioral and economic consequences beneficial to the firm (Andersan et al., 1997) by delivering high-quality goods and services influences profitability through customer satisfaction (Matzler et al., 2005). According to the Chiu et.al. (2009), Trust, enjoyment, perceived usefulness and perceived ease of use are significant determinants of repurchase intention. To the study of Turel and Serenko (2006), the hypothesis based on the idea that service quality, perceived in the mobile services which is provided, has a positive affect on the customer satisfaction is confirmed. It is stated that customers have some expectations about the goods and services which are offered in the pre-purchasing stage. These expectations generally are based on the word of mouth interaction, the information obtained by the analyses related to the products or the experiences of others. The confirmation is defined as ‘a cognitive belief of customers oriented to the period of evaluation mentioned and related to what extent the service usage expectations of them are met actually.’ If the low expectations are met with a high performance, customers will return with great confirmation. As for satisfaction it is defined as a psychological state which emerges when the feeling, which surrounds the harmonization of expectations, couples with the previous emotions of customers related to the consumption experience. In accordance with expectation-confirmation model, it is stated that confirmation is an antecedent of customer satisfaction and they together are used as the key determinants for the user’s continued usage intention. It is stated that there are positive relations between customer confirmation, perceived usefulness, customer online shopping satisfaction and customer online

repurchase intention (Wen, Prybutok and Xu, 2011:16). In the study of Hu et. al (2011), the relation of customer expectations, perceived quality, perceived value and customer satisfaction were analyzed and confirmed. In their study, Broderick and Vachirapornpuk (2008), with researching how and from what the customers' service evaluations which are continuous affected, aim to reach the insights related with the service perceptions in internet banking of aforesaid customers. Sun, Wang and Cao (2009), in their studies, state that service quality has a strong relation with perceived value and e-customer satisfaction. In accordance with the Ural and Korkmaz (2007), creating customer trust depends on technical traits and quality of site, market orientation of bank, and built of successful collaborative relations with customers. The total perceptions of web site quality of customers, are affected greatly from the web site's ability of meeting their needs (Zarei, 2010:7). Customers have to trust the information technology fully when they encounter an e-service (Ho and Lin, 2010:7). In their studies Sabiote, Frías and Castañede (2012) analyzed the affect of the culture about the relation between dimensions of e-service quality and satisfaction with a web site which includes buying a tourism service. With this purpose, they researched on the Spanish and English tourists. It was determined that on Spanish tourists, the dimensions of e-service quality as ease of use, reliability and related information became effective on satisfaction, as for on the English tourists, the dimensions of e-service quality as reliability, related information, security and ease of use became effective on satisfaction (Sabiote, Frías and Castañede, 2012:168). Security is stated as removing the risks and doubts in the service period. Security is seen as a determiner of service quality which affects e-satisfaction. Because of the many terrifying security news heard about the security subject most of the customers approach with suspicion to the subject. Most of the web sites offer various security measures (username, password, credit card number) (Santos, 2003:242). With ease of use it is stated that how a web site makes easier for customers the managing of inner surfing in the website and external searching in cyberspace. The external search means that how customers find easily the web site on the worldwideweb. As for inner search it is the offering of inner search options to customers which help to search on the web site with products, features or key words (Santos, 2003:239). Reliability is a dimension which has significant effects on customer satisfaction. It can be defined as the fulfillment level of the promises related with transactions and providing the accessibility of the materials given by the web site (Kim and Kim, 2010:260). The online provider is thought as reliable when it fulfills the services which it promises (Loonam and O'Loughlin, 2008:762). Responsiveness is defined as dealing of the problems effectively and making a comeback of web site. Responsiveness is related with the willingness of the company in helping customers and providing fast service when customers

encounter a problem. In the study of Kim and Kim (2010) it is stated that the previous studies shows that responsiveness affects the service quality which the customer perceives and customer satisfaction (Kim and Kim, 2010:260). For product portfolio, online customers have a tendency to be the customer of the firms which offer a substantial variety of services. The primary reason for this choice is that it is more likely that their diverse needs can be fulfilled. Thus, a key to gaining customer satisfaction and loyalty is to provide a mix of offerings preferred by target customers (Yang, Jun, and Peterson, 2004:1155). It is stated that in their studies Cho and Park (2001) have identified “variety of products” as one of the key dimensions that influence Internet shopper satisfaction (Cho and Park, 2001). It is mentioned that online users basically seek convenience and the maximum convenience can be provided to customers with the component of harmonized products and services (Madu and Madu, 2002:252). The personalized web sites can give product and service offers according to the specific characteristics of customers by providing possibility to differentiating in the competition and to building strong relationships with customers (Page and Lepkowska-White, 2002:237). It is pointed out that a suitable selection of products/services is one of the important ingredients for developing consumer value in online companies (Yang, Jun, and Peterson, 2004:1155).

