






# “Relationship between e-banking service quality based on the e-SERVQUAL model and customer satisfaction: a study in a Peruvian bank”

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# RELATIONSHIP BETWEEN E-BANKING SERVICE QUALITY BASED ON THE E-SERVQUAL MODEL AND CUSTOMER SATISFACTION: A STUDY IN A PERUVIAN BANK

## Abstract

The modernization of banking is a challenge brought about by significant technological advances in information technology. This situation should be followed by high-quality products, prompt service, and the use of digital tools to assist consumers in their financial operations. The purpose of this study is to ascertain the connection between customer satisfaction in the Peruvian financial industry and service quality in electronic banking. A questionnaire with 24 items was given to 346 participants as part of a quantitative, correlational, cross-sectional, and non-experimental methodology. Data were processed using the SPSS program and descriptive and correlational statistics (Spearman's coefficient). The results indicate that 45.1% of respondents do not think digital banking is simple to use, 60.1% disagree with accessibility, and 63.9% do not think the website's organization is attractive. Nevertheless, these findings can be used to inform changes that will benefit users and serve as a warning for institutions to make better decisions. The hypothesis test indicates that there is a positive and significant correlation between the e-banking service quality variables and customer satisfaction, leading to the conclusion that the majority of customers are not satisfied with the e-banking service of the financial institution under study.

## Keywords

customer satisfaction, personal needs, ease of use,  
website organization, efficiency

## JEL Classification

G21, L81, L86

## INTRODUCTION

Financial sector businesses have had to invest in digital tools to update electronic banking as a result of how the technological revolution has changed the way people get goods and services (Salazar et al., 2022). Traditional banking has been replaced by electronic banking, a digital innovation that allows customers to access it more quickly and easily from anywhere at a cheaper cost (Jiménez, 2019).

Customers are increasingly using electronic banking in recent years to conduct a variety of financial operations at anytime and anywhere without time or place restrictions (Hammoud et al., 2018). Additionally, Llanes and Pino (2020) point out that, as of 2014, the use of the electronic banking service and the acceptance of customers have become a fundamental tool for both the banking industry and the client, since it allows for better economic profitability and a competitive advantage. The implementation of digital banking, according to Arcand et al. (2017), has made it possible to lower waiting times and ensure that the majority of the population has access to banking services.

Hernández (2017) suggests that technical advancements and the expansion of the financial system in Peru go hand in hand. The major driver of this expansion is the consumer, whose demands have increased, and these alternative channels make banking more effective. In a similar vein, Mamadiyarov (2021) notes that with the introduction of Covid-2019, electronic banking has grown to be one of the platforms that clients in banking companies use the most; as a result, 52.2% of transactions were completed through this method. Unfortunately, more than 21,116 complaints have been made against the financial banking industry since the start of the sanitary disaster, with the majority of them relating to the caliber of service (Gómez et al., 2022).

## 1. LITERATURE REVIEW

The definition of e-service quality, which includes e-banking service quality specifically, is the consumers' overall evaluation and judgment of the excellence and quality of e-service offers in the virtual marketplace (Mirghafoori et al., 2018; Lee et al., 2016; Pooya et al., 2020; Olnes & Jansen, 2015; Ltifi, 2018; Mustafa et al., 2022).

There are many theories that address service quality, but the one that best fits the current investigation is the theory of expectancy disconfirmation, which was studied by Parasuraman and Gronroos in 1985 and 1982, respectively, and Raza et al. (2020). According to Rahi and Abd Ghani (2018), the service quality model, also known as the electronic service quality model, is used in many studies and is crucial for defining customer experiences in an interactive virtual environment in addition to being used to gauge a company's success rate. Continuing with Raza et al. (2020), they state that an online service's quality can be measured by how well it makes transactions and the provision of products and services simpler. The study uses the modified e-SERVQUAL model of e-service quality developed by Raza et al. (2020), which identifies four factors that are crucial for assessing e-service quality in the banking industry: individual needs, organizational website, usability, and efficiency.

