Electronic Service Quality of Iranian Internet Banking

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ABSTRACT

This study attempted to determine electronic service quality (e-SQ) of Iranian internet banking and its impact on electronic customer satisfaction (e-CS). Using convenience sampling procedure and a web-based questionnaire, 292 completed questionnaires were gathered from internet banking users of four main public banks in Iran. The Confirmatory Factor Analysis performed indicated that six dimensions - efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use - were applicable to measure the Iranian internet banking e-SQ. Results of descriptive analysis indicated that Iranian internet banking users perceived a high level of e-SQ and the high level of the e-SQ was statistically significant using One-sample t-test analysis. All items for each dimension of e-SQ recorded high descriptive value indicating that users' perceived high e-SQ in the usage of internet banking. A significant positive relationship exists between e-SQ and e-CS in the Iranian internet banking. The regression analysis performed showed that security/trust, site aesthetics, and ease of use of the internet banking e-SQ have positive effects on e-CS. Managerial and future research recommendations were discussed in relation to improving the internet banking e-SQ and to explore contributing factors to the low usage of internet banking in Iran.

Keywords: Internet banking; electronic service quality, e-SERVQUAL, e-Customer satisfaction

1.0 Introduction

1.1 Internet, e-Commerce and Internet banking

The rapid growth of Internet and the resulting e-commerce has resulted in more intense competition in the already highly competitive electronic market. The internet allows companies to shift their focus to electronic-service in the whole transaction process – pre, in, and post-transaction stages (Cristobal, Flavian and Guinaliu, 2007). The electronic service (e-service) is becoming increasingly important not only in determining the success of e-commerce application, but also in providing customers with a convenient service booking channel with interactive information flow in the transaction process (Santos, 2003; Yang and Fang, 2004). Such shift implies that understanding on how customers perceive and evaluate electronic service quality (e-SQ) is of importance for companies.

In banking industry, the information technology has significantly affected the development of more efficient banking services. The internet provides an efficient delivery channel through which customer banking services can be delivered more conveniently and economically (Gkoutzinis 2006). This has motivated banks all over the world to offer internet banking services to their customers. Internet banking uses the internet as a delivery channel to conduct banking activity, such as transferring funds, paying bills, viewing checking and savings account balances, paying mortgages, and purchasing financial instruments and certificates of deposit (Gkoutzinis, 2006). It is about "Banking services delivered over the internet … include opening/closing of account, domestic/foreign money transfer, standing orders, direct debit, debit card application, loan application, credit card application, insurance investment, mutual funds investment, foreign/domestic equity investment, deposit account opening, life insurance contract, traffic insurance contract, etc." (Centeno, 2003). Delivering high e-SQ in internet banking requires understanding on the current level of e-SQ, thus effort to improve the quality of the services could be determined.

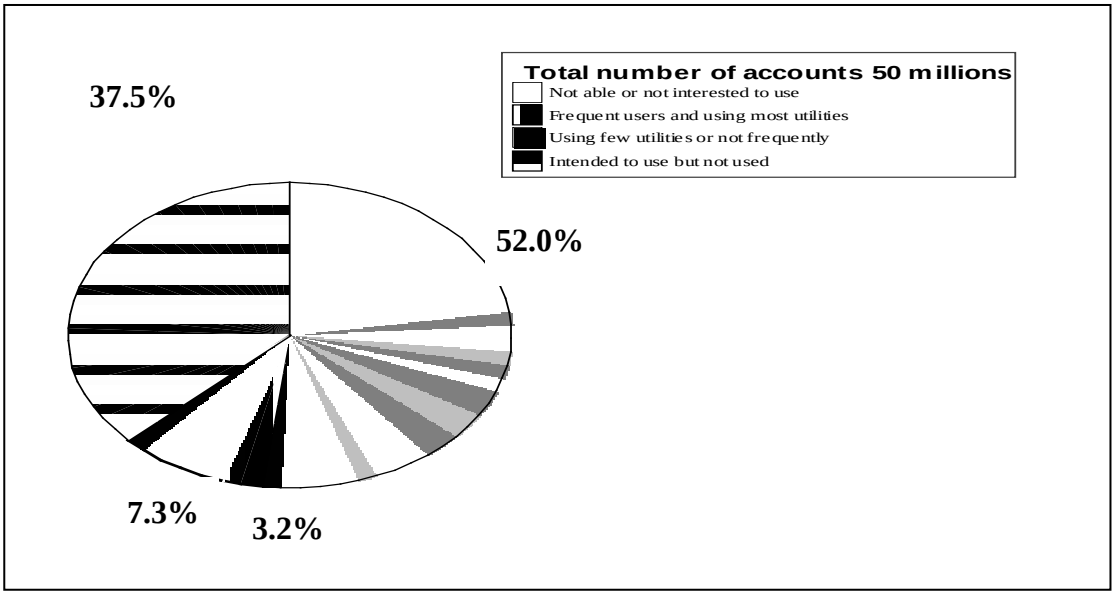
1.2 Usage rate of Internet Banking in Iran

Currently all major banks in Iran are offering the possibility to use the internet based services, but, as depicted in Figure 1, only 3.2% of customers are actively and frequently using internet for their daily banking job (Khamseh, Sobhanifard, and Akhavan**,** 2008; Pour Mirza, Hamidi, and Wallstrom, 2009). This fact means banks have not able to benefit from the advantages of wide usage of Internet banking, and their investment in this sector have not utilized well. Those who are not using Internet banking at all (52% of customers), either do not have minimum infrastructure to use Internet (Sheikhan 2009), or they do not have interest or knowledge to use it.