*H<sub>1</sub>: Reliability perception of service quality affects positively the total perception of service quality.*

*H<sub>2</sub>: Responsiveness perception of service quality affects positively the total perception of service quality.*

*H<sub>3</sub>: Efficiency perception of service quality affects positively the total perception of service quality.*

*H<sub>4</sub>: Use perception of service quality affects positively the total perception of service quality.*

*H<sub>5</sub>: Product portfolio perception of service quality affects positively the total perception of service quality.*

*H<sub>6</sub>: Security perception of service quality affects positively the total perception of service quality.*

*H<sub>7</sub>: Total perception of service quality affects positively the total satisfaction.*

## **5.4. Findings**

### **5.4.1. Profile of participants**

The four demographic variables, frequency of internet use are shown in Table 2. Nearly %61,4 of the participants are men, %53,4 are between 26-35 age range, the part %41,7 have a bachelor degree, monthly family income of %38,1 is between 1751-2500 TL.

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**Table 2** Profile of participants

Variables	%
<b>Gender</b>	
Male	61,4
Female	38,6
<b>Age</b>	
Less than 25 years	22,4
26-35 years	53,4
36-45 years	18,8
More than 46 years	5,4
<b>Education</b>	
Primary School	0,4
High School	8,1
Associate Degree	22,4
Bachelor Degree	41,7
Postgraduate	27,4
<b>Monthly family income</b>	
Less than 1000 TL	9,9
1001-1750 TL	22,0
1751-2500 TL	38,1
2501-3250 TL	16,6
3250> TL	13,5

According to the features of computer and internet use, %40,4'of the participants have a personal computer between 6-10 years; %49,3 have used internet as a shopping channel for 1-3 years, %65,9 of them use internet 5-8 times in a day; and %83,0 of the participants follow banking transactions on internet 1-5 times weekly.

**Table 3** Internet usage of participants

The internet usage characteristics of participants	
<b>How long have you had a personal computer?</b>	
1-5 Years	33,2
6-10 Years	40,4
11>=	26,5
<b>How long have you used the Internet as a shopping channel?</b>	
1-3 Years	49,3
4-6 Years	34,1
7-9 Years	11,2
10>=	5,4
<b>How often do you use the Internet on the average?</b>	
Weekly 1-5 times	13,5
Daily 1-4 times	20,6
Daily 5-8 times	65,9
<b>How often do you follow your banking transactions on the internet?</b>	
Weekly 1-5 times	83,0
Daily 1-4 times	12,1
Daily 5-8 times	4,9

#### 5.4.2. Descriptive statistics related to the items of e-service quality and satisfaction

The mean and standard deviation values related to the items of e-service quality, total service quality and satisfaction are shown in Table 4. The items on the scale were written respectively, by being coded according to e-service dimensions.

**Table 4** Descriptive statistics related to the items

Items	Mean	S.D.	Items	Mean	S.D.
REL1	4,04	1,009	USE17	4,12	0,858
REL2	3,90	0,943	USE18	3,75	0,966
REL3	4,26	0,816	PRO19	3,74	0,850
REL4	4,21	0,893	PRO20	3,64	0,835
RES5	3,53	1,126	PRO21	3,39	1,126
RES6	3,76	1,065	PRO22	3,66	0,914
RES7	3,57	1,045	PRO23	3,82	0,892
RES8	3,84	0,887	SEC24	4,05	0,918
RES9	3,68	1,035	SEC25	3,78	0,906
RES10	3,76	0,900	SEC26	3,69	0,989
EFF11	3,61	0,951	SEC27	3,41	1,102
EFF12	3,68	0,953	TOTSERV28	3,66	0,874
EFF13	3,70	0,915	TOTSERV29	3,74	0,850
USE14	3,96	0,882	TOTSAT30	3,80	0,807
USE15	4,03	0,907	TOTSAT31	3,94	0,811
USE16	3,31	1,294	TOTSAT32	3,86	0,845

#### 5.4.3. Reliability and Item analysis

Internal consistency concern the degree to which the items in the survey are measuring the same thing. Split-half reliability estimate and Cronbach alpha estimate have been used for measuring internal consistency (Hayes, 2008). The results of split-half estimate, cronbach alpha estimate and spearman-correlation are shown in Table 5.