Rahi and Abd Ghani (2018) define this dimension as the perspective and functional management of the website that visitors will visit, as stated on the website of the organization (SO). Mahadin et al. (2020) refer to this dimension of ease of use (FAUS) as the viability of a bank in order for consumers to use virtual banking with feasibility and in a clear and simple manner. Regarding personal needs (NEPE), Raza et al. (2020) contend that

there are several types of crucial human needs that also stand out in Maslow's hierarchy. Security, belonging, and preference needs are a few demands that may influence how digital banking is perceived. According to Rajaobelina et al. (2019), efficiency (EFI) is an indicator that enables a bank to see the accomplishment of a transaction when it is carried out. As a result, it will be correlated to the highest number of transactions done within a time frame chosen by the financial institution.

The new e-SERVQUAL model, which includes the two variables of responsibility as expressed in responsiveness and reliability, was presented based on the SERVQUAL dimensions. According to Raza et al. (2020), responsiveness-oriented responsibility (RES) is one of the most crucial criteria for assessing service quality in the banking industry. Accountability, according to Ali and Ratwani (2017), can keep users interested, and prompt response times can raise user satisfaction and foster loyalty. Contrarily, Apornak (2017) defines the reliability dimension (CONF) as a component of a study devoted to the examination and assessment of the information system by IT experts both inside and outside the financial sector.

Customer satisfaction (SC) is concerned according to their varying effects on customer satisfaction. Kano et al. (1984) advocated classifying product features into five classes, including the fundamentals (should be), performance (one-dimensional), excitation (attractiveness), causes of regression, and indifference. This theory was applied in Albayrak's (2019) research, which aims to present an asymmetry impact competition analysis (AICA) to address the problem of rivals' incomplete knowledge. The availability of electronic banking services and their usability are also related to high customer satisfaction and customer retention, according to Liébana-Cabanillas et

al. (2016), Belás et al. (2016), Isibor et al. (2018), AlHaliq and AlMuhirat (2016), Zyberi and Luzo (2022), and Salih and Al Ali Khan (2021).

There are numerous studies on customer satisfaction with banking services. According to Luna-Altamirano et al. (2020), the management of electronic banking in Ecuador has improved the suitability of user needs while lowering expenses. According to Ordóez-Granda et al. (2020), the quality of service provided by Ecuadorian banks is constantly changing. Despite the fact that digitization has not spread equally across the banking industry, there are still face-to-face banking organizations that receive complaints from customers about poor time management during the course of care.

According to Ordóez-Granda et al. (2020), Peru has prioritized streamlining service procedures to cut down on wait times. This has included the conversion of numerous banking services to digital banking. However, Luna-Altamirano et al. (2020) point out that there is a lack of information on how to manage digital banking, leading to clients' uncertainty and dread. According to Castañeda et al. (2020), one of the elements that create competitive advantages in the industry is the caliber of banking services. Therefore, it is critical to develop solutions that enable the guarantee of a quality service that satisfies customer needs. According to Ramírez-Asís et al.'s research from Peru, which was published in 2020, the customer satisfaction variable has both cognitive and emotive components that are dependent on the expectations of a good or service. Customer loyalty can be acquired by a successful deployment of a system that was created to be user-friendly.

According to Ali and Raza (2018), the strength of the user's relationship with the financial institution will depend on its ability to provide flexible financial services tailored to the user's needs. Due to the increasingly competitive nature of the market, banking institutions are now required to take user problems into account when developing new technologies for their products. To do this, electronic channels must be constantly monitored, taking into account any elements that might compromise the proper use of the product, such as availability, loading speed, and cyber security (Bacinello et al., 2017).

According to Jovović et al. (2017), who conducted research on the renewal of the electronic banking platform in a banking entity, a staged procedure that took into account user needs research, costs, design considerations, and performance testing was required for the electronic implementation. Consumers' willingness to utilize electronic banking as a result of this process led to an increase in the visualization of banking, indicating that users value innovation, renewal, and investment in electronic banking.

