An Investigation into the Effect of Internet Banking Service Quality on Customer Satisfaction (Case Study: Khorasan Razavi Saderat Bank)

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Abstract. This study aimed to investigate the effect of internet banking service quality on customer satisfaction. The study population consisted of all users of internet banking services in Khorasan Razavi Saderat Bank. In the current study, three criteria of factor loading coefficients, Cronbach's alpha and composite reliability were used to ensure the reliability of the questionnaire and also convergent validity was applied to examine its validity. Also, to evaluate the relationship among variables and data analysis, Partial Least Square method and Smart PLS software were run.The results of the study showed that online customer service quality, product quality and banking services have a significant positive relationship with internet banking service quality. Also, the results indicated that there is a significant positive relationship between internet banking service quality and customer satisfaction; however, the hypothesis of the relationship between the quality of online information systems and internet banking service quality was not confirmed.

Keywords: Service Quality, Internet banking Services, Customers' Satisfaction

1. INTRODUCTION

Rapid developments in the field of information and communication technology have led to widespread political, economic and social changes. Increasing people's access to internet has caused that the possibility of using information technologies to gain a special status. On the other hand, numerous benefits of online banking such as the lack of time and space limitation in the use of banking services, ease of access to information needed, saving time, significant reduction of costs of the use of banking services, the possibility of having various services and proportional to needs etc. have caused a dramatic increase in the use of Internet banking services [1]. Several studies have shown that online banking service is one of the most profitable sectors of banking activity [2],[3].

Internet banking is a growing phenomenon in the world, especially in countries where the suitable infrastructure of internet banking has been well developed. The coefficient of internet penetration in Iran has had a significant growth and indicates the growing increase in the use of internet within the future years and providing better infrastructure for offering internet banking services [4].

The reports provided by governmental authorities reveal that the number of users of internet banking services of Iranian banks has been ever-increasing and the need to identify factors affecting the quality of systems providing internet banking services becomes clear to compete effectively in the field of providing these services [5].

This increases competition in banking industry and provides electronic banking services. Given the importance and status of internet banking and the process of growing internet banking service in recent years in the country, financial and credit institutions and banks have currently found that the maintenance of the status and effective development is not possible in the management of information and communication without the use of scientific and practical

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strategies. Banks require an improvement in electronic service quality in order to survive the competitive arena [6].

On the other hand, most theorists and researchers have consensus on the importance of two concepts of customer satisfaction and service quality and consider them as fundamental concepts in service management in the way that Cutler states that marketing is based on the supplement of customer satisfaction not on the basis of production facilities.

Customer satisfaction is a key to maintain customer loyalty and top financial performance of the company. On the other hand, in today's competitive world, service quality is one of the areas through which organizations can gain competitive advantage. Service quality is defined as an attitude or judgment on the priority and preference of a service resulted from the comparison between customer expectations and their perceptions on actual performance of services. Most previous studies have shown the importance of these two concepts well [7]. Service quality, customer satisfaction and value are three elements that managers of service organizations should be seriously taken into account to provide services to customers [8].

Considering the above-mentioned cases reveals the need for more attention to internet banking service quality and customer satisfaction and manifests the need to conduct a study on the connection of these two key areas i.e. internet banking service quality and customer satisfaction. Hence, in this study, we investigate the impact of internet banking service quality on customer satisfaction in Khorasan Razavi Saderat Bank and seek to answer the question what impact internet banking service quality has on customer satisfaction.

Theoretical foundations

Service quality

The evaluation of service quality is the main issue of numerous empirical and conceptual studies in marketing services [9].Due to the intangible, non-uniform and disorient nature of services, researchers have defined service quality based on customer's judgment or overall picture on the advantages and superiority of services and that most models presented in this area measure customer's perceptions on the service quality [10].

The most comprehensive definition of the service quality has been provided by Parasuraman et al: "service quality is a form of attitude related to satisfaction but not equivalent to it that is obtained from the comparison between customer expectations of service and service performance".

Internet banking

Internet banking refers to the provision of internet banking services through internet using a personal computer or other equipment accessible to the internet [11]. Internet banking is also defined as providing banking services through computer network or directly free access to customer's home or their personal address [12].