In general people have a slow speed of accepting a new technology for what they were doing using traditional methods. This problem known as technology adoption problem, and is addressed for internet banking context in several studies (Black, Lokett, Winklbofer, and Ennew, 2001 and Akinci, Aksoy, and Atilgan 2004).

There is also 37.5% of total number of accounts that their owners referred to the banks and asked for internet banking username and password, but either did not use at all or stopped using it. The weak support of customer service in the first customers' attempt of using internet banking could be a reason for this process. The remaining portions consist of customers using internet banking in small scale (7.30%), and effective users (3.2%).

Figure 1: Internet Banking Usage in Iranian Public Banks (Khamseh, Sobhanifard, and Akhavan, 2008)



From Figure 1 and the above discussion, it is possible to drive three main reasons for low penetration of Internet banking in Iran:

- Low usage of Internet due to weak telecommunication infrastructure (Sheikhan 2009);
- Low knowledge on using Internet or Internet banking services (Pour Mirza, Hamidi, and Wallstrom, 2009);
- Low e-service quality of the current Internet banking services.

One of the focus of this study has been the third factor. Compare to the other two factors, low service quality has not been investigated in technical reports inside Iran. It sounds reasonable to assume that a large number of Iranian customers are willing to shift from conventional to internet banking but reluctant to do so due to current level of service quality offered.

1.3 The importance of E-Service Quality and E-Customer satisfaction

Customer satisfaction is stated to be one of the most important keystones when creating customer loyalty, especially in the bank sector (Methlie and Nysveen, 1999; Ribbink, *et al.* 2004; Leverin and Liljander, 2006). Ribbink, *et al.* (2004) discuss the importance of e-customer satisfaction when doing business online and state that satisfaction is likely to be even more important online, since it is harder to keep online customers loyal. Methlie and Nysveen (1999) take this concept even deeper and express the importance of the satisfaction of the customer since it is harder for a competitor to take a satisfied customer away, than an unsatisfied customer. The authors propose that banks must have the knowledge on how to get their customer satisfied and in Internet banking it shall be prioritized.

Despite all the advantages the Internet offers to both banks and their customers in terms of increased productivity and reduced costs, it also hides a lot of challenges for the service providers. On the Internet, the comparison between different service offerings is much easier and switching costs are lower, which makes it easier for customers to change service providers (Santos, 2003). To retain its customers, banks should try to make customers satisfied with their internet banking services and offerings, and this can be achieved through delivering high e-SQ. Delivering high

e-SQ requires understanding of the Internet service quality dimensions considered crucial, and trying to improve the quality of the services provided over the Internet, so that a competitive advantage is gained.

There is an ongoing discussion in the literature about the relation and underlying difference between customer quality perceptions and satisfaction in internet based services. Several studies found that specific website e-services can positively affect customer satisfaction with website and online purchasing in the long run (Khalifa and Shen, 2005). Banks must have the knowledge on how to get their customer satisfied, especially in relation to the e-SQ, and in internet banking, it shall be prioritized (Methlie and Nysveen, 1999). A question is that does e-SQ of Iranian Internet banking will positively affect its e-CS?

2.0 Literature Review

2.1 Electronic Service Quality

E-SQ as a concept was introduced and defined by Ziethaml, Parasuraman and Malhorta (2002). According to their definition, e-SQ is "*the extent to which a website facilitates efficient and effective shopping, purchasing and delivery of products and services"* (Zeithaml, Parasuraman and Malhorta, 2002, p.363). Their definition involves a complete customer service experience throughout the stages of the online shopping process and this includes pre-website, on-website and post-website service aspects (Zeithaml, 2002; Zeithaml, Parasuraman and Malhorta, 2002). Another definition by Santos is "consumers' overall evaluation and judgment of the excellence and quality of e-service offerings in the virtual marketplace" (Santos, 2003, p. 235). In general, e-SQ refers to the consumers overall evaluation and judgment of the excellent and quality of electronic service offering in the virtual marketplace. The e-SQ is highly concerned due to it highly related with the success or failure of an internet-based company such as internet banking.