The literature review demonstrates the value of researching customer satisfaction in order to develop solutions that are specifically catered to their requirements. With the modernization of the financial system, e-banking satisfaction is also taken into consideration. There are very few descriptive studies that make the association between these factors, despite the fact that financial organizations have developed research that provide independently the quality of electronic banking service and client satisfaction.

This study uses the e-Servqual approach to investigate the relationship between customer satisfaction and the quality of an electronic banking service provided by a Peruvian financial institution. The following is a breakdown of the study's hypotheses:

- H1: *Ease of use is significantly related to financial institution customer satisfaction.*
- H2: *Efficiency is significantly related to financial institution customer satisfaction.*
- H3: *Personal needs are significantly related to financial institution customer satisfaction.*
- H4: *The organizational website is significantly related to financial institution customer satisfaction.*

## 2. METHODOLOGY AND DATA

The methodology used in this study is quantitative, correlational, and experimental. However, the analysis is not an experiment. It was applied

to the population of current, over-21-year-old consumers of a financial institution in Peru in the year 2020. With a total of 346 clients utilizing the finite formula, the sample was probabilistic.

The survey was the method employed. The instrument had 24 items; 12 of them are related to the quality of e-banking services, and 9 of them are related to customer satisfaction; the options were on a Likert scale. A series of questions based on the E-SERVQUAL model were included in the questionnaire that was used in a recent scientific study by Raza et al. (2020).

The Statistical Program for the Social Sciences was used to process the data (SPSS). Additionally, technical tools such as cell phones, laptops, and agendas were employed.

As a non-experimental study, the information gathered through the survey is held in strict confidence to ensure that the respondents' personal information is not disclosed.

**Table 1.** Reliability of the research instrument

Variable	No. items	Cronbach's Alpha
Quality of electronic banking service	12	0.803
Customer satisfaction	9	0.873

The Cronbach's Alpha coefficient shows that the level of dependability is good in light of the results shown in Table 1.

A demographic breakdown of the 346 respondents from the Peruvian banking institution is shown in Table 2 along with their individual characteristics.

**Table 2.** Demographic analysis

Demography	Characteristics	Frequency	Percentage (%)
Gender	Men	138	39.9
	Women	208	60.1
Experience in the use of banking	From 1 to 3 Years	56	16.2
	More than 3 Years	183	52.9
	Less than 1 Year	83	24.0
	Never Used	24	6.9
Frequency of use of Internet banking	Annual	25	7.2
	Daily	111	32.1
	Monthly	92	26.6
	Weekly	118	34.1

First, the respondents' gender was taken into account; 60.1% of them were women and 39.9% were men. The experience with using electronic banking was also examined; 6.9% of clients have never used it, while 24.0% claim to have used it for less than a year. Of the clients, 52.9% have used it for more than three years. Finally, the majority of clients, 34.1%, use Internet banking weekly and 32%, daily, according to a question about how long they have been using it.

### 3. RESULTS

The following is a description of descriptive analysis, which examines the replies in relation to the items, and a correlational analysis, which includes a hypothesis test.

#### 3.1. Descriptive analysis

The following results about the electronic banking service and customer satisfaction stand out in Table 3's presentation of the dimensions with responses to the 21 items: In contrast, 44.2% of respondents totally agree that the service is dependable, and 53.2% totally agree that the information is responsive. However, 45.1% of respondents disagree with the ease of use, 60.1% disagree with accessibility, 61.3% disagree that it meets their personal needs, and 63.9% disagree with the organization of the web page.

The hypothesis test to be used is determined by the Kolmogorov-Smirnov parametric statistical test, which enables us to see the normality (correlation assumption) of the variables. When the presumption of normalcy is violated, Spearman's analysis