**Table 5** The results of reliabilities

Values of reliability statistics applying cronbach alpha and split-half methods		
Reliability applying cronbach alpha test		0,937
Reliability applying split-half method	Cronbach alpha part 1	0,883
	Cronbach alpha part 2	0,903
	Spearman-brown coeff.	0,886

The up-group %27 and sub-group %27 methods and item total correlation were used for measuring item analysis. According to the results of two methods, there is a significant differences between two groups and item total correlations are between 0,20-0,80. The results of up and sub-group %27 methods and independent sample t test are shown in Table 6.

**Table 6** The results of item analysis

Groups	Means	S.d.	t value	Sig.	Difference
Up-group	141,08	6,94	20,961	0,000	+
Sub-group	99,78	13,58			

#### 5.4.4. Structural equation modeling (SEM)

Structural equation modeling was used for analyzing the relations between service quality dimensions, total service quality and total satisfaction in the measurement model and testing the coherence between data and model. Structural equation modeling is a statistical technique which allows analyzing of the direct or indirect effects of each variable upon other variables. Structural equation involves two types of model as measurement model and structural model. The first is related with how well it measures the latent factors which deal the validities and reliabilities of variables. The second model is about modeling relationships between latent factors which look like the system of simultaneous regression models and which define the amount of variance explained or not explained (Chinda and Mohamed, 2008:122,123).

In this study, a confirmatory factor analysis was conducted in order to establish confidence in the measurement model which specifies the posited relations of the observed variables to the underlying constructs. Confirmatory factor analysis belongs to the family of structural equation modeling techniques as it allows for the assessment of fit between observed data and a priori conceptualized, theoretically grounded model that specifies the hypothesized causal relationships between latent factors and their observed indicator variables (Chinda and Mohamed, 2008:122,123). Confirmatory factor analysis were carried out through all of the 32 items and the model, which is determined based on the dimensions which the original study revealed, were tested with the help of confirmatory factor analysis. The goodness of fit indices related to the model in consequence of the analyses are shown in figure 2. The values given related to the model are the raw values which were obtained by not making a modification on the model. When the confirmation of factor structure and model fit are evaluated, it can be said that some of the criteria indicate acceptable model fit while other are close to meeting values for acceptable fit (Suhr, www2.sas.com:7).

Chi-square describes similarity of the observed and expected matrices. Acceptable model fit is indicated by a chi-square probability greater than or equal to 0.05. For this confirmatory factor analysis model, the chi-square value is close to zero ( $p=0,001$ ).

- Being equal or smaller than three of the chi-square, is an indicator of a good fit. The Chi-square/sd was determined as 1,80.
- RMSEA indicates the amount of unexplained variance. Being close the value (0,060) of the RMSEA to zero indicates the goodness of fit. The value 0,060 obtained is smaller than the 0,08 which is the value of upper limit.

- The following were determined as; CFI (0,97), NNFI (0,97) NFI (0,94), GFI (0,82) and AGFI (0,78). It is seen that most of the goodness of fit criteria have acceptable goodness of fit value. According to the criteria it can be said that the confirmation of the factor structure and the model fit are acceptable. The summary of the results of goodness of fit is shown in Table 7.