2.2 E-SQ Instruments

To date, academia and business have tried to develop scales for measuring website e-SQ (Zeithaml, 2002; Wolfinbarger and Gilly, 2003; Gounaris and Dimitriadis, 2003, and Parasuraman, 2004). Majority of the validated and scientifically developed scales are based on the Technology Acceptance Model and feature website usability, informatively, design, technical characteristics, functionality and safety of use, etc. (Liu and Arnett, 2000; Zeithaml, 2002; Loiacono *et al*., 2002; Wolfinbarger and Gilly, 2003; Yang *et al*., 2005). There are, however, different approaches towards assessing website e-SQ. For example, Chen and Wells (1999) developed a scale for measuring website quality based on three website quality criteria: entertainment, in formativeness and organization (website structure). Huang (2004) developed a Web performance scale based on website quality perceptions of consumers, which refers to hedonic aspects of website quality (fun, playfulness and pleasure associated with the website's use). Yoo and Donthu (2001) have developed the SITEQUAL scale to measure the perceived quality of an online shop. This led to a nine-item scale of four dimensions: ease of use, aesthetic design, processing speed and security.

There are a number of methods allowing the measurement of a company's e-SQ profile as perceived by its on-going customers. The best-known methods are WEBQUAL (developed by Loiacono, Watson, and Goodhue (2002), e-SERVQUAL (developed by Zeithaml, et.al. 2002, and Parasuraman, et.al. 2005), and e-TailQ (developed by Wolfinbarger and Gilly (2003).

E-SERVQUAL measures website e-SQ as perceived by customers. It is a

method for measuring website e-SQ that is based on the same principle as the original SERVQUAL method and includes some dimensions similar to those of SERVQUAL. The e-SERVQUAL scale contains a core and recovery scale, represented by four and three dimensions respectively. E-S-QUAL or core scale is used to measure the customers' perceptions of service quality delivered by online retailers. E-RecS-QUAL or recovery scale refers to specific situations, when a customer has a question or runs into a problem, in which the three dimensions of the recovery scale become silent (Parasuraman, et.al. 2005). In simpler terms, it can be said that core scale refers to the quality of the website itself, while the recovery scale is more concerned with the actual performance of the company, rather than with website performance. Four dimensions of core e-SERVQUAL scale are efficiency, fulfillment, reliability and privacy. Three recovery dimensions of e-SERVQUAL are responsiveness, compensation and contact points, which are mainly concerned with the situations which arise when a problem needs to be solved and "personal service" is required.

Loiacono *et al*. (2002) propose a novel method of evaluating website quality using WEBQUAL instrument. WEBQUAL focuses on the website interface and it is suggested to be one the most empirically grounded e-SQ scales (Wolfinbarger and Gilly, 2003). WEBQUAL is developed based on the conceptual background of the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM). The main idea behind the use of WEBQUAL is that it is possible to predict the re-visit/re-use behavior of web users based on their perceptions of overall website quality. The instrument consists of four constructs: *usefulness*, *ease of use*, *entertainment*, and *complimentary relationship*, which include a range of website dimensions, each is evaluated by a website visitor according to his/her perceptions of website quality (Loiacono, Watson, and Goodhue, 2002).

eTailQ (also known as comQ) is developed by Wolfinbarger and Gilly (2003). It is used to measure and predict e-tail quality. The scale was developed in a three-stage study approach: focus group discussions with online buyers (first stage of research); conceptualization and categorization of emerged items (e-tail quality dimensions) from the customer's perspective (second stage of research); and an online survey to determine the scale dimensions (factors) (third stage of research). The results suggest that four website quality dimensions can predict customer judgments of quality and satisfaction with the website, namely website design, fulfillment/reliability, privacy/security, and customer service.

WEBQUAL, e-SERVQUAL and eTailQ appear to be quite comprehensive for measuring website e-SQ. It is difficult to say, though, which technique is better without a complicated test. There are, however, several reported limitations of the WEBQUAL instrument in comparison to e- SERVQUAL. WEBQUAL measures the perceptions of website visitors who use various website quality attributes (such as functionality, appearance of user interface, technical characteristics, etc.). Parasuraman (2004) suggests this approach can be misleading since the results of such ratings can be high on service attributes, but do not reveal important service shortcomings, because they do not consider the complex nature of customer service expectations. It is suggested that a customer does not have a single "ideal" level of expectations, but his expectations are rather outlined by an interval, "zone of tolerance", out-bounded on the top level by the "desired service" situation, which "customers believe can and should be delivered", and on the bottom level by "adequate service", which is a minimal acceptable level of customer service. Furthermore, several important initial instrument dimensions – "Customer Service" and "Functional fit-to task" – were eliminated in WEBQUAL after instrument validation procedures. It is arguable whether such elimination was appropriate, considering the importance of these website quality criteria reported in the literature.