**Table 3.** Descriptive analysis of variables

Dimensions	Indicators	Items	1	2	3	4	5
			Totally agree	Disagreeing	Neither agree nor disagree	Agree	Totally agree
Efficiency	Facility	1	–	45.1	22.8	2.6	29.5
	Accessibility	2	–	60.1	13.0	1.4	25.4
	Rapidity	3	–	57.8	10.7	3.8	27.7
Personal needs	Safety	1	5.8	58.1	18.8	2.0	15.3
	Satisfaction	2	–	61.3	20.2	4.6	13.9
	Needs	3	–	62.1	17.3	4.3	16.2
Reliability	Error-free	1	–	39.0	38.4	15.6	6.9
	Safety	2	–	47.4	37.6	4.3	10.7
	Correct service	3	–	44.5	11.3	–	44.2
	Provide	4	–	48.3	11.3	–	40.5
	Facility	5	–	68.5	9.0	2.3	20.2
Organization of the website	Attractive	1	–	63.9	16.8	–	19.4
	Organization	2	–	59.5	21.1	3.2	16.2
Ease of use	Navigation	1	–	55.5	17.3	4.6	22.5
	Update	2	–	62.4	16.2	–	21.4
	Freeze	3	–	55.5	17.3	4.6	22.5
	Recommendation	4	–	61.0	15.6	3.5	19.9
Responsiveness	Rapidity	1	–	56.4	22.8	1.4	19.4
	Requirements	2	–	46.5	40.8	8.1	4.6
	Information	3	–	30.1	14.5	2.3	53.2
	Services	4	–	61.3	23.7	2.3	12.7

is used; when it is upheld, Pearson's test is used. In the case of the variables, it can be seen that the values of ( $p = 0.000 = 0.05$ ) in both variables do not adhere to the normality assumption. As a result, Spearman's Rho Coefficient is used in a non-parametric analysis to determine the statistical significance of the relationship between the variables.

### 3.2. Correlational analysis

Hernández and Mendoza (2018) note that there are two components: direction (positive and negative) and magnitude.

Spearman's correlation coefficient between the quality of e-banking service and customer satisfaction shows that there is a significant moderate relationship ( $p < .001$ ) ( $r = .620$ ) of a positive trend.

Table 6 shows that there is a significant relationship ( $p < .001$ ) of a positive trend between ease of

use and customer satisfaction. On the other hand, it can be seen that there is a significant relationship ( $p < 0.001$ ) moderate ( $r = .570$ ) of a positive trend between efficiency and customer satisfaction. In addition, it is observed that there is a significant relationship ( $p < .001$ ) moderate ( $r = .631$ ) of a positive trend between personal needs and customer satisfaction, and finally it is appreciated that there is a significant relationship ( $p < .001$ ) moderate ( $r = .371$ ) of a positive trend between website organization and customer satisfaction.

### 3.3. Discussion and implications

All of the hypotheses are supported by the findings from the previous paragraphs, which are substantial and match with the study by Raza et al. (2020), who investigated the impact of service quality on e-customer satisfaction and loyalty in Pakistan and found significant connections.

**Table 4.** Kolmogorov-Smirnov parametric statistics test

Study variables	Statistical	GI	Itself
Quality of e-banking service	0.172	346	0.000
Customer satisfaction	0.107	346	0.000

Note: \* This is a lower limit of true significance. Lilliefors significance correction.

**Table 5.** Correlation coefficient and significance level between e-banking service quality variables and customer satisfaction

Variables		Quality of service	Customer satisfaction
Rho de Spearman	E-Banking Quality of Service	Correlation coefficient	1.000
		Sig. (bilateral)	–
		N	346
	Customer satisfaction	Correlation coefficient	0.620**
		Sig. (bilateral)	0.000
		N	346

Note: \*\* The correlation is significant at the level of 0.01 (bilateral).

**Table 6.** Correlation coefficient using Spearman's Rho on e-banking service quality dimensions and customer satisfaction

Variables' dimensions	Quality of e-banking service		Customer satisfaction	
	Rho de Spearman	Itself	Rho de Spearman	Itself
Ease of use	0.868	0.000	0.868	0.000
Efficiency	0.507	0.000	0.507	0.000
Needs Personal	0.631	0.000	0.631	0.000
Organization of the website	0.371	0.000	0.371	0.000

The relationship between ease of use and e-customer satisfaction, represented as *H1*, is significant ( $p .001$ ), strong ( $r = .868$ ) and positively trending. This finding is in line with Mahadin et al. (2020), who found that consumers are more likely to be satisfied with a user-friendly tourism website.