Through a quick look at the internet banking systems, the effect and function of new information and communication technologies on banking can be realized. In addition, through joining the global communication systems, banks have tried to utilize communication technologies not to lag behind them. New technologies have led to new products and informative services of financial management which have provided the field of increasing growth and development of banks. Our life is familiar with new information and communication technologies such as Web sites, e-mail, instant messages, SMS etc. Financial institutions typically use one or more of these communication channels to deliver banking

information to customers. A key objective of these services is to timely and appropriately inform customers on the details of bank account and quickly provide banking services wherever they are [13].

Internet banking service quality

In the world of e-business, there are many factors affecting the quality of systems which offer internet banking services. Factors such as the lack of security in the internet network, lack of customer trust to using internet banking services, quality of the site and its design, especially providing services and their related information, customers' reluctance to us service internet banking [14].On the other hand, internal factors such as individual's attitudes, habits and perceptions on opportunities that are possible using internet banking service influence the individual's willingness to use them as well as their purchase decision [15]. In recent decades, a lot of marketing researchers have tried to identify key factors determining the quality of systems providing internet banking services from the viewpoint of customers by which the possibility of designing these systems leading to getting a competitive advantage is provided for them.

Through interview with focus group, Zeithaml et al [16] identified seven dimensions of online service quality: efficiency, reliability, performance, privacy, responsibility, compensation and connection. They determined four dimensions of efficiency, reliability, performance, and privacy as the main indices to measure customers' perceptions on the service quality offered by online retailers.

In online spaces in which the tendency is to self-help with minimal human interaction, a large number of quality dimensions of common services including some in well-known tools of SERVQUAL of Parasuraman et al are less related [17]. For example, dimensions such as physical appearance of facilities, employees, facilities and employees' accountability and empathy are less important in online environments [18].

Also, in his study, Hassanghoipour et al [19] recognized 20 aspects of the most important aspects of internet service quality used for measuring internet service quality in various industries including banking etc. including:

Customer support, security, ease of use, digital products / services, transactions and payments, informational content, innovation, accessible data, product selection, price, time of transaction, customer service, transportation, investigation, guarantee, designing website, accountability, customization, reliability, trust, personalization, order management, personal needs, organizing website, user friendliness, efficiency, felt risk, web services and content, convenience, usability, quality of information, service interaction, easy to use website, ensuring the website and ease of electronic services.

Customer satisfaction

Today, the failure or success of organization is determined based on customer satisfaction with products or services of organization. Customer satisfaction results in an increase in customer loyalty and loyal customers, spending more cost to buy their products or services, encouraging others to buy from organization and spending more cost to buy the products organization [7]. The concept of customer satisfaction is that they are satisfied with how to treat and provide organization's services and organization has been successful in attracting and retaining them. These satisfied customers have the expectation of high quality services to any extent to which they spend more time and cost for organization [20].

Electronic customer satisfaction

E-satisfaction is the amount of customer satisfaction with support to receive and send orders for goods or services, after-sales services, the price of goods or services, quality of website content, website speed, and the reliability to website, easy to use website and security [21].

Various researchers have enumerated several features for electronic banking services leading to electronic customer satisfaction with these services and some of the most important features will be mentioned as following:

- ✓ Ease of use: is one of the factors affecting customer's perception on electronic services that has a direct and positive impact on customer satisfaction [22].

- ✓ Saving time: electronic services can increase service quality from the customer's perspective which does not happen unless by more quickly doing the services required by the customer through electronic services [23].

- ✓ Suitability and presence of signs and directories: according to the studies by Barry et al and Kumar et al on Islamic banking in Malaysia, the presence of signs and directories required on how to use electronic banking services is one of the factors influencing customers' perceptions on whole service quality [22].

- ✓ Moral rights: customers are concerned about their moral rights during the use of electronic banking services; for example, the security of internet space or the possibility for individual access to all their banking operations influencing customers' perceptions on electronic banking services [24].

- ✓ Accuracy of using electronic services increases satisfaction with the service quality by reducing errors of banking operations and increasing the accuracy of transactions [22].

- ✓ Possibility to perform various banking operations: customers prefer the service by which they can receive different services. In general, customers prefer to use different services that are located around a basic service and are multi services [25].

- ✓ Advanced information technologies: the use of service provider from advanced information technologies has a positive impact on customers' perception of electronic banking services whether in the field of hardware or software [25].

- ✓ Ease of access to electronic services: convenient access to electronic services includes access to equipment and using services such as phone or internet and access to hardware equipment such as ATM, virtual branches and computer [26].

- ✓ Performing the requested operation for the first time: performing the operation requested by customer for the first demand and his referring measure the reliability of e-banking service [26].