Parasuraman and Zinkhan (2002) and Zeithaml, Parasuraman and Malhorta

(2002) expressed similar view on WEBQUAL, highlighting that this instrument focuses mostly on the technical quality of the website itself, rather than with the provision of service quality through the website. They also point out that in a buying situation, when the user is typically goal-oriented and motivated by an intention to purchase a product or service, the entertainment-related criteria of the website, such as Flow or Innovativeness dimensions of WEBQUAL, are not relevant. Zeithaml, Parasuraman and Malhorta (2002) suggest that WEBQUAL is the scale that is mostly usable for web designers, who need to determine ways of improving a website to positively affect the interaction perceptions of users. E-SERVQUAL measures e-SQ throughout the complete customer shopping experience, taking into account both the pre-website and post-website stages of this process. Therefore, a website is rather considered simply as a platform for company-customer contact, and its quality is measured by e-SERVQUAL, based on how well the website works as a channel for delivering service quality to customers. In other words, a website is seen as one of the company's instruments for delivering quality service to customers.

WEBQUAL is concerned with a website more as an independent instrument of a company in delivering service quality to customers. The authors of WEBQUAL differentiate between consumers' offline and online experiences. As was correctly mentioned by Zeithaml, Parasuraman and Malhorta (2002), WEBQUAL is, therefore, concerned with the technical service quality of a website, not how a website works as a platform for delivering e-SQ to customers. In other words, it can be said that WEBQUAL considers a website itself as a particular e-service of a company, delivered to customers by means of the Internet. Summarizing, it appears that the two instruments were developed for slightly different purposes and have different limitations.

As for eTailQ, it appears to take into account the reported criticism of both WEBQUAL and e-SERVQUAL. The discussion in the study by Wolfinbarger and Gilly (2003) suggests the authors' awareness of these issues. eTailQ was developed using a comprehensive research studying consumer perceptions of the importance of various e-tail quality attributes. Wolfinbarger and Gilly (2003) reported that the eTailQ's four factors display strong relationships with quality, customer satisfaction and loyalty intentions, which suggests strong predictive validity of the scale. However, the authors point out that their purpose was rather to develop a general model of e-tail quality, and additional research is needed to investigate how different product categories may affect the importance of the four factors in their scale.

In summary, it can be said that each instrument displays similarities, particularly in relation to the dimensions of website e-SQ being measured, and the assumptions behind the scale. All three scales were developed to measure e-SQ in an e-retailing context. Taking the e-SQ scale development process more broadly, it can be said that the results expressed by different researchers vary substantially. Wolfinbarger and Gilly (2003) suggest this is probably due to the fact that the researchers had a different focus, methodological approach and assumptions about the needs of online consumers.

2.3 Online Customer Satisfaction

Customer Satisfaction of Internet Service or e-satisfaction refers to customer satisfaction in the online market-space and is defined as a long-term, developing construct influenced by customers' e-service expectations and quality perceptions changing over time, based on new consumer experience and knowledge (Ziethaml, 2002). Szymanski and Hise (2000) define e-satisfaction as the consumers' judgment of their Internet retail experience as compared to their experiences with traditional retail stores. Evanschitzky et al. (2004) argue that the most obvious difference between traditional and electronic retail services is the replacement of

human-to-human interaction with human-to-machine interaction and therefore, new or modified approaches to conceptualizing and measuring satisfaction may be needed for e-commerce settings.

Some of the new and more complete jobs on evaluating various factors results in e-satisfaction are the work by Schaupp and Bélanger (2005) and Heeseok *et al.* (2009). They examined the role of several technology, shopping, and product factors on online customer satisfaction. The technology factors deal with the website qualities that ensure functionality of the site acknowledging that the consumer must be able to access the site, and be able to use it in order to purchase. Shopping factors deal with aspects of the consumer's feelings during and after the shopping experience. Product factors pertain to the qualities of the product or service for sale. These three categories comprehensively capture consumers' interaction with the technology, the online shopping experience, as well as the actual product (or service) purchased.

2.4 The Impact of e-SQ on e-Customer Satisfaction in Internet Banking

There is an on-going discussion in the literature about the relation and underlying difference between customer quality perceptions and satisfaction in both traditional and Internet based services (Grönroos, 1998, 2001; Dabholkar, Shepherd, and Thorpe, 2000). Parasuraman *et al*. (1985) suggest that service quality influences customer satisfaction. Then, customer satisfaction is seen as a mediator of service quality effects on the formation of behavioural shopping intentions (Dabholkar *et al*., 2000). In similar vein, several studies found that specific website e-services can positively affect customer satisfaction with website and online purchasing in the long run (Khalifa and Liu 2002; Khalifa and Shen, 2005). Shneiderman (1998) found the positive relationship between the subjective satisfactions of a user from the use of information technology. A user's subjective satisfaction is influenced by different perceived quality characteristics of the technology, such as ease of use and usefulness. Khalifa and Liu (2002) highlighted that a higher e-SQ will lead to higher satisfaction. The study of Lin (2003) indicated that if the perceived SQ exceeds expectations, customer will be satisfied. In internet banking setting, Chou and You (2005) found that credibility, economic variety, security, and site aesthetics of banks' internet banking did positively influenced online customer satisfaction. Further, the study of Saha and Zhao (2006) indicated that efficiency, reliability, responsiveness, fulfillment, privacy, technology update and technical support have a strong impact on customer satisfaction in Internet banking.