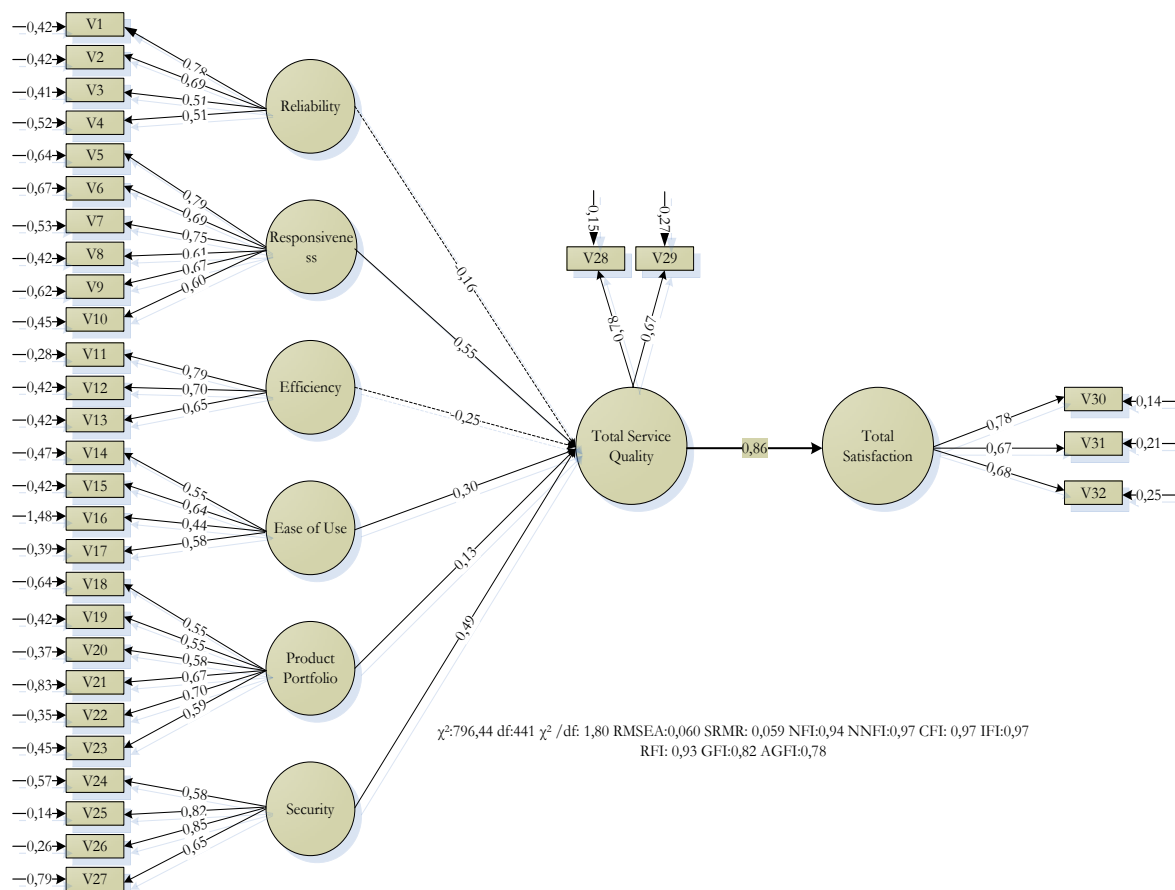


Figure 4 Test of the measurement model

Table 7 Results of goodness of fit related to the model

Goodness of Fit Statistics	Values	Desired Value Ranges Related to Goodness of Fit
Chi-square test ( $\chi^2$ )	796,44 (p<,001)	p>,05
Degrees of Freedom (df)	441	$\geq 0$
Chi-square/degrees of freedom Ratio ( $\chi^2 / df$ )	1,80	2 - 5
Goodness of Index (GFI)	,82	>,90
Root mean square error of approximation (RMSEA)	,060	<,08
Adjusted good-of-fit index (AGFI)	,78	>,90
Normed fit index (NFI)	,94	>,90
Comparative fit index (CFI)	,97	>,95



After the confidence in measurement model was brought out, the direction of posited relations between eight latent variables was analyzed. The results related to the hypothesis tests are shown below according to the results obtained.

**Table 8** Results of path analysis

Hypotheses	Path Coefficients and t Values	Results	R <sup>2</sup>
H <sub>1</sub> : REL ↔ TOTSERVQ	-0,16 (-1,18)	Not supported	
H <sub>2</sub> : RES ↔ TOTSERVQ	0,55 (2,95)	Supported	
H <sub>3</sub> : EFF ↔ TOTSERVQ	-0,25(-1,59)	Not supported	0,81
H <sub>4</sub> : USE ↔ TOTSERVQ	0,30 (2,44)	Supported	
H <sub>5</sub> : PRO ↔ TOTSERVQ	0,13 (1,21)	Supported	
H <sub>6</sub> : SEC ↔ TOTSERVQ	0,49 (7,23)	Supported	
H <sub>7</sub> : TOTSERVQ ↔ TOTSAT	0,86 (13,92)	Supported	0,74

## 6. Conclusion and discussion

With the increasing amount of research into internet marketing and electronic commerce, service quality in online environments has become recognized as an important factor in determining the success or failure of electronic commerce. E-service and e-service providers represent the future of e-commerce. The probability of losing web sales because of the inadequate service and recommending by some researchers of allocating the 70-75 percent of web budgets to developing e-service, make the subject more important (Santos, 2003:233-234).