The results of Hammoud et al. (2018), who state that website efficiency is the key to measuring the quality of internet banking service in the Lebanese banking sector, are consistent with *H2*'s findings that there is a significant ( $p .001$ ) moderate ( $r = .570$ ) positive trend relationship between efficiency and customer satisfaction.

The null hypothesis is rejected, and it is concluded that personal service needs are significantly related to customer satisfaction of a Peruvian financial institution. This is consistent with research by Oskooii and Albonaiemi (2017), who obtained similar results by incorporating in their study, which found a significant ( $p .001$ ) moderate ( $r = .631$ ) positive trend relationship between personal needs and customer satisfaction.

Finally, *H4* shows that there is a significant ( $p .001$ ) moderate ( $r = .371$ ) positive trend association between website organization and customer satisfaction, rejecting the null hypothesis and indicating that there is a substantial connection between the

two factors. This is in line with the findings of Lee et al. (2016)'s study, which used the brand triangle theory to expand the analysis of e-service quality and better understand how that quality affects both brand relationship and brand equity. Their findings demonstrate that transaction quality and interactive quality, due to effective website organization, positively affect brand relationship quality.

The correlation of the same factors under study has been confirmed by other significant studies. Cardenas (2019) concludes that there is a strong positive association between the quality of internet services and consumer satisfaction in his scientific investigation on the topic. In addition, the author makes reference to the need for quick responses to any user complaints given that other businesses currently provide the same services and are utilizing cutting-edge technology to improve their offerings and increase consumer satisfaction.

However, Aranda et al. (2020), in their scientific study "Service quality and customer satisfaction in private banking" at the University of Huánuco, Peru, determined that reliability is a very important factor in achieving a positive impact on customers, since loyalty and a lasting relationship with users depend on it, complying with and ensuring

Additionally, Khaton et al. (2020), in their scientific study conducted in a Qatari financial entity,

draw a favorable comparison between the variable of customer satisfaction and the quality of electronic banking. The authors note that since it enables users to conduct banking operations more cheaply, the caliber of electronic banking services has evolved into a crucial instrument for users.

Asiyanbi and Ishola (2018) draw the conclusion that the study variables are associated in their scientific study, "Impact of electronic banking services and customer satisfaction in selected bank branches in the city of Ibadan, Oyo State, Nigeria." Additionally, it states that clients find the website's layout to be quite beautiful when visiting to conduct their business, demonstrating how pleased customers are with the use of internet banking.

By showing the academic community how e-banking can determine consumer satisfaction, this study adds to the body of e-banking literature. The E-SERVQUAL model also offers a fresh meth-

od for measuring variables. This methodology will help firms become more competitive and is ideal for evaluating goods and services that incorporate technological components.

A disadvantage was the lack of baseline data on the quality of electronic banking in Peru, which made it challenging to do national comparisons. In addition, the Covid-19 pandemic hampered the use of other approaches for gathering data.

The instrument employed in this study will be utilized as a guide by financial institutions to help them identify their areas of weakness and create plans to increase customer satisfaction and make them competitive in the market. On a societal level, this study will be used as a bibliographic resource for the academic community, academics interested in learning more about the factors covered, and banking professionals looking to enhance their online services.

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## CONCLUSION

By analyzing the results, it was discovered that the two research variables have a significant, moderately favorable trend association. The specific objectives also showed a significant relationship. As a result, it can be said that customer satisfaction and the use of electronic banking are related. Based on their interactions with electronic banking, the clients of the financial institution under investigation form their perceptions.

However, the descriptive study reveals a significant level of consumer discontent, which may be attributed, among other things, to the fact that electronic banking is difficult to use, difficult to access quickly, and poorly organized on its website. Positive observations include the service's dependability and the information's accessibility.

The banking business can concentrate on what most satisfies clients by understanding the relative relevance of the service quality characteristics (individual demands, simplicity of use, website organization, and efficiency).

## AUTHOR CONTRIBUTIONS

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