3.0 Methodology

Based on the review of e-SQ instruments and previous internet banking studies, the eight dimensions of e-SQ were identified to determine e-SQ of Iranian internet banking. The selection of these dimensions was based on the following steps:

- Step 1: The e-SQ dimensions of this study was adapted and modified based on E-SERVQUAL developed by Parasuraman *et al*. (2005) that can be classified into two scales; E-S-QUAL or core scale, and E-RecS-QUAL or recovery scale. The four dimensions of E-S-QUAL selected were efficiency, fulfillment, system availability and privacy with 22 items. For RecS-QUAL, two dimensions proposed were responsiveness, compensation and contact with eight items. Dimension of compensation was also proposed for e-SQ construct.

- Step 2: Based on the review on e-SQ dimensions for internet banking, the authors added three dimensions –site aesthetics and customization (Wu, et.al., 2008) and assurance (Ho, et.al., 2010) - to cover all potential demands of the Iranian internet banking customers. At this stage, there were 10 dimensions

proposed to measure e-SQ for Iranian internet banking.

- Step 3: Based on a discussion with the bank manager, measurement on the compensation dimension of E-RecS-QUAL was dropped because of difficulty in evaluating this dimension due to lack of enough internet banking users encountering problems.

- Step 4: The researchers then discussed with experts (three professors and five bankers) to filter the selected nine dimensions and defined all items for them to match existing services in Iranian Internet banking. The outcome of this exercise was a conceptual model of eight dimensions with 21 items to measure e-SQ in internet banking. Dimension of customization was dropped because the site customization was not provided.

- For e-CS, six items used to measure users e-satisfaction of internet banking, which were adapted based on the construct of e-Satisfaction proposed by Schaupp and Bélanger (2005).

The population size for this research was the total users of Iranian Internet banking. The total number of accounts was around fifty millions, and forty eight percent of them used internet banking. A range of a minimum sample size of 30 and a maximum of 500 has been suggested to be acceptable for e-marketing surveys (Sekaran, 2000). Considering the number of total questions in the questionnaire (21 for e-SQ and seven for e-CS), the number of samples were 135 (for 10% margin of error) to 270 (for 5% margin of error). In this research the author selected 5% margin of error.

A web-based questionnaire was designed (**http://query.mjee.org)**; and users of the internet banking were asked to fill up the form. The total number of collected questionnaires was 292 which was satisfactory for having 5% confidence interval.

3.2 Measurement assessment

In order to analyze the collected data and confirm the usefulness of the theoretical model to the internet banking context, the authors performed Confirmatory Factor Analysis (CFA) on the items of the model with the Principal Component Analysis as an extraction method and Varimax as Rotation method with Kaiser Normalization. Prior to this, Bartlett's test of Sphericity (p=0.00) indicated that the statistical probability that the correlation matrix has significant correlations among at least some of the variables, and the Kaiser-Meyer-Olkin measure of sampling adequacy (0.718) showed middling sampling adequacy.

Confirmatory Factor analysis (CFA) was conducted related to a principal component with Varimax rotation in order to validate the underlying structure of e-SQ of Iranian internet banking services as the independent variable and e-CS as the dependent variable. For e-SQ, the KMO measurement of sampling adequacy value was 0.718, which was greater than 0.6, indicating that the proportion of variance in the variables was caused by underlying factors, allowing the current data to proceed with factor analysis. In addition, the Bartlett's test of Sphericity value of 0.000 that was less than 0.05, proving that the analysis was significant. The results of Total Variance Explained indicated that six dimensions in the initial solution with eigenvalues greater than 1.0 have been extracted with the cumulative percentage of 71.100%. As can be seen in Table 1, the six dimensions with 19 items were reorganized and their implication to the e-SQ was highlighted. The constructs of e-SQ was extracted using loading factor of 0.5. Therefore, two items (e-SQ 1 - accessibility and e-SQ 19 - good reputation) were neglected due to all the factors loadings under such items were less than 0.5.

For e-CS, the KMO measure of sampling was 0.759, supported by Bartlett's test of Sphericity of 0.00, allowing the research to proceed with factor analysis. The results of Total Variance Explained indicated that only one dimension in the initial solution with eigenvalues greater than 1.0 has been extracted with the cumulative percentage of 60.238%. All the six items were accepted based on the results on component matrix with factor loading more than 0.5. Only one component was extracted, the solution cannot be rotated and it was labeled as e-CS.

The reliability was evaluated by assessing the internal consistency of the items representing each construct using Cronbach's Alpha. The reliability of each construct of e-SQ was as follows: efficient and reliable services = .810; = fulfilment 0.742; security/trust = 0.735; Site Aesthetics = .721; responsiveness/contact = .707 and ease of use = .767. Thus, it indicates that all dimensions of e-SQ are statistically reliable and were good and satisfied with alpha values > .720.