The aim of this study is, analyzing the relation between e-service quality dimensions, total service quality and total satisfaction perceptions. In the study, which was designed in the model of relational research, the survey method was used as data gathering technique. Structural equation model was used in testing of the relation between data set and structure. According to the results of relational analysis made related to perceived e-service quality dimensions, perceptions of total e-service quality and total satisfaction, the relationship between latent variables and observed variables are significant. The analytical results of the tested hypotheses show that there is a negative directional effect between reliability and total service quality. According to this result H<sub>1</sub> ( $\beta=-0,16$ ,  $p<0,05$ ) was not supported. A positive directional effect was determined between responsiveness and total service quality. According to this result H<sub>2</sub> ( $\beta= 0,55$ ,  $p<0,01$ ) was supported. It shows that there is a negative directional effect between efficiency and total service quality. According to this result H<sub>3</sub> ( $\beta= -0,25$ ,  $p<0,05$ ) was not supported. A positive directional effect was determined between ease of use and total service quality. According to this result H<sub>4</sub> ( $\beta= 0,30$ ,  $p<0,01$ ) was supported. A positive directional effect was determined between product portfolio and total service quality. According to this result H<sub>5</sub> ( $\beta= 0,13$   $p<0,05$ ) was supported. A positive directional effect was determined between security and total service quality. According to this result göre H<sub>6</sub> ( $\beta=$

0,49,  $p < 0,01$ ) was supported. A positive directional and high effect was determined between total service quality and total satisfaction. According to this result  $H_7$  ( $\beta = 0,86$ ,  $p < 0,01$ ) was supported. When compared with the results of the original study, of the hypotheses, which was put forward after theoretical analyzes,  $H_2$ ,  $H_4$ ,  $H_5$ ,  $H_6$  and  $H_7$  were supported whereas  $H_1$  and  $H_3$  were not.

The variables responsiveness, ease of use, product portfolio and security, which are the dimensions of e-service quality, affect total service quality perception and total satisfaction perception in parallel with the literature. Responsiveness and security dimensions are the dimensions which have the highest effect on e-service quality perception. Also total service quality perception affects highly total satisfaction perception. This result show parallelism with the relationship of perceived quality and perceived satisfaction which is supported statistically in the study of Tien, Hsu and Chuang (2012). The effects of reliability and efficiency e-service quality dimensions upon total service quality perception, were not significant statistically. In their study, Wu and Ding (2007) indicate that the direct relationship between electronic service quality (Wu and Ding, 2007) and satisfaction was not significant statistically, the indirect relationship between electronic service quality and satisfaction was significant (0,151) statistically. In our study the relationship between ease of use and satisfaction was significant statistically. In the study of Mosavi and Ghaedi (2012) the relationship between perceived value of ease of use and satisfaction was found significant statistically. Both of the studies show parallelism at this point. Besides, in the study of Wen, Prybutok and Xu (2011) it is stated that within the context of the e-commerce environment, the role of trust is more important compared to traditional business as increasing uncertainties will be caused by the distance and other impersonal factors (Wen, Prybutok and Xu, 2011). In the study it is determined that perceived ease of use affects customer trust and also perceived usefulness affects customer satisfaction.

## 7. Limitations of the Study

The study has some limitations beside it produces significant results for implementers. Primarily, using of convenience sampling model in the study is the major limitedness in terms of generalization of the results of the study. Secondly, there are many scales and dimensions used in the measurement of e-service quality dimensions. In this study, the measurement was made through the six e-service dimensions related to the used scale and its results were interpreted. The other dimensions, analyzed by various researchers, were not included. The study was built in the frame of the model of relational research, direct relationships were included, mediating relationships were not analyzed. In the studies which will be performed in the future, analyzing of

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mediating effects and relationships will be able to make possible of revealing more important results.

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