- ✓ Sense of security: security in banking transactions is one of the factors affecting customers' perceptions of traditional and electronic banking service [23].

- ✓ Freedom in banking affairs: one of the important factors in electronic services is variability or dynamic service measured by customer freedom index in the use of banking electronic services [23].

✓ Anticipating customer needs: anticipation of customer needs and considering solutions to them is a very important factor on electronic service before customer request [23].
✓ Confidence / trust: customers' trust on the service includes the most basic requirements of a service i.e. one of the most important factors affecting customers' perceptions in both traditional and electronic services.
✓ Service and support: is especially important on electronic services and in the event of a problem, due to the lack of direct customers' interaction with service provider [27].

Conceptual model

In this study, the variables were examined based on the following conceptual model taken from the study by Rod et al [28].
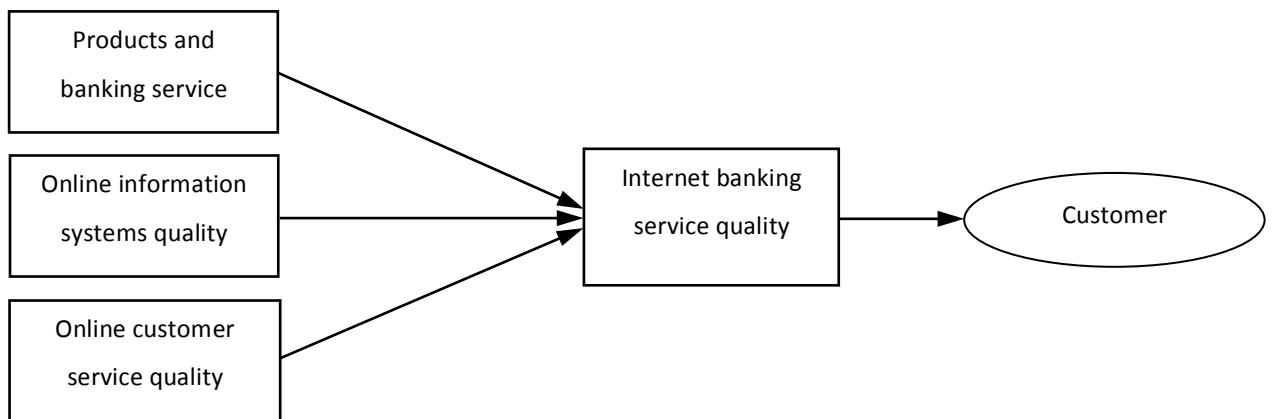
The conceptual model of the study by Rod et al [28]

The study objectives

1. Investigation of the relationship between online customer service internet quality and internet banking service quality

2. Investigation of the relationship between online information systems quality and internet banking service quality

3. Investigation of the relationship between products quality and banking services with internet banking service quality

4. Investigation of the relationship between internet banking service quality and customer satisfaction

The study hypotheses

1. There is a relationship between online customer service quality and internet banking service quality.

2. There is a relationship between online information systems quality and internet banking service quality.

3. There is a relationship between products quality and banking services and internet banking service quality.

4. There is a relationship between Internet banking service quality and customer satisfaction.

2. METHODOLOGY

The study is applied in terms of the objective and descriptive-correlational in terms of data collection. The population includes all users of internet banking services of Khorasan Razavi Saderat Bank. The sampling method in this study was simple random sampling and the sample size was calculated based on the principle of the minimum sample required in Partial Least Squares (PLS) method provided by Barclay et al [29]. Also, in this study, library resources and questionnaire have been used to gather theoretical foundations and data in the field part, respectively. In the analysis of raw data, structural equation modeling technique and Smart PLS software have been applied.

Results and data analysis

In this part of the study, the fitness of measurement models has been evaluated and the validity and reliability of the instruments of the study is investigated and interpreted. In the following, the fitness of structural model and then, the overall fitness of the model are examined and the hypotheses are finally tested.

Investigation of the fitness of measurement models

Reliability

In this study, to evaluate the reliability of the questionnaire, three criteria of factor loading coefficients, Cronbach's alpha and composite reliability have been used that each is addressed in detail in the following and their results are interpreted and reported

Factor loading coefficients

Factor loading coefficients of the items are as follows:

Table 1. Factor loading coefficients of the items.

Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading
1	0.677	5	0.519	9	0.628	13	0.794	17	0.886	21	0.558
2	0.721	6	0.697	10	0.607	14	0.798	18	0.864		
3	0.605	7	0.740	11	0.851	15	0.582	19	0.755		
4	0.784	8	0.699	12	0.601	16	0.923	20	0.715		

Given that the proper value of factor loadings coefficients is equal to or greater than 0.4 (Hulland, 1999) and according to the results in Table 1 and the obtained values for all questions, it can be said that the reliability is good.

Cronbach's alpha

In this study, Cronbach's alpha related to each y variables has been separately calculated whose results are seen in Table 2

Table 2. Cronbach's alpha coefficients for each variable.

Variable	Cronbach's alpha coefficient
Product and banking service quality	0.687
Online information systems quality	0.713
Online customer service quality	0.795
Internet banking service quality	0.779
Customer satisfaction	0.714

Given that the proper value of Cronbach's alpha is 0.7 [30] and on variables with a few questions, 0.6 is acceptable as border of Cronbach's alpha coefficient [31] and as it is seen in Table 2, the value obtained for all variables is more than 0.6, therefore, it can be said that the reliability is good.

Composite reliability

Composite reliability for each variable is observed in Table 3.

Table 3. Composite reliability for each variable.

Variable	Composite reliability CR>0.7
Product and banking service quality	0.797
Online information systems quality	0.807
Online customer service quality	0.850
Internet banking service quality	0.899
Customer satisfaction	0.817

Given that the proper value of composite reliability is 0.7 [32] and according to the results of Table 3, the value obtained for all variables is more than 0.7, therefore, it can be said that the reliability is good.

Validity

As mentioned earlier in this study, convergent validity (AVE criteria) has been used to assess the validity and investigated in the following and its results are interpreted and reported.

Convergent validity

Average Variance Extracted (AVE) from the variables is applied to evaluate convergent validity. AVE for each study variable is given in Table 4.

Table 4. Average variance extracted from the variables.

Variable	AVE
Product and banking service quality	0.445
Online information systems quality	0.457
Online customer service quality	0.538
Internet banking service quality	0.817
Customer satisfaction	0.534

Given that the proper value of AVE is 0.4 [33] and according to the results of Table 4, the value obtained for all variables is more than 0.4, therefore, it can be said that the convergent validity is good.

Investigation of the fitness of structural models

R^2 (R Squares)

R^2 is a criterion applied to connect the measurement part and structure part of modeling structural equations and shows the effect of an exogenous variable on an endogenous variable.

The more the value of R^2 related to the endogenous structures of a model, the better the fitness of the model will be. Chin [34] introduced three values: 0.19, 0.33 and 0.67 as the criteria for weak, medium and strong values of R^2. Table (5) indicates R^2 for each endogenous variable of the model.

Table 5. R^2 for each endogenous variable of the model.

Variable	R^2	Result
Internet banking service quality	0.641	Strong
Customer satisfaction	0.472	Medium

According to the values obtained for R^2 for endogenous variables and with respect to three values of the criteria, the fitness of structural model related to internet banking service quality and customer satisfaction is strong and medium, respectively.

Q^2

This criteria introduced by Stone [35]and Geisser [36] determines the predictive power of the model. According to them, models with acceptable fitness for structural part should have the predictive power of indexes related to endogenous structures of the model. On the severity of the predictive power of the model in endogenous structures, Henseler et al [37] determined three values: 0.02, 0.15 and 0.35 indicating the weak, medium and strong predictive power of a structure, respectively for the indicators of the structure. Table 6 shows the values of Q^2 for each endogenous variable of the model.

Table 6. Q^2 criterion.

Variable	Q^2	Result
Internet banking service quality	0.480	Strong
Customer satisfaction	0.213	Medium

According to the values obtained for Q^2 for endogenous variables of internet banking service quality and customer satisfaction equal to 0.480 and 0.213, respectively, the strong and medium capabilities of internet banking service quality and customer satisfaction are confirmed.

Investigation of the fitness of the overall part

Goodness of Fit (GOF)

By this criterion, the researcher can control the fitness of the overall part after evaluating the fitness of the measurement and the structural part of the overall model of the study. GOF was developed by Tenenhaus et al [38] and is calculated according to the following formula:

$$GOF = \sqrt{\overline{communalities} \times \overline{R^2}}$$

Wetzels et al [39] introduced three values: 0.01, 0.25 and 0.36 as weak, medium and strong values, respectively for the overall fitness of the model (GOF).

$$\overline{Communalities} = \frac{0.457+0.5340.+0.445+0.538+0.817}{5} = 58$$

$$GOF = \sqrt{0.558 \times 0.556} = 0.557$$

Given 0.01, 0.25 and 0.36 introduced as weak, medium and strong values for GOF and achieving 0.557, the fitness of the overall model is confirmed as strong.