Table 1: Dimensions and items of e-SQ for the Iranian internet banking services

Items	Implication	Dimension of e-SQ
e-SQ8: Browser Efficiency	The service delivered through the Internet banking pages is quick	Efficient and reliable services
e-SQ10: Web Site Availability	The Internet banking part of website is always available for business	
e-SQ6: Website Interactivity	When the Internet banking section promises to do something by a certain time, it does so	
e-SQ17: Website Proper Work	Complete quickly a transaction through the bank's website	
e-SQ5: User-friendly interface	Organization and structure of Internet banking pages easy to follow	Fulfilment
e-SQ9: Website Accuracy	Accurate promises about the services being delivered	
e-SQ11: On Time Reaction	The Internet banking part of website launches and runs right away	
e-SQ7: Banking Accuracy	Internet banking transactions are always accurate	
e-SQ12: Customer authentication	No misuse of customers personal Information	Security /trust
e-SQ13: Safety/Security	Feel safe in internet banking transactions	
e-SQ18: Confidence	Confidence in the internet banking service	
e-SQ20: Website Attractively	The Internet banking webpage is attractive	Site aesthetic
e-SQ21: Website appearance	The Internet banking webpage is visually pleasing.	
e-SQ14: Direct and Fast Contact	Prompt response to customer request	Responsiveness / contact
e-SQ15: Quick Help	Quickly resolves online transaction problems	
e-SQ16: Direct Link	The Internet banking customer services are easily accessible by telephone/other means.	
e-SQ2: Website Info	Easily find what customers need on the website	Ease of use
e-SQ3: Website map	Graphic representation of banks' websites help customers to use internet banking services	
e-SQ4: Convenient Transaction	Able to use the Internet banking utilities of website without a lot of effort	

4.0 Results

4.1 Profile of Respondents

The total number of internet banking users of the four public banks in Isfahan, Iran participated in this study was 292. As shown in Table 2, characteristics of the respondents are summarized as follow:

- In term of age, the majority of respondents (184 or 63%) have been between 24 to 35 years old
- Most of them hold bachelor degrees (126 or 43%).
- 186 were male respondents (64.0%); and female respondents were 106 (36.0%).

Table 2: Demographic Characteristics of the Respondents

Demographic	Category	Frequency	Percentage
Gender	Male	186	64.0
	Female	106	36.0
Education Level	A Level or Below	44	15
	Associate Degree	32	11
	Bachelor	126	43
	Master	85	29
	PhD or PhD Candidate	5	2
Age	Below 23	55	19
	Between 24 to 35	184	63
	Between 36 to 45	29	10
	Between 46 to 55	24	8
	Above 56	0	0

4.2 Internet Banking Activity Pattern

Summary of internet banking activities pattern of the respondents are presented in Table 3. It indicated that:

- Checking the balance (131 or 45%) is the most frequent activity people are using. Paying bills and bank statement are the two main other activities which are frequently used by customers in Iran.
- Most of respondent (157 or 54%) were using Internet banking for more than 6 months.
- A high percentage of customers use only one (131 or 45%) or two types (93 or 32%) of Internet banking activities.
- Most of the respondents (155 or 53%) use the internet banking less than three times a week.

4.3 E-SQ level of Iranian Internet Banking Services

The e-SQ level of Iranian Internet banking was analysed using mean and standard deviation and one sample t-test. The descriptive level of the e-SQ was

determine as low e-SQ (mean scores of 1 – 2.333), average e-SQ (mean scores of 2.334 – 3.666) and high e-SQ (mean scores of 3.667 – 5). As depicted in Table 4, the Ease of Use dimension has the highest mean score which was 4.32 and standard deviation was 0.62781. Dimension that obtained lowest mean score based on Iranian Internet banking users' perception was Site Aesthetics with the mean score 3.8832 and standard deviation 0.61658. As shown in the Table 4 for all Iranian Internet banking users' perception of e-SQ, results indicated that the six dimensions have a high descriptive level. Furthermore, all the dimensions have standard deviation lower than 1.000 which means all the users association with the items were not widely scattered.

The average mean for the six dimensions was 4.07 which corresponded to high descriptive value. All items for each dimension of e-SQ recorded high descriptive value. In conclusion, descriptive analysis indicated that the e-SQ level for Iranian internet banking services is high.

Table 3: Summary of Internet Banking Activities Pattern

Pattern	Category	Frequency	Percentage
Type of Activities	Check Balance	131	45
	Paying bills	91	32
	Bank Statement	105	36
	Transfer money to other accounts	17	6
	Charging Prepaid Mobile Phone	23	8
	Tracking Cheque	6	1
	Various Internet Shopping	12	4
Number of activities	Only one	131	45
	Two	93	32
	three or more	67	23
Number of weekly activities	Less than Three times	155	53
	Four to Five Times	67	23
	Six to Ten Times	41	14
	More than 10 times	29	10
Experience	Less than Three Months	58	20
	Four to Six Months	47	16
	More than Six Months	157	54

In order to verify that there is no significant difference between the sample mean and the population mean for each dimension, the authors used one-sample T-test. The results were demonstrated in Table 5. The test value was assumed to be 3 which represented that the e-SQ of Iranian internet banking assumed to be low. This value was compared with population mean for each dimension. As the results in Table 5 shows the p-value was less than 0.05. This indicated that there were significant differences between the assumed mean (3) and the population means. The mean difference have been always above 0.66 which indicated that the mean value have been always above 3.666.

Table 4: Overall Descriptive Analyses of Iranian Internet Banking e-SQ

	N	Minimum	Maximum	Mean	Std. Deviation	e-SQ descriptive level
Efficient & Reliable services	289	2.50	5.00	3.8829	.61005	High
Fulfilment	283	2.00	5.00	3.9532	.83915	High
Security/Trust	288	2.33	5.00	4.1906	.62962	High
Site Aesthetics	287	2.00	5.00	3.8832	.72449	High
Responsiveness/ Contact	278	2.00	5.00	4.1435	.53481	High
Ease of Use	282	2.00	5.00	4.3265	.62832	High
Valid N (listwise)	278					

Table 5: One Sample Test result for Iranian Internet Banking e-SQ

snoisnemiD e-QS	Test Value	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
		Lower	Upper	Lower	Upper	Lower	Upper
Efficient & Reliable services	3.0	24.428	290	.000	.87457	.8041	.9450
Fulfilment	3.0	24.351	290	.000	.87928	.8082	.9503
Security/Trust	3.0	33.152	290	.000	1.19931	1.128	1.270
Site Aesthetic	3.0	24.351	286	.000	.87928	.8082	.9503
Responsiveness/ Contact	3.0	36.473	290	.000	1.14347	1.081	1.205
Ease of Use	3.0	36.013	290	.000	1.32646	1.254	1.399

4.4 The Impact of e-SQ on e-Customer Satisfaction

In order to identify the relationship between Iranian Internet banking e-SQ dimensions and its customer satisfaction, Pearson's correlation of coefficient analysis was performed. Table 6 shows the correlation between e-SQ dimensions and the e-satisfaction. Except for responsiveness/contact, all the five dimensions of e-SQ were positively and significantly correlated with e-Customer satisfaction. A significant moderate relationship exists between efficient and reliable internet banking services (0.453, $p<.05$) with e-CS. The other five dimensions have nearly similar correlation between 0.114 to 0.217 ($p<.05$), indicated low positive correlations between the e-SQ and e-CS.

Multiple regression analysis was performed to examine the impact of Internet banking e-SQ dimensions towards customer e-satisfaction. According to Table 7, all VIF values for the six independent variables were less than 10 indicated that the threat of multicollinearity problem is insignificant in this research. The R-square value of

the multiple regression results shows that 21.1 percent of the variation in e-CS can be explained by the variation in the independent variables of efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use. Future researches should consider dimensions of customization and compensation, which were dropped in this study, as they may have greater impact on e-CS. There were only three dimensions statistically significant which were Security/Trust (B 0.169, std 0.063, β 0.156, t 2.712, Sig. 0.007), Site Aesthetics (B 0.145, std 0.052, β 0.158, t 2.775, Sig. 0.006), and Ease of Use (B 0.140, std 0.064, β 0.129, t 2.199, Sig. 0.029). So, the linear regression equation for this research was $Y_{e\text{-}cs}=0.169X_1+ 0.145X_2+ 0.140X_3+ 2.197$; where $Y_{e\text{-}cs}$=**Customer e-Satisfaction;** X_1=**Security/trust;** X_2= **Site Aesthetics; and** X_3=**Ease of Use.**

Table 6: Result of Correlation between e-SQ Dimensions and e-Customer Satisfaction

e-SQ Dimension		**e-Satisfaction**
Efficient & Reliable services	Pearson Correlation	.453(**)
	Sig. (2-tailed)	.009
Fulfillment	Pearson Correlation	.114(*)
	Sig. (2-tailed)	.049
Security/Trust	Pearson Correlation	.171(**)
	Sig. (2-tailed)	.003
Site Aesthetics	Pearson Correlation	.217 (**)
	Sig. (2-tailed)	.000
Responsiveness/ Contact	Pearson Correlation	-.083
	Sig. (2-tailed)	.153
Ease of Use	Pearson Correlation	.185(**)
	Sig. (2-tailed)	.001

Note: * p<0.05; ** p<0.01

Table 7: Impact of Internet banking e-SQ on Customer e-Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	β			
1 (Constant)	2.197	.430		5.109	.000	
Efficient and Reliable services	.100	.066	.090	1.525	.128	2.160
Fulfillment	.056	.046	.068	1.206	.229	2.095
Security/Trust	.169	.063	.156	2.712	.007*	1.527
Site Aesthetics	.145	.052	.158	2.775	.006*	1.424
Responsiveness/ Contact	-.238	.073	-.189	-3.239	.101	2.089
Ease of Use	.140	.064	.129	2.199	.029*	1.756
Note: * p<0.05; ** p<0.01	F statistic		66.94			
	R^2		.211			

5.0 Discussion and Recommendation

The overall level of Iranian Internet banking e-SQ, identified in this study, has been high. All dimensions of the e-SQ - efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use – revealed that the quality of internet banking services in Iran were descriptively high. Result of One Sample test indicated that the differences in the mean scores between internet users' perception of e-SQ and the t-value were statistically significant. Thus, assuming e-SQ as a contributor to the low penetration of internet banking in Iran is questionable. Further study on the other two reasons mentioned for low Internet banking penetration (Low telecommunication infrastructure and low adoption of Internet banking), and investigation of some other potential reasons could be another future direction for researches.