Testing hypotheses

t significant coefficients (t-values) for each hypothesis

If the value of these numbers is greater than 1.96, it shows the relationship between the structures and thus, confirms the hypotheses at the level of significance of 95%.

Standardized coefficients of the paths of the hypotheses

The standardized coefficients between the dependent and independent variables indicate that the independent variable explains the percentage rate of changes in the dependent variable.

Table 7 gives the results of testing the hypotheses based on the criterion of t significant coefficients and standardized coefficients of the paths.

Table 7. Result of the study hypotheses based on the results of structural models.

Hypotheses	Significant coefficients	Coefficients of routs	Result of the test
Online customer service quality has a positive and significant relationship with internet banking service quality.	2.489	0.363	Accept
Online information system quality has a positive and significant relationship with internet banking service quality.	1.728	0.182	Reject
Product quality and banking services has a positive and significant relationship with internet banking service quality.	3.489	0.346	Accept
Internet banking service quality has a positive and significant relationship with customer satisfaction.	17.520	0.687	Accept

3. DISCUSSION AND CONCLUSION

Through confirming the hypothesis of the relationship between online customer service quality and internet banking service quality, it can be concluded that the existence of information on the valuable website for customers, ease of access to information, the visual attractions of website, solving customers' problems for using the internet banking services, educating customers to use the internet banking service, increasing the speed in the provision of online services, recognizing customers' needs for using internet banking services, etc. can create value for customers and improve customers' perceptions of internet banking services quality. The results obtained in this part are consistent with the results of studies by Rod et al [28] who believe that there is a relationship between online customer service quality and internet banking service quality. Also, the results from this hypothesis are in line with the results of the study by

Minijoon and Shaohan [40] who argues that factors such as ease of use of the system, attractiveness of systems and notification about the provided services are effective on internet banking service quality.

By confirming the hypothesis of the relationship between products and banking services quality and internet banking service quality, it is implied that providing all services required by customers in using internet banking service and offering services with their considered features, as well as, freely offering a full package of online services can lead to increase the internet banking service quality from the perspective of customers and thereby, enhance the level of their satisfaction. The results of this part are consistent with the results from studies by Rod et al [28] who believe that there is a relationship between online customer service quality and product and banking services quality with internet banking service quality.

On the other hand, by the confirmation of the hypothesis of the relationship between internet banking service quality with customer satisfaction, it is revealed that customer's perception of internet banking services quality from features such as the security of transactions, easy access to information on the website, the visual attractions of website, the speed in the provision of online banking services, providing all services required by customers for using internet banking services and offering services with their considered features, updating website information and features can increase the level of satisfaction from internet banking services and overall satisfaction with the bank set. The results of this hypothesis is in line with the result obtained from the study by Rod et al [28] in which there is a relationship between internet banking services quality and customer satisfaction. Also, the results of the study by Yoon [41] in which factors such as ease of use, design, speed, security, content of information and customer support services in connection with service quality are related to customer satisfaction are consistent with the results of the present study. The results of the study by Ariff et al [42] confirm those of the current study too.

In the results of their study, Ariff et al asserted that confidence, ease of use, effectiveness of the system, maintaining the privacy, accountability to connection and delicacy of website form the electronic service quality so that delicacy of website, ease of use, effectiveness of the system and accountability to connection has a positive impact on e-satisfaction in internet banking.

4. RECOMMENDATIONS

✓ It is recommended that many online services be offered free in the bank's website.

✓ It is recommended that the website design be in a way that the possibility of using internet banking services will be more easily through surfing the bank's website.

✓ It is recommended that proper tractions be focused on in bank's website.

✓ It is recommended that information on bank's website be reviewed so as to ensure the accuracy of all information.

✓ It is recommended that serious actions be taken to increase the security of transactions in bank's website.

✓ It is recommended that the information on the bank's website be constantly updated.

✓ It is recommended that the bank's website in terms of visual attractions be improved.

✓ It is recommended that equipment be provided so that customers can remove their problems in the field of using internet banking service with high speed and quality.

✓ It is recommended that the abilities of employees for helping customers and solving their problems during the use of the internet banking services be increased by holding training sessions.

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