The results of regression analysis proved that security/trust, site aesthetics and ease of use of the e-SQ significantly affected users' e-satisfaction in Iranian Internet banking. The results on the significant effect of security/trust, site aesthetics and ease of use of the e-SQ were consistent with previous research findings (Chou and You, 2005, Khalifa and Shen, 2005, Saha and Zhao, 2006). Therefore, bank managers need to specifically concentrate on these e-SQ dimensions having high impact on e-satisfaction. Some recommendations for further improvement of these dimensions for Iranian internet banking are as follows:

- **Security/Trust**: Three items corresponded to this dimension were **Customer authentication, confidence** and **Safety and Security**. The banks are doing their best to make their customers sure that there is no possibility of problems regarding these security/trust issues. But there have been growing numbers of hacking and abusing the personal information all over the world and in Iran (Gerrad, and Cunningham, 2003; Khamseh, Sobhanifard, Akhavan, 2008). This means bank must do their best to keep their security system up-to-date.
- **Site Aesthetics**: Two items corresponded to this dimension were **Website attractiveness** and **Website appearance**. In general, the website attractiveness and website appearance are key factors shaping the customers first interpretation of a company website (Ki-Han, Jae-Ik 2008). Banks need to constantly improve these items to be able to attract new customers.

Recommendations for further improvement of the e-SQ dimensions for Iranian internet banking are also proposed:

- **Efficient and Reliable Services**: Four items corresponded to this dimension were **Browser efficiency, web site availability, web site interactivity,** and **Website Proper Work**. There were complains on difficulty in money transfer between accounts in different banks and also on frequent website crash (JavaScript error) in the open-ended questions. The bank managers need to find solution to improve the reliability of Internet banking services in these aspects.
- **Fulfilment:** Four items corresponded to this dimension were **User-friendly interface, website accuracy, on-time reaction** and **Bank's Accurate Response.** There has been a major research area in computer science on Internet based software with user friendly interfaces (Mundorf and Bryant 2002). The banks need to take these aspects more in consideration and develop website that a broad range of users can work easily with it. For the

second items, there were complains (in the open-ended section) on delay in money transfer and balance report which should be considered.

- **Responsiveness/Contact**: Three items corresponded to this dimension were **Direct and Fast Contact**, **Quick Help**, and **Direct Link**. This dimension includes the way banks respond to their customers' requests and the easiness with which the bank is accessed by telephone when needed. Both these aspects might play crucial role in the recovery part of the service delivery process. Many studies have proven the importance of the recovery process for the total perception of service quality (Grönroos, 2001). It is generally believed that high recovery services can have positive effects on the development of trusting relationships with customers and can lead to increased customer satisfaction (Ki-Han, Jae-Ik 2008).

6.0 Conclusion

The finding of this study indicated that the quality of internet banking services in Iran were descriptively high and the high level of the e-SQ was statistically significant using One-sample t-test analysis. All dimensions of the e-SQ - efficient and reliable services, fulfilment, security/trust, site aesthetics, responsiveness/contact, and ease of use – were rated high in term of delivery of internet banking services to users. The early assumption of low e-SQ that contributes to the low usage of internet banking in Iran is inaccurate. Future researches should focus on the other two factors; i.e. (i) Low usage of Internet due to weak telecommunication infrastructure (Sheikhan 2009); and (ii) Low knowledge on using Internet or Internet banking services (Pour Mirza, Hamidi, and Wallstrom, 2009) in examining contributing factors to the low usage of internet banking in Iran.

In the case of a pure service such as Internet banking, service quality is generally believed to be the most important determinant of customer satisfaction (Noel, Jeremy 2005). The results of correlation test and regression also proved that there was positive correlation between some e-SQ dimensions and e-satisfaction for Internet banking services in Iran. The bank managers need to specifically concentrate on e-SQ dimensions having high impact on e-satisfaction (Security/Privacy, Site Aesthetics and Ease of Use).

The strongest association was with the security/trust dimension. This showed that feeling safe in doing various Internet banking services and the authentication of customers' information were the essential elements in satisfying customer needs. The second and third association were with the site aesthetics and ease of use dimensions which meant that appearance and proper functioning of the bank websites were the essential elements in satisfying customer needs. The bank managers should use graphic design with attractive and pleasant appearance for their websites. At the same time they should consider simplicity of working with the website.

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